The Meteoritical Bulletin, No. 100, 2014 June

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Abstract− Meteoritical Bulletin 100 contains 1943 meteorites including 8 falls (Boumdeid (2011), Huaxi, Košice, Silistra, Sołtmany, Sutter's Mill, Thika, Tissint), with 1575 Ordinary chondrites, 139 Carbonaceous chondrites, 96 HED achondrites, 25 Ureilites, 18 Primitive achondrites, 17 Iron meteorites, 15 Enstatite chondrites, 11 Lunar meteorites, 10 Mesosiderites, 10 Ungrouped achondrites, 8 Pallasites, 8 Martian meteorites, 6 Rumuruti chondrites, 3 Enstatite achondrites, and 2 Angrites, and with 937 from Antarctica, 592 from Africa, 230 from Asia, 95 from South America, 44 from North America, 36 from Oceania, 6 from Europe, and 1 from an unknown location. This will be the last Bulletin published in the current format. Information about approved meteorites can be obtained from the Meteoritical Bulletin Database (MBD) available on line at http://www.lpi.usra.edu/meteor/ .

Acfer 394 27°31.12'N, 3°52.82'E
Tamanghasset, Algeria
Found: Oct 2001
Classification: Carbonaceous chondrite (CR2)
Petrography: Chondrules to 3 mm. Coarse metal grains in the matrix and decorating chondrule surfaces. Metal grains to 500 µm. Likely paired with Acfer 395, 396, and 397. Other CR chondrites from Acfer have been found in the same area and may also be paired with these samples.

Acfer 395 27°30.55'N, 3°53.26'E
Tamanghasset, Algeria
Found: Oct 2001
Classification: Carbonaceous chondrite (CR2)
Petrography: Section contains porphyritic and barred olivine chondrules with an average size of 850 µm. There are large metal nodules to 950 µm and smaller metal grains decorating chondrule surfaces. There is minor sulfide. Likely paired with Acfer 394, 396, and 397. Other CR chondrites from Acfer have been found in the same area and may also be paired with these samples.

Acfer 396 27°30.72'N, 3°53.87'E
Tamanghasset, Algeria
Found: Oct 2001
Classification: Carbonaceous chondrite (CR2)
Petrography: Average chondrule size of 900 µm. There are coarse metal grains in matrix and decorating chondrule surfaces. The metal grains are up to 1000 µm. Likely paired with Acfer 394, 395, and 397. Other CR chondrites from Acfer have been found in the same area and may also be paired with these samples.

Acfer 397 27°30.54'N, 3°53.75'E
Tamanghasset, Algeria
Found: Oct 2001
Classification: Carbonaceous chondrite (CR2)
Petrography: Average chondrules diameter of 900 µm. There are coarse metal grains in matrix and decorating chondrule surfaces. Metal grains to 650 µm. Likely paired with Acfer 394, 395, and 396. Other CR chondrites from Acfer have been found in the same area and may also be paired with these samples.

Acfer 398 27°30.13'N, 3°51.65'E
Tamanghasset, Algeria
Found: Oct 2001
Classification: Carbonaceous chondrite (CR2)
Petrography: Chondrules range from 300-2750 µm in diameter. There are coarse metal grains in the matrix and decorating chondrule surfaces. The metal grains are up to 1000 µm in maximum dimension. Likely paired with Acfer 394-400.

Acfer 399 27°30.16'N, 3°52.35'E
Tamanghasset, Algeria
Found: Oct 2001
Classification: Carbonaceous chondrite (CR2)
Petrography: The average chondrule size is 900 µm in diameter. Contains coarse metal grains in matrix and decorating chondrule surfaces. The metal grains are up to 1000 µm in maximum dimension. Likely paired with Acfer 394-400.

Acfer 400 27°30.05'N, 3°51.97'E
Tamanghasset, Algeria
Found: Oct 2001
Classification: Carbonaceous chondrite (CR2)
Petrography: Chondrules are up to 1.4 mm in diameter. There are coarse metal grains in matrix and decorating chondrule surfaces. The metal grains are up to 750 µm in maximum dimension. Likely paired with Acfer 394-400.

Ackerly 32°35.42'N, 101°46.33'W
Dawson County, Texas, United States
Found: June 1995
Classification: Ordinary chondrite (L5)
History: Mr. Grigg found this sample while he was plowing a cotton field.
Specimens: 291 g, one thick section, and one thin section are on deposit at *TCU*. 225 g sample held at *TxTech*.

Apache Junction 33°27'N, 111°31'W
Arizona, USA
Found: prior to 2005
Classification: Iron meteorite (IIIAB)
History: Purchased by Carleton Moore from the finder in Apache Junction.
Physical characteristics: A single, ellipsoidal (34 × 15 × 12 cm) 25 kg mass reportedly found near the intersection of McKellips Rd. and Ironwood Dr. in the city of Apache Junction, Arizona. The surface of the meteorite exhibits shows minor rusting, and well-developed regmaglypts.
Petrography: (Laurence Garvie, *ASU*) Medium octahedrite (bandwidth 0.85±0.15). Kamacite with a cross-hatched pattern abundant. Taenite and plessite common (visually ~25% by area). Neumann bands weakly developed. A few long thin Reichenbach lamellae on each slice. Individual lamellae can be followed through several slices and together these lamella form a trapezoid - parallel sides are 35 and 15 mm long and height of ~20 mm. Typical lamella is a 100 µm thick plate of chromite (determined by powder XRD). Some lamellae bordered by troilite and irregular masses of attached schreibersite. Schreibersite (to 500 µm) present in the interiors of kamacite bands. Chromite also present as rare, to 1 mm, euhedral grains with schreibersite. Only one troilite nodule (12x8 mm) present; exhibits a discontinuous schreibersite rim and well-developed swathing kamacite. Traces of heat affected zone present.
Geochemistry: Composition as determined by INAA (J.T. Wasson, *UCLA*) - Ni 83.9 mg/g; Co 5.28 mg/g; Cr 18 µg/g; Cu 136 µg/g; Ga 20.1 µg/g; As 8.3 µg/g; Ir 0.192 µg/g; Pt 5.7 µg/g; Au 1.153 µg/g; W 0.53 ng/g, and Re <20 ng/g.
Classification: The meteorite is a member of IIIAB. Its nearest North American relatives are El Capitan (0.12 µg/g Ir) and Asarco Mexicana (0.27 µg/g Ir), but the compositional differences are large enough to make it unlikely that it is paired with either of these or with any other well-characterized IIIAB iron.
Specimens: A total of 1500 g are on deposit at *ASU*.

Assamakka 19°16'N, 5°55'E
Agadez, Niger
Found: 21 Mar 2002
Classification: Iron meteorite (IVA, anomalous)
History: The meteorite was found during a trip through the Sahara close to Assamaka, Niger.
Physical characteristics: One flat slightly parabolic fragment of 4400 g, with flow textures on the surface.
Petrography: The meteorite displays typical Widmannstätten pattern with 0.2-0.4 mm kamacite bandwidths.
Geochemistry: Composition as determined by INAA (C. Koeberl, *UVien*) Ni 8.81 wt%, Co 0.386 wt%, Cr 34.4 ppm, As 6.65 ppm, Ir 1.49 ppm ppm, Au 290 ppb.

Classification: Iron meteorite (IVA-an, fine octahedrite). Overall the composition is consistent with the IVA class of irons except the Au is significantly too low, hence the anomalous designation.
Specimens: A total of 68.1 g at *MNB*. Mr. Josef Geltl, Ostermünchen, Germany holds the main mass.

Benešov (a) 49°46' N, 14°38' E
Stredocesky, Czech Republic
Found: 9 Apr 2011; possibly fell 7 May 1991
Classification: Ordinary chondrite (LL3.5)
History: A -19.5 absolute magnitude fireball was recorded by 3 all-sky and 2 spectral cameras at 3 Czech stations of the European Fireball Network on May 7, 1991, at 23:03:48 UT. Data on atmospheric trajectory, heliocentric orbit, fragmentation history, composition and possible impact location were subsequently determined (Spurny, 1994; Borovicka and Spurny, 1996; Borovicka et al. 1998a; Borovicka et al. 1998b). Despite great efforts no meteorite was found in the weeks and years after the fall. The fireball observations were re-analyzed by P. Spurny in 2011 and a revised impact location was determined. The new impact area was probed using metal detectors and three small meteorites were discovered - two named as Benešov (a) and one named as Benešov (b). The two Benešov (a) fragments were 250 m apart. Benešov (b) was found between them.
Physical characteristics: Weathered fragments lacking fusion crust. The meteorites resemble the terrestrial stones and slag found in the field.
Petrography: (Jakub Haloda, *PCU*) The meteorite is a polymict breccia containing two lithologies with different texture, chemical, and mineralogical compositions. The largest portion is an LL3.5 chondrite. An achondritic clast was also found within the thick section. This clast (4.8 × 2.6 mm) is cemented to the LL3.5 chondrite lithology by an irregular vein of impact melt. Olivine, pyroxene and plagioclase in the LL3.5 lithology show weak shock features corresponding to shock stage S3. The achondritic clast shows features corresponding to stage S4 (olivine mosaicism, plagioclase is partly isotropic).
Geochemistry: LL3.5: The chondrules and matrix are unequilibrated. Chondrules (0.2-1.9 mm) consist mostly of olivine (Fa_{6-32}), low-Ca pyroxene ($Fs_{1-37}Wo_{0.7-3}$) and alkali-bearing glass exhibiting a wide range of chemical compositions. The chondrule olivine contains on average 0.08 wt% Cr_2O_3. Type I chondrules contain 0.17 to 1.1 wt% CaO and Type II 0.04 to 1.1 wt%. Fine-grained matrix contains olivine (Fa_{21-40}), low-Ca pyroxene (Fs_{1-32} $Wo_{0.7-3.5}$), predominately weathered alkalic glass, Fe-Ni phases and troilite. The achondritic lithology is composed predominantly of olivine (Fo_{90-69}) and low-Ca pyroxene ($En_{79-65}Wo_{1.2-4.8}$). Anorthitic plagioclase ($An_{86-82}Ab_{18-14}$) and high-Ca pyroxene ($En_{56-48}Wo_{43-32}$) are also present.
Classification: Polymict breccia, LL3.5 with achondritic clast.
Specimens: 7.72 g (LL3.5 with achondritic clast), 1.99 g (LL3.5), both at *CzAS*

Benešov (b) 49°46'N, 14°38'E
Stredocesky, Czech Republic
Found: 9 Apr 2011; possibly fell 7 May 1991
Classification: Ordinary chondrite (H5)
History: A small stone found along with Benešov (a) in the predicted impact area for the bright fireball recorded on May 7, 1991 (described in detail for Benešov (a)).
Physical characteristics: One specimen with a total mass 1.54 g. Highly weathered, irregular in form and lacking fusion crust. When recovered, it was indistinguishable from terrestrial stones and slag found in the field.
Petrography: (Jakub Haloda, *PCU*) Chondrules indistinct showing significant recrystallization. Weathering grade W3. Shock features consistent with S3.
Geochemistry: Minerals exhibit equilibrated chemical compositions. Olivine $Fa_{17.8-20.2}$, with an average value of $Fa_{19.1}$, (n=42); low-Ca pyroxene $Fs_{15.7-18.7}Wo_{0.7-1.5}$, with average of $Fs_{17.1}$; Plagioclase (Ab_{77-86}, An_{12-19}, grain size 6-40 μm) is usually associated with high-Ca pyroxene ($Fs_{6.2-9}Wo_{44.2-46.5}$).
Classification: H5
Specimens: Specimen: 1.54 g, *CzAS*

Bernic Lake 50°26.307'N, 95°31.762'W
Manitoba, Canada
Found: October 2002
Classification: Iron meteorite (IAB-MG)
History: In October 2002, the discovery of two irregularly shaped meteorite fragments weighing 5.5 and 4.3 kg was reported to the Prairie Meteorite Search (run by the Universities of Calgary, Western Ontario and Regina) by Derek Erstelle from Winnipeg, Manitoba. The discovery site is east of Lac du Bonnet, 3.6 km from the junction with Highway 315 along the Tanco Mine Road. Bernic Lake, the site of the Tanco Mine, is the nearest geographical feature and is the source of the name. The two fragments were found in a sandy area within 5 m of each other.
Physical characteristics: The two specimens are heavily weathered to reddish-brown oxides that penetrate along fractures into the interior
Petrography: (S. Kissin, *LHU*) Etched sections show average bandwidth of 4.3 ± 1.3 mm (n=19). Kamacite lamellae are stubby and irregular, and contain abundant Neumann lines. Taenite is limited to minute lamellae and blebs. Schreibersite is present as sparse Brezina lamellae and rhabdites.
Geochemistry: (S. Kissin, *LHU*): Ni = 65, Co = 4.3 (both mg/g); Cu = 130, Ga = 83, Ge = 353, As = 11.3, Ir = 3.32, Pt = 6.5, and Au = 1.4 (all in μg/g) obtained by INAA (Actlabs)
Classification: Iron meteorite, IAB-MG, coarsest octahedrite (S. Kissin, *LHU*)
Specimens: Two main masses, 5086 g and 4076 g, were acquired by the *ROM*. A 444 g slice was removed from the larger mass and transferred to *UAb*.

Biduna Blowhole 002 31°01'58.7"S, 131°17'07.7"E
South Australia, Australia
Found: 06 Apr 2011
Classification: Ordinary chondrite (L4)
History: Single piece found by A. Tomkins on the Nullarbor Plain.
Physical characteristics: A well-rounded, dark-brown stone with ~60% remnant fusion crust and a single broken face.
Petrography: (E. Mare, *Monash*) Sample shows well-defined chondrules (0.5 to 2mm in diameter) and recrystallized matrix. Chondrule types include RP, POP, PP, BO and PO. Fe-Ni metal grains (5%) are 100 μm on average and unevenly distributed. Troilite grains (4%) to 200 μm. Metal and troilite have been partly replaced by oxides, however only to a limited extent, with ~3% oxides in this meteorite. Olivine grains show weak undulose extinction
Geochemistry: (E. Mare, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{25.0-25.4}$, mean=25.22 mol%, std=0.21, n=4; Low-Ca pyroxene $Fs_{21.5-21.9}$, mean=21.67 mol%, std=0.19, n=4.
Classification: Ordinary chondrite (L4, S2, W2)

Biduna Blowhole 003 31°01’10.7"S, 131°18’14.2"E
South Australia, Australia
Found: 6 Apr 2011
Classification: Ordinary chondrite (L6)
History: Single piece found by A. Tomkins on the Nullarbor Plain.
Physical characteristics: Small stone with 100% dark brown fusion crust.
Petrography: (E. Mare, *Monash*) Stone shows few recognizable chondrules - it is mostly recrystallized matrix. Chondrule types include POP and RP. Fe-Ni metal grains (3-5%) to 500 µm. Troilite grains (3%) to 300 µm. There is only minor oxidation of metal and troilite, with 1% oxides in this meteorite. Olivine grains show undulose extinction, shock fractures, and mosaicism.
Geochemistry: (E. Mare, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{24.6\text{-}26.5}$, mean=25.4 mol%, std=0.83, n=4; Low-Ca pyroxene $Fs_{21.4\text{-}22.4}$, mean=21.73 mol%, std=0.43, n=5.
Classification: Ordinary chondrite (L6, S4, W1)

Binneringie 31°29’15"S, 122°7’26"E
Western Australia, Australia
Found: circa 1946
Classification: Ordinary chondrite (H5)
History: A single mass of 9.056 kg was recovered by an unknown finder while he was cutting sandalwood. Later it was recognized as a meteorite and came into the possession of P. Simmonds.
Physical characteristics: (A. W. R. Bevan and P. J. Downes, *WAM*): The meteorite is a rounded, weathered mass with some vestige of fusion crust. The interior is heavily iron stained.
Petrography: (A. W. R. Bevan and P. J. Downes, *WAM*): Microscopically, indistinct but recognizable chondrules, including barred olivine and radiating pyroxene types, set in a microcrystalline matrix. Accessory minerals include troilite, kamacite, taenite, and chromite.
Geochemistry: (A. W. R. Bevan and P. Downes, *WAM*): Olivine $Fa_{19.8}$; low-Ca pyroxene $Fs_{17.8}Wo_{1.24}$; chromite Cr# 86, Fe# 84; kamacite Ni=6.65, Co=0.51 (all wt%).
Classification: Ordinary chondrite (H5); S2; W3
Specimens: 8.47 kg in the possession of P. Simmonds; type specimen 176 g and two thin sections, *WAM*.

Bou Azarif 31°9.386’N, 5°9.157’W
Centre-South, Morocco
Found: 9 Dec 2010
Classification: Ordinary chondrite (H5)
History: Many pieces of a weathered meteorite, weighing >100 kg, were found by Hassan Belaid over a six-year period near Bou Azarif (also known as Bou Izarif), Morocco. The find location was also visited by Prof. Hasnaa Chennaoui Aoudjehane, at which time many pieces were recovered after only a few hours of searching.
Petrography: Minerals observed in thin section include olivine, pyroxene, plagioclase, weathered kamacite, taenite (which is less weathered than kamacite), troilite, and phosphates (chlorapatite and merrillite).
Geochemistry: Microprobe analysis (*UPVI*): Olivine $Fa_{18.2}$, pyroxene $Fs_{17.9}Wo_{2.3}$
Classification: Ordinary chondrite H5. The shock grade is S3 and the weathered grade is high W4.

Buck Mountains 004 (BM 004)
34°42.065’N, 114°11.307’W
Arizona, United States
Found: 9 Oct 2005
Classification: Ordinary chondrite (H3-6)
History: This stone is one of 602 pieces totaling 29.5 kg of possibly paired meteorites found by Mr. Dennis Asher and colleagues in an area 60 × 60 m.
Physical characteristics: The stone mainly has broken faces covered by a weathering patina that ranges from light brown to dark brown to black; black-to-brown fusion crust occurs on one side. Cut faces show abundant metal.
Petrography: (A. Ruzicka and M. Hutson, *Cascadia*) The sample is a breccia that includes a variety of distinct and indistinct clasts ranging from type 3 to type 6 chondrite and melt breccia. Shock character is highly variable (S1-S6), but shock stages S4 and S5 are predominant. Weathering is uneven but averages W2.
Geochemistry: Olivine $Fa_{17.7\pm2.4}$, n=66; low-Ca pyroxene $Fs_{12.9\pm5.0}Wo_{1.1\pm0.7}$, n=34.
Classification: Ordinary chondrite (H3-6), genomict breccia that contains some melt breccia.
Specimens: 136.8 g, one thin section, and one butt are on deposit at *Cascadia*.

Buck Mountains 005 (BM 005)
34°42.202’N, 114°11.458’W
Arizona, United States
Found: 2007 Oct 9
Classification: Ordinary chondrite (L6)
History: All pieces were found on the same day in a 1.3 × 1.3 m area by Dennis Asher, who donated one specimen to *Cascadia* on July 7, 2009, and another small fragment on June 14, 2010.
Physical characteristics: The specimens have broken surfaces covered by a weathering patina that varies from light brown to dark brown, and portions with a smooth fusion crust covered by the same patina. The smaller fragment has a distinctive ridge.
Petrography: (A. Ruzicka and M. Hutson, *Cascadia*) Texture dominantly granoblastic. Indistinct chondrules visible. Feldspar grains are commonly >50 µm and sometimes >100 µm across, consistent with petrologic type 6. Somewhat less than 50% of the metal is replaced by weathering products. The ridge in the smaller fragment is the surface expression of a 5-mm-wide glassy vein that has a zoned structure, with a well-defined central core that contains clasts.
Geochemistry: Olivine $Fa_{25.0\pm0.5}$, n=61; low-Ca pyroxene $Fs_{20.7\pm0.6}Wo_{1.6\pm0.2}$, n=6.
Classification: Ordinary chondrite (L6), contains incipient metal veins and one thick glassy vein.
Specimens: 77 g, two polished thin sections, and two butts are on deposit at *Cascadia*. The finder holds the main mass.

Bunker Hill 38°50.9’N, 98°43.43’W
Kansas, USA
Found: 2002 Dec
Classification: Ordinary chondrite (L6)
History: A 28 kg meteorite was found in December 2002 in a pile of rocks at a farm site ~6.4 km south and ~2.4 km west of Bunker Hill, Kansas. The meteorite was described as a three-sided pyramid with a rounded top and flat base. The meteorite was sold at the Tucson Gem and Mineral show in 2006 to an unknown buyer. It appears that the main mass was lost during shipping shortly thereafter. A small piece was removed from the main mass and used for classification. 12 g is held by Stimpson.

Conception Junction 40°16’N, 94°41’W (both ±5')
Missouri, USA

Found: 2006
Classification: Pallasite (Main group, anomalous)
History: A single mass was discovered protruding from a hillside near Conception Junction, Missouri.
Physical characteristics: The exterior of the meteorite is weathered. Much of the interior shows only minor oxidation.
Petrography: Meteorite has a typical main-group pallasite (PMG) structure with roughly equal portions of metal and silicate. The olivine masses are slightly rounded, though a few surfaces show sharply defined angles. Olivines show millimeter-scale fractures. Schreibersite is rare, perhaps 0.5% of the exposed (25 cm^2 surface). Minor FeS.
Geochemistry: Compositional data: Co 6.0 mg/g; Ni 79 mg/g; Ga 24 µg/g; Ge ~80 µg/g; As 29 µg/g; Ir 0.50 µg/g; Au 2.39 µg/g. Data are the mean of duplicate determinations. The composition of the metal differs in detail from other pallasites. For example, the Ir concentration is 0.50 ug/g, with the nearest relative Seymchan at 0.67 µg/g and Barcis at 0.32 µg/g.
Classification: On element-Au diagrams, Conception Junction plots distinctly lower than most PMG on Ni and Cu and above most PMG on Co, Ga, As, and Ir diagrams; it is therefore classified as PMG-anomalous (PMG-an). Its Ni and Cu contents are the lowest known for PMG. Its nearest PMG-an neighbor on most diagrams is Krasnojarsk. The low Ni and high Co could reflect unrepresentative sampling of kamacite and taenite but these are the means of two replicates.
Specimens: 113.58 g type specimen, *UCLA*. Main mass, Karl Aston, Dave Gheesling and Robert Ward
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Cook 012 30°54'49.6"S, 130°54'13.9"E
South Australia, Australia
Found: 17 Apr 2010
Classification: Ordinary chondrite (H4)
History: Single piece found by A. Tomkins on the surface of the Nullarbor Plain.
Physical characteristics: Two broken surfaces, ~40% smooth surface with fusion crust.
Petrography: (A. Tomkins, *Monash*) Well defined chondrules to 1 mm, sit in a weakly recrystallized matrix. Plagioclase <5 µm in matrix. Chondrule types include RP, POP, PP, BO and PO. Most olivine grains show sharp extinction, although some grains have undulose extinction and/or planar deformation fractures. Approximately 90% of Fe-Ni metal grains are destroyed by weathering. Troilite is also weathered, but is better preserved.
Geochemistry: (A. Tomkins, *Monash*) Microprobe analyses show that olivine compositions are uniform, whereas pyroxene compositions are moderately variable: olivine $Fa_{17.5\text{-}18.4}$, mean=17.91 mol%, std=0.38, n=4; Low-Ca pyroxene $Fs_{15.5\text{-}17.6}$, mean=16.38 mol%, std=0.77, n=5.
Classification: Ordinary chondrite (H4, S2, W3)

Cook 013 30°56'51.9"S, 130°54'30.9"E
South Australia, Australia
Found: 17 Apr 2010
Classification: Ordinary chondrite (H6)
History: Single piece found by K. Bell on the Nullarbor Plain.
Physical characteristics: Heavily weathered, no fusion crust.
Petrography: (A. Tomkins, *Monash*) Poorly defined chondrules to 1.5mm , sit in a strongly recrystallized matrix. Some plagioclase grains >100 µm. Chondrule types include RP, POP, PP, BO and PO. The sample is nonporous and has domains of significant shock blackening. Fe-Ni metal grains look to have been abundant, but have been largely removed (80-90%) by rusting. Abundant troilite has been mildly weathered. Melt patches are abundant (spherical globules of troilite in silicate), and troilite-filled fracture networks are common in some domains. Olivine grains show mosaicism and shock lamellae. Plagioclase has been converted to maskelynite.
Geochemistry: (A. Tomkins, *Monash*) Microprobe analyses show that olivine compositions are uniform, whereas pyroxene compositions are moderately variable: olivine $Fa_{18.7\text{-}19.6}$, mean=19.11 mol%, std=0.47, n=7; Low-Ca pyroxene $Fs_{16.8\text{-}20.6}$, mean=17.71 mol%, std=1.36, n=7.
Classification: Ordinary chondrite (H6, S5, W3)

Corn 35°24'18"N, 98°44'56"W
Oklahoma, USA
Found: 1994
Classification: Ordinary chondrite (H5)
History: Found by Mr. Kenton Gossen in 1994, in a pasture 2 miles north and 2 miles east of Corn, Washita Co., Oklahoma. Mr. Gossen took the specimen to Southwest State College and was told it was not a meteorite, but he kept it on the shelf in his office until meeting Ms. Sandra Cloud, a science teacher at Corn Bible Academy. In March 2011, Ms. Cloud brought the meteorite to the Kansas Meteorite Museum and Nature Center in Haviland, where the curator (Dr. Donald Stimpson) identified it as an ordinary chondrite and arranged to purchase it.
Physical characteristics: A single, large brownish stone weighing 5176 g.
Petrography: (A. Irving and S. Kuehner, *UWS*) The specimen is somewhat recrystallized but some chondrules remain. Primary minerals are olivine, orthopyroxene, sodic plagioclase, chromite, troilite and some kamacite (partially altered to iron hydroxides).
Geochemistry: Olivine ($Fa_{17.9\text{-}18.3}$), orthopyroxene ($Fs_{16.0\text{-}16.6}Wo_{1.2}$), clinopyroxene ($Fs_{5.8}Wo_{45.8\text{-}46.1}$).
Classification: Ordinary chondrite (H5, S2, W2).
Specimens: A total of 21 g of sample and one polished thin section are on deposit at *UWS*. The main mass was purchased by *DStimpson* for the Kansas Meteorite Museum.

Dar al Gani 1053 (DaG 1053) 27°14.50'N, 16°13.96'E
Al Jufrah, Libya
Found: 2006
Classification: Carbonaceous chondrite (CV3)
History: Two small stones weighing 98 g were found by Mario Riva.
Physical characteristics: The main mass has no fusion crust. A cut surface on the type specimen shows rather large chondrules and some small white spots.
Petrography: V. Moggi Cecchi, G. Pratesi, S. Caporali, *MSP*. Thin sections show an abundance (40 vol. %) of well-defined chondrules (PO, GO and poikilitic POP) set in a dark brown matrix. Chondrules are typically 350 to 750 (mean 500) µm in diameter. Chondrules contain variable amounts of clear glass. Fe,Ni alloy (mainly tetrataenite with Fe 50.4, Ni 48.4, and Co 1.2 wt.%) and troilite are uncommon (less than 5 vol. %). Rare apatite grains are present. CAIs are visible on the cut surface of the type specimen.
Geochemistry: Olivine in both chondrules and matrix is Fo-rich ($Fo_{97.4\text{-}99.4}$, mean $Fo_{98.5}$). Low-Ca pyroxene is enstatitic with a variable composition ($En_{82.7\text{-}98.5}Fs_{16.5\text{-}0.7}Wo_{1.0}$). An augitic pyroxene with variable composition is also present ($Fs_{1.6\text{-}2.4}En_{62.0\text{-}56.8}Wo_{36.4\text{-}40.8}$, Al_2O_3=3.4-3.5 wt.%); Oxygen isotopes: (I.Franchi, R.Greenwood, *OU*) $\delta^{17}O$ = -4.537, $\delta^{18}O$ = -0.320, $\Delta^{17}O$ = -4.371 per mil.
Classification: Carbonaceous chondrite (CV3); minor weathering

Specimens: A total of 28 g and one thin section are on deposit at *MSP* (MSP 5105). *OAM* holds the main mass.

Dhofar 1514 (Dho 1514) 18° 20' 19"N, 54° 23' 22"E
Zufar, Oman
Found: 2008
Classification: Rumuruti chondrite (R3.6)
Petrography: (A. Irving, *UWS*) Unequilibrated chondrite consisting of distinct and fresh chondrules (mostly PO, granular and BO types) plus sparse autolithic clasts set in a stained matrix of related debris. Mineralogy includes olivine, orthopyroxene, sodic feldspathic glass, Cr-bearing magnetite, ilmenite, chromite, troilite and rare awaruite.

Dhofar 1527 (Dho 1527) 19°23.37'N, 54°28.02'E
Zufar, Oman
Found: Mar 2009
Classification: Lunar meteorite (feldspathic breccia)
History: A complete stone recovered by Jim Labenne in March, 2009.
Petrography: (H. Haack, *NHMD*) Metal-rich clast-laden vitric breccia consisting of glass and fine-grained mineral debris (mostly pyroxenes, olivine, anorthite and metal), melt breccia fragments and polycrystalline igneous clasts. Clast sizes to 3 mm. Mineral clasts include anorthitic plagioclase, low-Ca pyroxene, olivine, kamacitic and troilite. Lithic clasts include rare basalts (composed of plagioclase and pyroxene) and troctolite (composed of plagioclase and olivine). Metal grains are partially oxidized. Some olivine grains are partially to totally altered by weathering. Veinlets filled with alteration products are abundant.
Geochemistry: Olivine (Fa_{20-37}), plagioclase (An_{93-98}), pigeonite ($Fs_{21-29}Wo_{8-11}$), and augite (Fs_{6-8} Wo_{32-36}). Bulk composition: (R. Korotev, *WUSL*): 25% Al_2O_3, 8.0% FeO, 8.2% MgO, 1200 ppm Ni, 1.1 ppm Sm, 89 ppb Ir, 0.5 ppm Th.
Classification: Achondrite (lunar, feldspathic breccia).
Specimens: A total of 8.56 g is deposited at *NHMD*.

Dhofar 1528 (Dho 1528) 18°28.13'N, 54°10.49'E
Zufar, Oman
Found: Jun 2009
Classification: Lunar meteorite (feldspathic breccia)
History: Complete individual recovered by Luc Labenne in June, 2009.
Petrography: (H. Haack, *NHMD*). Clast-laden vitric breccia consisting of fine-grained mineral debris (mostly pyroxenes, olivine and anorthite) and polycrystalline igneous clasts. Clast sizes to 2 mm. Mineral clasts include anorthitic plagioclase, low-Ca pyroxene, olivine, spinel and rare kamacitic, chromite, and troilite. Lithic clasts include rhyolite (composed of K-rich rhyolitic glass with Ca-rich ferrolithic pyroxene microlites) and troctolite (composed of olivine, plagioclase, and Cr-poor spinel). Metal grains are partially oxidized. Many of the olivine grains are partially to totally altered by weathering.
Geochemistry: Olivine (Fa_{8-27}), Plagioclase (An_{95-99}), augite ($Fs_{21-29}Wo_{8-11}$). Bulk composition: (R. Korotev, *WUSL*): 24% Al_2O_3, 6.0% FeO, 9.1% MgO, 265 ppm Ni, 2.2 ppm Sm, 5 ppb Ir, 1.4 ppm Th.
Classification: Achondrite (lunar, feldspathic breccia).
Specimens: A total of 20.0 g is deposited at *NHMD*.

Dhofar 1552 (Dho 1552) 18°45.87'N, 54°19.33'E
Zufar, Oman
Found: 12 Jan 2008
Classification: Ordinary chondrite (L, melt breccia)
Petrography: (A. Irving and S. Kuehner, *UWS*): Regions with sparse chondrules set in a fine grained matrix containing spheroidal grains of altered metal.
Geochemistry: Olivine ($Fa_{24.9-25.1}$), orthopyroxene ($Fs_{20.9-21.1}Wo_{1.5-1.3}$), clinopyroxene ($Fs_{7.5}Wo_{45.0}$), sodic plagioclase, altered kamacite, taenite, troilite.

Dhofar 1594 (Dho 1594) 18°59.37'N, 54°26.05'E
Zufar, Oman
Found: 10 Dec 2004
Classification: Ordinary chondrite (H6-melt breccia)
Petrography: (C. Lorenz, *Vernad*): The meteorite consists of angular and rounded lithic clasts, embedded in black glassy matrix with numerous droplets of troilite and FeNi metal. The size of lithic clasts varies from 0.5 to 4 cm. The clast/matrix ratio is ~0.6. Lithic clasts have fine- to medium-grained granular texture, and consist of olivine, pyroxene and rare feldspar. The texture corresponds to a chondrite of type 6.

Dhofar 1596 (Dho 1596) 18°19.27'N, 54°11.97'E
Zufar, Oman
Found: 15 Apr 2004
Classification: Ordinary chondrite (H5, melt breccia)
Petrography: (C. Lorenz, *Vernad*): The meteorite consists of chondrite fragments embedded in brownish glassy matrix rich in troilite and FeNi metal inclusions. Size of fragments varies from 2 to 4 cm. The clast/matrix ratio is ~0.4. Chondrite fragments are fine- to medium-grained, granular, and consist of rare relic chondrules, indicating type 5.

Dhofar 1624 (Dho 1624) 18°09.815'N, 54°16.525'E
Zufar, Oman
Found: 2009 May 10
Classification: Ordinary chondrite (H, melt rock)
History: One dark brown stone was discovered in the desert about 60 km NNE of Thumrayt.
Physical characteristics: Magnetic susceptibility log χ=5.11 (χ in m^3/kg $x10^{-9}$).
Petrography: (Bartoschewitz, *Bart*) Fine-grained rock with few recognizable chondrules and anhedral pyroxene and olivine in a matrix (<0.03 mm) of polygonal equigranular olivine, pyroxene and plagioclase. Most metal oxidized.
Geochemistry: (Bartoschewitz, *Bart* and P. Appel and B. Mader *Kiel*) Olivine $Fa_{17.4-18.3}$, CaO=0.1 at%, Fe/Mn = 33. Low-Ca pyroxene $Fs_{13.9-15.1}Wo_{3.3-4.9}$; Ca pyroxene $Fs_{8.4-18.8}Wo_{39.6-5.7}$; feldspar $An_{10.7}Or_{4.0.}$
Classification: Chondrite (H melt rock)
Specimens: A total of 20 g of sample is on deposit at *Kiel*. A sample of 51 g and one thin section are on deposit at *Bart*.

Dhofar 1626 (Dho 1626) 18°18.69'N, 54°07.70'E
Zufar, Oman
Found: 2006 Oct 2
Classification: HED achondrite (Eucrite, anomalous)
History: The meteorite was found by anonymous collector in the Dhofar region of Oman in 2006.
Physical characteristics: An 223 g individual, with potato-like shape. Surface of the stone is patchy brown and lacks fusion crust.
Petrography: (C.A. Lorenz, *Vernad*) Unbrecciated, achondritic, with igneous texture. 90 vol% anorthosite. Locally, the anorthosite is grades to gabbro (10 vol%) as a result of increasing abundance of pyroxene and decrease in size of plagioclase crystals. Thickness of transitional zone between anorthosite and gabbro is ~ 5 mm. The

anorthosite has coarse-grained (to 2 cm) texture and consists of feldspar (>99 vol%), with poikilitic and interstitial inclusions of pyroxene. Rare minerals are silica, chromite and troilite. The gabbro has coarse-grained (up to 1 mm) granular texture and consists of pyroxene and feldspar with accessory silica and troilite. Pyroxene has rare exolution lamellae.
Geochemistry: (N.N. Kononkova, *Vernad*, EMP) Anorthosite: feldspar $An_{95}Ab_5$; pyroxene $En_{64}Wo_3$ (Fe/Mn = 26), $En_{44}Wo_{42}$; Gabbro: feldspar $An_{96}Ab_4$; pyroxene $En_{61}Wo_3$ (Fe/Mn = 23), $En_{41}Wo_{43}$. Oxygen isotopic composition (I. Franchi, R. Greenwood, *OU*, laser fluorination, ‰): $\delta^{17}O$ 1.808; $\delta^{18}O$ 3.889; $\Delta^{17}O$ -0.214 per mil.
Classification: Eucrite-anomalous. The mineral chemistry and oxygen isotopic composition suggest that this anorthosite-dominated meteorite is related to the HEDs.
Specimens: A total of 42.4 g sample and one thin polished section are on deposit at *Vernad*. *DMUH* holds the main mass.

Dhofar 1627 (Dho 1627) 19°0.645'N, 54°32.246'E
Zufar, Oman
Found: 2010
Classification: Lunar meteorite (feldspathic breccia)
History: An 86.1g stone was found in the desert.
Physical characteristics: The stone lacks a fusion crust and shows fractures on the surface. The interior is rich in angular or slightly rounded clasts (to 1 cm). Some clasts are dark gray, a few are white, and the matrix is stained red by hematite.
Petrography: (S. Seddio and B. Jolliff, *WUSL*) A polished 18.1 mm by 8.75 mm section reveals rounded or subrounded lithic clasts of very fine grained, glassy matrix impact-melt breccia and poikilitic melt breccia fragments plus mineral clasts, welded together to form a well-consolidated, clast-rich breccia. Lithic clasts range from feldspathic, aphanitic, glassy-matrix breccias to somewhat more mafic granulitic clasts in which poikiloblastic pyroxene encloses plagioclase grains. Such clasts are abundant and typically contain partially resorbed magnesian (~Fo_{75}) olivine grains. Plagioclase mineral clasts and grains in lithic clasts are partially converted to maskelynite and are coarsely fractured where crystalline. Fine feldspathic glass veins transect some clasts. Lithic clasts and mineral grains contain fractures, but fractures tend to be healed and closed at grain boundaries. Some of the larger fractures have been filled with terrestrial calcite, celestite, and Fe-oxide or Fe-oxyhydroxide, especially near Fe-Ni metal grains.
Geochemistry: The most abundant minerals include plagioclase ($An_{87.2\text{-}98.6}Ab_{1.4\text{-}8.9}Or_{<0.1\text{-}4.3}$), low-Ca pyroxene ($En_{64.1\text{-}77.0}Fs_{17.6\text{-}33.3}Wo_{2.6\text{-}11.2}$, Fe/Mn=41-70), high-Ca pyroxene ($En_{34.8\text{-}49.9}Fs_{13.2\text{-}30.5}Wo_{34.7\text{-}38.8}$, Fe/Mn=50-70), and olivine ($Fo_{64.2\text{-}75.9}$, Fe/Mn=76-118). Fe-Ni metal, troilite, merrillite, and poikilitic ilmenite surround crystals of plagioclase and pyroxene. Most Fe-Ni metal grains (up to 1-mm in size) are rimmed by iron oxide/oxyhydroxide. Bulk composition (R. Korotev, *WUSL*): 0.54% Na_2O; 5.8% FeO, 530 ppm Ni, 1000 ppm Sr, 7.8 ppm Sm, 2.7 ppm Th.
Classification: Achondrite (lunar clast-rich melt breccia).
Specimens: 17.2 g is on deposit at *WUSL*. The main mass is held by the anonymous finder.

El Médano 003 24°51'S, 70°32'W
Antofagasta, Chile
Found: 2010 Oct 17
Classification: Ordinary chondrite (H5)
Petrography: The overall texture is clearly equilibrated but the meteorite contains at least two unequilibrated chondrules (with $Fa_{3.4}$ and $Fa_{31.3}$)

El Médano 013 24°51'S, 70°32'W
Antofagasta, Chile
Found: 2010 Oct 18
Classification: Carbonaceous chondrite (CO3)
History: A single stone was found on a deflation surface in the Atacama Desert, northern Chile, by Minoru Uehara (*CEREGE*) during the 2010 *CEREGE*-Universidad de Chile scientific expedition. This is the second carbonaceous chondrite found in the Chilean territory.
Physical characteristics: (J. Gattacceca, *CEREGE*) A single stone of 5.2 g without fusion crust and a smooth brownish outer surface. The interior has the same dark brown color.
Petrography: (J. Gattacceca, *CEREGE*) Abundant chondrules (~50% vol), predominantly of type I in a dark matrix (~40% vol). Chondrule size ranges from a <100 μm up to 1.5 mm, with a median diameter of 200 μm.
Geochemistry: Olivine Fa0.31-$Fa_{47.98}$ (mean $Fa_{16.57\pm16.41}$, PMD=88.9, n=28). Low-Ca pyroxenes are in the range $Fs_{1.21\text{-}6.80}$ (mean $Fs_{3.03\pm1.99}$, PMD=52.0, n=5), mean $Wo_{3.17\pm1.19}$. Cr_2O_3 in ferroan olivine is 0.25±0.20 wt% (n=19) indicating a metamorphic type 3.1. Grain density is 3.21 g/cm^3. Magnetic susceptibility log χ = 4.37 (χ in 10^{-9} m^3/kg) indicates maximum metallic FeNi content of 4 wt%. Oxygen isotopic composition (J. Gattacceca, C. Sonzogni, *CEREGE*) is $\delta^{17}O$ = -6.52, $\delta^{18}O$ = -3.68, and $\Delta^{17}O$ = -4.60 per mil (analysis of one acid-washed 1.5 mg bulk sample).
Classification: Carbonaceous chondrite (CO3.1). Moderate weathering
Specimens: 2 g and one polished section are on deposit at *CEREGE*. Main mass at *Chil*.

El Médano 019 24°51'S, 70°32'W
Antofagasta, Chile
Found: 2010 Oct 18
Classification: Ordinary chondrite (H3)
Petrography: (J. Gattacceca and A. Hutzler, *CEREGE*): $Fa_{7.4\text{-}32.8}$, PMD=19.9, N=14; $Fs_{2.8\text{-}38.8}$, PMD=62.8, N=9. Subtype: 3.5 to 3.9. Mean chondrule size 200 μm.

Griffith Wash 35°3'59"N, 114°5'51"W
Arizona, USA
Found: 14 July 2011
Classification: Ordinary chondrite (L6)
History: A single 93 g brickette-shaped stone was found by Frank Campagnano while he was metal detecting for gold near Griffith Wash in northwest Arizona on July 1,4 2011. It was 20 to 25 cm below the desert surface. No other meteorites have been recovered from the areas surrounding its position. The stone is flight-oriented with well-developed radial flow lines and a roll over lip. A portion of this stone was donated to the *UCLA* collection. The main mass is held by the finder Frank Campagnano.

Huaxi 26°27'52.88"N, 106°37'56.68"E
Guizhou, China
Fell: 13 July 2010
Classification: Ordinary chondrite (H5)
History: A meteorite fall was heard and collected on July 13, 2010, at about 18:00 local time in Shibanjin village, Huaxi district, Guiyang, Guizhou province. The total mass of the fall is estimated to be at least 1.6 kg.
Physical characteristics: (Li Shijie, Li yang, Li Xiongyao, *IGCAS*). Four fragments partly covered with fusion crust were recovered. The interior of the stone is light gray with an abundance

of metal and sulfide. The grain density of the meteorite is 3.74±0.03 g/cm^3.
Petrography: (Li Shijie, Li yang, Li Xiongyao, *IGCAS*). Mineralogy dominated by olivine, low-Ca pyroxene, high-Ca pyroxene, plagioclase, kamacite, taenite and troilite. Minor phases include chromite and apatite. A range of well-defined chondrule types is present. The grain sizes of secondary plagioclase range from 2 to 50 μm.
Geochemistry: (Li Shijie, Li yang, Li Xiongyao, *IGCAS*). The chemical composition of olivine ($Fa_{19.6}$) and low-Ca pyroxene ($Fs_{17.0}$) are uniform.
Classification: Ordinary chondrite (H5), shock stage S3.
Specimens: *IGCAS* holds about 398 g and two thin sections.

Jepara 6°36'S, 110°44'E
Java, Indonesia
Found: May 2008
Classification: Pallasite (Main group)
History: Anonymous finders recovered the meteorite specimen in 2008 during excavation activities in muddy ground.
Physical characteristics: The original mass of the meteorite boulder was 499.5 kg. It is spherically shaped with the shortest and longest diameter of 70 cm and 85 cm, respectively. The crust is weathered and rusty.
Petrography: The interior shows a homogeneous distribution of coarse-grained rounded olivine grains (6 to 12 mm). The groundmass is composed of secondary magnetite, nickel sulfide and sulfate (nickel hexahydrite), and primary schreibersite. Modal abundances are olivine (64 vol%), magnetite (23 vol%), nickel sulfide and sulfate (8 vol%), and schreibersite (5 vol%).
Geochemistry: Olivines are homogeneous in composition (Fa_{12-13}). Sulfide is composed of NiS and may represent a replacement product of troilite, while magnetite (Fe_3O_4) is a weathering product of primary FeNi phases. Schreibersite has the composition $(Fe_{1.85}Ni_{1.15})P$. Replicate analyses of oxygen isotopes were made on acid-washed samples by laser fluorination at *UGött* (A. Pack): $\delta^{17}O$ (SMOW) 1.862, 1.367, 1.380; $\delta^{18}O$ (SMOW) 3.820, 3.011, 3.160; and $\Delta^{17}O$ -0.130 -0.200, -0.280 (all per mil).
Classification: Main group pallasite, extensively weathered, fresh olivine
Specimens: Type specimens of 230 g and 20 g with surface areas of 190 cm^2 and 20 cm^2, respectively, and one thin section are on deposit at *UJena*. An anonymous owner holds the main mass.

Jiddat al Harasis 320 (JaH 320) 19°59.946'N, 56°24.671'E
Al Wusta, Oman
Found: 31 Jan 2007
Classification: Mesosiderite
Petrography: (R. Bartoschewitz, *Bart*.) Breccia with ~50% pyroxene and ~15% feldspar in an oxidized matrix with minor olivine and troilite.
Geochemistry: (R. Bartoschewitz, *Bart*., P. Appel and B. Mader, *Kiel*) $Fs_{29.9-31.3}$; $An_{91-95}Or<0.3$; 1.8 % Ni in limonite.
Classification: Mesosiderite
Specimens: A total of 5.2 g is on deposit at *Kiel*. The main mass and one thin section are on deposit at *Bart*.

Jiddat al Harasis 514 (JaH 514) 19°31.597'N, 55°11.725'E
Zufar, Oman
Found: 20 Jan 2008
Classification: Enstatite chondrite (EL4)
History: A single stone was found during a search for meteorites by A. Al-Kathiri, E. Gnos, A. Grimberg, B. Hofmann, E. Janots during a search for meteorites.
Physical characteristics: Single dark brown individual without fusion crust, deep cracks due to weathering, with a mass of 20.185 g.
Petrography (E. Gnos, *MHNGE*; B. Hofmann, *NMBE*): The dominant silicate mineral is enstatite with a mean composition of $Fs_{2.0}Wo_{0.7}$. Some grains are essentially pure enstatite. Mean chondrule size is 0.9 mm. Feldspar is very fine-grained and albite-rich. Cr-bearing troilite and daubreelite are other common phases, kamacite is largely oxidized, schreibersite is also present. Ferroan alabandite ($Mn_{0.39}Fe_{0.49}Mg_{0.11}$). S is only present as rare small relicts where fully enclosed in troilite.
Geochemistry: Bulk rock elemental ratios (in g/g, based on combined ICP-OS and ICP-MS) are Mn/Mg 0.010, Na/Mg 0.043, Mn/Cr 0.49. The bulk Zn content is <30 ppm (31 ppm by XRF).
Classification: Enstatite chondrite, EL4, shock stage S2, weathering W3. Classification based on presence of Fe-alabandite, low Zn content, and Mn/Mg and Na/Mg ratios in EL range.
Specimens: All at *NMBE*.

Jiddat al Harasis 556 (JaH 556) 19°39.429'N, 55°35.392'E
Al Wusta, Oman
Found: 24 Jan 2008
Classification: HED achondrite (Howardite)
History: A single stone was found during a search for meteorites by E. Gnos, E. Janots, B. Hofmann, and A. Grimberg.
Physical characteristics: Irregular brown 36.647 g stone without fusion crust. Large vesicles (3-5 mm) are visible on the surface and in tomographic sections.
Petrography: (E. Janots, Münster; V. Nentwig, Münster, E. Gnos, *MHNGE*; B. Hofmann, *NMBE*): Petrographically heterogeneous rock consisting of lithic and mineral clasts in a finely recrystallized matrix. The matrix consists of clinopyroxene ($Fs_{30-42}Wo_{6-15}$) and plagioclase (An_{76-92}). Single mineral clasts of Opx ($Fs_{24-32}Wo_{2-3}$), Cpx ($Fs_{32-39}Wo_{5-15}$), olivine (Fa_{19-44}) and plagioclase (An_{76-92}) to 0.8 mm. Plagioclase clasts often recrystallized (probably from maskelynite) containing small troilite and ilmenite/spinel inclusions. Two types of rock clasts are distinguished: (1) Clasts consisting of opx ($Fs_{25-32}Wo_{2-3}$) and olivine (Fa_{37-41}); (2) clasts consisting of opx ($Fs_{20}Wo_2$), olivine (Fa_{20-50}), plagioclase (An_{61-66}). In the rock clasts, olivine can have a mosaic texture. Clasts show different ° of shock (maximum stage 5 with plagioclase recrystallization). Matrix contains remnants of chondrules with Fa_{20-23} in center. Although metal is fully weathered to magnetite, hematite and goethite, the shape of oxides indicates former iron melt droplets. Pores are partially filled with secondary anhydrite and celestite and probable clay minerals.
Geochemistry: Bulk chemistry by combined ICP/ICP-MS shows CaO 6.9 wt%, MgO 14.1 wt%, Fe/Mn = 42.5 g/g, Ni 3940 ppm, Co 160 ppm. Oxygen isotopes (I.A. Franchi and R.C. Greenwood, *OU*): Analyses of thoroughly cleaned pyroxene clast (n=2) and matrix (n=9) yielded, respectively, $\delta^{17}O$ = 1.88, 2.48, $\delta^{18}O$ = 4.02, 4.98, and $\Delta^{17}O$ = -0.23, -0.13 (linearized values).
Classification: Based on mineral chemistry, oxygen isotopes and texture, this is an HED impact melt breccia containing diogenitic and eucritic clasts in roughly equal abundance, consistent with a Howardite classification. Oxygen isotope data of matrix and high Ni abundance indicate admixture of ~10-15% ordinary chondrite (most likely H).
Specimens: All at *NMBE*.

Jiddat al Harasis 626 (JaH 626) 19°47.09'N, 55°57.55'E
Al Wusta, Oman
Found: April 2010
Classification: HED achondrite (Eucrite, polymict)

Petrography: (A. Irving and S. Kuehner, *UWS*): Polymict breccia composed of both basaltic eucrite and cumulate eucrite clasts plus related debris. Pigeonite of various compositions (some exhibiting exsolution lamellae of clinopyroxene within orthopyroxene), calcic plagioclase, silica polymorph, chromite, troilite and rare zircon. Plagioclase has been transformed by shock into aggregates of fine anisotropic blades in a subspherulitic texture, indicative of quenching from melt.

Geochemistry: Low-Ca pigeonite ($Fs_{32.1-39.3}Wo_{6.3-5.1}$; FeO/MnO=29.5-31.2), clinopyroxene exsolution lamellae ($Fs_{30.6-33.5}Wo_{31.9-29.8}$; FeO/MnO=30.7-31.0), pigeonite ($Fs_{51.8}Wo_{12.7}$; FeO/MnO=30.8).

Jiddat al Harasis 641 (JaH 641)
19°00'27.2"N, 55°10'28.9"E
Zufar, Oman
Found: 2011 Mar 9
Classification: Ureilite

Petrography: Fairly fresh medium grained, protogranular aggregate of twinned Ca-poor pigeonite and olivine (Cr_2O_3=0.5 wt.%), both of which exhibit reduced rims with blebby metallic iron inclusions and probably some associated graphite and/or microdiamond. Some metallic iron also occurs along grain boundaries.

Khatyrka 62°39'11.36"N, 174°30'1.54"E
Chukotka Autonomous Okrug, Russia
Found: July, 2011
Classification: Carbonaceous chondrite (CV3)

History: Tiny pieces of a chondrite were found during an expedition to Chukotka in far eastern Russia by scientists from the US, Russia and Italy, from July 20 to August 7, 2011, in search of icosahedrite [1, 2]. Members of the team were P. J. Steinhardt, C. Andronicos, L. Bindi, V. V. Distler, M. Eddy, A. Kostin, V. Kryachko, G. J. MacPherson, W. M. Steinhardt, and M. Yudovskaya. The search team removed 1.5 tons of clay and other material from dense gray-blue clay layers that are exposed along Listventovyi stream, and panned it to obtain the heavy fraction (within which the meteorite fragments were found).

Physical characteristics: Seven grains were recovered during the 2011 expedition, and an additional three grains exist in St. Petersburg, Russia, and Florence, Italy, that were collected during a 1979 expedition; all are ~1 mm or less in maximum dimension. The total mass recovered is <0.1 g.

Petrography: (G. MacPherson, *SI*) The grains are dark gray with visible silicates and metal. Al-Cu alloy was observed on some of the grain surfaces. SEM examination of polished surfaces of two grains (#5 and #121) revealed that both are meteorite fragments, containing porphyritic olivine chondrules, chondrule fragments, and isolated olivine crystals in a porous matrix of olivine, calcium-rich clinopyroxene of diverse composition, nepheline, Ni-Fe metal, and Ni-Fe sulfide. The PO chondrules have Fa_{0-2} cores surrounded by Fe-rich mantles to $Fa_{48.}$ Zoning extends along internal crystalline fractures. The olivine cores show progressive primary zoning from essentially pure forsterite (Fa_0) outward to ~Fa_{18}. Interstitial to the olivine is enstatite (Fs_1Wo_1), which is rimmed by Fe-rich olivine. The matrix is porous and resembles that observed in CV3 chondrites, such as Allende, with olivine compositions of $Fa_{48-50.}$ The presence of awaruite (~68 wt. % Ni), Ni-rich sulfide (pentlandite with ~22 wt. % Ni), interstitial nepheline, and abundant clumps of Ca-rich clinopyroxene (mostly diopside, but variable) are again typical of CV3. Metal and sulfide mostly occur together in rounded (in some cases concentric) masses that also contain abundant Ca-phosphate. The sulfide encloses the metal. One CuAl metal alloy grain was found enclosed within the olivine of a chondrule. Among the meteorite grains recovered is a CAI fragment. It mainly is a porous aggregate of spinel grains with attached portions of CV3 meteorite matrix. The spinel is predominantly $MgAl_2O_4$, with varying contents of FeO (3-15 wt.%). This object is similar in most respects to the fine-grained spinel-rich inclusions found in CV3 chondrites (a variety of Ca-Al-rich inclusion), the only difference being that in other CV3 meteorites the spinel is generally rimmed by thin (few μm) layers of aluminous diopside. Diopside is present here as well, but only as a much thinner layer.

Geochemistry: Preliminary oxygen isotope analyses (SIMS: J. Eiler and Y. Guan, *CalTech*) of olivine plot on CCAM line at $\Delta^{17}O$ ~ -5 to -10 permil. CAI spinel plots with all other CAI spinel at $\Delta^{17}O$ ~ -20 permil.

Classification: The meteorite is a CV3 (oxidized) chondrite. The individual fragments show no signs of terrestrial weathering other than very minor, and only local, hematite, despite the fact that they occur in a sedimentary deposit.

Specimens: 10 known, each less than 1 mm in size. Three representative specimens have been deposited at *SI*.

Košice 48°45.82'N, 21°10.58'E
Kosice Region, Slovakia
Fell: 2010 Feb 28, 22:24:46 UT
Classification: Ordinary chondrite (H5)

History: On February 28, 2010, at 22:24:46 UT a bright fireball appeared over central-eastern Slovakia. The cloudy and rainy weather prevented images been taken by the European Fireball Network or the Slovak Video Network. However, the fireball flash was recorded at six Czech and one Austrian fireball stations (P. Spurny, *CzAS*). The bolide reached at least -18 maximum brightness. Sonic booms were recorded at seven seismic stations in Slovakia, Hungary, and Poland (P. Kalenda, *CzASO*). The fall area was computed on the basis of two records of the surveillance cameras operating in Hungary (A. Igaz, *HAA*) by J. Borovicka (*CzAS*). The first meteorite (27.2 g) was found March 20 by J. Toth (*CUB*) to the northwest of the city of Košice (eastern Slovakia). Pieces were found by teams led by the Faculty of the Mathematics, Physics and Informatics, *CUB* and *SAS*. The largest stone weighs 2.2 kg. The finders include Juraj Toth, Diana Buzova, Marek Husarik, Tereza Krejcova, Jan Svoren, Julo Koza, David Capek, Pavel Spurny, Stanislav Kaniansky, Eva Schunova Marcel Skreka, Dusan Tomko, Pavol Zigo, Miroslav Seben, Jiri Silha, Leonard Kornos, Marcela Bodnarova, Peter Veres, Jozef Nedoroscik, Zuzana Mimovicova, Zuzana Krisandova, Jaromir Petrzala, Stefan Gajdos, Tomas Dobrovodsky, Peter Delincak, Zdenko Bartos, Ales Kucera, Jozef Vilagi.

Physical characteristics: Seventy-seven black stones with a thin fusion crust with the total weight 4.3 kg in the range of 0.5 g to 2.2 kg.

Petrography: Classification (D. Ozdin and P. Uher, *CUB*; J. Haloda, *CzGS*; P. Konecny, *SGUDS*) Thin sections show a recrystallized fine-grained granular texture. Chondrules commonly indistinct. Planar fractures in olivine and undulatory extinction of olivine and albite as well as opaque shock veins and locally melt pockets indicate a shock of S3.

Geochemistry: Olivine ($Fa_{18.6}$) and low-Ca pyroxene ($Fs_{16.6}$). Also present are diopside (Fs_6Wo_{46}), augite ($Fs_{8\text{-}15}Wo_{26\text{-}43}$), albite ($Ab_{82}An_{12}Or_6$), chromite, chlorapatite, merrillite, troilite, kamacite, taenite and tetrataenite.
Classification: Ordinary chondrite, H5 (S3). Weathering grade is W0.
Specimens: 2190.0 g, 315.9 g, 249.0 g, 210.5 g, 193.6 g, 106.8 g; *SAS*; *CUB*.

Ksar el Hajoui 31°59'35.4''N, 2°59'36.5''W
Eastern, Morocco
Found: May 2010
Classification: Ordinary chondrite (L6)
History: In May 2010, two pieces of a large oriented stone were found 2.3 km away from the little village of Ksar el Hajoui (also known by Zaouia el Hajoui) by Mr. Abderrahmane, an inhabitant of Bouanane, Morocco. The finder was later contacted by a local meteorite retailer from Erfoud, who contacted P. Thomas, who traveled to Ksar el Hajoui to buy the stone directly from the finder.
Physical characteristics: Two fragments of a single broken conical stone (25 × 13 × 8 cm). Total weight is 3.1 kg. The stone is covered by fusion crust, oriented, and displays abundant regmaglypts and flow lines.
Petrography: The texture is chondritic. Plagioclase grains >50 μm are abundant.
Geochemistry: Olivine ($Fa_{23.7\pm0.3}$, n=4) and low-Ca pyroxene ($Fs_{20.1\pm0.1}Wo_{1.3}$, n=4) are equilibrated.
Classification: L6 ordinary chondrite. Weathering grade W1.
Specimens: 21.1 g and a polished section are on deposit at *CEREGE*. P. Thomas holds the main mass.

Ksar Ghilane 002 (KG 002) 32°48.375'N, 9°49.970'E
Quibili, Tunisia
Found: 13 Jan 2010
Classification: Martian meteorite (Shergottite)
History: Found in a search campaign for meteorites in Tunisia.
Physical characteristics: Single 538 g stone, ~10% fusion crusted.
Petrography: (J. Llorca, *UPC*, and A. Bischof and J. Roszjar, *IfP*) Composed primarily of maskelynitized plagioclase (52 vol%) and pyroxene (37 vol%), Ca-phosphates (merrillite and Cl-apatite), minor silica or SiO_2-normative K-rich glass, Fe-rich olivine, pyrrhotite, Ti-magnetite, ilmenite, and accessory zircon and baddeleyite. The largest crystals of pyroxene and plagioclase reach sizes of 4 mm and 5 mm, respectively.
Geochemistry: Pyroxene $Fs_{26\text{-}96}En_{5\text{-}50}Wo_{2\text{-}41.}$ They typically range from cores of near $Fs_{29}En_{41}Wo_{30}$ to rims of $Fs_{68}En_{14}Wo_{17.}$ Most plagioclase (maskelynite) is $Ab_{41\text{-}49}An_{39\text{-}58}Or_{1\text{-}7}$, but some can be as anorthitic as $An_{94.}$ Olivine mainly occurs within symplectitic intergrowths, in paragenesis with ilmenite, or at neighboring areas of symplectites. These minerals are $Fa_{90\text{-}95}$ in composition. Heavily shocked as indicated by mosaic extinction of pyroxenes, maskelynitized plagioclase, and the occurrence of localized shock melt glass pockets.
Classification: Coarse-grained basaltic shergottite.
Specimens: José Vicente Casado holds the main mass. Type specimen (20.2 g) at *UPC*.

Lake Carnegie 26°13'S, 122°30'E
Western Australia, Australia
Found: Feb 1992
Classification: HED achondrite (Eucrite, cumulate)
History: A single small stone was found on the shores of Lake Carnegie by a local resident and brought to the *WAM* by the late A. J. Carlisle.
Physical characteristics: The freshly crusted stone weighs 12.1 g and is unweathered.
Petrography: (A. W. R. Bevan, *WAM*, and T. Kennedy, *UWA*) The meteorite is an unbrecciated, coarse-grained, eucrite with cumulate texture. It is predominantly comprised of pyroxene and anorthitic plagioclase feldspar with minor minerals including ilmenite, chromite and very minor Fe-Ni metal and troilite.
Geochemistry: (T. Kennedy, *UWA*) Pyroxene, $Fs_{29.4\text{-}61.1}Wo_{4.7\text{-}41.7}$; plagioclase, $An_{91.3\text{-}96.8}Ab_{3.13\text{-}8.09}Or_{0\text{-}0.54.}$
Classification: Achondrite (Eucrite-cm)
Specimens: Main mass and two thin sections at *WAM*.

Leonora 28°50'42.7"S, 121°23'49.2"E
Western Australia, Australia
Found: circa 1990
Classification: Ordinary chondrite (L4)
History: A single stone, buried 30 cm below the surface, was found with a metal detector, then broken into two pieces by the finder and discarded. Approximately ten years later two pieces were retrieved and further broken before being recognized as a meteorite.
Physical characteristics: Four crusted fragments weighing 1340 g, 1217 g, 12.73 g and 2.28 g can be reassembled to make an almost complete individual.
Petrography: (A. W. R. Bevan and P. J. Downes, *WAM*) Microscopically, chondrules with microcrystalline, devitrified mesostases can be clearly distinguished and are set in a microcrystalline, iron-stained matrix. Chondrule types include barred and porphyritic olivine and radiating pyroxene. Abundant grains of polysynthetically twinned clinopyroxene occur in chondrules. Accessory minerals include kamacite, taenite and chromite.
Geochemistry: (A. W. R. Bevan and P. Downes, *WAM*) Olivine, $Fa_{24.8}$ (n=13); low-Ca pyroxene, $Fs_{21.1\text{-}26.1}Wo_{0.96\text{-}2.4}$; kamacite, Ni=5.46, Co=0.74 (all wt%); chromite, Cr# 88.,1 Fe# 87.4.
Classification: Ordinary chondrite (L4); S2; W2
Specimens: Main mass and three thin sections at *WAM*.

Los Vientos 001 24°42.000'S, 69°45.000'W
Antofagasta, Chile
Found: 29 Dec 2009
Classification: HED achondrite (Diogenite, polymict)
Physical characteristics: One stone was found with a total weight of 73 g. Dull, moderately weathered black fusion crust covers ~80% of the stone. The interior of the stone is grey with minor iron-oxide staining.
Petrography: (Laurence Garvie, *ASU*) Orthopyroxene-rich breccia with clasts (<1 to 5 mm) and mineral fragments with a range of textures and compositions, supported by fine-grained orthopyroxene matrix. The majority of the clasts (~90%) rounded to angular, unzoned low Ca-pyroxene ($Fs_{24.1\text{-}33.4}Wo_{2.0\text{-}3.0}$), and large (mm-sized) opaque-rich (FeS and chromite) low Ca-pyroxene ($Fs_{20.1\text{-}26.5}Wo_{0.4\text{-}2.4}$). Plagioclase clasts ($An_{84.5\text{-}93.9}Or_{0.2\text{-}0.5}$) abundant. Thin section contains a range of clast types, with a diversity of lithologies some with cumulate eucrite texture and compositions and other unique clasts: mm-sized, divergent plagioclase ($An_{70.7\text{-}72.2}Or_{1.1\text{-}1.3}$) with interstitial $Fs_{14.8}Wo_{41.9}$ and silica grains; mm-sized clast of $Fs_{38.2}Wo_{2.9}$ and $An_{93.8}Or_{0.1}$; zoned low Ca-pyroxene with $Fs_{22.8}Wo_{2.44}$ at center and $Fs_{30.4}Wo_{2.6}$ at grain edge; large (mm-sized) pyroxene with complex zoning, $Fs_{38.6}Wo_{2.7}$ with lamellae of $Fs_{19.8}Wo_{40.5}$, grain center is $Fs_{46.9}Wo_{2.1}$, also contains chadacrysts of

$An_{85.4}Or_{0.3}$; 100 µm clast of $An_{84.5}Or_{0.5}$ with 10 µm chadacrysts of $Fs_{12.0}Wo_{44.4}$; large (mm) $Fs_{43.3}Wo_{7.0}$ grain with lamellae of $Fs_{36.2}Wo_{19.7}$; and large (mm) $Fs_{36.2}Wo_{3.6}$ grain with lamellae of $Fs_{20.0}Wo_{40.1.}$ Silica and chromite (to 1 mm) scattered throughout the section. Also sparse kamacite and Ti-spinel.
Classification: Achondrite (diogenite, polymict breccia); Shock level is moderate, with variable shock levels in clasts. Minimal weathering. Visually, the stone looks like a howardite with dark clasts similar to NWA 776. However, the predominance of unzoned low-Ca pyroxene is more consistent with diogenites and the diversity of lithologies warrant the polymict designation.
Specimens: Type specimen, 73 g, ASU; main mass, E. Christensen

Lucerne Valley 100 (LV 100) 34°29.243'N, 116°57.639'W
San Bernardino County, California, USA
Found: 2008 Mar 28
Classification: Carbonaceous chondrite (CK5)
Petrography: Chondrules have a mean apparent diameter of about 800 µm, close to the CK mean. Groundmass is relatively coarse, about 60 µm, characteristic of CK5. Opaque phases consist mainly of magnetite and pyrrhotite.
Geochemistry: The mean olivine Fa value [$Fa_{32.5}$ +/- 0.4 (n=16)] is in the CK range.
Specimens: Field ID = LVnnn; likely paired to LV 028.

Lynch 002 31°23'58.3"S, 127°08'40.8"E
Western Australia, Australia
Found: 25 Sept 2010
Classification: Lunar meteorite
History: A weathered mass was found on an open plain during systematic meteorite searching.
Physical characteristics: The 36.54 g irregularly shaped stone lacks fusion crust and measures 4 × 4 × 2 cm. It has a dark, desert-varnished surface.
Petrography: (C. L. Smith and A. T. Kearsley, *NHM*) The sample is highly brecciated from the micro to macro-scale, and contains numerous clasts in a heterogeneous, brecciated matrix. Melt veins, some containing blebs of Fe-Ni metal, are pervasive. Melt spherules are also observed. Larger clasts to ~1 mm are composed of basaltic lithologies, melt clasts, KREEP-rich clasts, and pyroxferroites. The matrix is brecciated and heterogeneous and is composed of mono and polymineralic fragments. Many of the smaller polymineralic fragments appear similar to the larger clasts. Matrix consists predominantly of pyroxene and feldspar. Irregularly shaped Fe-Ni metal grains (few micrometers to few tens of micrometers) occur and sulphide and schreibersite are also observed. Ilmenite grains are fairly abundant. Accessory phases include baddeleyite and silica. The sample is moderately fractured and carbonate veins fill cracks and voids. No fusion crust remains, although there is a distinct weathering rind preserved in some places.
Geochemistry: Representative large clasts; basaltic clast pyroxene ($Fs_{24.5-41.8}Wo_{6.1-34.3}$, Fe/Mn=58.4-74.3 and $Fs_{18.9-72.2}Wo_{4.9-24.1}$, Fe/Mn=51.1-77.6), plagioclase ($An_{86.7-93.6}Or_{0.4-2.5}$ and $An_{88.3-92.1}Or_{0.7-2.0}$); pyroxferroite clast ($Fs_{45.0-58.8}Wo_{21.5-39.0}$, Fe/Mn=71.5-96.8). Matrix low-Ca pyroxene ($Fs_{20.4-74.9}Wo_{1.6-17.8}$, Fe/Mn=47.8-76.3), high-Ca pyroxene ($Fs_{6.6-70.1}Wo_{20.5-51.4}$, Fe/Mn=40.0-96.0), plagioclase ($An_{83.4-98.8}Or_{0.0-1.5}$). All analyses by EPMA. Oxygen Isotopes: I. A. Franchi (*OU*) $\delta^{17}O$ = 3.638, 3.470 $\delta^{18}O$ = 7.005, 6.676 $\Delta^{17}O$ = -0.005, -0.002 all values in per mil. Bulk acid washed sample.
Classification: Achondrite, lunar breccia with moderate to high weathering.
Specimens: Main mass and one polished block at *WAM*.

Mangum 34.849°N, 99.704°W
Greer County, Oklahoma, USA
Found: 2008
Classification: Ordinary chondrite (H4)
History: Found by Mr. Ray Chambless in 2008 while he was mowing his yard, but only recognized as a possible meteorite in 2011 September, after he viewed a television show on meteorites. The find location was about 11.5 miles ESE of Mangum in Greer County, Oklahoma.
Physical characteristics: A single, large brownish stone weighing 750 g and partially covered with weathered fusion crust.
Petrography: (A. Irving and S. Kuehner, *UWS*) The specimen consists of small, well-formed chondrules in a finer grained matrix rich in stained metal. Primary minerals are olivine, low- and high-Ca pyroxene, sodic plagioclase, chromite, troilite and kamacite (partially altered to iron hydroxides).
Geochemistry: Olivine $Fa_{18.2}$, orthopyroxene $Fs_{16.0-16.1}Wo_{0.9-1.0}$, clinopyroxene $Fs_{5.8-5.9}Wo_{47.5-43.0.}$
Classification: Ordinary chondrite (H4)
Specimens: 23.9 g and one polished thin section are on deposit at *UWS*. The main mass is held by Mr. R. Chambless of Mangum, OK.

Mundrabilla 021 30°46'47"S, 127°31'23"E
Western Australia, Australia
Found: 26 Oct 2010
Classification: Ordinary chondrite (H4)
History: Single piece found by L. Chlanda in the Mundrabilla strewn field while filming an episode of the Meteorite Men.
Physical characteristics: One broken surface, ~70% smooth surface after fusion crust.
Petrography: (A. Tomkins, *Monash*) Moderately defined chondrules to 2 mm, sit in a poorly defined (due to weathering) matrix. Chondrule types include RP, POP, PP, BO and PO. Most olivine grains have sharp extinction, but some show undulose extinction or mosaicism. Plagioclase has been partially converted to maskelynite. The sample is moderately porous, with significant porosity filled by weathering products. Fe-Ni metal grains look to have been abundant, but have been largely removed (98%) by rusting. Abundant troilite has also been heavily weathered. Extensive sulfide/metal melt networks and micro-breccias have been replaced by iron oxides during weathering.
Geochemistry: (A. Tomkins, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{18.4-18.4}$, mean=18.61 mol%, std=0.16, n=5; Low-Ca pyroxene $Fs_{16.5-17.5}$, mean=17.12 mol%, std=0.46, n=4.
Classification: Ordinary chondrite (H4, S4, W4)

Northwest Africa 721 (NWA 721)
Morocco
Purchased: 1 Jan 2001
Classification: Carbonaceous chondrite (CR2)
Petrography: Section contains porphyritic and barred olivine chondrules with an average size of 850 µm. There are large metal nodules to 950 µm and smaller metal grains decorating chondrule surfaces. There is minor sulfide.

Northwest Africa 1166 (NWA 1166)
(Northwest Africa)
Purchased: 2001
Classification: Ordinary chondrite (L, melt rock)

Petrography: Specimen is black with no fragments discernible. Microscopy reveals L6-type chondrules set in a recrystallized ground mass with abundant metal and sulfide droplets.

Northwest Africa 3154 (NWA 3154)
(Northwest Africa)
Purchased: 2005 Apr
Classification: Ordinary chondrite (H4)
History: Purchased by Greg Hupé in April 2005 from a dealer in Tagounite, Morocco.
Petrography: Well-formed, small chondrules and abundant metal (mostly fresh and only slightly stained) in the matrix.
Geochemistry: Olivine ($Fa_{16.9\text{-}17.2}$), orthopyroxene ($Fs_{15.1}Wo_{0.3}$), clinopyroxene ($Fs_{7.6}Wo_{37.5}$; $Fs_{13.5}Wo_{32.7}$).
Classification: Ordinary chondrite (H4).

Northwest Africa 3193 (NWA 3193)
Morocco
Found: 2008
Classification: Carbonaceous chondrite (CK4)
Petrography: (A. Rubin, *UCLA*): The rock has a moderately coarse matrix (~10 µm-size grains) characteristic of CK4. It has a few percent porphyritic chondrules (350-1600 µm in diameter). Contains abundant magnetite and accessory sulfide.

Northwest Africa 3195 (NWA 3195)
Morocco
Found: 2008
Classification: Ordinary chondrite (L, melt breccia)
Petrography (A. Rubin, UCLA): Stone dominated by silicate melt composed of a mixture of chondrule fragments (100-600 µm) and mafic silicate crystals (6-20 µm) that precipitated from the melt. The mean olivine Fa content and relatively high standard deviation ($Fa_{14.5\pm5.5}$) reflect analysis of chondrule fragments and crystals formed in the chondritic melt. Also present are cellular metal-sulfide assemblages wherein metal cells are typically 10-50 µm in size and surrounded by troilite. An equilibrated clast (2 mm long) is present at the edge of one thin section. It is the mean olivine and pyroxene in the clast ($Fa_{23.7\pm0.4}$; $Fs_{19.5}Wo_{1.0}$) that indicate that the rock is an L chondrite. The metal abundance in the clast is ~10 wt.%; this is within the L-chondrite range established by Keil (1962): 4.4-11.7 wt.%. The rock is classified as an L-chondrite impact melt breccia.

Northwest Africa 3199 (NWA 3199)
Northwest Africa
Purchased: Feb 2004
Classification: HED achondrite (Eucrite)
Petrography: Fresh, fine grained specimen with granulitic texture composed of exsolved pigeonite, calcic plagioclase, fairly abundant silica polymorph, and accessory ilmenite, zircon and troilite.
Geochemistry: Low-Ca pyroxene host $Fs_{59.7\text{-}60.4}Wo_{6.1\text{-}4.3}$, FeO/MnO=31-32, high-Ca pyroxene lamellae $Fs_{39.4\text{-}38.4}Wo_{31.2\text{-}32.4}$, FeO/MnO=33-35.

Northwest Africa 3304 (NWA 3304)
Northwest Africa
Purchased: 2006 Feb
Classification: Carbonaceous chondrite (CV3)
Geochemistry: (R. Bartoschewitz, *Bart*; P. Appel, B. Mader, *Kiel*): $An_{92}Or<0.1$. Oxygen isotopes (I. Franchi and R. Greenwood, *OU*): $\delta^{17}O$=-3.16, $\delta^{18}O$=1.39.

Northwest Africa 3322 (NWA 3322)
(Northwest Africa)
Purchased: 2007 Apr
Classification: Iron meteorite (IAB complex)
History: An iron meteorite was purchased by a Moroccan meteorite dealer in Zagora in April 2004 and was sold to Rainer Bartoschewitz at the Meteorite Fair in Gifhorn in May 2007.
Physical characteristics: The meteorite is an oriented shield shaped 1442 g mass, with many regmaglypts on one side.
Petrography: (R. Bartoschewitz, *Bart*): The meteorite shows Widmannstätten pattern with bandwidth of ~1.5 mm, and partly bent Neumann lines and fusion crust with transitional α2 zone.
Geochemistry: (C. Meyer, H. Becker, *FUB*, by ICP-MS) Composition of the metal is Co = 0.51, Ni = 7.30 Ni (both in wt%); Cu = 157.9, Ga = 46, W = 0.59, Ir = 0.75, Pt = 3.3 (all in ppm). XRF (R. Bartoschewitz, *Bart*) shows Co = 0.62, Ni = 8.68 (both in wt%).
Classification: Iron (IAB complex, medium octahedrite)
Specimens: Type specimen 21 g, *FUB*. Main mass 1361 g *Bart*.

Northwest Africa 4165 (NWA 4165)
(Northwest Africa)
Purchased: 2005
Classification: Ureilite
History: A stone was purchased in Erfoud, Morocco, in 2002 for the DuPont Collection.
Physical characteristics: A single dark brown stone (432 g) with little fusion crust.
Petrography: (T. Bunch and J. Wittke, *NAU*): Heavily shocked, large areas of recrystallized olivine and pigeonite. Cathodoluminescence imagery shows high diamond density in thermally metamorphosed graphite (mostly amorphous).
Geochemistry: Olivine ($Fa_{19.6}$, Fe/Mn=41, Cr_2O_3=0.64 wt%), pigeonite ($Fs_{17.3}Wo_9$, Fe/Mn=28, Cr_2O_3=1.35 wt%). Ni content in recrystallized metal inclusions in olivine is 0.64 to 3.15 wt%.
Classification: Ureilite
Specimens: The main mass, 21 g, and one thin section are in the DuPont Collection (*FMNH*).

Northwest Africa 4611 (NWA 4611)
(Northwest Africa)
Purchased: May 2006
Classification: Carbonaceous chondrite (CV3)
History: The meteorite was found by an anonymous person in northwest Africa and bought by H. Strufe in Erfoud, Morocco.
Physical characteristics: One dark brown fragment, without fusion crust, weighing 242.1 g.
Petrography: Specimen is composed of abundant up to several-mm sized chondrules embedded in a dark brownish matrix. Refractory inclusions include whitish CAIs and irregularly shaped olivine amoeboids; metal is rare.
Geochemistry: Olivine, $Fa_{0.2\text{-}10.6}$; pyroxene, $Fs_{0.5\text{-}1.}$ Oxygen Isotopes (I. A. Franchi and R. C. Greenwood, *OU*): $\delta^{17}O$ = -3.302, $\delta^{18}O$ = 1.321, $\Delta^{17}O$ = -3.989 (all per mil).
Classification: Carbonaceous chondrite (CV3); S2, W2/3.
Specimens: 22 g plus one polished thin section are on deposit at *MNB*.

Northwest Africa 4612 (NWA 4612)
(Northwest Africa)
Purchased: May 2006
Classification: Ordinary chondrite (L3)

History: The meteorite was found by an anonymous person in northwest Africa and bought by H. Strufe in Erfoud, Morocco.
Physical characteristics: Three brown fragments totaling 26.4 g.
Petrography: The sample is an unbrecciated chondrite with unequilibrated olivine and pyroxene in chondrules as well as in the matrix. The chondrules are well defined and have widely varying textural types, including BO, BP, PO, POP, and PP.
Geochemistry: Olivine, $Fa_{0.4\text{-}19.8}$; pyroxene, $Fs_{1.9\text{-}15.6.}$
Classification: Ordinary chondrite (L3); S2, W3. Type L-classification is also based on chondrule diameter (mean about 0.6 mm) and low metal content.
Specimens: A total of 6.6 g plus one polished thin section are on deposit at *MNB*.

Northwest Africa 4628 (NWA 4628)
(Northwest Africa)
Purchased: 2006
Classification: Carbonaceous chondrite (CO3)
History: The meteorite was found by an anonymous finder in northwest Africa and bought by the main mass holder at a mineral fair in Munich, Germany.
Physical characteristics: One dark brown fragment without fusion crust weighing 45.7 g.
Petrography: The meteorite exhibits characteristic texture of abundant small chondrules, CAIs, and mineral fragments set in a fine-grained dark brownish matrix.
Geochemistry: Olivine, $Fa_{0.3\text{-}50.4}$; pyroxene, $Fs_{0.9\text{-}4.5.}$
Classification: Carbonaceous chondrite (CO3); S2, W2.
Specimens: 9.5 g plus one polished thin section are on deposit at *MNB*.

Northwest Africa 4637 (NWA 4637)
(Northwest Africa)
Purchased: 2006
Classification: Ordinary chondrite (L3)
History: The meteorite was found by an anonymous person in northwest Africa and bought by H. Strufe at a meteorite fair in Ensisheim, France
Physical characteristics: One brownish fragment of 36.1 g without fusion crust.
Petrography: Unbrecciated chondrite with abundant clearly discernable chondrules of various textural types. Olivine and pyroxene in chondrules and matrix are compositionally unequilibrated.
Geochemistry: Olivine, $Fa_{0.2\text{-}25}$; pyroxene, $Fs_{2\text{-}21.7.}$
Classification: Ordinary chondrite (L3); S2, W2/3.
Specimens: 7.2 g plus one polished thin section are on deposit at *MNB*.

Northwest Africa 4644 (NWA 4644)
Northwest Africa
Purchased: 2006
Classification: Ordinary chondrite (L3-6)
History: The meteorite was found by an anonymous finder in Northwest Africa and bought by the main mass holder in Erfoud, Morocco.
Physical characteristics: One brownish fragment of 159.1 g without fusion crust.
Petrography: The sample is a brecciated meteorite with light-gray, brownish, and almost black angular clasts of petrological types 3 to 6. Mean chondrule size (~0.6 mm) and low metal content consistent with L type.
Geochemistry: Olivine $Fa_{1.3\text{-}29.7}$; pyroxene $Fs_{6.2\text{-}18.2.}$
Classification: Ordinary chondrite (L3-6); S3, W2.
Specimens: 22.5 g plus one polished thin section are on deposit at *MNB*.

Northwest Africa 4645 (NWA 4645)
Northwest Africa
Purchased: 2006
Classification: Ordinary chondrite (L(LL)3)
History: The meteorite was found by an anonymous finder in Northwest Africa and bought by the main mass holder in Erfoud, Morocco.
Physical characteristics: One brownish fragment of 56.6 g partly covered with fusion crust.
Petrography: The meteorite is an unbrecciated chondrite with a fresh gray appearance in its interior. The chondrules are well defined and of large variation in the textural types. Olivine and pyroxene are unequilibrated. Mean chondrule size ~0.8 mm; meteorite has a high chondrule/matrix ratio and low metal content.
Geochemistry: Olivine $Fa_{8.7\text{-}26.1}$; pyroxene $Fs_{2.5\text{-}20.2.}$
Classification: Ordinary chondrite L(LL)3, S2, W1.
Specimens: 12.8 g plus one polished thin section are on deposit at *MNB*.

Northwest Africa 4646 (NWA 4646)
Northwest Africa
Purchased: 2006
Classification: Ordinary chondrite (L3)
History: The meteorite was found by an anonymous finder in Northwest Africa and bought by the main mass holder in Erfoud, Morocco.
Physical characteristics: One brownish fragment with some fusion crust weighing 2042.4 g.
Petrography: The sample is an unbrecciated chondrite with unequilibrated olivine and pyroxene occurring in chondrules as well as in the matrix. The chondrules are well defined and of large variation in the textural types.
Geochemistry: Olivine $Fa_{2.7\text{-}51.4}$; pyroxene $Fs_{1.8\text{-}17.6}$
Classification: Ordinary chondrite (L3); S2, W2/3.
Specimens: 22.6 g plus one polished thin section are on deposit at *MNB*.

Northwest Africa 4852 (NWA 4852)
Morocco
Purchased: 2002
Classification: Ureilite
Petrography: Mode is dominated by subequal proportions of olivine and pigeonite. Texture is weakly poikilitic, with pigeonite oikocrysts showing optical continuity to 5 mm. Anhedral-equant olivines to 2.5 mm, with rims containing abundant submicrometer-sized metal.
Geochemistry: Olivine cores are $Fa_{12.6}$; rims to at least $Fa_{3.}$

Northwest Africa 4945 (NWA 4945)
(Northwest Africa)
Purchased: 2007 March
Classification: Enstatite chondrite (EL6)
History: Purchased from a dealer in Agadir, Morocco, by Jack Schrader in March 2007
Physical characteristics: An unweathered stone weighing 3150 g coated with dark brown, satiny fusion crust
Petrography: (A. Irving and S. Kuehner, *UWS*): Fine grained aggregate of predominantly enstatite (74 vol%), kamacite (8 vol%) and Cr-bearing troilite (8 vol.%), with accessory diopside,

oldhamite, alabandite and tabular graphite plates. Daubreelite and schreibersite are absent. Sparse relict, partial RP chondrules and recrystallized chondrules.
Geochemistry: Orthopyroxene ($Fs_{0.1-0.3}Wo_{1.5-1.4}$), clinopyroxene ($Fs_{0.2-0.9}Wo_{45.9}$), kamacite (7.2 wt.% Ni, 1.0 wt.% Si, 0.5 wt.% Co), troilite (0.3 wt.% Ti, 2.6 wt.% Cr, 0.8 wt.% Mn), alabandite (1.0 wt.% Cr, 26.7 wt.% Fe, 21.6 wt.% Mn, 7.5 wt.% Mg, 1.3 wt.% Ca)
Classification: Enstatite chondrite (EL6, S1, W0). Paired with Northwest Africa 4946.
Specimens: A total of 20.3 g of type material and one polished thin section are on deposit at *UWS*; a further 20 g of the same stone and one polished thin section are on deposit at *BathO*. The main mass is held by *Farmer*.

Northwest Africa 4946 (NWA 4946)
(Northwest Africa)
Purchased: 2007 Mar
Classification: Enstatite chondrite (EL6)
Petrography: Composed mostly of enstatite with accessory kamacite, Cr-bearing troilite, diopside, oldhamite, alabandite and graphite. Some relict chondrules are present. Paired with NWA 4945.

Northwest Africa 5167 (NWA 5167)
Morocco
Found: 2007
Classification: Angrite
History: Purchased in Erfoud, Morocco, in November 2007.
Physical characteristics: One stone (850 g) and one subsidiary piece of 9 g. Dark brown without fusion crust. Shiny fracture caused by large crystals.
Petrography: (A. Jambon, B. Baghdadi, O. Boudouma and D. Badia *UPVI*). Coarse-grained rock with granular texture. Dominant olivine and pyroxene (to 0.5 mm). Anorthite and spinel. Minor metal and sulfide (oxidized) poikiliticaly enclosed in olivine. Fractures filled with iron oxide.
Geochemistry: Olivine $Fo_{55}Fa_{43}La_2$, FeO/MnO=75; Pyroxene $Ti\text{-}Ts_4Al\text{-}Ts_{15}En_{33}Fs_8Wo_{39}$, FeO/MnO=90; Plagioclase An_{100}; Spinel $Sp_{49}Hc_{47}Chr_4$. Iron oxide with variable amounts of Ni (2-9 wt%).
Classification: Achondrite. Angrite of the metal-bearing type. Weathering limited to metal and sulfide. Likely paired with NWA 2999/3164.
Specimens: A total sample mass of 40 g is on deposit at *UPVI*. Moroccan Import, Asnières, France, holds the main mass.

Northwest Africa 5234 (NWA 5234)
(Northwest Africa), Algeria
Purchased: Feb 2008
Classification: HED achondrite (Eucrite, monomict)
History: Found in Algeria and purchased in February 2008 by Adam Hupé from a Moroccan dealer at the Tucson Gem and Mineral Show.
Physical characteristics: A single, very fresh, 399 g stone, partially covered with fusion crust. The interior is crosscut by numerous thin, dark shock veins.
Petrography: (A. Irving and S. Kuehner, *UWS*) Monomict basaltic eucrite breccia composed of exsolved pigeonite, discrete grains of orthopyroxene and augite, calcic plagioclase, silica polymorph (some intergrown with plagioclase and augite), Ti-bearing chromite, troilite and rare zircon. The veins consist of glass plus very fine clasts and microlites of mostly plagioclase and pyroxene.
Geochemistry: Orthopyroxene host ($Fs_{61.4-61.5}Wo_{2.0-1.9}$, Fe/Mn=30.4), plagioclase ($An_{89.4}Or_{0.6}$). Oxygen Isotopes (D. Rumble, *CIW*): analyses of acid-washed whole sample material by laser fluorination gave the following results: $\delta^{18}O = 3.694$; $\delta^{17}O = 1.727$; $\Delta^{17}O = -0.216$ per mil.
Classification: Achondrite (eucrite, monomict). This specimen is unusual because of the abundance of shock melt veins.
Specimens: 20.1 g and one polished slice are on deposit at *UWS*. The main mass is held by AHupé.

Northwest Africa 5435 (NWA 5435)
Morocco
Found: 2009
Classification: Primitive achondrite (Brachinite)
Physical characteristics: Desert ablated. Little fusion crust.
Petrography: Medium grained, equigranular with moderately developed flow texture. Mineral modes (in vol. %): olivine, 90; diopside, 4; plagioclase, 3; FeS+metal+merrilite, 3.
Geochemistry: Olivine, $Fa_{32.7}$, Fe/Mn=77; diopside, $Fs_{10.5}Wo_{42.6}$; plagioclase, $An_{29}Or_{2.3}$
Classification: Achondrite (brachinite)

Northwest Africa 5548 (NWA 5548)
(Northwest Africa)
Purchased: Sept 2008
Classification: Ungrouped achondrite
History: Purchased in 2008 September by Thomas Webb from a Moroccan dealer in Erfoud.
Physical characteristics: A single dark brown stone weighing 56 g.
Petrography: Protogranular texture. Composed predominantly of olivine with accessory clinopyroxene, orthopyroxene, chromite, altered kamacite, and minor chlorapatite and Mg-bearing merrillite. Plagioclase is absent.
Geochemistry: Olivine $Fa_{29.9-30.3}$, Fe/Mn=63-66; clinopyroxene $Fs_{9.8-10.0}Wo_{43.5-43.7}$, Fe/Mn=33-42; orthopyroxene $Fs_{24.1\pm0.05}Wo_{2.1-2.2}$, Fe/Mn=36-40. Oxygen isotopes (D. Rumble, *CIW*): analyses of acid-washed subsamples by laser fluorination gave, respectively $\delta^{17}O = 2.69, 2.72$; $\delta^{18}O = 5.00, 5.08$; $\Delta^{17}O = 0.056, 0.046$ per mil.
Classification: Achondrite (brachinite-like, ungrouped). Paired with NWA 5400, 6077, 6172, 6292, 6424, 5363, and 6572.
Specimens: A total of 2.7 g and one polished thin section are on deposit at *UWS*; a further 11 g and one thin section are on deposit at *BathO*. Mr. T. *Webb* holds the main mass.

Northwest Africa 5652 (NWA 5652)
Morocco
Found: 2008
Classification: HED achondrite (Diogenite, olivine)
Petrography: (T. Bunch, *NAU*) Light brown, olivine-rich diogenite. Mineral modes (vol%): orthopyroxene 51, olivine 36, FeS 6, chromite 4, apatite 3.

Northwest Africa 5719 (NWA 5719)
Morocco
Found: 2008
Classification: HED achondrite (Eucrite)
Petrography: (T. Bunch, *NAU*) Fine-grained (<0.5 mm) monomict breccia, cumulate texture.
Geochemistry: Orthopyroxene, $Fs_{62.7}Wo_{3.2}$; exsolved augite, $Fs_{25.8}Wo_{43.7}$; plagioclase, $An_{89.5}$; chromite cr# = 83.

Northwest Africa 5720 (NWA 5720)
Morocco
Found: 2008

Classification: Mesosiderite

Petrography: (T. Bunch, *NAU*) Mostly evenly distributed fine-grained (<3 mm) metal and recrystallized silicates (orthopyroxene, olivine, and plagioclase) with scattered large (<11 mm) orthopyroxene grains.

Northwest Africa 5724 (NWA 5724)

Morocco

Found: 2008

Classification: HED achondrite (Howardite)

Petrography: (T. Bunch, *NAU*) Subophitic basalt clasts; maskelynite, and highly shocked orthopyroxenes; unusual metal content of 2-3 vol%. Clast modes (vol%): diogenitic 55, eucrites 35, shock-melt/quenched 7, metal 3.

Geochemistry: Diogenites: $Fs_{24.7}$ (FeO/MnO = 28). Eucrites: $Fs_{56.2}$ (FeO/MnO = 33)

Northwest Africa 5738 (NWA 5738)

Morocco

Found: 2009

Classification: HED achondrite (Eucrite, brecciated)

Physical characteristics: Almost entirely fusion-crusted.

Petrography: Brecciated eucrite with glassy shock-melt veins. Pyroxene FeO/MnO (avg. wt. ratio) 32.9. Monomict status is shown by pyroxne data: 62 analyses all along a single tie-line on pyroxene quadrilateral. Compositionally, shock-melt vein glasses resemble bulk rock.

Geochemistry: Oxygen isotopic composition (B-G. Choi and I. Ahn, using CO_2 laser-fluorination at *KOPRI*): $\delta^{18}O$ = 3.59, $\delta^{17}O$ = 1.62 and $\Delta^{17}O$ = -0.27 (all per mil). Bulk-rock INAA and EPMA data (e.g., Fe/Mn, Ga/Al) confirm it is a eucrite.

Classification: Brecciated eucrite.

Northwest Africa 5742 (NWA 5742)

(Northwest Africa)

Found: Feb 2009

Classification: HED achondrite (Diogenite)

Petrography: (A. Irving and S. Kuehner, *UWS*): Fragmental breccia consisting of abundant angular mineral grains (mostly orthopyroxene and plagioclase) and a few lithic eucrite clasts in a finer grained matrix. Orthopyroxene is relatively abundant and exhibits more iron-rich rims against the matrix. Less abundant angular grains of silica also exhibit orthopyroxene reaction rims. Other phases are very calcic plagioclase, exsolved pigeonite ($Fs_{24.5}Wo_{7.0}$, FeO/MnO = 27.2), chromite, ilmenite and troilite.

Geochemistry: Orthopyroxene, $Fs_{24.5\text{-}33.2}Wo_{2.4\text{-}3.1}$, FeO/MnO=30.7-33.7; exsolved pigeonite, $Fs_{24.5}Wo_{7.0}$, FeO/MnO=27.2.

Northwest Africa 5804 (NWA 5804)

(Northwest Africa)

Purchased: Oct 2005

Classification: Iron meteorite (IAB, ungrouped)

History: A single specimen was purchased in October 2005 at the Munich Mineral Fair, Germany, by Andreas Gren from a Moroccan dealer.

Physical characteristics: The 726 g mass has a rounded elongated shape, with a reddish brown exterior.

Petrography: (C. Herd, *UAb*) Two 2.5 × 5 cm polished and etched slabs reveal an unusual microstructure consisting of cm-sized domains composed of 200 µm scale equigranular kamacite, taenite, and schreibersite grains. Graphite is present as <5 µm grains, 200 µm rounded blebs, and as mm-scale globular aggregates. Centimeter-scale domains are evident in hand specimen, which are consistent with heterogeneous distribution of kamacite, taenite, schreibersite, and graphite.

Geochemistry: INAA data (J. Duke, *UAb*): Ni = 11.54±0.03 wt%, Co = 0.509±0.003 wt%, Ga = 35.8±0.4 µg/g, Ge = 28±4 µg/g, Ir = 0.196±0.008 µg/g, Au = 1.04±0.02 µg/g, As = 13.0±0.2 µg/g, Cu = 307±23 µg/g, Cr = 32±5 µg/g (uncertainties 1 σ), W < 0.27 µg/g, Re < 0.05 µg/g. Although Ni, Ga and Ge concentrations are similar to the IAB-sLM/sLH group, the Au concentration is well below the minimum 1.3 µg/g required for the IAB-MG complex.

Classification: Iron meteorite, IAB-ungrouped, low shock, low weathering.

Specimens: 15.0 g and 13.7 g slabs and a 3.2 g analyzed sample (including polished mount) at *UAb*. Main mass with *Gren*.

Northwest Africa 5956 (NWA 5956)

(Northwest Africa)

Purchased: 2006 Feb

Classification: Carbonaceous chondrite (CK3)

Petrography: (A. Irving and S. Kuehner, *UWS*) Chondrules are well formed. Minerals include kamacite, taenite, lawrencite, and troilite.

Geochemistry: Olivine ($Fa_{0.7\text{-}38.8}$), orthopyroxene ($Fs_{4.7}Wo_{2.6}$), clinopyroxene ($Fs_{18.1}Wo_{11.7}$), intermediate plagioclase ($An_{48.9\text{-}71.1}Or_{3.0\text{-}1.1}$). Oxygen isotopes (D. Rumble, *CIW*): $\delta^{17}O$ -6.432, -6.314; $\delta^{18}O$ -3.151, -2.748; $\Delta^{17}O$ -4.775, -4.869 per mil.

Northwest Africa 5961 (NWA 5961)

(Northwest Africa), Morocco

Purchased: May 2009

Classification: HED achondrite (Eucrite, monomict)

History: A stone found near Zag, Morocco, in May 2009 was purchased by Ali and Mohammed Hmani.

Physical characteristics: A single, 259 g, orange-brown stone, partially covered with remnant dark-brown fusion crust.

Petrography: (A. Irving and S. Kuehner, *UWS*): Ophitic-textured assemblage of calcic plagioclase laths and exsolved pigeonite blades accompanied by relatively large grains of silica polymorph, chromite (of variable Ti content), ilmenite and rare zircon. Exsolved pyroxenes have either coarse lamellae of clinopyroxene in an orthopyroxene host, or lamellae of orthopyroxene in a clinopyroxene host. Plagioclase contains abundant microscopic blebs of exsolved orthopyroxene.

Geochemistry: Orthopyroxene ($Fs_{59.1\text{-}59.6}Wo_{4.6\text{-}5.1}$, Fe/Mn=29.7-31.6), clinopyroxene ($Fs_{29.1\text{-}29.3}Wo_{40.3\text{-}40.7}$, Fe/Mn=31.3-32.7), plagioclase ($An_{88.2\text{-}89.7}Or_{0.7}$). Oxygen Isotopes (D. Rumble, *CIW*): acid-washed material analyzed by laser fluorination gave, respectively $\delta^{18}O$ = 3.63, 3.58; $\delta^{17}O$ = 1.66, 1.63; $\Delta^{17}O$ = -0.251, -0.253 per mil.

Classification: Achondrite (eucrite, monomict).

Specimens: 22 g, two polished thin sections, and a polished mount are on deposit at *UWS*. The remaining material is held by an anonymous collector.

Northwest Africa 6079 (NWA 6079)

(Northwest Africa)

Purchased: Sep 2008

Classification: LL-melt breccia

Petrography: (A. Irving and S. Kuehner, *UWS*): No chondrules are present. Contains large ragged grains of stained troilite, chromite, and taenite. One aggregate of ilmenite+taenite+troilite observed.

Geochemistry: Olivine ($Fa_{30.5\text{-}30.6}$), orthopyroxene ($Fs_{24.7\text{-}25.9}Wo_{3.2\text{-}2.9}$), clinopyroxene ($Fs_{11.5\pm0.05}Wo_{41.5\text{-}41.9}$), sodic plagioclase.

Northwest Africa 6105 (NWA 6105)
(Northwest Africa)
Purchased: 2008 May 18
Classification: HED achondrite (Eucrite, polymict)
Petrography: Breccia consisting of clasts ranging in size from 1-5 mm within a matrix of pyroxene, plagioclase, opaque phases, phosphate, and in some glass. Textures indicative of shock metamorphism are common as are augite exsolution lamellae in host pigeonite. Minerals include pyroxene (low- and high-Ca), plagioclase, and silica with minor amounts of calcite, ilmenite, troilite, chromite, and Fe-Ni metal.
Geochemistry: Pyroxene: Mg# = 38-57, low-Ca = $Fs_{39.3-58.2}Wo_{0.9-10.0}$, and high-Ca = $Fs_{18.0-30.2}Wo_{32.8-46.3}$. Plagioclase: An_{76-95}. Oxygen isotopic compositions (R. Tanaka, *OkaU*, and D. Rumble, *CIW*, laser fluorination): duplicate analysis $\delta^{18}O$ = 3.773, $\delta^{17}O$ = 1.679, $\Delta^{17}O$ = -0.308; and $\delta^{18}O$ = 3.852, $\delta^{17}O$ = 1.737, $\Delta^{17}O$ = -0.291 (all per mil).
Classification: Achondrite (eucrite, polymict) with shock metamorphism. Pyroxene Mn/Fe = 0.033 consistent with HEDs.
Specimens: 12 g and 5 thin sections are on deposit at *UTenn*. L. A. Taylor holds the main mass.

Northwest Africa 6106 (NWA 6106)
Northwest Africa
Purchased: 2008 May 18
Classification: HED achondrite (Eucrite, polymict)
Petrography: Breccia containing unbrecciated igneous lithic clasts, which have ophitic to subophitic textures. Minerals present include pyroxene (low- and high-Ca), plagioclase, silica, with minor amounts of calcite, ilmenite, troilite, chromite, and Fe-Ni metal. The pyroxenes contain exsolution lamellae.
Geochemistry: Pyroxene Mg# = 35-42, low-Ca = $Fs_{33.5-35.8}Wo_{2.6-10.9}$, and high-Ca = $Fs_{28.7-29.8}Wo_{37.3-42.1}$; Plagioclase An_{80-93}. Oxygen isotopic compositions (R. Tanaka, *OkaU*, and D. Rumble, *CIW*, laser fluorination): $\delta^{18}O$ = 1.702, $\delta^{17}O$ = -0.311, $\Delta^{17}O$ = 3.823 (all per mil).
Classification: Achondrite (eucrite, polymict) with shock metamorphism. Pyroxene Mn/Fe = 0.033 consistent with HEDs.
Specimens: 302 g and 5 thin sections are on deposit at *UTenn*. L. A. Taylor holds the main mass.

Northwest Africa 6152 (NWA 6152)
(Northwest Africa)
Purchased: 2010 Jan
Classification: Primitive achondrite (Brachinite)
History: Purchased in January 2010 by Hanno Strufe from a Moroccan dealer in Erfoud.
Physical characteristics: Eighteen small brownish stones with a total weight of 200 g.
Petrography: (A. Irving and S. Kuehner, *UWS*) Protogranular texture. Aggregate of predominantly olivine with subordinate orthopyroxene, clinopyroxene, chlorapatite, chromite, partly altered kamacite and troilite.
Geochemistry: Olivine ($Fa_{30.6-30.7}$; FeO/MnO=63.7-66.7), orthopyroxene ($Fs_{24.6-24.7}Wo_{2.1}$; FeO/MnO=36.8-39.1), clinopyroxene ($Fs_{9.8-10.2}Wo_{43.6-43.2}$; FeO/MnO=28.1-29.6). Oxygen isotopes (D. Rumble, *CIW*): $\delta^{17}O$ 2.23, 2.24; $\delta^{18}O$ 4.65, 4.65; $\Delta^{17}O$ -0.213, -0.210 per mil.
Classification: Brachinite. Although the mineralogy and mineral compositions are similar to those in NWA 5400 and paired stones, the oxygen isotopic composition is much different and precludes a pairing.
Specimens: A total of 21.4 g and one polished thin section are on deposit at *UWS*. The main masses are held by Mr. H. Strufe.

Northwest Africa 6171 (NWA 6171)
(Northwest Africa)
Purchased: 2009 Dec
Classification: Primitive achondrite (Lodranite)
Petrography: Fragmental breccia composed of coarse mineral and some polycrystalline clasts (up to 3 mm across) with finer interstitial debris of the same phases together with minor altered metal. Major minerals are olivine (FeO/MnO=23.2-24.3) and orthopyroxene (FeO/MnO=13-18), with subordinate clinopyroxene (some as exsolution lamellae in orthopyroxene; FeO/MnO=13-22) and chromite. Olivine grains contain characteristic small, irregularly-shaped polycrystalline inclusions composed mainly of pyroxene+chromite+pentlandite. Likely paired with NWA 4478, NWA 4875, NWA 4933, NWA 5403, NWA 5488 and NWA 6075.

Northwest Africa 6172 (NWA 6172)
(Northwest Africa)
Purchased: Dec 2009
Classification: Ungrouped achondrite
History: Purchased in 2009 December by Thomas Webb from a Moroccan dealer in Agadir.
Physical characteristics: A single dark brown stone weighing 153 g.
Petrography: Protogranular texture. Composed predominantly of olivine with accessory clinopyroxene, orthopyroxene, chromite, altered kamacite, troilite and minor pyrite. Plagioclase is absent and no phosphates were found.
Geochemistry: Olivine $Fa_{30.3-30.6}$, Fe/Mn=59-63; clinopyroxene $Fs_{9.5-10.0}Wo_{43.1-43.8}$, Fe/Mn=40-47; orthopyroxene $Fs_{24.3-24.6}Wo_{2.2-2.3}$, Fe/Mn=36-38. Oxygen isotopes (D. Rumble, *CIW*): analyses of acid-washed subsamples by laser fluorination gave, respectively $\delta^{17}O$ = 2.78, 3.00; $\delta^{18}O$ = 5.35, 5.54; $\Delta^{17}O$ = -0.036, 0.091 per mil.
Classification: Achondrite (brachinite-like, ungrouped). Paired with NWA 5400, 5548, 6077, 6292, 6424, 5363, and 6572.
Specimens: A total of 1.8 g and one polished thin section are on deposit at *UWS*; a further 20 g and one thin section are on deposit at *BathO*. Mr. T. *Webb* holds the main mass.

Northwest Africa 6187 (NWA 6187)
(Northwest Africa)
Found: 2009
Classification: Primitive achondrite (Winonaite)
Petrography: Equigranular texture.
Geochemistry: (T. Bunch and Wittke, *NAU*) Opx Fe/Mn = 9.1; Ol Fe/Mn = 12.1; plag = $An_{13.8}$; Cpx = $Fs_{4.0}$. Modes: Opx, 48; Ol, 31; plag, 8; metal, 3; FeS, 6.

Northwest Africa 6193 (NWA 6193)
(Northwest Africa)
Purchased: 2009
Classification: Enstatite achondrite (Aubrite)
Physical characteristics: Igneous rock with variable grain size (<1 mm to 5 mm).
Petrography: Contains schreibersite, graphite, amd daubreelite.
Geochemistry: Metal Si = 1.4 wt %; FeS Cr = 2.7 wt %; plagioclase, $An_{10}Or_5$

Northwest Africa 6221 (NWA 6221)
(Northwest Africa)
Purchased: Apr 2010

Classification: Lunar meteorite (feldspathic breccia)
History: Purchased by P. Thomas in April 2010 from a dealer who reported that this stone was found near Geltat Zemmour.
Physical characteristics: One single stone, dark gray with white clasts.
Petrography: (A. Jambon, O. Boudouma, D. Badia) Small mineral clasts in a fine-grained matrix with some heterogeneous glass (impact melt glass). Contains plagioclase, pigeonite, augite, ilmenite, olivine, merrilite. Rare lithic clasts.
Geochemistry: Feldspar $An_{96\text{-}89}$. Augite ($Fs_{27\text{-}22}Wo_{40\text{-}30}$, Fe/Mn=60). Olivine (Fa=12-29, Fe/Mn=60). Ilmenite with 6% MgO. Bulk composition (R. Korotev, *WUSL*): FeO 6.6 wt%, Sc 9.7 ppm, Ni 1120 ppm, Sm 5.7 ppm, Th 1.7 ppm.
Classification: Lunar (feldspathic breccia). Probably paired with NWA 4936 and NWA 5406.

Northwest Africa 6227 (NWA 6227)
(Northwest Africa)
Purchased: 2009
Classification: Ordinary chondrite (H3)
Geochemistry: (A. Irving and S. Kuehner, *UWS*): Olivine, $Fa_{2.4\text{-}25.3}$. Three pyroxenes were observed: $Fs_{6.0}Wo_{0.3}$, $Fs_{23.6}Wo_{9.0}$, and $Fs_{0.8\text{-}18.4}Wo_{39.6\text{-}26.4}$. Cr_2O_3 in ferroan olivine: 0.02-0.08 wt.% Estimated subtype 3.5.

Northwest Africa 6228 (NWA 6228)
(Northwest Africa)
Purchased: 2003
Classification: Ordinary chondrite (H3)
Geochemistry: (A. Irving and S. Kuehner, *UWS*): Olivine, $Fa_{8.7\text{-}31.8}$. Three pyroxenes were observed: $Fs_{6.5\text{-}29.9}Wo_{0.3\text{-}3.5}$, $Fs_{9.8}Wo_{17.7}$, and $Fs_{2.5}Wo_{43.4}$. Cr_2O_3 in ferroan olivine: 0.01-0.04 wt.%. Estimated subtype 3.6.

Northwest Africa 6265 (NWA 6265)
(Northwest Africa)
Purchased: Apr 2010
Classification: HED achondrite (Eucrite, polymict)
Petrography: (A. Irving and S. Kuehner, *UWS*): Fresh fragmental breccia composed mostly of cumulate eucrite mineral debris with some polymineralic cumulate eucrite and basaltic eucrite clasts, plus sparse diogenite clasts.
Geochemistry: Exsolved pigeonite (lamellae of clinopyroxene within host orthopyroxene), silica, calcic plagioclase, minor fayalitic olivine ($Fa_{84.7\text{-}87.1}$), ilmenite and troilite. In most pigeonite grains the clinopyroxene lamellae are $Fs_{11.5\text{-}12.2}Wo_{45.2\text{-}44.7}$ (FeO/MnO = 19.8-24.4) and host orthopyroxene is $Fs_{33.3\text{-}33.5}Wo_{1.6\text{-}2.2}$ (FeO/MnO = 27.4-29.3), but in some more ferroan matrix grains the clinopyroxene lamellae are $Fs_{29.0}Wo_{42.3}$ (FeO/MnO = 32.4) and host orthopyroxene is $Fs_{61.4}Wo_{3.9}$ (FeO/MnO = 32.1). Orthopyroxene in diogenite clasts is $Fs_{29.4\text{-}31.7}Wo_{2.8\text{-}4.0}$ (FeO/MnO = 27.7-28.0).

Northwest Africa 6267 (NWA 6267)
(Northwest Africa)
Purchased: 2010 Feb 12
Classification: HED achondrite (Diogenite)
Physical characteristics: (A. Irving and S. Kuehner, *UWS*): Polymict breccia composed mostly of diogenitic clasts and debris, with sparse material derived from cumulate eucrites and sparse olivine grains.
Petrography: Olivine ($Fa_{35.9\text{-}37.6}$; FeO/MnO = 44.3-46.4), orthopyroxene ($Fs_{31.5}Wo_{3.6}$; $Fs_{46.7}Wo_{4.2}$; FeO/MnO = 28.5-29.9), clinopyroxene ($Fs_{20.1\text{-}24.3}Wo_{40.7\text{-}41.6}$; FeO/MnO = 23.1-27.7), calcic plagioclase, chromite and troilite

Northwest Africa 6268 (NWA 6268)
(Northwest Africa)
Purchased: 12 Feb 2010
Classification: HED achondrite (Eucrite, polymict)
Petrography: (A. Irving and S. Kuehner, *UWS*): Polymict breccia composed mostly of cumulate eucrite clasts and debris, with sparse olivine grains and basaltic eucrite clasts.
Geochemistry: Orthopyroxene ($Fs_{64.0\text{-}65.0}Wo_{2.7}$; FeO/MnO = 30.7-33.8), clinopyroxene ($Fs_{27.3\text{-}31.6}Wo_{42.8\text{-}41.6}$; FeO/MnO = 32.4-35.1), olivine ($Fa_{26.4\text{-}33.2}$; FeO/MnO = 45.8-55.3), calcic plagioclase, silica, ilmenite and troilite.

Northwest Africa 6271 (NWA 6271)
(Northwest Africa)
Purchased: 12 Feb 2010
Classification: Mesosiderite
Petrography: (A. Irving and S. Kuehner, *UWS*): Aggregate of orthopyroxene, clinopyroxene, altered kamacite, taenite, calcic plagioclase, and troilite.
Geochemistry: Orthopyroxene ($Fs_{33.1\text{-}33.2}Wo_{3.3\text{-}2.9}$; FeO/MnO = 24.1-26.8), clinopyroxene ($Fs_{14.0\text{-}15.2}Wo_{43.2\text{-}43.9}$; FeO/MnO = 19.1-20.8).

Northwest Africa 6274 (NWA 6274)
(Northwest Africa)
Purchased: 2010 Feb 12
Classification: HED achondrite (Howardite)
Petrography: (A. Irving and S. Kuehner, *UWS*): Polymict breccia composed mostly of basaltic eucrite clasts and debris, with >10 vol.% of diogenite material.
Geochemistry: Diogenitic orthopyroxene ($Fs_{20.9}Wo_{1.6}$; FeO/MnO = 34.7), pigeonite ($Fs_{31.0}Wo_{6.1}$; $Fs_{55.5}Wo_{17.0}$; FeO/MnO = 27.2-27.7), augite ($Fs_{22.3}Wo_{44.1}$; $Fs_{30.7}Wo_{36.1}$; FeO/MnO = 28.2-30.5), ferroan olivine ($Fa_{66.3\text{-}67.7}$; FeO/MnO = 42.7-53.5), calcic plagioclase, chromite, ilmenite, and troilite.

Northwest Africa 6280 (NWA 6280)
(Northwest Africa)
Purchased: 2010 Mar
Classification: Rumuruti chondrite (R5)
Petrography: (A. Irving and S. Kuehner, *UWS*): Fresh fragmental breccia; larger clasts have fairly distinct chondrules.
Geochemistry: Olivine ($Fa_{39.1\text{-}39.7}$; Cr_2O_3 = 0.23-0.42 wt.%), orthopyroxene ($Fs_{30.2\text{-}31.8}Wo_{0.3\text{-}0.2}$), pigeonite ($Fs_{11.5\text{-}11.7}Wo_{6.2\text{-}6.5}$), sodic plagioclase, Ti-chromite, pentlandite and iron sulfide (probably pyrrhotite).

Northwest Africa 6288 (NWA 6288)
(Northwest Africa)
Purchased: 2010 Jun
Classification: HED achondrite (Eucrite, monomict)
Petrography: (A. Irving and S. Kuehner, *UWS*): Fresh breccia (probably monomict) composed of clasts and mineral fragments from cumulate eucrite material.
Geochemistry: Pigeonite ($Fs_{30.2\text{-}58.6}Wo_{7.3\text{-}6.5}$; FeO/MnO = 32.2-33.4). clinopyroxene ($Fs_{26.7\text{-}28.9}Wo_{42.8\text{-}42.0}$; FeO/MnO = 31.0-30.3), calcic plagioclase, silica polymorph, chromite, ilmenite, troilite and rare metal (with slight secondary staining).

Northwest Africa 6290 (NWA 6290)

(Northwest Africa)
Purchased: 2010 Jun
Classification: HED achondrite (Diogenite)

Petrography: (A. Irving and S. Kuehner, *UWS*): Fresh polymict breccia composed predominantly of distinctly "milky" orthopyroxene fragments and some polycrystalline clasts, with sparse pigeonite, olivine (bimodal in composition), calcic plagioclase, chromite, troilite and Ni-poor metal. Most of the orthopyroxene is charged with microscopic inclusions of chromite and troilite, which render it pale tan-colored in thin section.

Geochemistry: Orthopyroxene ($Fs_{22.9\text{-}24.9}Wo_{1.0}$; FeO/MnO = 30.8-31.0), pigeonite ($Fs_{28.1\text{-}29.1}Wo_{13.4\text{-}7.0}$; FeO/MnO = 22/6-26.0), magnesian olivine ($Fa_{12.9\text{-}13.1}$; FeO/MnO = 40.9-48.5), ferroan olivine ($Fa_{31.0}$; FeO/MnO = 44.2).

Northwest Africa 6292 (NWA 6292)
(Northwest Africa)
Found: 2010
Classification: Ungrouped achondrite

History: Purchased in June 2010 by Marc Jost from a Moroccan dealer

Physical characteristics: A single brownish, dense 725 g stone

Petrography: (A. Irving and S. Kuehner, *UWS*) Protogranular texture. Aggregate of predominantly olivine with subordinate orthopyroxene, clinopyroxene, chlorapatite, chromite, partly altered kamacite and troilite.

Geochemistry: Olivine ($Fa_{30.2\text{-}30.3}$; FeO/MnO = 51.7-53.5), orthopyroxene ($Fs_{24.1\text{-}24.3}Wo_{1.9\text{-}2.0}$; FeO/MnO = 36.9-41.1), clinopyroxene ($Fs_{9.4}Wo_{44.1}$; FeO/MnO = 27.9; Al_2O_3 = 0.75 wt.%; Cr_2O_3 = 0.91 wt.%). Oxygen isotopes (D. Rumble, *CIW*): $\delta^{17}O$ 2.42; $\delta^{18}O$ 4.55; $\Delta^{17}O$ +0.031 per mil

Classification: Achondrite (ungrouped, brachinite-like). This specimen has the same mineralogy and oxygen isotopic composition as NWA 5400, and is paired with it.

Specimens: A total of 21 g and one polished thin section are on deposit at *UWS*. The main mass is held by Marc Jost.

Northwest Africa 6293 (NWA 6293)
(Northwest Africa)
Purchased: 2010 June 17
Classification: HED achondrite (Diogenite)

Petrography: (A. Irving and S. Kuehner, *UWS*): Complex polymict breccia composed mostly of diogenitic clasts and debris (yellow-brown in thin section), with sparse material derived from cumulate eucrites.

Geochemistry: Orthopyroxene ($Fs_{32.2\text{-}34.2}Wo_{3.5\text{-}2.7}$; $Fs_{60.9}Wo_{3.5}$; FeO/MnO = 30.9-31.6), magnesian clinopyroxene ($Fs_{12.8\text{-}12.9}Wo_{44.3\text{-}44.6}$; FeO/MnO = 25.4-25.9), more ferroan clinopyroxene ($Fs_{30.0}Wo_{41.8}$; FeO/MnO = 33.6), sparse shocked calcic plagioclase, chromite and troilite.

Northwest Africa 6294 (NWA 6294)
(Northwest Africa)
Purchased: 2010 Feb
Classification: HED achondrite (Eucrite, polymict)

Petrography: (A. Irving and S. Kuehner, *UWS*): Polymict breccia composed mostly of fine grained annealed basaltic eucrite clasts and debris, with sparse material derived from diogenites.

Geochemistry: Orthopyroxene ($Fs_{45.8\text{-}54.6}Wo_{1.5\text{-}3.2}$; FeO/MnO = 34.3-38.3), clinopyroxene ($Fs_{20.7\text{-}33.6}Wo_{39.5\text{-}34.6}$; FeO/MnO = 28.1-34.1), calcic plagioclase, ilmenite, chromite and troilite.

Northwest Africa 6340 (NWA 6340)
(Northwest Africa)
Purchased: 2010 Jun
Classification: HED achondrite (Diogenite)

Petrography: (A. Irving and S. Kuehner, *UWS*): Very fresh monomict breccia. No eucritic debris is present.

Geochemistry: Composed predominantly of angular diogenitic orthopyroxene grains ($Fs_{23.2\text{-}23.5}Wo_{2.3\text{-}2.5}$; FeO/MnO = 31.9-33.1) with minor olivine ($Fa_{29.8\text{-}30.2}$; FeO/MnO = 50.8-54.7), chromite, troilite, and rare polymineralic diogenite clasts.

Northwest Africa 6341 (NWA 6341)
(Northwest Africa)
Purchased: 2010 Jun
Classification: Carbonaceous chondrite (CK5/6)

Petrography: (A. Irving and S. Kuehner, *UWS*): Sparse recrystallized chondrules.

Geochemistry: Olivine ($Fa_{29.4\text{-}29.7}$; FeO/MnO = 100-102), orthopyroxene ($Fs_{24.4\text{-}26.1}Wo_{4.1\text{-}0.6}$; FeO/MnO = 76-80), clinopyroxene ($Fs_{11.0\text{-}12.1}Wo_{47.9\text{-}46.6}$ and $Fs_{13.6}Wo_{31.7}$; FeO/MnO = 86-240), plagioclase ($An_{40.8\text{-}89.0}Or_{6.5\text{-}0.2}$), Cr-bearing magnetite and troilite. Oxygen isotopes (D. Rumble, *CIW*): $\delta^{17}O$ -4.53, -4.48; $\delta^{18}O$ -0.88, -0.65; $\Delta^{17}O$ -4.069, -4.141

Northwest Africa 6345 (NWA 6345)
(Northwest Africa)
Purchased: 2010 Jun
Classification: HED achondrite (Eucrite, polymict)

Petrography: (A. Irving and S. Kuehner, *UWS*): Polymict breccia composed mostly of basaltic eucrite clasts and debris, with sparse diogenitic clasts.

Geochemistry: Minerals include exsolved pigeonite (clinopyroxene lamellae within orthopyroxene host, and vice versa), diogenitic orthopyroxene, calcic plagioclase, silica polymorph, ilmenite and troilite. Exsolved pigeonite contains orthopyroxene ($Fs_{53.9\text{-}64.4}Wo_{2.3\text{-}1.9}$; FeO/MnO = 32.4-36.1) and clinopyroxene ($Fs_{23.0\text{-}28.8}Wo_{42.6}$; FeO/MnO = 30.6-31.7); diogenitic orthopyroxene is $Fs_{26.5\text{-}26.6}Wo_{3.7}$; FeO/MnO = 27.4-30.3).

Northwest Africa 6349 (NWA 6349)
(Northwest Africa)
Purchased: Aug 2010
Classification: Primitive achondrite (Brachinite)

History: Purchased in 2010 August by Stefan Ralew from a Moroccan dealer in Erfoud.

Physical characteristics: A single 730 g, dark-brown stone.

Petrography: Protogranular texture. Composed predominantly of olivine with accessory clinopyroxene, chromite, altered kamacite, iron sulfide (probably pyrrhotite) and minor taenite (associated with Ni-bearing pyrrhotite). Orthopyroxene and plagioclase are absent. Tiny inclusions of orthopyroxene+pyrrhotite are present within olivine.

Geochemistry: Olivine $Fa_{34.1\text{-}34.6}$, Fe/Mn=74-75; clinopyroxene $Fs_{9.9\text{-}10.1}Wo_{46.5\text{-}46.4}$, Fe/Mn=47-68.

Classification: Achondrite (brachinite). This specimen possibly is paired with NWA 4882.

Specimens: A total of 21.5 g and one polished thin section are on deposit at *UWS*. *Ralew* holds the main mass.

Northwest Africa 6354 (NWA 6354)
(Northwest Africa)
Purchased: 2010 Jun
Classification: Ureilite

Petrography: Coarse grained aggregate of olivine (exhibiting characteristic reduced, metal-bearing rims) and pigeonite

Northwest Africa 6363 (NWA 6363)
Morocco
Purchased: Oct 2004
Classification: Enstatite chondrite (EH6)
Petrography: (C. A. Lorenz, *Vernad*) Grain size 20 to 100 µm. Rare, irregularly shaped grains to 800 µm. An indistinct RP chondrule was found. The color of cathodoluminescence of the pyroxene in NWA 6363 is similar to that in a simultaneously tested aubrite. Accessory phases are feldspar, Fe-Ni metal, sulfides and weathering products.
Geochemistry: (N. N. Kononkova, *Vernad*, EMP): pyroxene - $En_{0.68}Wo_{1.42}$; feldspar - $Ab_{83.5}An_{16.5}$; Si content in a kamacite is 3 wt%

Northwest Africa 6369 (NWA 6369)
Algeria
Found: 2008
Classification: Iron meteorite (IAB complex)
History: Complete individual found in Algeria in 2008 and purchased by anonymous collector in Saint Marie, France, in 2009.
Physical characteristics: Surface is dark brown with developed abrasion relief, polyhedral shape, 14830 g.
Petrography: (S. N. Teplyakova, *Vernad*) Composed of 80 vol% metal and 20 vol% silicates. Metal consists of polygonal grains of kamacite to 1.5 cm with rare taenite lamellae, spheroidized plessite, shreibersite, troilite and graphite. The silicate inclusions consist of of olivine, pyroxene, minor plagioclase, chromite, graphite, kamacite, taenite and troilite.
Geochemistry: Mineral compositions and geochemistry: (S. E. Borisovsky, *IGEM*, EMP) Kamacite (Ni 6.5 wt.%, Co 0.46-0.54 wt.%, P 0.03-0.06 wt.%); Olivine $Fa_{4.9}$ (Fe/Mn=7-12), pyroxene $Fs_{7.2}Wo$? (Fe/Mn=7-12), augite $En_{51}Wo_{45.1}$, plagioclase $Ab_{80.7}An_{15.7}$, chromite Cr/(Cr+Al) = 97.3 (MnO 2.67, V_2O_3 0.69, ZnO 1.66). Kamacite microelement composition (M. Humayun, *FSU*, LA-ICP-MS, ppm): Ga 79, Ge 342, Ru 5.75, Rh - 1.27, Pd 2.8, W 0.92, Re 0.35, Os 4.7, Ir 3.9, Pt 6.44, Au 1.23, As 10.8. Silicates oxygen isotopes composition (I. Franchi, *OU*, Laser fluorination): $\delta^{17}O$=2.35, $\delta^{18}O$=5.39, $\Delta^{17}O$=-0.45 (per mil).
Classification: Iron (IAB-xomplex, coarsest octahedrite).
Specimens: A total of 77.78 g and polished section are on deposit at *Vernad*. The anonymous collector holds the main mass.

Northwest Africa 6420 (NWA 6420)
(Northwest Africa)
Purchased: 2010 Sep
Classification: HED achondrite (Howardite)
Petrography: Fresh specimen (with only slight iron oxide staining from weathering of rare metal) composed mainly of diogenitic debris with minor (>10 volume %) eucritic debris (from both cumulate and basaltic eucrite lithologies)

Northwest Africa 6421 (NWA 6421)
(Northwest Africa)
Purchased: 2010 Sep
Classification: HED achondrite (Diogenite)
Petrography: Five black fusion crusted stones. Monomict breccia composed mainly of randomly oriented single grains of orthopyroxene (containing chromite inclusions) plus sparse polycrystalline diogenite clasts in a coarse grained matrix of orthopyroxene, chromite, troilite and rare olivine and fresh metal.

Northwest Africa 6424 (NWA 6424)
Algeria
Purchased: 2010 March
Classification: Ungrouped achondrite
History: Purchased in March 2010 by Stefan Ralew from a Moroccan dealer in Ouarzazate
Physical characteristics: Eight dense, brown stones with a total weight of 469 g.
Petrography: (A. Irving and S. Kuehner, *UWS*) A protogranular aggregate with triple junction grain boundaries composed mainly of olivine with orthopyroxene, clinopyroxene, altered kamacite, chromite, chlorapatite and troilite. Plagioclase absent.
Geochemistry: Olivine ($Fa_{30.1}$), orthopyroxene ($Fs_{24.6-24.8}Wo_{2.2}$), clinopyroxene ($Fs_{10.1-10.2}Wo_{43.8-44.3}$). Oxygen isotopes (D. Rumble, *CIW*): $\delta^{17}O$ 2.89; $\delta^{18}O$ 5.46; $\Delta^{17}O$ +0.017 per mil
Classification: Achondrite (ungrouped, brachinite-like). This material is paired with NWA 5400.
Specimens: A total of 22 g and one polished thin section are on deposit at *UWS*. The main masses are held by *Ralew*.

Northwest Africa 6430 (NWA 6430)
Morocco
Purchased: Feb 2010
Classification: Ordinary chondrite (L3)
Physical characteristics: One single stone with 60% fresh black fusion crust.
Petrography: Contains a large abundance of matrix. Though it is highly weathered, chromite exsolution is visible within olivine grains, indicating petrologic type <3.2
Specimens: 21.3 g mass includes thin section on deposit at the *SI*

Northwest Africa 6440 (NWA 6440)
Morocco
Found: 2009
Classification: Carbonaceous chondrite (CR2)
Petrography: Abundant heavily armored porphyritic chondrules and small AOAs and CAIs.
Geochemistry: Tight Fa range of 0.6-1.4, Fe/Mn=12; low-Ca pyroxene, $Fs_{1.6-4.3}$, Fe/Mn=8; metal Ni=5.8 wt%.

Northwest Africa 6447 (NWA 6447)
Morocco
Found: 2010
Classification: Carbonaceous chondrite (CO3.1)
Petrography: Abundance of chondrules and metal-rich chondrule-like objects (highly irregular in shape), low abundance of CAIs and AOAs, Component modes in vol %: chondrule-like objects, 38; chondrules, 28; matrix, 30; CAIs and AOAs, 4.
Geochemistry: Olivine, $Fa_{35.5\pm34}$, Cr_2O_3 (wt %) 0.37±0.20, Fe/Mn=90 to 132 (N=18); orthopyroxene, $Fs_{0.6-25.4}$ (N=8). Subtype per Grossman and Brearley, 2005.

Northwest Africa 6448 (NWA 6448)
(Northwest Africa)
Purchased: 2010 June
Classification: Primitive achondrite (Winonaite)
History: Purchased by F. Kuntz at the St. Marie Show in June 2010.
Petrography: Metamorphic texture (grainsize 0.1-0.2 mm, with a few grains to 1 mm); triple junction grain boundaries are prevalent. Aggregate of olivine, orthopyroxene, clinopyroxene, kamacite, troilite, pentlandite, sodic plagioclase, and chlorapatite.

Geochemistry: Olivine $Fa_{4.7-4.9}$ with Fe/Mn=11, orthopyroxene $Fs_{6.1-6.8}Wo_{2.3-2.4}$ with Fe/Mn=8-10, clinopyroxene $Fs_{2.6-2.8}Wo_{45.5}$ with Fe/Mn=6, and plagioclase $An_{14.7-14.8}Or_{3.7-4.0}$. Oxygen isotopes (R. Tanaka, *OkaU*): analyses of acid-washed sub-samples by laser fluorination gave, respectively $\delta^{17}O$ 2.167, 2.166; $\delta^{18}O$ 5.134, 5.155; $\Delta^{17}O$ -0.535, -0.547 per mil.
Classification: Winonaite

Northwest Africa 6471 (NWA 6471)
(Northwest Africa)
Purchased: 2010 Oct
Classification: Ureilite
Petrography: Coarse grained aggregate of olivine (exhibiting characteristic reduced, metal-bearing rims) and orthopyroxene

Northwest Africa 6474 (NWA 6474)
(Northwest Africa)
Purchased: Sept 2010
Classification: Primitive achondrite (Brachinite)
History: Purchased in 2010 September by Marc Jost from a dealer in Smara, Western Sahara.
Physical characteristics: A single dark brown stone weighing 312 g.
Petrography: Protogranular aggregate of olivine, clinopyroxene, zincian chromite, troilite, chlorapatite, minor intermediate plagioclase and taenite.
Geochemistry: Olivine $Fa_{35.7-36.1}$, Fe/Mn=71-76; clinopyroxene $Fs_{9.8-10.0}Wo_{45.4-46.0}$, Fe/Mn=33-35, Cr_2O_3=0.68-0.70 wt%. Oxygen isotopes (D. Rumble, *CIW* and R. Tanaka, *OkaU*): analyses of acid-washed subsamples by laser fluorination gave, respectively $\delta^{17}O$ = 1.98, 1.943, 2.181; $\delta^{18}O$ = 3.879, 3.829, 4.234; $\Delta^{17}O$ = -0.064, -0.073, -0.048 per mil.
Classification: Achondrite (brachinite). This specimen has textural and mineralogical similarities to NWA 4882, but differs significantly in its oxygen isotopic composition.
Specimens: A total of 20.2 g and one polished thin section are on deposit at *UWS*. Mr. M. Jost holds the main mass.

Northwest Africa 6475 (NWA 6475)
Morocco
Purchased: 2010 Sep
Classification: HED achondrite (Eucrite, polymict)
History: Material from one large and 13 additional smaller stones were purchased in September 2010 by Marc Jost from a dealer in Semara, southern Morocco.
Physical characteristics: Fourteen stones totaling 602 g of a fragmental breccia containing angular gray, white, black and sparse metal clasts.
Petrography: (A. Irving and S. Kuehner, *UWS*) Polymict breccia composed mostly of basaltic and cumulate eucrite clasts (some partly recrystallized) and related debris, dark carbonaceous chondrite clasts and sparse angular clasts of metal (up to 8 mm across, with narrow oxidized rims). Diogenite clasts and diogenitic orthopyroxene appear to be absent. Minerals include exsolved pigeonite (clinopyroxene lamellae within orthopyroxene host, and vice versa), unexsolved pigeonite, calcic plagioclase, silica polymorph, ilmenite, chromite and troilite. Metal clasts consist of kamacite with some enclosed taenite. Chondrite clasts (CM2) consist of dispersed dust-rimmed magnesian chondrules and more ferroan olivine fragments in a dark matrix containing intergrown cronstedtite-tochilinite, pentlandite, Cr-Fe-Ni-phosphosulfide, djerfisherite and calcite (apparently primary), as well as sparse small, rimmed CAI composed predominantly of spinel and perovskite.
Geochemistry: Orthopyroxene ($Fs_{60.7-62.3}Wo_{1.8-1.6}$; FeO/MnO = 32), clinopyroxene exsolution lamellae ($Fs_{25.6-29.0}Wo_{44.0-41.4}$; FeO/MnO = 31-33), pigeonite ($Fs_{23.6}Wo_{11.8}$; FeO/MnO = 30), olivine in chondrite clasts ($Fa_{1.1}$ and $Fa_{61.7}$), enstatite in chondrite clasts ($Fs_{1.1}Wo_{2.0}$; FeO/MnO = 40).
Classification: Achondrite (eucrite, polymict).
Specimens: A total of 20.7 g of type material, one large polished thin section and a serial polished thick section are on deposit at *UWS*. The remaining material is held by Mr. M. Jost.

Northwest Africa 6476 (NWA 6476)
(Northwest Africa)
Purchased: 2010 Feb
Classification: Ordinary chondrite (L, melt breccia)
Petrography: Equilibrated chondrite clasts within dark impact-melted matrix, which contains ragged grains of kamacite and troilite.

Northwest Africa 6485 (NWA 6485)
(Northwest Africa)
Purchased: June 2010
Classification: Ordinary chondrite (LL, melt rock)
History: Purchased in Sainte Marie, France, in 2010.
Physical characteristics: Dark-brown, 41.3 g, with relics of fusion crust. Cut surface is dark greenish-gray and shows achondritic texture. Medium weathering grade.
Petrography: (C. A. Lorenz; *Vernad*) Unbrecciated, medium-grained, achondritic, with poikilitic texture. Consists of pyroxene that poikilitically encloses olivine. Minor feldspar between orthopyroxene grains. Accessory phases - chromite, FeNi metal, and troilite.
Geochemistry: (N. N. Kononkova, *Vernad*, EMP) Olivine $Fa_{28.5}$ (Fe/Mn = 53); pyroxene $En_{73.2}Wo_{3.7}$ (Fe/Mn = 31.4); feldspar $Ab_{82.3}An_{12.1}Or_{5.6}$. Oxygen isotopic composition (Franchi I. A., *OU*, Laser fluorination): $\delta^{17}O$ 3.87; $\delta^{18}O$ 5.15; $\Delta^{17}O$ 1.19 (per mil).
Specimens: 9.59 g sample and one polished section are on deposit at *Vernad*. The anonymous buyer holds the main mass.

Northwest Africa 6486 (NWA 6486)
Morocco
Purchased: April 2009
Classification: Ordinary chondrite (L, melt rock)
History: Stone purchased by anonymous collector in Ouarzazate, Morocco, in April 2010
Physical characteristics: An elliptically-shaped, 4.5 g grayish-brown stone, without fusion crust.
Petrography: (C. A. Lorenz; *Vernad*) The meteorite has a medium-grained porphyritic texture. Subhedral olivine crystals (56 vol%) embedded in a matrix of glass with fine microlites of pyroxene. Inclusions (2.6 vol%) of eutectic-like aggregates of troilite and Fe-Ni metal are scattered throughout the rock. Metal is fine intergrowth of kamacite and taenite.
Geochemistry: (N. N. Kononkova, *Vernad*, EMP) olivine $Fo_{77.3}$ (Fe/Mn = 47.2); pyroxene $En_{55.9-61.8}Wo_{9.6}$ (Fe/Mn = 23-28); kamacite (7 wt% Ni, Ni/Co = 7); bulk matrix (in wt%): SiO_2 60.8, TiO_2 0.37, Al_2O_3 7.77, Na_2O 2.64, K_2O 2.04, CaO 7.44, MgO 10.4, MnO 0.27, FeO 6.04, Cr_2O_3 0.47; oxygen isotopes (I. Franchi, R. Greenwood, *OU*, Laser fluorination): $\delta^{17}O$ = 3.489, $\delta^{18}O$ = 4.591, $\Delta^{17}O$ = 1.103 (per mil).
Classification: L-melt rock

Specimens: A total of 3.5 g main mass sample and one thin polished section are on deposit at *Vernad*.

Northwest Africa 6488 (NWA 6488)
Morocco
Purchased: 2010 Oct
Classification: HED achondrite (Eucrite, brecciated)
Physical characteristics: A single stone of 2370 g total weight with fresh, well-preserved black fusion crust.
Petrography: (C. A. Lorenz, *Vernad*) The meteorite is a clastic breccia consisting of lithic and mineral fragments embedded in a fine-grained clastic matrix. The lithic fragments are clasts of medium- and coarse-grained rocks with subophitic texture. Main phases of the rocks are pyroxene and feldspar. Most of pyroxene grains have a tiny exsolution lamellae. Accessory minerals are silica, chromite, ilmenite and troilite.
Geochemistry: Mineral compositions and geochemistry: (N. N. Kononkova, *Vernad*, EMP): pyroxenes are $En_{31.7}Wo_{5.6}$ (Fe/Mn=30) - $En_{26.4}Wo_{36.6}$; feldspars are $An_{78}Ab_{20}$ - $An_{83}Ab_{16.}$
Classification: Eucrite, breccia
Specimens: A total of 64.7 g sample and one thin section are on deposit at *Vernad*. An anonymous collector holds the main mass.

Northwest Africa 6495 (NWA 6495)
(Northwest Africa)
Purchased: 2005
Classification: HED achondrite (Eucrite, polymict)
Petrography: Breccia composed of lithic and mineral clasts from various cumulate eucrite lithologies. Exsolved pigeonite consisting of low-Ca pyroxene (FeO/MnO = 29) and high-Ca pyroxene (FeO/MnO = 23-26) plus calcic plagioclase, with accessory silica, chromite, ilmenite, troilite, and Ni-free metal.

Northwest Africa 6497 (NWA 6497)
(Northwest Africa)
Purchased: 2005 Sep
Classification: HED achondrite (Eucrite, polymict)
Petrography: Breccia composed of lithic and mineral clasts from various basaltic, eucritic lithologies. Exsolved pigeonite consisting of low-Ca pyroxene (FeO/MnO = 30) and high-Ca pyroxene (FeO/MnO = 28) plus calcic plagioclase with accessory silica (some as large grains), Ti-rich chromite, Ti-poor chromite, and troilite.

Northwest Africa 6500 (NWA 6500)
(Northwest Africa)
Purchased: Feb 2009
Classification: Ordinary chondrite (LL3.8)
Petrography: Chondrules average about 500-600 μm, typical for LL3 chondrites. Chondrules lack glass. Many of the low-Ca pyroxene grains exhibit polysynthetic twins.

Northwest Africa 6502 (NWA 6502)
(Northwest Africa)
Purchased: 2009 Feb
Classification: HED achondrite (Eucrite, monomict)
Petrography: Breccia (probably monomict) composed of cumulate eucritic clasts and debris. Exsolved pigeonite consisting of low-Ca pyroxene (FeO/MnO = 29-31) and high-Ca pyroxene (FeO/MnO = 28-31) plus calcic plagioclase, with accessory silica, Ti-chromite, ilmenite, and troilite.

Northwest Africa 6503 (NWA 6503)
(Northwest Africa)
Purchased: 2009 Feb
Classification: Ordinary chondrite (LL6)
Petrography: Metamorphic texture with regions of different grain size and some recognizable relict recrystallized chondrules.
Geochemistry: Oxygen isotopes (R. Tanaka, Okayama U.): $\delta^{17}O$ = 4.024, 3.945; $\delta^{18}O$ = 5.340, 5.257; $\Delta^{17}O$ = 1.210, 1.174 per mil

Northwest Africa 6505 (NWA 6505)
(Northwest Africa)
Purchased: Feb 2009
Classification: Carbonaceous chondrite (CK4)
Petrography: Chondrules average ~900 μm in apparent diameter and lack clear glass. Chondrule types include PO, BO and POP varieties. There are some low-Ca pyroxene grains in the rock that have polysynthetic twins.

Northwest Africa 6506 (NWA 6506)
Morocco
Purchased: 10 Jun 2009
Classification: Carbonaceous chondrite (CV3)
Petrography: Chondrules average ~900 μm in apparent diameter; many have thick igneous rims. About 5% of the rock consists of CAIs and AOIs with olivine-rich rims. Low-Ca pyroxene exhibits polysynthetic twins. The rock is too weathered to determine the metal/magnetite ratio.

Northwest Africa 6507 (NWA 6507)
(Northwest Africa)
Purchased: Jun 2009
Classification: Carbonaceous chondrite (CR2)
Petrography: This rock has large chondrules, averaging about 750 μm in diameter. Many of the chondrules have discontinuous rims of metal blebs. Matrix contains isolated metal blebs range up to 550 μm. Troilite rare.

Northwest Africa 6509 (NWA 6509)
Morocco
Purchased: 31 Oct 2010
Classification: Ordinary chondrite (LL3.6)
Petrography: Chondrules average ~700 μm in apparent diameter. Chondrule glass absent. Low-Ca pyroxene exhibits polysynthetic twins.

Northwest Africa 6510 (NWA 6510)
Morocco
Purchased: Oct 2010
Classification: Ordinary chondrite (L4)
Petrography: Well-defined chondrules in a recrystallized matrix. Some low-Ca pyroxene grains show polysynthetic twinning. Chondrules average about 400 μm in diameter. There is little metallic Fe-Ni in the sample.

Northwest Africa 6511 (NWA 6511)
Morocco
Purchased: 17 Oct 2010
Classification: Ordinary chondrite (L3.9)
Petrography: Chondrules average ~400 μm in apparent diameter; none of them contain clear colorless glass. Some low-Ca pyroxene grains exhibit polysynthetic twins. There are some coarse metal grains, up to 450 μm in size.

Northwest Africa 6539 (NWA 6539)
(Northwest Africa)

Purchased: 2009
Classification: Carbonaceous chondrite (CV3)
Petrography: Large abundant chondrules and fewer large CAIs set in a fine-grained matrix. Chondrules appear brownish or reddish..

Northwest Africa 6556 (NWA 6556)
Morocco
Found: 2010
Classification: HED achondrite (Howardite)
History: A. *Aaronson* purchased a 224 g complete stone in Erfoud, Morocco, in 2010.
Physical characteristics: Desert weathered with little remnant fusion crust.
Petrography: Moderately shocked and highly indurated. Clast and mineral modes (vol. %): diogenites 78, eucrites 12, shock melt clasts and shock darkened grains 10. Shock level is S2-S5 with variable shock levels in clasts. Weathering grade is low to moderate.
Geochemistry: Diogenite orthopyroxene $Fs_{26.5-38}Wo_{2.2-4.2}$ (FeO/MnO=28-38); plagioclase $An_{96.8}$; chromite Cr#=75-78. Eucrite pigeonite $Fs_{59.3-65.2}Wo_{6.7-12.5}$; plagioclase, $An_{87.2-90.6}$.
Classification: Achondrite (howardite)
Specimens: 20.2 g is on deposit at *NAU*, the main mass is held by *Aaronson*.

Northwest Africa 6560 (NWA 6560)
Morocco
Found: 2010
Classification: HED achondrite (Howardite)
History: A. Aaronson purchased 10 stones with a total mass of 5888 g in Erfoud, Morocco, in 2010-2011.
Physical characteristics: Fresh with flow oriented fusion crust. Complete stones range in size from 36 to 1600 g.
Petrography: Fine to medium clast size (<1 mm to 4 mm) of diogenite pyroxenes and clasts, and eucrites; clast modes (vol %): diogenites 74, eucrites 24, chromite and metal 2. Shock level, S2-S4, variable shock levels in clasts. Weathering grade, W0/1.
Geochemistry: Diogenite orthopyroxene $Fs_{23.6-36.8}Wo_{1.8-2.3}$ (FeO/MnO=30); chromite Cr# 80-89. Eucrite orthopyroxene $Fs_{64.2}Wo_{3.2}$; pigeonite $Fs_{53.7}Wo_{12.2}$; plagioclase $An_{89-95.4}$.
Classification: Achondrite (howardite)
Specimens: 24.4 g on deposit at *NAU*. *Aaronson* holds the main mass.

Northwest Africa 6564 (NWA 6564)
Morocco
Found: 2010
Classification: HED achondrite (Eucrite, polymict)
History: A. *Aaronson* purchased a 188 g stone in Erfoud in 2010
Physical characteristics: Desert ablated with some remnant fusion crust.
Petrography: Shock-melt generated, fine-grained granular to subophitic basalt matrix with basaltic xenoliths and rare diogenite and glassy shock melt clasts of variable shock levels.
Geochemistry: Matrix: orthopyroxene $Fs_{64.5}Wo_{4.1}$, Al_2O_3 = 3.2 wt % (FeO/MnO = 28); augite, $Fs_{29.8}Wo_{42.6}$, Al_2O_3 = 4.5 wt %; plagioclase, An_{89}. Diogenite clasts: orthopyroxene, $Fs_{31.1}Wo_{1.5}$ (FeO/MnO = 27); olivine $Fa_{43.1}$ (FeO/MnO = 64); chromite cr# = 79.
Classification: Achondrite (eucrite pmict)
Specimens: 20.6 g on deposit at *NAU*; main mass held by GHupé

Northwest Africa 6566 (NWA 6566)
Morocco
Found: 2010
Classification: HED achondrite (Eucrite)
Physical characteristics: Some remnant fusion crust, light tan exterior and interior color.
Petrography: Shock-melt generated, fine-grained granular to subophitic basalt matrix with basaltic xenoliths and rare diogenite and glassy shock melt clasts arranged in flow orientation. Post crystallization shock, S2-4; weathering grade is low. Component modes (vol %): matrix, 69: xenoliths, 18; shock melt, 8; diogenite, 5.
Geochemistry: Matrix: orthopyroxene $Fs_{64.5}Wo_{4.1}$, Al_2O_3 = 3.2 wt % (FeO/MnO = 28); augite, $Fs_{29.8}Wo_{42.6}$, Al_2O_3 = 4.5 wt %; plagioclase, An_{89}. Diogenite clasts: orthopyroxene, $Fs_{31.1}Wo_{1.5}$ (FeO/MnO = 27); olivine $Fa_{43.1}$ (FeO/MnO = 64); chromite cr# = 79.
Classification: Achondrite (polymict eucrite)
Specimens: 20 g on deposit at *NAU*; main mass held by *Aaronson*.

Northwest Africa 6569 (NWA 6569)
(Northwest Africa)
Purchased: 2010 Dec
Classification: Ordinary chondrite (L, melt breccia)
Petrography: Portions of this specimen consist of fairly well-formed chondrules (mostly BO types), but there are regions of much finer grained material (macroscopically "milky" gray). The fine grained regions consist of olivine, orthopyroxene, kamacite, chromite and troilite; sparse large metal grains with ragged shapes and plessitic cores.

Northwest Africa 6572 (NWA 6572)
(Northwest Africa)
Purchased: Oct 2010
Classification: Ungrouped achondrite
History: Purchased in 2010 October by Thomas Webb from a Moroccan dealer in Erfoud.
Physical characteristics: A group of 17 similar-looking dark-brown stones weighing in total 50.2 g.
Petrography: Protogranular texture. Composed predominantly of olivine with accessory clinopyroxene, orthopyroxene, chromite, altered kamacite and troilite. Plagioclase is absent and no phosphate minerals were found.
Geochemistry: Olivine $Fa_{30.4-30.5}$, Fe/Mn=57-68; clinopyroxene $Fs_{9.5-9.7}Wo_{44.2-44.0}$, Fe/Mn=24-26, Cr_2O_3=0.75 wt%; orthopyroxene $Fs_{24.5-24.9}Wo_{2.1-2.2}$, Fe/Mn=35-37. Oxygen isotopes (R. Tanaka, *OkaU*): analyses of acid-washed subsamples by laser fluorination gave, respectively $\delta^{17}O$=2.881, 2.956; $\delta^{18}O$=5.619, 5.701; $\Delta^{17}O$=-0.076, 0.044 per mil.
Classification: Achondrite (brachinite-like, ungrouped). Paired with NWA 5400, 5548, 6077, 6172, 6292, 6424, and 5363.
Specimens: A total of 10.1 g from two separate stones and one polished thin section are on deposit at *UWS*. Mr. T. *Webb* holds the main masses.

Northwest Africa 6573 (NWA 6573)
(Northwest Africa)
Purchased: 2010 Oct
Classification: HED achondrite (Eucrite, monomict)
Petrography: Fresh specimen with subophitic texture, composed of exsolved pigeonite, calcic plagioclase laths (with abundant inclusions of orthopyroxene and clinopyroxene), silica polymorph, ilmenite, Ti-chromite, troilite and rare zircon.

Northwest Africa 6575 (NWA 6575)
(Northwest Africa)
Purchased: 2010 Dec
Classification: HED achondrite (Diogenite)
Petrography: Fresh specimen with cataclastic texture, composed mostly orthopyroxene with accessory chromite, altered Ni-free metal and troilite.

Northwest Africa 6576 (NWA 6576)
(Northwest Africa)
Purchased: 2010 Dec
Classification: Pallasite
Petrography: The primary interstitial metal in this specimen has undergone complete terrestrial weathering leaving remnant fragments composed of fresh olivine with accessory chromite (containing inclusions of kamacite and troilite).

Northwest Africa 6583 (NWA 6583)
(Northwest Africa)
Purchased: 2010 Oct
Classification: Iron meteorite (ungrouped)
History: A single iron mass was purchased from a Moroccan dealer in October 2010 by M. Graul, Bernau, Germany.
Physical characteristics: The 1825 g mass, measuring 105 × 100 × 38 mm, has a flattened shape. The part embedded in soil (~40%) is covered by caliche, whereas the exposed surface is glossy-brown and presents 40-45 rounded depressions from 0.5 to 1 cm in diameter.
Petrography: (M. D'Orazio, A. Fazio, *DST-PI*) Etched section shows a polycrystalline texture composed of roughly equiaxal grains (0.1 to 2 cm) of ataxitic Fe-Ni. The Fe-Ni grains have a martensitic texture. Rounded, twinned and polycrystalline inclusions of troilite, rosettes and isolated crystals of graphite, and large skeletal crystals of schreibersite are common. Silicates occur as isolated euhedral crystals of enstatite and rare forsteritic olivine, and as aggregates of enstatite with overgrowths of diopside or with troilite-rich reaction rims. Many troilite grains contain inclusions of several types of Mn-Mg-Fe-Zn-Cu sulfides. Melted crystals of schreibersite and troilite showing dendritic textures are present in the external portion of the section. Terrestrial weathering is low.
Geochemistry: Composition of the metal (ICP-MS; [[D'Orazio and Folco, 2003|DOraz2-03]]) is Co=0.430, Ni=18.0 (both in wt%), Cu=1350, Ga=52, Ge=125, Ir=0.19, Au=1.13 (all in ppm). Composition of the silicates (all mol%): enstatite ($En_{98.2\pm0.3}Wo_{1.4\pm0.2}$), diopside ($En_{51.6\pm1.0}Wo_{47.8\pm0.6}$).
Classification: Iron meteorite, ungrouped, with anomalous structure, silicate inclusions and low weathering.
Specimens: A 60.5 g etched end cut is on deposit at *DST-PI*. *MGraul* holds the main mass.

Northwest Africa 6671 (NWA 6671)
(Northwest Africa)
Purchased: 2010 Dec
Classification: HED achondrite (Eucrite, polymict)
Petrography: Fresh specimen composed of small clasts and debris from basaltic eucrites, with some large dark clasts of a pyroxene vitrophyric lithology. Minerals include pigeonite, subcalcic augite, calcic plagioclase, ilmenite, troilite and silica polymorph. No metal was found.
Geochemistry: Pigeonite $Fs_{58.4\text{-}60.9}Wo_{6.5\text{-}4.3}$ (FeO/MnO = 34-35), subcalcic augite $Fs_{41.8\text{-}44.7}Wo_{25.6\text{-}24.9}$ (FeO/MnO = 34-36).

Northwest Africa 6672 (NWA 6672)
(Northwest Africa)
Purchased: Sept 2010
Classification: Mesosiderite
Petrography: Primary metal has been extensively altered by terrestrial weathering. The specimen is composed mainly of zoned orthopyroxene, calcic plagioclase and altered kamacite, with minor olivine, taenite and troilite.
Geochemistry: Orthopyroxene $Fs_{24.6\text{-}34.1}Wo_{1.9\text{-}6.3}$ (Fe/Mn=27-35), olivine $Fa_{12.9}$, $Fa_{30.8}$ (Fe/Mn=52-53).

Northwest Africa 6673 (NWA 6673)
(Northwest Africa)
Purchased: Sept 2010
Classification: Pallasite
Petrography: Nearly all primary metal has been weathered to iron hydroxides, but olivine grains (Fe/Mn=44-46) are unaltered. There are tiny inclusions of kamacite and troilite within olivine, but no chromite was observed. Fresh schreibersite is present as large grains within the iron hydroxide matrix.

Northwest Africa 6675 (NWA 6675)
(Northwest Africa)
Purchased: 2010
Classification: Enstatite achondrite (Aubrite)
History: Purchased in 2010 by Giorgio Tomelleri from a Moroccan dealer in Erfoud.
Physical characteristics: A single complete stone totally weighing 510 g and displaying a dark brown exterior. Fusion crust absent.
Petrography: (V. Moggi Cecchi, G. Pratesi, S. Caporali, *MSP*). The thin section displays a uniform medium to coarse-grained (1 to 2 mm) inequigranular texture predominantly consisting of large enstatite and plagioclase grains embedded in a finer grained enstatite matrix. Opaque phases are mainly represented by remnant troilite, surrounded by limonite and other weathering phases.
Geochemistry: Pyroxene ($En_{99.0}Wo_{0.5}$, n=20); plagioclase ($An_{3.2}Ab_{91.7}Or_{4.9}$, n=20).
Classification: Achondrite (aubrite). Severe weathering effects on troilite and partially for silicates.
Specimens: A total of 20 g, one polished thin section and one block are on deposit at *MSP*.

Northwest Africa 6677 (NWA 6677)
(Northwest Africa)
Purchased: 2010
Classification: L4-melt breccia
History: Purchased by Giorgio Tomelleri at the Erfoud market, Morocco.
Physical characteristics: A single dark brown 5200 g stone without fusion crust.
Petrography: (V. Moggi Cecchi, G. Pratesi, S. Caporali, *MSP*): The thin section displays a brecciated texture with two lithologies: chondritic and melted. The chondritic portion shows an equilibrated texture consisting of rare chondrules (to 0.7 mm), embedded in a fine-grained recrystallized matrix dominated by olivine, plagioclase and orthopyroxene. Opaque phases are represented by rare metal and troilite grains. The melted portion shows diffuse melt features such as metal veins, micrometer-sized metal grains and glass.
Geochemistry: Olivine ($Fa_{23.8\text{-}27.5}$), orthopyroxene ($Fs_{20.8}En_{77.2}Wo_{2.0}$, Mg/(Mg+Fe)=0.68).
Classification: Ordinary chondrite (L4-melt breccia); S2, W1.
Specimens: A total of 20.5 g of sample, one polished thin section and a block are on deposit at *MSP* (MSP 5143).

Northwest Africa 6680 (NWA 6680)
(Northwest Africa)
Purchased: 2010
Classification: Enstatite chondrite (EL6)
History: Purchased by Giorgio Tomelleri at the Erfoud market, Morocco.
Physical characteristics: A single dark brown piece weighing 195 g, with no fusion crust
Petrography: (V. Moggi Cecchi, G. Pratesi, S. Caporali, *MSP*): The texture is characterized by rare indistinct chondrules set in a fine-grained matrix dominated by pyroxene. Enstatite accounts for about 90% of the total volume. Indistinct chondrules are mainly RP, with minor GP, and range from 1 to 2 mm (mean 1 mm). Plagioclase is rare. Opaques include iron oxides, due to kamacite and troilite weathering. Accessory phases are alabandite and daubreelite as blades in troilite. The presence of alabandite and Si content of kamacite point to a classification as EL chondrite. Several multiple subparallel and anastomozing thin veinlets (~200 μm) filled with iron oxides/hydroxides traverse the section.
Geochemistry: Enstatite ($Fs_{0.3\text{-}1.2}En_{97.3\text{-}98.3}Wo_{1.4\text{-}1.5}$), plagioclase ($An_{15.0}Or_{3.6}$).
Classification: Enstatite chondrite (EL6); S2; W5. This specimen is probably paired with NWA 4415, NWA 4416 and NWA 6542.
Specimens: A total of 20.5 g of sample, one polished thin section and a block are on deposit at *MSP* (MSP 5146).

Northwest Africa 6685 (NWA 6685)
(Northwest Africa)
Purchased: 2010
Classification: Primitive achondrite (Lodranite)
History: Purchased by Giorgio Tomelleri from a dealer in Erfoud, Morocco.
Physical characteristics: A complete stone weighing 524 g, with fusion crust.
Petrography: (V. Moggi Cecchi, G. Pratesi, S. Caporali *MSP*). The thin section is dominated by large olivine and subordinate orthopyroxene phenocrysts (to 8 mm) embedded in an interstitial fine-grained matrix of the same phases. The matrix grains range from 0.01 to 0.1 mm. Plagioclase is absent. Opaques consist of kamacite and troilite, frequently altered to iron oxides.
Geochemistry: Orthopyroxene, $Fs_{10.7}$, Fe/Mn=14; olivine, $Fa_{10.8}$, Fe/Mn=23; Ca-pyroxene, $Fs_{3.4}En_{52}Wo_{44.6}$; Cr in troilite=0.60 wt%; Oxygen isotopes (I.Franchi, R.Greenwood, *OU*): $\delta^{17}O = 0.10$; $\delta^{18}O = 2.50$; $\Delta^{17}O = -1.2$ per mil.
Classification: Achondrite (lodranite). Highly weathered. Moderately shock.
Specimens: 23.4 g is on deposit at *MSP* (MSP 5151).

Northwest Africa 6686 (NWA 6686)
(Northwest Africa)
Purchased: 2010
Classification: HED achondrite (Howardite)
History: Found by an anonymous person in Western Sahara and purchased 2010 in Erfoud by G.Tomelleri.
Physical characteristics: The main mass weighs 62 g has no fusion crust.
Petrography: (V. Moggi Cecchi, G. Pratesi, S. Caporali *MSP*): A polymict breccia consisting of diogenitic and eucritic clasts. Diogenitic clasts are composed mainly of orthopyroxene (92% by volume), with minor olivine (5%), and plagioclase (3%). Eucritic clasts are dominated by clinopyroxene, with minor orthopyroxene displaying very fine (1-2 μm width) exsolution lamellae and anorthitic plagioclase. Minor phases include ilmenite and chromite.
Geochemistry: Diogenitic clasts show low-Ca pyroxene ($Fs_{19\text{-}43}En_{79\text{-}53}Wo_{1\text{-}3}$) and olivine ($Fa_{31\text{-}34}$); eucritic clasts show calcic plagioclase ($An_{88\text{-}91}$), pigeonite ($Fs_{51\text{-}47}En_{37\text{-}36}Wo_{12\text{-}17}$); exsolution lamellae in low-Ca pyroxene $Fs_{51\text{-}33}En_{40\text{-}29}Wo_{9\text{-}38}$. Oxygen isotopes: (I. Franchi, R. Greenwood, *OU*) $\delta^{17}O = 1.58$, $\delta^{18}O = 3.48$, $\Delta^{17}O = -0.24$ per mil.
Classification: Achondrite (howardite) with high degree of shock and low degree of weathering.
Specimens: 12.5 g and one thin section are on deposit at *MSP* (MSP 5152).

Northwest Africa 6687 (NWA 6687)
(Northwest Africa)
Purchased: 2010
Classification: Lunar meteorite (feldspathic breccia)
History: Found in Morocco in 2010 and purchased from the finder by G. Tomelleri.
Physical characteristics: A single black stone (42.4 g) lacking fusion crust. The interior is dark gray and displays several small white clasts.
Petrography: (V. Moggi Cecchi, S. Caporali, G. Pratesi, *MSP*) The overall texture consists of coarse-grained inclusions set in a fine-grained matrix. The matrix contains isolated mineral clasts, mainly consisting of augite, plagioclase and olivine, and a fine grained mineral debris enclosed within a dark, partly glassy and vesicular matrix. The large coarse grained inclusions consist of elongated plagioclase and clinopyroxene crystals set in a glassy matrix. Opaque phases are represented by ilmenite, ulvospinel and chromite.
Geochemistry: Olivine ($Fa_{33.7\text{-}49.2}$, Fe/Mn=108, n=20, Cr=1500 ppm, Mn=3100 ppm), augite ($Fs_{23.8.5\text{-}31.2}En_{24.9\text{-}30.0}Wo_{27.3\text{-}30.0}$ Al-px 13.9-19.5; FeO/MnO mean=65.6; V=400 ppm; Ca=0.61 afu), plagioclase ($An_{83.4}Or_{0.8}$; K = 0.008 afu); Oxygen isotopes: (I. Franchi, R. Greenwood, *OU*) $\delta^{17}O = 3.58$, $\delta^{18}O = 6.84$, $\Delta^{17}O = 0.02$ per mil.
Classification: Achondrite (lunar, feldspathic breccia).
Specimens: 9.5 g sample is on deposit at *MSP*.

Northwest Africa 6690 (NWA 6690)
(Northwest Africa)
Purchased: 2010
Classification: HED achondrite (Diogenite)
History: Found by an anonymous person in Western Sahara and purchased 2010 in Erfoud by G. Tomelleri.
Physical characteristics: A single stone of 88.3 g, with no fusion crust.
Petrography: (V. Moggi Cecchi, G. Pratesi, S. Caporali *MSP*): A monomict coarse-grained orthopyroxenite dominated by orthopyroxene, with subordinate plagioclase and clinopyroxene. Opaque phases are represented by ilmenite and Ti-chromite.
Geochemistry: Low-Ca pyroxene ($Fs_{31\text{-}38}Wo_{2\text{-}3}$); augite $Fs_{13}Wo_{44}$; calcic plagioclase ($An_{86\text{-}93}$), Mg-rich ilmenite (MgO 0.73-0.98 wt%); Ti-rich chromite [Cr/(Cr+Al) = 0.89; Ti = 3.2 wt.%, Mg = 3.0 wt.%]; Oxygen isotopes: (I. Franchi, R. Greenwood, *OU*) $\delta^{17}O = 1.94$, $\delta^{18}O = 4.19$, $\Delta^{17}O = -0.24$ per mil.
Classification: Achondrite (diogenite) with moderate degree of shock and low degree of weathering.
Specimens: 18.0 g and one thin section are on deposit at *MSP* (MSP 5156).

Northwest Africa 6701 (NWA 6701)
(Northwest Africa)
Purchased: 2011 Jan

Classification: Carbonaceous chondrite (CO3.1)

Petrography: Fresh specimen with well-formed, small chondrules in a dark matrix. Minerals are olivine, orthopyroxene, augite, chromite, kamacite and troilite.

Geochemistry: Olivine ($Fa_{0.9-50.8}$; Cr_2O_3 in ferroan olivine 0.07-1.13 wt.%, mean 0.34 wt.%, s.d. 0.40 wt.%, N = 7), orthopyroxene ($Fs_{1.2-5.2}Wo_{1.0-0.8}$), clinopyroxene ($Fs_{1.0-3.9}Wo_{37.4-38.0}$).

Classification: Carbonaceous chondrite (CO3.1). Subtype estimated from Cr_2O_3 distribution in ferroan olivine based on recommendations by Grossman and Brearley (2005).

Northwest Africa 6706 (NWA 6706)

(Northwest Africa)

Purchased: 2011 Jan

Classification: Ordinary chondrite (L6, melt breccia)

Petrography: Breccia composed of beige-colored, fine grained L6 chondrite clasts (with rare, recrystallized chondrule remnants) in a shock darkened matrix containing ragged, variably-sized grains of Fe-Ni metal. Olivine, orthopyroxene, clinopyroxene, sodic plagioclase, chromite and kamacite.

Geochemistry: Olivine $Fa_{24.3-25.2}$, orthopyroxene $Fs_{20.8-21.0}Wo_{1.6-1.9}$, clinopyroxene $Fs_{7.4-8.2}Wo_{45.2-44.7}$.

Northwest Africa 6707 (NWA 6707)

(Northwest Africa)

Purchased: Mar 2011

Classification: HED achondrite (Eucrite)

Petrography: Fresh breccia composed mostly of clasts and related debris of cumulate eucrite lithologies, with minor diogenitic orthopyroxene grains and clasts of fine-grained basaltic eucrites. Most of the very calcic plagioclase is maskelynite, with a few percent being spherulitic and birefringent (produced by quenching of shock-melted plagioclase). Other minerals are exsolved pigeonite and accessory Ti-chromite, taenite (some associated with martensite, troilite and chromite) and rare Na-K-bearing plagioclase.

Geochemistry: Clinopyroxene exsolution lamellae $Fs_{15.8-22.3}Wo_{44.7-42.0}$ (Fe/Mn=24-29), host orthopyroxene $Fs_{24.4-40.8}Wo_{2.1-2.6}$ (Fe/Mn=30-35).

Northwest Africa 6709 (NWA 6709)

(Northwest Africa)

Purchased: March 2011

Classification: Howardite-an

Petrography: Fresh fragmental breccia composed mainly of basaltic eucrite clasts plus ~30 vol.% of distinctly yellow diogenite clasts and related orthopyroxene grains. Eucrite clasts contain exsolved pigeonite, shocked calcic plagioclase (most transformed to maskelynite, some polygranular), silica polymorph, ilmenite and troilite.

Geochemistry: Diogenitic orthopyroxene $Fs_{33.9-41.5}Wo_{1.1-3.1}$ (Fe/Mn=30-35), orthopyroxene host $Fs_{48.8}Wo_{3.4}$ (Fe/Mn=27), augite exsolution lamellae $Fs_{18.1-19.9}Wo_{41.6-39.9}$ (Fe/Mn=25-28).

Classification: Achondrite (howardite, anomalous). This is an unusual specimen because the diogenitic orthopyroxene is notably ferroan, which probably accounts for its more yellow rather than green color. The specimen also is highly shocked.

Northwest Africa 6716 (NWA 6716)

(Northwest Africa)

Purchased: 2010 Aug

Classification: Iron meteorite (IIE)

History: A single iron mass was purchased from a Moroccan dealer in August 2010 by M. Graul, Bernau, Germany.

Physical characteristics: The 293 g wedge-shaped mass measures 110 × 35 × 5-30 mm and has a glossy-brown external surface.

Petrography: (M. D'Orazio, A. Fazio, *DST-PI*) Etched section show a polycrystalline texture composed of 0.1 to 2 mm grains of kamacite often showing 120° triple junctions and Neumann bands. Ghosts of the pre-existing Widmannstätten pattern (bandwidth = 1.5±0.2 mm) visible. Plessitic fields showing comb-net texture are preserved. The sections show three large (to 4.5 mm) rounded inclusions of Cl-rich Ca-phosphate, with rims of Cl-free Ca-Mg-Na-phosphate and tiny inclusions of Cl-free Mg-Ca-Fe-Na-Mn phosphate. Schreibersite is relatively common as elongated (to 8 mm) skeletal crystals. A well-preserved heat-alteration zone is marked by an 1.5-2.0 mm-thick band showing serrated texture and grain-size (50-100 μm) significantly smaller that the meteorite interior. Terrestrial weathering is low.

Geochemistry: Composition of the metal (ICP-MS; [[D'Orazio and Folco, 2003|DOraz2-03]]) is Co=0.422, Ni=7.77 (both in wt%), Cu=147, Ga=24.3, Ge=62, Ir=4.4, Au=0.97 (all in ppm).

Classification: IIE iron meteorite, recrystallized coarse octahedrite.

Specimens: A 12.7 g etched end cut and a 9.3 g polished full slice are on deposit at *DST-PI*. *MGraul* holds the main mass.

Northwest Africa 6719 (NWA 6719)

Northwest Africa

Purchased: 2011 Feb

Classification: Ordinary chondrite (LL4)

Petrography: Fragmental genomict breccia consisting of angular chondrite clasts (up to 1 cm) in a fine-grained matrix of related material. Large, well-formed chondrules occur both within clasts and in the matrix. One clast with a completely recrystallized texture was found. Olivine, orthopyroxene, clinopyroxene, sodic plagioclase, altered kamacite, chromite, chlorapatite, troilite and taenite.

Geochemistry: Olivine $Fa_{29.4-30.0}$, orthopyroxene $Fs_{24.1-24.2}Wo_{1.8-1.7}$, clinopyroxene $Fs_{8.3-10.3}Wo_{45.3-43.6}$.

Northwest Africa 6720 (NWA 6720)

(Northwest Africa)

Purchased: Jan 2011

Classification: Carbonaceous chondrite (CM2)

Petrography: Composed of dispersed, small chondrules (mostly granular types) and angular mineral clasts in a dark, reddish brown matrix containing phyllosilicates (cronstedtite), altered metal and troilite. Some chondrules have been partially replaced by phyllosilicates.

Geochemistry: Olivine $Fa_{0.6-30.2}$ (Cr_2O_3 in ferroan examples averages 0.44 wt.%), orthopyroxene $Fs_{2.0}Wo_{0.6}$.

Northwest Africa 6721 (NWA 6721)

Morocco

Found: 2010 Nov

Classification: Lunar meteorite (feldspathic breccia)

History: Multiple stones were found together on Hamada du Drâa, Morocco, in late 2010 and purchased by Jack Schrader in April 2010 from a dealer in Taliouine, Morocco.

Physical characteristics: A total of 16 dark gray, uncrusted stones (combined weight 181 g) containing small white clasts.

Petrography: (A. Irving and S. Kuehner, *UWS*) A fine grained, heterogeneous, fragmental breccia composed of mineral clasts and ophitic-textured lithic clasts. Mineral clasts include anorthitic plagioclase, orthopyroxene, subcalcic augite, pigeonite, olivine

(some very fayalitic), sparse intergrowths of hedenbergite+fayalite+silica (after former pyroxferroite), ilmenite, irregular kamacite grains and troilite.
Geochemistry: Pigeonite ($Fs_{21.6-27.8}Wo_{5.9-12.4}$, FeO/MnO=49-58), orthopyroxene ($Fs_{32.3}Wo_{3.1}$, FeO/MnO=61), subcalcic augite ($Fs_{18.2-29.8}Wo_{33.2-27.9}$, FeO/MnO=42-47), olivine ($Fa_{52.2-85.5}$, FeO/MnO=90-100), plagioclase ($An_{95.9-97.9}Or_{0.1-0.2}$). Bulk composition (R. Korotev, *WUSL*): FeO 5.0 wt%, La 3.5 ppm, Sm 1.6 ppm, Yb 1.25 ppm, Th 0.60 ppm.
Classification: Achondrite (lunar, feldspathic breccia).
Specimens: A total of 20.2 g of sample (3 stones) are on deposit at *UWS*. The main masses are held by J. Schrader.

Northwest Africa 6723 (NWA 6723)
(Northwest Africa)
Purchased: Feb 2011
Classification: HED achondrite (Howardite)
Petrography: Relatively fresh fragmental breccia composed mostly of basaltic eucritic clasts and related debris with ~15 vol.% diogenitic orthopyroxene; one quenched eucrite clast was noted. Eucritic minerals include orthopyroxene, subcalcic augite, calcic plagioclase, ilmenite, chromite, Ni-free metal, troilite, silica polymorph and rare zircon (associated with ilmenite). Metal in the matrix and within some basaltic eucrite clasts exhibits minor hydroxide staining from terrestrial weathering.
Geochemistry: Diogenitic orthopyroxene $Fs_{31.2}Wo_{5.0}$; Fe/Mn=27), orthopyroxene $Fs_{57.9}Wo_{4.2}$ (Fe/Mn=30), subcalcic augite $Fs_{37.3-45.9}Wo_{29.2-27.3}$ (Fe/Mn=27-30).

Northwest Africa 6724 (NWA 6724)
(Northwest Africa)
Purchased: Apr 2011
Classification: Mesosiderite
Petrography: Aggregate of orthopyroxene (Fe/Mn=25), calcic plagioclase, silica polymorph, merrillite, and moderate amounts of altered kamacite.

Northwest Africa 6725 (NWA 6725)
(Northwest Africa)
Purchased: Jan 2011
Classification: Carbonaceous chondrite (CM2)
Petrography: Small chondrules and mineral fragments set within a black to dark red-brown matrix consisting mainly of intergrown cronstedtite+tochilinite with pentlandite, kamacite, and troilite.
Geochemistry: Olivine $Fa_{0.3-70.0}$; Cr_2O_3 in ferroan olivine is ~0.45 wt.%), orthopyroxene $Fs_{1.1-11.4}Wo_{2.6-1.0}$, clinopyroxene $Fs_{1.1-1.7}Wo_{39.2-35.4}$.

Northwest Africa 6728 (NWA 6728)
(Northwest Africa)
Purchased: 2009 Dec
Classification: Ordinary chondrite (L)
Geochemistry: (R. Bartoschewitz, *Bart*; P. Appel, B. Mader, *Kiel*): Breccia of L host with LL xenoliths. Metal- and sulfide-darkened melt matrix. Taenite Ni 33.3-40.3; Co 1.2-0.5%. Olivine in L host: $Fa_{24.8}$ ($Fa_{23.4-26.0}$). Olivine in LL clasts: $Fa_{28.8}$ ($Fa_{27.2-29.6}$)

Northwest Africa 6730 (NWA 6730)
Northwest Africa
Purchased: 2010 May
Classification: HED achondrite (Eucrite)
History: Two small stones were purchased in Tucson in May 2010.
Physical characteristics: (R. Bartoschewitz, *Bart*) two partially fusion crusted stones of totally 51.0 g. Magnetic susceptibility log χ=3.15 (χ in $m^3/kg \times 10^{-9}$).
Petrography: (R. Bartoschewitz, *Bart*) Monomict breccia of euhedral to subhedral pyroxene and plagioclase (<2 mm) in a finer grained matrix. Accessory minerals are ilmenite, kamacite, troilite, and silica.
Geochemistry: (R. Bartoschewitz, *Bart*, and P. Appel and B. Mader, *Kiel*) Ca-poor pyroxene $Fs_{61.8-63.8}Wo_{1.4-3.6}$, Ca-rich pyroxene $Fs_{29.1-60.1}Wo_{5.1-41.7}$, olivine $Fa_{75.1}$, feldspar $An_{77.1-91.3}Or_{0.3-2.5}$. Kamacite Ni <0.1, Co=0.9, ilmenite, troilite, and silica (wt%).
Classification: Cumulate eucrite (very fresh).
Specimens: Type specimen, 10.4 g, *Kiel*; 5 g *Bart*.

Northwest Africa 6734 (NWA 6734)
(Northwest Africa)
Purchased: 2004
Classification: Enstatite chondrite (EL6)
History: The stone was purchased in Casablanca by a meteorite dealer in 2004.
Physical characteristics: (R. Bartoschewitz, *Bart*) One 50.3 g stone with deep fractures. Magnetic susceptibility log χ = 4.46 (χ in $m^3/kg \times 10^{-9}$).
Petrography: (R. Bartoschewitz, *Bart*) The thin section show few poorly defined chondrules below 1 mm, pyroxene and some feldspar fragments set in a matrix of oxidized veins and a melt pool. Accessory minerals are kamacite, taenite, troilite, daubreelite and osbornite.
Geochemistry: (R. Bartoschewitz, *Bart*, and P. Appel and B. Mader *Kiel*) Pyroxene $Fs_{0.06-1.06}Wo_{1.3-1.5}$; feldspar $An_{16}Or_{4}$. Kamacite Ni = 6.0-6.3, Si=0.9-1.1Co = 0.5; taenite Ni = 21.4, Si=1.1, Co=0.3; troilite Ti=0.5-1.0, Cr=0.6-0.9; daubreelite Mn=2.3 (wt%).
Classification: Enstatite chondrite EL6 (W3)
Specimens: Main mass with *Bart*; type specimen, 10.6 g, *Kiel*.

Northwest Africa 6818 (NWA 6818)
Morocco
Purchased: 2010
Classification: Ureilite
Petrography (P. Warren, *UCLA*): Mode dominated by olivine (~90%) and pigeonite (~5%). Many olivines are elongated and conspicuously aligned. Olivines are up to 4 mm across, but 1-2 mm is more typical for both olivine and pigeonite. Olivine rims contain abundant submicron-sized metals.
Geochemistry: Olivine cores are $Fo_{78.7}$; rims zone to at least Fo_{93}.

Northwest Africa 6819 (NWA 6819)
Morocco
Purchased: 2009
Classification: HED achondrite (Diogenite, olivine)
Petrography (P. Warren, *UCLA*): Mode: ~90% orthopyroxene, 10% olivine, traces of metal, Cr-spinel and FeS. The texture is brecciated, but some grains appear to retain nearly their original outlines, and these tend to be equant and range up to 2.5 mm for olivine and 4 mm for orthopyroxene.
Geochemistry: Metals are nearly pure Fe (Ni not detectable by EDS). Orthopyroxene FeO/MnO averages 27. Cr-spinel has 30 wt% FeO, 17 wt% Al_2O_3, 3.1 wt% MgO.

Northwest Africa 6820 (NWA 6820)
Morocco
Purchased: 2010
Classification: Ureilite

Petrography (P. Warren, *UCLA*) Mode is dominated by subequal proportions of olivine and pigeonite. The texture is typically ureilitic, with anhedral-equant 1-2 mm grains. Olivine rims contain abundant submicrometer-sized metals.
Geochemistry: Olivine cores are $Fo_{79.7}$; rims zone to at least $Fo_{97.}$

Northwest Africa 6860 (NWA 6860)
Northwest Africa
Purchased: Feb 2011
Classification: Rumuruti chondrite (R5)
Petrography: Fresh breccia composed of clasts containing sparse PO and RP chondrules plus related debris in a darker, fine-grained matrix. Constituent minerals are olivine, orthopyroxene, clinopyroxene, albitic plagioclase, Ti-chromite, troilite and pentlandite.
Geochemistry: Olivine $Fa_{38.8-38.9}$, FeO/MnO=90-100, orthopyroxene $Fs_{30.4}Wo_{1.4}$, clinopyroxene $Fs_{10.8-11.6}Wo_{45.4-44.7}$ (Cr_2O_3=0.33-0.55 wt%).

Northwest Africa 6861 (NWA 6861)
Northwest Africa
Purchased: Feb 2011
Classification: Carbonaceous chondrite (CM2)
Petrography: Small granular and PO chondrules (composed primarily of olivine, orthopyroxene, pigeonite and augite), angular olivine grains and very sparse CAIs (to 3 mm) set in a black, fine-grained matrix composed mainly of intergrown cronstedtite-tochilinite, framboidal or porous troilite (some Ni-bearing) and taenite. One CAI is composed mainly of melilite and calcite with minor spinel.
Geochemistry: Olivine $Fa_{0.2-51.2}$, orthopyroxene $Fs_{1.4}Wo_{0.9}$, pigeonite $Fs_{1.0}Wo_{13.8}$, augite $Fs_{0.9-4.3}Wo_{38.1-38.3.}$

Northwest Africa 6862 (NWA 6862)
Northwest Africa
Purchased: Feb 2011
Classification: Carbonaceous chondrite (CM2)
Petrography: Small granular chondrules (composed mainly of olivine, orthopyroxene, pigeonite and augite) in a dark reddish-brown matrix composed mainly of intergrown cronstedtite-tochilinite, Cr-bearing kamacite and chromite.
Geochemistry: Olivine $Fa_{0.4-70.3}$, orthopyroxene $Fs_{1.1}Wo_{0.9}$, pigeonite $Fs_{0.9}Wo_{5.5}$, augite $Fs_{1.0-1.5}Wo_{37.7-36.3.}$ Oxygen isotopes (R. Tanaka, *OkaU*): acid-washed samples analyzed in duplicate by laser fluorination gave, respectively: $\delta^{17}O$ = 1.139, -0.436; $\delta^{18}O$ = 8.610, 6.867; $\Delta^{17}O$ = -3.380, -4.042 per mil. These values plot along the trend for CM chondrites.

Northwest Africa 6863 (NWA 6863)
Northwest Africa
Purchased: Feb 2011
Classification: Carbonaceous chondrite (CV3)
Petrography: Granular chondrules (some with dust rims; composed mainly of olivine, orthopyroxene and augite) plus amoeboid, fine-grained CAI in a dark, fine-grained matrix.
Geochemistry: Olivine $Fa_{0.4-57.8}$, orthopyroxene $Fs_{0.6-32.7}Wo_{0.9-0.2}$, augite $Fs_{0.7-1.0}Wo_{45.5-42.8.}$

Northwest Africa 6865 (NWA 6865)
Northwest Africa
Purchased: 2011 Mar
Classification: Ordinary chondrite (LL6)
Petrography: Breccia composed of highly recrystallized clasts with sparse remnant RP chondrules (some relatively large). Constituent minerals are olivine, orthopyroxene, clinopyroxene, sodic plagioclase, chromite, troilite and kamacite.
Geochemistry: Olivine $Fa_{28.5-31.4}$, orthopyroxene $Fs_{21.6-25.4}Wo_{1.7-0.9}$, clinopyroxene $Fs_{9.0-9.7}Wo_{41.1-44.1.}$

Northwest Africa 6868 (NWA 6868)
Northwest Africa
Purchased: 2011 Apr
Classification: Ordinary chondrite (LL6)
Petrography: Breccia composed of recrystallized, mostly poikiloblastic clasts containing rare relict chondrule fragments in a matrix of related debris. Constituent minerals are olivine, orthopyroxene, clinopyroxene, sodic plagioclase, chromite, troilite and altered kamacite.
Geochemistry: Olivine $Fa_{30.4-30.5}$, orthopyroxene $Fs_{25.3-25.6}Wo_{2.7-3.1}$, clinopyroxene $Fs_{12.5-13.2}Wo_{40.5-39.8.}$

Northwest Africa 6871 (NWA 6871)
(Northwest Africa)
Purchased: April 2011
Classification: Ureilite
History: Purchased in 2011 April by Greg Catterton from a Moroccan dealer in Agadir.
Physical characteristics: A single extremely hard, brown stone weighing 119 g and almost impossible to cut. Small adamantine crystals of diamond were extracted from the stone by Mr. Catterton.
Petrography: Coarse-grained aggregate of olivine and orthopyroxene with finer grained interstitial regions containing opaque material, calcite and limonite. Some thin calcite veinlets cross-cut the specimen. Both olivine and pyroxene are completely recrystallized to aggregates of myriad tiny, polygonal subgrains.
Geochemistry: Olivine cores $Fa_{19.4-20.0}$ (CaO=0.3 wt.%, Cr_2O_3=0.7 wt.%), rims $Fa_{10.5}$; orthopyroxene $Fs_{12.6-13.7}Wo_{3.7-3.4.}$
Classification: Achondrite (ureilite). The very high shock experienced by this specimen (causing complete recrystallization of silicates and evidently generation of significant amounts of microdiamond) is unusual among ureilites.
Specimens: A total of 20 g of material is on deposit at *App* and one polished thin section is at *UWS*. Mr. G. Catterton holds the main mass.

Northwest Africa 6872 (NWA 6872)
Morocco
Purchased: 2004
Classification: Ordinary chondrite (L6, melt breccia)
Petrography: The rock contains ~40 vol.% melt which itself contains ~5 vol.% rounded chondrule fragments. The melt also contains metal-sulfide veins and rounded metal-sulfide assemblages.

Northwest Africa 6874 (NWA 6874)
Morocco
Purchased: 2011
Classification: Primitive achondrite (Brachinite)
History: Purchased by Jay Piatek in 2011.
Physical characteristics: Single stone of 90 g, rough, weathered, dark fusion crust. Dark colored interior cross cut by oxidized weathering veins.
Petrography: (C. Agee, *UNM*) SEM, EDS, EMPA. Microprobe examination of a polished epoxy mount shows olivine 80%, low-Ca pyroxene 9%, augite 8%, chromite 2%, tiny sulfide inclusions

decorate silicate grain boundaries, Fe-metal (oxidized) as films in grain boundaries and crosscutting veinlets. Olivine grains to 1 mm. Polygonal texture with numerous 120° triple junctions.
Geochemistry: (C. Agee and M. Spilde, *UNM*) EMPA. Olivine $Fa_{29.1\pm1.2}$, Fe/Mn=59 ± 2, N=13; low-Ca pyroxene $Fs_{25.4\pm0.1}Wo_{2.2}$, Fe/Mn=39 ± 1, N=12; augite $Fs_{10.3\pm0.2}Wo_{45.0\pm0.3}$, Fe/Mn=30 ± 6, N=10; chromite Cr#=0.75, Mg#=0.24, TiO_2=1.16 ± 0.02 wt%.
Classification: Achondrite (brachinite), weathering grade W3, low shock grade. Mineral proportions, compositions and geochemistry similar to NWA 595.
Specimens: 18 g and probe mount on deposit at *UNM*. Piatek holds the main mass.

Northwest Africa 6875 (NWA 6875)
Morocco
Found: 2011
Classification: Primitive achondrite (Lodranite)
History: Purchased by Jay Piatek in 2011.
Physical characteristics: Single 300 g stone, with rough, weathered exterior. Broken surface reveals granular texture, some oxide staining.
Petrography: (C. Agee, *UNM*) SEM, EDS, EMPA. Microprobe examination of a polished epoxy mount shows olivine 30%, orthopyroxene 50%, diopsidic pyroxene 15%, ubiquitous phosphate, chromite, sulfide blebs as inclusions and decorating silicate grain boundaries, and Fe-metal (oxidized) as films in grain boundaries and crosscutting veinlets. Olivine grain size 50-600 µm, orthopyroxene grain size 100-800 µm. Polygonal texture with numerous 120° triple junctions.
Geochemistry: (C. Agee, *UNM*) EMPA. Olivine $Fa_{14.0\pm0.4}$, Fe/Mn=26±2, N=12, orthopyroxene $Fs_{16.2\pm0.1}Wo_{2.7}$, Fe/Mn=21±1, N=11, diopsidic pyroxene $Fs_{7.3\pm0.2}Wo_{43.7\pm0.6}$, Fe/Mn=15±2, Cr_2O_3=1.13±0.08 wt%, N=10, two phosphate phases: chlorapatite Cl=6.0 wt% and merrillite, chromite Cr#=81±2 Mg#=26±4, N=7. Two sulfide phases: troilite and rare pentlandite. No plagioclase found.
Classification: Achondrite (lodranite), distinguished from acapulcoite classification by absence of plagioclase, grain size is at the low end for lodranites. Weathering grade W2, low shock grade.
Specimens: 20 g and probe mount on deposit at *UNM*. Piatek holds the main mass,

Northwest Africa 6887 (NWA 6887)
Morocco
Found: 2011
Classification: HED achondrite (Eucrite)
History: Purchased by Jay Piatek in 2011.
Physical characteristics: Single stone of 120 g, complete shiny fusion crust. Interior shows uniform, light gray, fine grain matrix.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished mount shows low-Ca pyroxene, high-Ca pyroxene (total pyroxene about 60%) and plagioclase feldspar (35%), with ubiquitous ilmenite and troilite, no Fe-Ni metal detected. Pyroxene with exsolution lamellae. Grain size ranges from 10-300 µm. Some areas with plumose intergrowths of plagioclase and pyroxene.
Geochemistry: (C. Agee and M. Spilde, *UNM*) EMPA. Equilibrated eucrite. Low-Ca pyroxene $Fs_{60.7\pm1.2}Wo_{2.8\pm1.0}$ Fe/Mn=33±1, N=8, augite $Fs_{26.6\pm0.9}Wo_{44.0\pm0.9}$ Fe/Mn=32±2, N=8, plagioclase $Or_{0.5\pm0.1}Ab_{9.7\pm1.4}An_{89.9\pm1.5}$, N=13.
Classification: Achondrite (eucrite); minimal weathering, low shock grade.
Specimens: 20 g and probe mount on deposit at *UNM*. Piatek holds the main mass.

Northwest Africa 6888 (NWA 6888) 24°38.57'N, 14°41.27'W
Rio de Oro, Western Sahara
Found: 2011 May 28
Classification: Lunar meteorite
History: The meteorite was found by anonymous finder on the Sueilila (Zwilila) limestone plateau, ~40 km E of Hassi Lakra (Playa del Cordero) station, in the desert.
Physical characteristics: One brownish-grey to dark green stone weighing 208 g in total, with no fusion crust.
Petrography: (Lorenz C.A., Ivanova M.A., and Demidova S.I. *Vernad*.) The meteorite is polymict, melt matrix breccia, consisting of numerous mineral and lithic fragments embedded in a fine-grained devitrified matrix. Lithic clasts dominated by melt breccias, granulites, anorthosites, gabbro, gabbro-norites, troctolites and VLT-like basalts. Rare spherules of devitrified glass occur. The size range of the clasts is 0.02-9 mm; the main minerals are pyroxene and feldspar; minor - olivine, silica, chromite, ilmenite, Zr-armolcolite, troilite, and FeNi metal.
Geochemistry: (Kononkova N.N., *Vernad*, EMP) feldspar $An_{91-97}Ab_{2.8-6.0}$; clinopyroxene $En_{7.7-68.3}Wo_{5.1-42.0}$, orthopyroxene $En_{44.4-75.0}Wo_{2.6-4.9}$ (FeO/MnO = 60.03), olivine $Fo_{4.7-63.3}$ (FeO/MnO = 87); ilmenite (MgO 0.24-4.02 wt%), Al,Ti-chromite (TiO_2 8.4 wt%, Al_2O_3 8.2 wt%) and ulvospinel. FeNi metal: 0.68-9.51 wt% Ni; 0.40-2.27 wt% Co; sulfide is troilite.
Classification: Lunar (regolith breccia). The grade of weathering is moderate.
Specimens: A total of 21.7 g of sample and two thin sections are on deposit at *Vernad*. An anonymous finder holds the main mass of the meteorite.

Northwest Africa 6901 (NWA 6901)
(Northwest Africa)
Purchased: May 2011
Classification: Primitive achondrite
History: Purchased in Morocco in May 2011.
Physical characteristics: Greenish, wind-polished, 1197 g stone. Small patches of dull black fusion crust remain. Large, dark green olivine and orthopyroxene grains scattered throughout and range in size from a few to 40 mm.
Petrography: (J. Zipfel, *Senck*) Exhibits recrystallized porphyroblastic to poikiliblastic texture with rare porphyroclasts and abundant indistinct chondrules (BO dominate). Grain boundaries are irregular and strongly embayed. Grain sizes 0.04 to 1.2 mm. Modal analyses (in vol.%): olivine=55, orthopyroxene=36, clinopyroxene=0.6, plagioclase=2, merrillite=0.4, FeS=3, chromite=1 and metal=3.
Geochemistry: Olivine ($Fa_{36.4}$, Fe/Mn=90), orthopyroxene ($Fs_{29.0}Wo_{3.0}$, Fe/Mn=57), clinopyroxene ($Fs_{12.8}Wo_{42.8}$), plagioclase ($An_{47.1}Or_{1.0}$, FeO=0.56 wt.%); chromite (cr#=71.7, TiO_2=1.3 wt.%, MgO=3.1 wt.%), rare kamacite (Ni=6.6 wt.%), abundant taenite (Ni=17.8-21.1 wt.%) and rare tetrataenite (Ni=51.4 wt.%). Oxygen isotopes: (A. Pack, *UGött*) Analyses by laser fluorination gave: $\delta^{17}O$ = -0.25; $\delta^{18}O$ = 2.77, $\Delta^{17}O$ = - 1.69 (all per mil) and plot in the CR field.
Classification: Primitive achondrite; unshocked, minimal weathering. Potentially paired with NWA 2994 and NWA 3250.
Specimens: A total of 22 g is on deposit at *Senck*. The main mass holder is anonymous.

Northwest Africa 6903 (NWA 6903) 32°22.3'N, 6°21.6'W
Centre, Morocco

Purchased: 2008
Classification: Iron meteorite (IIIAB)

History: Purchased near side of road near Khouribga, Morocco.

Physical characteristics: Heavy weathering around the perimeter and along a crack; near one edge oxidation penetrates about 1 cm into the interior, with kamacite largely replaced by oxides in fields of fine plessite.

Petrography: (J.T. Wasson, *UCLA*): Medium octahedrite, bandwidth 1.2 mm. Schreibersite is present in the interiors of larger kamacite bands; a typical size is 2 × 0.3 mm. No FeS was observed.

Geochemistry: Compositional data: Co 5.2 mg/g; Ni 84 mg/g; Ga 21.5 µg/g; Ge <50 µg/g; As 8.8 µg/g; Ir 0.22 µg/g; Au 1.09 µg/g. Data are the mean of duplicate determinations.

Classification: The meteorite is a member of IIIAB. Its composition is near the center of this largest group of irons. There is no compositional evidence of pairing. If compared to IIIABs with Au compositions between 1.04 and 1.14 mg/g there is only one other irons with Ir contents within 15% of that of this iron (Pozo Almonte). Thus, this is probably an independent fall.

Specimens: 318.7 g, *UCLA*; main mass, *Aaronson*

Northwest Africa 6909 (NWA 6909)
Northwest Africa
Purchased: Nov 2009
Classification: HED achondrite (Eucrite)

Petrography: Dark greenish gray, compact stone with minor weathered fusion crust. Subophitic texture with blocky to lath shaped, calcic plagioclase grains partly enclosed within strongly zoned pigeonite. Accessory minerals include chromite, ulvöspinel intergrown with ilmenite, silica polymorph, troilite and Ni-free metal. Pyroxene grains have cores of relatively magnesian pigeonite (mantled by ferropigeonite) and in turn by symplectitic intergrowths of fayalite+hedenbergite+silica+ilmenite against plagioclase.

Geochemistry: Pigeonite cores $Fs_{38.4\text{-}40.7}Wo_{7.4\text{-}8.2}$, FeO/MnO=27, ferropigeonite mantles $Fs_{71.0\text{-}79.1}Wo_{20.6\text{-}17.3}$, FeO/MnO=36-39, plagioclase $An_{83.4\text{-}91.4}Or_{0.2\text{-}0.7}$. Oxygen isotopes (D. Rumble, *CIW*): duplicate analyses by laser fluorination of acid-washed subsamples gave, respectively $\delta^{17}O$=1.683, 1.647; $\delta^{18}O$=3.647, 3.600; $\Delta^{17}O$= -0.236, -0.247.

Northwest Africa 6911 (NWA 6911)
Northwest Africa
Purchased: Feb 2011
Classification: HED achondrite (Diogenite)

Petrography: Very fresh aggregate of polygonal orthopyroxene grains (FeO/MnO = 28-31) with curvilinear boundaries plus accessory chromite and minor slightly stained metal.

Northwest Africa 6912 (NWA 6912)
Northwest Africa
Purchased: Feb 2011
Classification: HED achondrite (Eucrite, polymict)

Petrography: Fragmental breccia composed of clasts of fine-grained ophitic, cumulate and granulitic eucrites and related debris plus ~5 vol.% of diogenitic orthopyroxene containing inclusions of chromite. Eucritic minerals include exsolved pigeonite, calcic plagioclase, silica polymorph, ilmenite and troilite.

Geochemistry: Diogenitic orthopyroxene $Fs_{24.0}Wo_{2.4}$ FeO/MnO=27, host orthopyroxene $Fs_{59.3\text{-}59.5}Wo_{2.4}$, FeO/MnO=30, clinopyroxene exsolution lamellae $Fs_{24.0\text{-}24.2}Wo_{45.1\text{-}41.8}$, FeO/MnO=29.

Northwest Africa 6913 (NWA 6913)
Northwest Africa
Purchased: Feb 2011
Classification: HED achondrite (Eucrite, polymict)

Petrography: Fragmental breccia composed mostly of clasts and debris of various textural types of eucrites (cumulate, ophitic, granulitic, vitrophyric and very fine grained quenched). These lithologies are composed of low-Ca pyroxene, calcic plagioclase, silica polymorph, ilmenite, troilite and rare Ni-free metal. Rare components include a zoned olivine grain, a ferroan subcalcic augite grain, diogenitic orthopyroxene grains, and one finer grained breccia clast.

Geochemistry: Diogenitic orthopyroxene $Fs_{22.2}Wo_{3.3}$, FeO/MnO=30, pigeonite $Fs_{56.9}Wo_{7.2}$, FeO/MnO=31, subcalcic augite $Fs_{60.5}Wo_{26.9}$, FeO/MnO=34, olivine core $Fa_{20.8}$, rim $Fa_{38.4}$, FeO/MnO=41-60.

Northwest Africa 6914 (NWA 6914)
Northwest Africa
Purchased: Feb 2011
Classification: HED achondrite (Eucrite, polymict)

Petrography: Fragmental breccia composed of crystal and lithic debris from cumulate and ophitic eucrites. Minerals include several types of exsolved pigeonite, calcic plagioclase, silica polymorph, ilmenite, troilite, chromite, Ti-chromite, Ni-free metal and fayalite.

Geochemistry: One type of exsolved pigeonite has lamellae of relatively ferroan augite ($Fs_{27.4}Wo_{42.1}$, FeO/MnO=28) within host orthopyroxene ($Fs_{60.3}Wo_{2.6}$, FeO/MnO=31), and another type has more magnesian augite ($Fs_{13.8}Wo_{43.3}$, FeO/MnO=21) within host orthopyroxene ($Fs_{33.5}Wo_{2.6}$, FeO/MnO=25).

Northwest Africa 6915 (NWA 6915)
(Northwest Africa)
Purchased: Apr 2011
Classification: Ureilite

History: Purchased in 2011 April by Marc Jost from a Moroccan dealer visiting Switzerland.

Physical characteristics: A single black stone weighing 89.6 g.

Petrography: Fresh, coarse-grained, protogranular aggregate of olivine with dark, more reduced rims, rare grains of magnesian pigeonite and minor iron metal (only slightly stained by terrestrial weathering).

Geochemistry: Olivine cores $Fa_{18.8}$ (Cr_2O_3=0.6 wt.%), rims $Fa_{8.1}$; pigeonite $Fs_{3.1\text{-}3.9}Wo_{3.8\text{-}4.2}$.

Classification: Achondrite (ureilite, dunitic). This specimen is very unusual among ureilites in being a dunitic rock composed almost entirely of olivine (somewhat like LEW 86216 and clasts in JaH 422).

Specimens: A total of 18.3 g of material and one polished thin section is on deposit at *UWS*. Mr. G. Catterton holds the main mass.

Northwest Africa 6916 (NWA 6916)
Northwest Africa
Purchased: Apr 2011
Classification: HED achondrite (Eucrite)

Petrography: Large clasts of medium-grained, ophitic-textured eucrite within a matrix of recrystallized eucrite minerals (mostly exsolved pigeonite and calcic plagioclase) exhibiting polygonal grain boundaries.

Geochemistry: Pigeonite host $Fs_{58.7\text{-}58.8}Wo_{6.0}$, FeO/MnO=31-34, augite exsolution lamellae $Fs_{28.9\text{-}29.3}Wo_{42.0\text{-}41.2}$, FeO/MnO=33-35.

Northwest Africa 6917 (NWA 6917)
Northwest Africa

Purchased: Apr 2011
Classification: HED achondrite (Eucrite)

Petrography: Clasts of ophitic-textured eucrite within a matrix of related debris (mostly exsolved pigeonite and calcic plagioclase).

Geochemistry: Orthopyroxene host $Fs_{58.5\text{-}61.5}Wo_{5.0\text{-}4.3}$, FeO/MnO=30-31, augite exsolution lamellae $Fs_{29.3\text{-}30.5}Wo_{41.4\text{-}40.8}$, FeO/MnO=33-36.

Northwest Africa 6918 (NWA 6918)
Northwest Africa
Purchased: 2010 Oct
Classification: HED achondrite (Eucrite)

Petrography: Clasts of ophitic-textured eucrite within a matrix of related debris (mostly exsolved pigeonite and calcic plagioclase).

Geochemistry: Orthopyroxene host ($Fs_{62.7\text{-}63.0}Wo_{1.6\text{-}1.2}$, FeO/MnO=33-34), augite exsolution lamellae ($Fs_{27.3\text{-}27.5}Wo_{42.1\text{-}42.2}$, FeO/MnO=33-37).

Northwest Africa 6919 (NWA 6919)
Northwest Africa
Purchased: Apr 2011
Classification: HED achondrite (Eucrite)

Petrography: Relatively fine-grained, monomict breccia composed of clasts of basaltic eucrite, consisting of exsolved pigeonite, calcic plagioclase, silica polymorph and accessory ilmenite and zircon. Exsolved pigeonite contains abundant clinopyroxene exsolution lamellae (some kinked).

Geochemistry: Orthopyroxene $Fs_{60.6\text{-}61.6}Wo_{2.2\text{-}1.9}$, FeO/MnO=30-33, clinopyroxene lamellae $Fs_{25.7\text{-}26.7}Wo_{44.3\text{-}43.0}$, FeO/MnO=29-32.

Northwest Africa 6920 (NWA 6920)
Northwest Africa
Purchased: Mar 2011
Classification: HED achondrite (Howardite)

Petrography: Breccia containing distinctive yellowish diogenite clasts, and calcic plagioclase has been partly to totally converted by shock to maskelynite. Relatively coarse-grained basaltic eucrite clasts and related debris are subordinate to diogenite clasts (of several types ranging up to unusually ferroan orthopyroxene compositions) plus related debris. Accessory minerals include chromite, silica polymorph, ilmenite and troilite. This specimen appears to be paired with NWA 6709.

Geochemistry: Diogenite orthopyroxene $Fs_{38.4\text{-}38.9}Wo_{2.9\text{-}2.3}$, $Fs_{29.5}Wo_{1.5}$, $Fs_{22.6}Wo_{1.1}$ (FeO/MnO=30-36), host orthopyroxene $Fs_{47.6}Wo_{2.1}$, FeO/MnO=30), augite exsolution lamellae $Fs_{16.3\text{-}17.6}Wo_{42.7\text{-}42.5}$, FeO/MnO=26-27.

Northwest Africa 6923 (NWA 6923)
(Northwest Africa)
Purchased: Jun 2011
Classification: HED achondrite (Eucrite, polymict)

Petrography: Very fresh specimen composed predominantly of cumulate eucrite debris and clasts, with minor basaltic eucrite and fine-grained eucritic-breccia clasts. Minerals include exsolved pigeonite (of at least two different types), calcic plagioclase, silica, ilmenite and troilite.

Geochemistry: Some exsolved pigeonite grains are composed of orthopyroxene ($Fs_{52.1}Wo_{2.5}$, Fe/Mn=34), with exsolution lamellae of clinopyroxene ($Fs_{23.1}Wo_{43.0}$, Fe/Mn=30), whereas other grains are composed of more magnesian orthopyroxene ($Fs_{37.6}Wo_{3.1}$, Fe/Mn=30) with exsolution lamellae of more magnesian clinopyroxene ($Fs_{16.4}Wo_{42.7}$, Fe/Mn=26).

Northwest Africa 6926 (NWA 6926)
(Northwest Africa)
Purchased: Jan 2011
Classification: Ungrouped achondrite

History: Purchased in 2011 January by Gary Fujihara from a Moroccan dealer in Zagora.

Physical characteristics: Multiple small fragments (total weight 220 g) of coarse grained, yellowish-green stones (some with thin partial coatings of pale orange clay-like material).

Petrography: Very fresh specimen with cumulate igneous texture. Large oikocrysts of orthopyroxene enclose chadacrysts of olivine and chromite, with interstitial albitic plagioclase and small grains of very Ni-rich metal (awaruite). Trains of tiny fluid-like bubbles are present especially in orthopyroxene.

Geochemistry: Orthopyroxene $Fs_{41.4\text{-}41.7}Wo_{3.7}$ (Fe/Mn=80-87), olivine $Fa_{51.8\text{-}51.9}$ (Fe/Mn=141-156; NiO=0.74 wt.%).

Classification: Ungrouped achondrite. This material is essentially identical to NWA 6693 and NWA 6704, and likely represents a portion of one of those two large stones (probably NWA 6704, since its reassembled mass was not complete).

Specimens: A total of 20 g of material and one polished thin section is on deposit at *UWS*. Mr. G. Fujihara holds the main mass.

Northwest Africa 6927 (NWA 6927)
Northwest Africa
Purchased: Mar 2011
Classification: HED achondrite (Diogenite)

Petrography: Very fresh specimen. Partly crushed orthopyroxene (FeO/MnO=30-33) is dominant, with accessory olivine (FeO/MnO=43), troilite and chromite.

Northwest Africa 6928 (NWA 6928)
(Northwest Africa)
Purchased: 2011 May
Classification: HED achondrite (Diogenite, anomalous)

History: Purchased in 2011 May by Gary Fujihara from a Moroccan dealer in Erfoud.

Physical characteristics: A single partly fusion-crusted stone weighing 223 g. The very fresh interior consists mainly of beige pyroxene and white plagioclase.

Petrography: Relatively coarse grained aggregate with cumulate texture composed of 80 vol.% orthopyroxene and 19 vol.% interstitial anorthitic plagioclase plus accessory Ti-Al-bearing chromite, troilite and merrillite.

Geochemistry: Orthopyroxene $Fs_{33.4\text{-}34.1}Wo_{2.5\text{-}1.2}$ (Fe/Mn=31-33).

Classification: Achondrite (diogenite, noritic). This specimen consists of diogenitic orthopyroxene accompanied by an unusually high modal amount of plagioclase, and could be termed a noritic diogenite.

Specimens: A total of 20.9 g of material and one polished thin section is on deposit at *UWS*. Mr. G. Fujihara holds the main mass.

Northwest Africa 6929 (NWA 6929)
Northwest Africa
Purchased: 2011 Mar
Classification: Ordinary chondrite (H4)

Petrography: Mostly small, well-formed and fairly closely packed chondrules in a stained metal-rich matrix. Minerals include olivine, orthopyroxene, subcalcic augite, augite, altered kamacite (with minor associated barite), chromite, merrillite and troilite. Isolated grains identified in the matrix are aluminous enstatite ($Fs_{0.8}Wo_{4.0}$; Al_2O_3 1.1 wt.%, FeO/MnO = 8.2) and a single 0.4 mm, rounded grain of pink Cr-pleonaste spinel.

Geochemistry: Olivine $Fa_{17.2}$, orthopyroxene $Fs_{14.2\text{-}14.4}Wo_{0.5}$, subcalcic augite $Fs_{8.1}Wo_{35.3}$, augite $Fs_{8.8}Wo_{44.1}$, aluminous enstatite $Fs_{0.8}Wo_{4.0}$; Al_2O_3 1.1 wt.%, FeO/MnO = 8.2.

Northwest Africa 6931 (NWA 6931)
(Northwest Africa)
Found: 2007
Classification: Iron meteorite (IAB-MG)
History: Reportedly found near Abbadiah, Algeria
Petrography: This description is based on a small (25 g) sample of NWA 5549 and a larger piece of this new mass. Based on the compositional data and the discovery reports, the masses are paired. In hand specimen and in photos, silicates are common. A total area 25 cm^2 was examined. Silicate abundance ~15 vol%, troilite ~1.5 vol%. Kamacite lengths are only ~1.5× widths, making width determination uncertain; best estimate 1.6±0.3 mm. Neumann lines are abundant. Some silicates contain abundant small metal grains. A few large (3×4 mm) kamacite lamellae with incompletely resorbed taenite were observed.
Geochemistry: Composition: 4.51 mg/g Co, 69.8 mg/g Ni, 82.4 µg/g Ga, 380 µg/g Ge, 12.0 µg/g As, 4.12 µg/g Ir, and 1.49 µg/g Au. In Wasson (2011) it was noted that NWA 5549 and this mass have compositions close to that of the abundant iron Campo del Cielo but can be resolved with precise data. Significant differences are found for Ga, W and Ir. Relative to Campo del Cielo, the mean Cr is higher in NWA 5549, but replicates scatter.
Specimens: This mass appears to be paired with NWA 5549.

Northwest Africa 6932 (NWA 6932)
(Northwest Africa)
Found: 2008
Classification: Iron meteorite (ungrouped)
History: Reportedly found in the Algerian Desert
Petrography: Plessitic octahedrite with isolated (<5% of area) sparks and spindles of kamacite; longest bands are ~8 mm long and 0.2 mm wide. The material may be reheated; the fine plessite has a granular appearance and there are small dark ellipses that may reflect resorption of phosphide. No heat altered rim was recognized. Stucture Opl.
Geochemistry: Composition: 6.84 mg/g Co, 122.7 mg/g Ni, 9.45 µg/g Ga, 102 µg/g Ge, 6.45 µg/g As, 7.87 µg/g Ir, and 0.78 µg/g Au. The meteorite has no close compositional relatives. For example, in the Co range from 6.2 to 7.5 mg/g, no ungrouped iron has a Au content within 20% and only Guin and Laurens County have Ir contents within 20% of that in this iron, but these irons differ in several other compositional respects.
Specimens: Type specimen, 318.7 g, *UCLA*; main mass *DPitt*.

Northwest Africa 6947 (NWA 6947)
(Northwest Africa)
Purchased: Jun 2011
Classification: Ordinary chondrite (H5)
Petrography: Sparse small chondrules in a largely recrystallized matrix. Olivine, orthopyroxene, clinopyroxene, sodic plagioclase, fairly abundant altered kamacite, Mg-bearing merrillite, troilite, pentlandite and chromite.
Geochemistry: Olivine ($Fa_{18.9\pm0.0}$), orthopyroxene ($Fs_{16.7\text{-}16.9}Wo_{1.3\text{-}0.8}$), clinopyroxene ($Fs_{5.6}Wo_{45.8}$).

Northwest Africa 6948 (NWA 6948)
(Northwest Africa)
Purchased: May 2011
Classification: Ordinary chondrite (L5, melt breccia)
Physical characteristics: Cut surface shows lenticular regions of L5 material interleaved with zones of fine grained shock-darkened and melt-textured material. There appears to have been flow of the latter around the clasts.
Petrography: Specimen consists of regions with sparse chondrules surrounded by very fine-grained regions lacking chondrules (apparently representing quenched melt and/or highly shocked domains). The mafic minerals have variable compositions.
Geochemistry: Olivine ($Fa_{22.7\text{-}24.2}$), orthopyroxene ($Fs_{18.4\text{-}19.5}Wo_{3.6\text{-}2.2}$; $Fs_{12.0}Wo_{2.1}$), subcalcic augite ($Fs_{13.8}Wo_{28.4}$; $Fs_{16.0}Wo_{25.6}$).

Northwest Africa 6949 (NWA 6949)
(Northwest Africa)
Purchased: Aug 2011
Classification: Primitive achondrite (Winonaite)
Petrography: Metamorphic texture with many 120° triple junctions and fairly abundant holly-leaf-shaped grains of metal (mostly taenite with some altered kamacite). Mafic silicate minerals are Mg-rich; heterogeneously distributed sodic plagioclase and chlorapatite.
Geochemistry: Olivine ($Fa_{1.8\text{-}2.2}$, Fe/Mn=5-6), diopside ($Fs_{1.1\text{-}2.1}Wo_{45.9\text{-}43.8}$), enstatite ($Fs_{1.5\text{-}5.5}Wo_{1.2\text{-}1.4}$).

Northwest Africa 6950 (NWA 6950)
(Northwest Africa)
Purchased: 2011 Aug
Classification: Lunar meteorite (gabbro)
History: Reported to be found near the border between Mali and Algeria in June 2011, and purchased from the finder by Adam Aaronson in August 2011.
Physical characteristics: A single yellowish-green stone (1649 g, broken into 8 pieces) with partial fusion crust. Thin black shock veins are visible in the interior.
Petrography: (A. Irving and S. Kuehner, *UWS*) Relatively coarse grained with a cumulate igneous texture. Aggregate dominated by olivine, low-Ca pyroxene, pigeonite, and subcalcic augite, with interstitial very calcic plagioclase. Accessory minerals are ilmenite, Ti-chromite, armalcolite, troilite, baddeleyite, taenite and merrillite with rare zirconolite and K-feldspar.
Geochemistry: Olivine ($Fa_{31.9\text{-}32.7}$, Fe/Mn=85-97), low-Ca pyroxene ($Fs_{27.1\text{-}28.1}Wo_{4.8\text{-}4.5}$, Fe/Mn=47-55), pigeonite ($Fs_{25.6\pm0.0}Wo_{9.2\text{-}11.1}$, Fe/Mn=47-52), subcalcic augite ($Fs_{13.9}Wo_{36.9}$, Fe/Mn=41), plagioclase ($An_{87.9\text{-}93.0}Or_{1.1\text{-}0.9}$).
Classification: Achondrite (lunar, gabbro). This specimen is texturally and mineralogically identical to NWA 2977 and the olivine gabbro clasts in NWA 773, NWA 2700, NWA 2727 and NWA 3333, and evidently is paired with those stones.
Specimens: A total of 20.1 g of sample and one polished thin section are on deposit at *UWS*. The main mass is held by *Aaronson*.

Northwest Africa 6951 (NWA 6951)
(Northwest Africa)
Purchased: Jun 2010
Classification: Ordinary chondrite (L5)
Petrography: Sparse chondrules and chondrule remnants. Some metal is ragged in shape. Olivine, orthopyroxene, clinopyroxene, sodic plagioclase, chromite, troilite and altered kamacite. Secondary iron hydroxide veinlets crosscut the specimen.
Geochemistry: Olivine ($Fa_{24.5\pm0.0}$), orthopyroxene ($Fs_{20.0\text{-}20.2}Wo_{1.8\text{-}1.5}$), clinopyroxene ($Fs_{7.1\text{-}8.5}Wo_{45.5\text{-}43.9}$).

Northwest Africa 6952 (NWA 6952)
(Northwest Africa)
Purchased: Aug 2010

Classification: Ordinary chondrite (L4)
Petrography: Fairly well-developed, medium-sized chondrules. Olivine, orthopyroxene, clinopyroxene, sodic plagioclase, chromite, troilite and altered kamacite.
Geochemistry: Olivine ($Fa_{24.6-25.1}$), orthopyroxene ($Fs_{20.7-20.8}Wo_{1.5-1.7}$), clinopyroxene ($Fs_{7.7-8.6}Wo_{44.2-44.4}$).

Northwest Africa 6953 (NWA 6953)
(Northwest Africa)
Purchased: Sept 2011
Classification: Mesosiderite
Petrography: The primary metal in this specimen (originally ~30-40 vol.%) has been almost entirely altered by terrestrial weathering, with minor amounts of remnant kamacite and taenite. The other constituent minerals are orthopyroxene, very calcic plagioclase, and troilite.
Geochemistry: Orthopyroxene ($Fs_{24.9}Wo_{2.5}$, $Fs_{31.8}Wo_{3.3}$, Fe/Mn=30), olivine ($Fa_{37.6-37.9}$, Fe/Mn=46-47).

Northwest Africa 6955 (NWA 6955)
(Northwest Africa)
Purchased: Aug 2011
Classification: Ordinary chondrite (LL6)
Petrography: Very fresh breccia composed of angular, highly recrystallized chondrite clasts containing rare remnant partial chondrules. Olivine orthopyroxene, clinopyroxene with accessory chromite, chlorapatite, kamacite (slightly stained) and troilite.
Geochemistry: Olivine ($Fa_{30.3-30.7}$), orthopyroxene ($Fs_{24.3-24.7}Wo_{1.9-2.0}$), clinopyroxene ($Fs_{10.1-10.3}Wo_{43.4\pm0.0}$).

Northwest Africa 6956 (NWA 6956)
(Northwest Africa)
Purchased: Jul 2011
Classification: Ordinary chondrite (L6)
Petrography: Largely recrystallized with rare indistinct chondrules. Olivine, orthopyroxene, clinopyroxene, sodic plagioclase, altered kamacite, chromite and troilite.
Geochemistry: Olivine ($Fa_{24.7-24.8}$), orthopyroxene ($Fs_{20.9\pm0.0}Wo_{1.8\pm0.0}$), clinopyroxene ($Fs_{8.2-8.7}Wo_{44.5-43.1}$).

Northwest Africa 6961 (NWA 6961)
(Northwest Africa)
Purchased: Feb 2011
Classification: Ordinary chondrite (H4)
Petrography: Well-formed, small chondrules in a dark matrix. Olivine, orthopyroxene, clinopyroxene, sodic plagioclase, chromite, troilite and altered kamacite.
Geochemistry: Olivine ($Fa_{18.1-18.6}$), orthopyroxene ($Fs_{15.8-16.0}Wo_{1.3-1.6}$), clinopyroxene ($Fs_{5.6-5.8}Wo_{45.2-46.1}$).

Northwest Africa 6963 (NWA 6963)
28°00.148'N 11°07.895'W
South, Morocco
Found: 2011
Classification: Martian meteorite (Shergottite)
History: (H. Chennaoui Aoudjehane, *FSAC*) In September, 2011, a Moroccan meteorite hunter found the first pieces of NWA 6963 and sold it to *AHabibi* without giving the exact provenance. The hunter continued collecting pieces in the same area for about 6 months. In mid-May, 2012, the NWA 6963 locality, near the river Oued Touflit, became widely known and hundreds of meteorite hunters went to the area searching for more pieces. Pieces ranging from 100 to 700 g have been recovered, as well as a few small pieces (3-10 g), most of them are broken and partially covered by a thin fusion crust. The total mass may be as much as 8-10 kg.
Physical characteristics: The original recovered material was a shiny, dark, 83 g fusion-crusted stone in three pieces. Minimal weathering. Interior shows abundant maskelynite and shock melt vein.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished epoxy mount shows 60% pyroxene, 35% maskelynite, 2% ulvöspinel, 2% melt pockets with silica, minor merrillite, trace chlorapatite and pyrrhotite. Pyroxenes show core-to-rim zonation. Pyroxene grains 200 μm to >1 mm, maskelynite domains 50 μm to >1 mm.
Geochemistry: (C. Agee and N. Wilson, *UNM*) Two distinct pyroxene compositional trends. Pigeonite $Fs_{29}Wo_{11}En_{59}$ to $Fs_{58}Wo_{16}En_{26}$, average: $Fs_{39.7\pm7.7}$ $Wo_{13.0\pm2.3}$ Fe/Mn=33±3 N=108. Augite $Fs_{21}Wo_{34}En_{45}$ to $Fs_{39}Wo_{31}En_{30}$, average: $Fs_{28.1\pm6.2}Wo_{31.6\pm1.9}$ Fe/Mn=31±3 N=24. Maskelynite $Or_{2.3\pm0.7}Ab_{48.3\pm2.1}An_{49.4\pm2.6}$ N=9. Oxygen isotopes (Z. Sharp, *UNM*): $\delta^{18}O$=4.332; $\delta^{17}O$=2.528; $\Delta^{17}O$=+0.241 (all per mil).
Classification: Achondrite (Martian, shergottite); minimal weathering, high shock grade based on complete transformation of plagioclase to maskelynite. Pyroxene compositional trends are similar, but not identical to Shergotty.
Specimens: 17 g including microprobe mount on deposit *UNM*. *AHabibi* holds the original recovered mass.

Northwest Africa 6989 (NWA 6989)
Morocco
Found: 2011
Classification: Ordinary chondrite (H7)
History: Purchased by A. Habibi in 2011.
Physical characteristics: Single stone, reddish dark brown exterior with numerous weathering cracks.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished epoxy mount shows 75% olivine, 10% low-Ca pyroxene, 2% plagioclase, 12% kamacite and iron-oxide weathering products and veins. No chondrules present.
Geochemistry: (C. Agee and N. Wilson, *UNM*) EMPA. Olivine $Fa_{19.3\pm0.3}$, Fe/Mn=39±2, n=13, low-Ca pyroxene $Fs_{17.2\pm0.3}Wo_{1.4\pm0.2}$, Fe/Mn=23±1, n=14, plagioclase $Or_7Ab_{79}An_{14}$.
Classification: Ordinary chondrite (H7), significantly weathered. This is an H-chondrite, however chondrules are absent, fine-grained granoblastic texture, thus type 7.
Specimens: *AHabibi* holds the main mass, 21 g including a probe mount on deposit at *UNM*.

Northwest Africa 6990 (NWA 6990)
Morocco
Found: 2011
Classification: Ordinary chondrite (LL7)
History: Purchased by A. Habibi in 2011.
Physical characteristics: Complete black stone of 380 g and a smaller stone of 15 g.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished section shows 65% olivine, 30% low-Ca pyroxene, 3% plagioclase, ubiquitous troilite and chromite, trace augite, pigeonite, and Fe-Ni metal. Polygonal crystalline aggregate, numerous triple junctions.
Geochemistry: (C. Agee and N. Wilson, *UNM*) EMPA. Olivine $Fa_{28.9\pm0.3}$, Fe/Mn=60±3, n=14, low-Ca pyroxene $Fs_{23.8\pm0.2}Wo_{3.6\pm0.6}$, Fe/Mn=36±1, n=10, augite $Fs_{14.6}Wo_{40.7}$, Fe/Mn=36, n=1, pigeonite $Fs_{21.7}Wo_{9.9}$, Fe/Mn=33, n=1, plagioclase $Or_{3.7}Ab_{80.5}An_{15.8}$.

Classification: Ordinary chondrite (LL7), moderate weathering. This is a LL-chondrite, but chondrules are absent, completely recrystallized with an equigranular graniblastic texture, opx with high Wo-content, thus type 7.
Specimens: *AHabibi* holds the main mass, 22 g including a probe mount on deposit at *UNM*.

Northwest Africa 6991 (NWA 6991)
(Northwest Africa)
Purchased: June 2010
Classification: Carbonaceous chondrite (CV3)
Physical characteristics: Single 487 g, potato-shaped stone. Fusion crust on one side of stone. Interior of the stone fresh.
Petrography: (Laurence Garvie, ASU) Section dominated by large (0.1 to 9 mm, mean ~ 1mm) FeO poor chondrules set in a fine-grained matrix. No type-II chondrules found. Chondrule types include granular, POP, PO, BO, and rare small (100 μm) RP. AOAs to 3 × 1 mm. Meteorite contains one large (2 cm) coarse-grained type B CAI dominated by spinel, anorthite, melilite, and fassaite.
Geochemistry: (Laurence Garvie, ASU) Olivines show two compositional ranges - $Fa_{0.3\text{-}2.2}$ in granular, PO, and POP (mean $Fa_{0.7}$, n=13, with up to 0.6 wt% Cr_2O_3), and $Fa_{7.2\text{-}8.2}$ (n=3) in BO. Pyroxene represented by low Ca-pyroxene ($Fs_{0.7\text{-}1.1}Wo_{0.8\text{-}1.1}$) and augite $Fs_{1.2\text{-}1.7}Wo_{25.5\text{-}43.2}$ (with up to 5.4 wt% Al_2O_3). Minor phases include isolated subhedral fayalite (Fa~100) grains to 100 μm in the matrix (there are ~20 such grains in the thin section). Magnetite abundant in the matrix. Fe-Ni metal rare, Ni-rich Fe sulfide common.
Classification: CV3 oxidized subgroup based on the abundance of magnetite and Ni-rich Fe sulfides and rarity of Fe-Ni metal.

Northwest Africa 6992 (NWA 6992)
Algeria
Found: 2009
Classification: Carbonaceous chondrite (CR2)
History: Purchased by Matt Morgan in 2011.
Physical characteristics: Single stone, chondrules to 3 mm visible on exterior surface, desert weathering.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished epoxy mount shows numerous (>50% volume) POP, PO, and BO chondrules. Many chondrules >1 mm, often with kamacite rims. Kamacite >5% volume. Fine-grained matrix. Some metal and matrix appears to be oxidized by weathering.
Geochemistry: (C. Agee and N. Wilson, *UNM*) Two populations of olivine (representing Type I and II chondrules) and pyroxene: $Fa_{1.7\pm1.0}$, n=10, $Fa_{16.9\pm2.0}$, n=4, $Fs_{6.0\pm3.0}Wo_{3.4\pm2.8}$, n=5, $Fs_{24}Wo_{1.0}$. Kamacite (wt%): Fe=94.7%, Ni=5.0%, Co=0.3%.
Classification: Carbonaceous Chondrite (CR2), moderately weathered.
Specimens: *MtMorgan* holds the main mass, 25 g including a probe mount on deposit at *UNM*.

Northwest Africa 6995 (NWA 6995)
Morocco
Found: 2005
Classification: Ordinary chondrite (LL4)
Petrography: The meteorite is a breccia, which contains about 20 vol.% angular dark chondritic clasts ranging in size from 2 to 6 mm. The clasts are dark because they contain numerous, dispersed 2-5-μm opaque grains (mainly sulfide, but also including minor chromite and accessory metallic Fe-Ni).

Northwest Africa 7002 (NWA 7002)
(Northwest Africa)
Purchased: Sept 2011
Classification: Ordinary chondrite (LL6)
Petrography: Mostly recrystallized with some remnants of large chondrules. Composed of olivine, orthopyroxene, clinopyroxene, sodic plagioclase, chromite, troilite and altered kamacite.
Geochemistry: Olivine ($Fa_{30.9\pm0.0}$), orthopyroxene ($Fs_{24.8\text{-}25.1}Wo_{1.8\text{-}2.1}$), clinopyroxene ($Fs_{10.6\text{-}12.6}Wo_{43.7\text{-}42.4}$).

Northwest Africa 7003 (NWA 7003)
(Northwest Africa)
Purchased: 2011 Sep
Classification: Ordinary chondrite (LL4-5)
History: Purchased by Adam Aaronson in 2011 September in Temara, Morocco.
Petrography: Breccia consisting of clasts exhibiting varying degrees of recrystallization. Some clasts (less altered) have fairly well-formed, medium-sized chondrules, but other clasts have only sparse chondrules. Minerals are olivine, orthopyroxene, clinopyroxene, sodic plagioclase, chromite, troilite and altered kamacite.
Geochemistry: Olivine ($Fa_{26.7\text{-}28.0}$), orthopyroxene ($Fs_{25.3}Wo_{2.1}$), clinopyroxene ($Fs_{10.1\text{-}10.5}Wo_{43.8\text{-}43.6}$).
Classification: Ordinary chondrite (LL4-5).

Northwest Africa 7004 (NWA 7004)
(Northwest Africa)
Purchased: Sept 2011
Classification: Ordinary chondrite (H4)
Petrography: Well-formed, small chondrules. Composed of olivine, orthopyroxene, clinopyroxene, sodic plagioclase, chromite, troilite and altered kamacite.
Geochemistry: Olivine ($Fa_{18.3\text{-}18.6}$), orthopyroxene ($Fs_{15.8\pm0.0}Wo_{1.3\text{-}2.5}$) , clinopyroxene ($Fs_{5.7\text{-}6.4}Wo_{45.9\text{-}44.5}$).

Northwest Africa 7007 (NWA 7007)
Western Sahara
Purchased: 2011 Oct
Classification: Lunar meteorite (gabbro)
History: Found near Smara, southern Morocco in September 2011, and purchased from a dealer in Zagora, Morocco by Greg Hupé in October 2011.
Physical characteristics: A single dense, rounded stone (91 g) partially coated with black fusion crust. Dark angular mineral clasts plus sparse white clasts are visible within a finer grained dark matrix. One small polymineralic gabbroic clast is exposed on the surface, and others are revealed in interior slices.
Petrography: (A. Irving and S. Kuehner, *UWS*) Crystal-rich regolithic breccia consisting of some larger polymineralic clasts (gabbro and ophitic basalt) and apparently related crystal debris in a sparse glassy, microvesicular matrix. Major components are anorthite, complexly-zoned subcalcic augite, ferropigeonite, and relatively large fragments composed of intergrowths of fayalite+hedenbergite+silica (typical of subsolidus inversion assemblages from primary pyroxferroite). Accessory phases include olivine, ilmenite, fayalite, hedenbergite, silica polymorph, troilite, Ni-free metal and baddeleyite (to 10 μm across within fayalitic rims on pyroxene). Matrix glass contains abundant small, round vesicles (typical of those representing trapped solar wind gases in other lunar regolith breccias).
Geochemistry: Zoned subcalcic augite [(core $Fs_{22.5}Wo_{31.2}$, Fe/Mn=46), mantles ($Fs_{34.2\text{-}50.0}Wo_{29.6\text{-}25.9}$, Fe/Mn=55-65), ferropigeonite rims ($Fs_{66.1}Wo_{19.7}$, Fe/Mn=66)], olivine ($Fa_{42.0\text{-}44.4}$,

Fe/Mn=86-93), fayalite ($Fa_{98.4}$, Fe/Mn=78-84), plagioclase ($An_{91.4.5-93.2}Or_{0.5-0.3}$).
Classification: Achondrite (lunar, gabbro breccia). Terrestrial weathering is minimal.
Specimens: A total of 18.2 g of sample and one polished thick section are on deposit at *UWS*. The main mass is held by an anonymous collector.

Northwest Africa 7008 (NWA 7008)
(Northwest Africa)
Purchased: Jun 2011
Classification: Primitive achondrite (Brachinite)
Petrography: Protogranular aggregate dominated by olivine with subordinate clinopyroxene, minor orthopyroxene, chromite, altered kamacite, troilite and minor taenite and chlorapatite.
Geochemistry: Olivine ($Fa_{30.6-31.1}$, Fe/Mn=59-61), clinopyroxene ($Fs_{9.5-10.1}Wo_{43.3-42.2}$, Fe/Mn=32-35).

Northwest Africa 7010 (NWA 7010)
(Northwest Africa)
Purchased: Sept 2011
Classification: Ordinary chondrite (L5)
Petrography: Sparse chondrules. Olivine, orthopyroxene, clinopyroxene, sodic plagioclase, chromite, troilite and altered kamacite.
Geochemistry: Olivine ($Fa_{24.7-25.2}$), orthopyroxene ($Fs_{20.8-21.1}Wo_{1.6-1.5}$), clinopyroxene ($Fs_{6.8-8.1}Wo_{45.3-44.4}$).

Northwest Africa 7011 (NWA 7011)
(Northwest Africa)
Purchased: Sept 2011
Classification: Ordinary chondrite (LL6)
Petrography: Very sparse, relatively large chondrules and partial chondrules. Olivine, orthopyroxene, sodic plagioclase, chromite, troilite and sparse kamacite (some slightly stained).
Geochemistry: Olivine ($Fa_{32.9-33.1}$), orthopyroxene ($Fs_{26.4-26.9}Wo_{1.6-3.7}$).

Northwest Africa 7012 (NWA 7012)
(Northwest Africa)
Purchased: Sept 2011
Classification: HED achondrite (Eucrite, polymict)
Petrography: Fresh polymict breccia consisting of some coarse basaltic eucrite clasts plus related crystal debris and sparse diogenitic orthopyroxene and fayalitic olivine. Orthopyroxene, fayalite, exsolved pigeonite, very calcic plagioclase, olivine, ilmenite and troilite.
Geochemistry: Orthopyroxene ($Fs_{37.6-37.9}Wo_{2.0}$, Fe/Mn=35), fayalite ($Fa_{87.0}$, Fe/Mn=42), olivine ($Fa_{37.6-37.9}$, Fe/Mn=46-47). Pigeonite consists of host orthopyroxene ($Fs_{56.7}Wo_{4.1}$, Fe/Mn=29-33) with exsolution lamellae of clinopyroxene ($Fs_{23.2-23.8}Wo_{43.4-42.5}$, Fe/Mn=26-28).

Northwest Africa 7013 (NWA 7013)
(Northwest Africa)
Purchased: Sept 2011
Classification: HED achondrite (Eucrite, monomict)
Petrography: Fresh, probably monomict breccia containing some basaltic eucrite clasts plus related crystal debris in a sparse, dark matrix. Minerals are exsolved pigeonite, calcic plagioclase, silica, chromite, ilmenite and troilite.
Geochemistry: Pigeonite consists of host orthopyroxene ($Fs_{60.1-62.6}Wo_{1.7-2.2}$, Fe/Mn=29), with exsolution lamellae of clinopyroxene ($Fs_{25.5-27.3}Wo_{43.6-43.5}$, Fe/Mn=30).

Northwest Africa 7014 (NWA 7014)
(Northwest Africa)
Purchased: Sept 2011
Classification: HED achondrite (Eucrite, monomict)
Petrography: Fresh breccia containing some basaltic eucrite clasts and crystal debris in a darker, fine-grained matrix. Minerals include exsolved pigeonite, calcic plagioclase, silica, ilmenite and troilite.
Geochemistry: Pigeonite consists of host orthopyroxene ($Fs_{57.5-61.5}Wo_{2.2-2.1}$, Fe/Mn=33), with exsolution lamellae of clinopyroxene ($Fs_{26.7-27.3}Wo_{43.6-43.5}$, Fe/Mn=29-30).

Northwest Africa 7015 (NWA 7015)
Morocco
Found: 2011
Classification: Ordinary chondrite (LL4)
History: Purchased by Matt Morgan in 2011 at the Denver Gem and Mineral Show
Physical characteristics: Two pieces that fit together to form one complete stone. Fusion crusted, saw cut reveals light gray interior, numerous chondrules, clasts, and metal grains set in a fine grained matrix. Slightly weathered, light oxidation of metal grains.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished mount shows olivine and low-Ca pyroxene, numerous chondrules and breccia clasts. Mesostasis in some chondrules, also fine-grained plagioclase with high FeO content, minor high-Ca pyroxene, ubiquitous troilite and kamacite.
Geochemistry: (C. Agee and N. Wilson, *UNM*) EMPA. Olivine $Fa_{28.1\pm0.2}$, Fe/Mn=59±3, N=7, low-Ca pyroxene $Fs_{23.6\pm1.6}Wo_{2.2\pm1.1}$, Fe/Mn=35±3, N=4, high-Ca pyroxene $Fs_{10}Wo_{44}$, Fe/Mn=28, plagioclase $Ab_{84\pm2}$ N=3, kamacite (wt%): Fe=92.1, Ni=5.2, and Co=2.7.
Classification: Ordinary chondrite (LL4), type 4 based on Fa PMD=1% Fs PMD=7% (Huss et al. 2006) and mean Fa content (Rubin 2005), slightly weathered.
Specimens: *MtMorgan* holds the main mass, 24.6 g including a probe mount on deposit at *UNM*.

Northwest Africa 7016 (NWA 7016)
Morocco
Found: 2011
Classification: Ordinary chondrite (H6)
History: Purchased by Abdelfattah Gharrad and *Oakes* in 2011
Physical characteristics: Dark brown exterior. Interior fine grained, oxidized, brown with fine weathering veins.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished mount shows olivine, low-Ca pyroxene, plagioclase, few small, <500 μm, extensively equilibrated chondrules, ubiquitous troilite, oxidized kamacite, and weathering veins.
Geochemistry: (C. Agee and N. Wilson, *UNM*) Olivine Fa_{19} with Fe/Mn=42, low-Ca pyroxene $Fs_{17}Wo_{1.4}$ with Fe/Mn=24, and plagioclase Ab_{81}
Classification: Ordinary chondrite (H6), moderately weathered
Specimens: 22.9 g including a probe mount on deposit at *UNM*, Abdelfattah Gharrad and *Oakes* hold the main mass

Northwest Africa 7017 (NWA 7017)
Morocco
Found: 2011
Classification: Ordinary chondrite (L6)

History: Purchased by *MtMorgan* at the Denver Gem and Mineral Show in 2011.
Physical characteristics: Two pieces that fit together to form one complete stone. Dark fusion crust. Light gray interior, numerous faint chondrules, some to 4 mm. Minor weathering.
Geochemistry: (C. Agee and N. Wilson, *UNM*) EMPA. Olivine Fa_{24} with Fe/Mn=49, low-Ca pyroxene $Fs_{21}Wo_{2}$ with Fe/Mn=31, plagioclase Ab_{85}, EDS qualitative analyses confirmed the presence of troilite, kamacite, and chromite.
Classification: Ordinary chondrite (L6), slightly weathered.
Specimens: *MtMorgan* holds the main mass, 27.8 g including a probe mount on deposit at *UNM*.

Northwest Africa 7022 (NWA 7022)
(Northwest Africa)
Purchased: 2011 Mar
Classification: Lunar meteorite (feldspathic breccia)
History: Reported to be found near Tandouf, Algeria, in February 2011, and purchased from a dealer in Zagora, Morocco by Peter Utas in March 2011.
Physical characteristics: A single stone (444 g) with partial fusion crust. About two-thirds of the stone consists of a fragmental breccia composed of a variety of lighter colored, mostly angular mineral and rock clasts in a dark-gray matrix. The other one-third of the stone is comprised of a single large (to 4 cm), light-gray, fine-grained clast (which itself contains small remnant clasts).
Petrography: (A. Irving and S. Kuehner, *UWS*) The large, light-gray clast contains sparsely-distributed angular grains of olivine and calcic plagioclase set in a melt-textured (intersertal) aggregate of calcic plagioclase and both low-Ca and high-Ca pyroxenes, with accessory skeletal ilmenite, armalcolite, fayalite, troilite, silica polymorph, baddeleyite, merrillite, kamacite and rare zircon. The complex dark matrix portion consists of angular grains of olivine, low-Ca pyroxene, calcic plagioclase, Ti-bearing chromite, silica polymorph, silica+K-feldspar intergrowths, kamacite, feldspar-rich clasts (including additional melt-textured clasts), and sparse glass fragments containing tiny vesicles.
Geochemistry: Olivine ($Fa_{40.6-47.6}$, Fe/Mn=114-117), low-Ca pyroxene ($Fs_{22.8-28.8}Wo_{5.9-6.5}$, Fe/Mn=52-61), high-Ca pyroxene ($Fs_{26.4-28.8}Wo_{22.2-18.3}$, Fe/Mn=58-74), plagioclase ($An_{91.5-94.8}Or_{0.4-0.2}$).
Classification: Achondrite (lunar, feldspathic breccia). Terrestrial weathering is minimal.
Specimens: A total of 21.6 g of sample is on deposit at *UWS*. The main mass is held by Peter Utas.

Northwest Africa 7023 (NWA 7023)
(Northwest Africa)
Purchased: 2003
Classification: HED achondrite (Eucrite, polymict)
Petrography: (A. Love, *App*) Breccia consisting of 2.4-6.0 mm angular to subrounded clasts of dominant (~22 vol.%) fine- to medium-grained cumulate-textured eucrite, subordinate (~7%) fine-grained variolitic-textured eucrite, granulated and glassy breccia clasts, and vitrophyric clasts set within a finer grained fragmental matrix of plagioclase, augite, pigeonite, orthopyroxene, ilmenite and troilite.
Geochemistry: (A. Irving and S. Kuehner, *UWS*) Unexsolved pigeonite (core $Fs_{38.4}Wo_{7.3}$, rim $Fs_{53.9}Wo_{6.1}$, Fe/Mn=28-31). Exsolved pigeonite consists of host orthopyroxene ($Fs_{47.7-55.1}Wo_{5.6-4.8}$, Fe/Mn=27-29), with exsolution lamellae of clinopyroxene ($Fs_{23.0-26.8}Wo_{39.8-41.5}$, Fe/Mn=27-28).

Northwest Africa 7026 (NWA 7026)
(Northwest Africa)
Purchased: Oct 2011
Classification: Ordinary chondrite (L6, melt breccia)
Petrography: Very fresh specimen consisting of rounded chondrite clasts (containing very sparse chondrules) in a fine grained, dark matrix characterized by irregular, shred-like kamacite grains. Minerals are olivine, orthopyroxene, clinopyroxene, sodic plagioclase, chromite and troilitee.
Geochemistry: Olivine ($Fa_{23.9-25.4}$), orthopyroxene ($Fs_{21.5-22.6}Wo_{1.2}$), clinopyroxene ($Fs_{7.8-8.3}Wo_{44.7-44.6}$).
Classification: L6 melt breccia, likely paired with NWA 6706

Northwest Africa 7032 (NWA 7032)
Morocco
Found: Oct 2011
Classification: Martian meteorite (Shergottite)
History: A small stone was found in October 2011 in southern Morocco and purchased from a Moroccan dealer in Zagora in November 2011 by Luc Labenne.
Physical characteristics: A single very fresh, irregular ellipsoidal stone (85 g) coated by black fusion crust and naturally broken on one side revealing the interior. The specimen resembles a terrestrial microgabbro, and consists of larger black, yellow-green and clear, limpid grains along with small opaque grains.
Petrography: (A. Irving and S. Kuehner, *UWS*): Medium grained (to 0.9 mm) igneous assemblage of olivine (~40 vol.%), two types of clinopyroxene (~35 vol.%) and maskelynite (~20 vol.%), plus accessory chromite (with variable Ti contents), ilmenite, pyrrhotite and rare Mg-merrillite. Shocked plagioclase has been completely converted to maskelynite. All of the constituent minerals exhibit very limited compositional variation.
Geochemistry: Olivine ($Fa_{45.7-46.1}$, Fe/Mn=49-51), pigeonite ($Fs_{26.6}Wo_{15.7}$, Fe/Mn=30), subcalcic augite ($Fs_{23.7}Wo_{25.3}$, Fe/Mn=28), plagioclase ($An_{55.2-58.5}Or_{1.7-1.5}$). Oxygen isotopes (R. Tanaka, *OkaU*): analyses of acid-washed subsamples by laser fluorination gave, respectively $\delta^{17}O$ = 2.681, 2.577; $\delta^{18}O$ = 4.599, 4.423; $\Delta^{17}O$ = 0.259, 0.248 per mil.
Classification: Achondrite (Martian, shergottite). This specimen is unlike most other shergottites in being coarser grained (microgabbroic), and in containing minerals with a high degree of compositional homogeneity.
Specimens: A total of 17.0 g of type material, one polished thin section and a polished mount are on deposit at *UWS*. The remaining material is held by *Labenne*.

Northwest Africa 7033 (NWA 7033)
Morocco
Found: 2011
Classification: H4-melt breccia
History: Purchased by Matt Morgan at the Denver Gem and Mineral Show, 2011.
Physical characteristics: Cut surface shows numerous small metallic globules set in dark matrix.
Petrography: (C. Agee, *UNM*) Microprobe examination shows clast-poor melt possessing a diffuse contact boundary with shocked remnant host chondrite. Globules of Fe-Ni metal+sulfide (to 500 μm) are dispersed in the quenched melt. Chondrite host contains chondrules, clasts, and shocked H4 silicates.
Geochemistry: (C. Agee and N. Wilson, *UNM*) Olivine and pyroxene geochemistry is from the chondrite portion. Olivine $Fa_{19.6\pm1.2}$, Fe/Mn=41±4, n=6. Orthopyroxene $Fs_{18.0\pm2.1}Wo_{1.5\pm0.2}$, Fe/Mn=25±5, n=9.

Classification: H4-melt breccia, mean and standard deviation of Fa and Fs contents of mafic silicates in host rock consistent with type 4. Weathering grade W2.
Specimens: 24.1 g on deposit at *UNM*. *MtMorgan* holds the main mass.

Northwest Africa 7034 (NWA 7034)
Morocco
Purchased: 2011
Classification: Ungrouped achondrite
History: Purchased by Jay Piatek from *AHabibi* in Morocco, 2011.
Physical characteristics: Single stone, shiny, black surface, saw cut reveals porphyritic breccia with numerous dark and light colored phenocrysts and clasts of variable size and texture, set in a dark groundmass, many reflective opaques visible.
Petrography: (C. Agee, *UNM*) Microprobe examination of two polished epoxy mounts show a porphyritic, brecciated texture with plagioclase and pyroxene phenocrysts to 5 mm, ubiquitous chlorapatite, ilmenite, magnetite, and trace K-feldspar. Fine-grained groundmass composed of plagioclase, pyroxene, oxides, and trace Fe-sulfides. Poikilitic pyroxene-plagioclase clasts and quench melt clasts present. No Fe-Ni metal observed.
Geochemistry: (C. Agee , N. Wilson, F. McCubbin, *UNM*) Plagioclase $Ab_{52\pm6}An_{45\pm7}Or_{3\pm1}$, n=10, low-Ca pyroxene $Fs_{31.6\pm6.7}Wo_{3.1\pm0.8}$, Fe/Mn=37±3, n=23, pigeonite $Fs_{35.5\pm3.5}Wo_{8.0\pm3.3}$, Fe/Mn=34±1, n=8, augite $Fs_{24.3\pm4.5}Wo_{38.7\pm4.6}$, Fe/Mn=32±6, n=12, apatite with Cl=4.85±0.34 F=0.70±0.13 F+Cl=-O 1.38±0.06 (wt%) n=16, ilmenite with up to 5.3 wt% MgO, magnetite with up to 22.5 wt% Cr_2O_3, K-feldspar $Or_{77}Ab_{21}An_3$. Oxygen isotopes (Z. Sharp, *UNM*): acid-washed material analyzed in replicate by laser fluorination gave, respectively $\delta^{18}O$=6.00, 5.79, 6.51, 6.32; $\delta^{17}O$=3.76, 3.52, 4.09, 3.89; $\Delta^{17}O$= +0.59, +0.46, +0.65, +0.55 (all per mil).
Classification: Achondrite ungrouped (basaltic breccia). Plagioclase and pyroxene compositions similar to basaltic shergottites, however the oxygen isotopic values are higher than the SNC fractionation array.
Specimens: 30 g including a probe mount on deposit at *UNM*, Jay Piatek holds the main mass.

Northwest Africa 7034 (NWA 7034), *updated information, based on* Agee (2013).
Revised classification: Martian, Basaltic Breccia
Updated petrography (C. Agee, *UNM*): Porphyritic basaltic monomict breccia, with a few euhedral phenocrysts up to several millimeters and many phenocryst fragments of dominant andesine, low-Ca pyroxene, pigeonite, and augite set in a very fine-grained, clastic to plumose, groundmass with abundant magnetite and maghemite; accessory sanidine, anorthoclase, Cl-rich apatite, ilmenite, rutile, chromite, pyrite, and goethite, identified by electron microprobe analyses on eight different sections at *UNM*. X-ray diffraction analyses conducted at *UNM* on a powdered sample and on a polished surface show that plagioclase feldspar is the most abundant phase (38.0±1.2%), followed by low-Ca pyroxene (25.4±8.1%), clinopyroxenes (18.2±4.0%), iron-oxides (9.7±1.3%), alkali feldspars (4.9±1.3%), and apatite (3.7±2.6%). The x-ray data also indicate a minor amount of iron-sulfide and chromite. The data are also consistent with magnetite and maghemite making up ~70% and ~30%, respectively, of the iron oxide detected.
Additional geochemical data. Rb-Sr age (V. Polyak, Y. Asmerom, N. Wilson, *UNM*): 2.089±0.081 Ga (2-σ). REE: La=58 × CI, (La/Yb)=2.3. Hydrogen isotopes (Z. Sharp, K. Ziegler, *UNM*): six whole-rock combustion measurements yielded a bulk water content of 6190±620 ppm. The mean δD value for the bulk combustion analyses was +46.3±8.6‰. The maximum δD values in two separate stepwise heating experiments were +319‰ and +327‰, reached at 804°C and 1014°C respectively. Oxygen isotopes (Z. Sharp, K. Ziegler, *UNM*; M. Nunn, *UCSD*): 21 analyses of bulk NWA 7034 were carried out. The mean value obtained at *UNM* was $\Delta^{17}O$=0.58±0.05‰ n=13 for acid washed samples and $\Delta^{17}O$=0.60±0.02‰ n=6 for non-acid-washed samples; at *UCSD* the mean value was $\Delta^{17}O$=0.50±0.03‰ n=2 for vacuum pre-heated samples that were dewatered and decarbonated. The combined data give $\Delta^{17}O$=0.58±0.05‰ n=21.

Northwest Africa 7035 (NWA 7035)
(Northwest Africa), Morocco
Found: Sept 2011
Classification: HED achondrite (Eucrite, monomict)
History: Found in September 2011 near Zagora, Morocco, and purchased from a Moroccan dealer at the Tucson Gem and Mineral Show in January 2012 by Greg Hupé.
Physical characteristics: A single, fresh, 816 g stone covered by black fusion crust (in places glossy with wrinkle ridges). The interior contains prominent yellowish-green pyroxene grains, dark-gray plagiolcase and black mesostasis regions containing vesicles.
Petrography: (A. Irving and S. Kuehner, *UWS*) Coarse ophitic igneous texture (grains to 2.5 mm). Groups of strongly zoned clinopyroxene grains with large laths of calcic plagioclase, large grains of silica, ilmenite, iron sulfide and interstitial regions of dark, fine-grained, vesicular mesostasis (containing devitrified glass and some tiny grains of Ni-free metal). Pyroxenes contain irregular regions of pigeonite and subcalcic augite, but no exsolution lamellae are present. Ferropigeonite occurs as rims on some large pyroxene grains and in the mesostasis. Fayalite also occurs as rims on pyroxene grains and is in places intergrown with hedenbergite and silica.
Geochemistry: Pigeonite ($Fs_{39.9\text{-}41.1}Wo_{8.2\text{-}10.0}$, Fe/Mn=25-29), subcalcic augite ($Fs_{52.6}Wo_{24.3}$, Fe/Mn=32), ferropigeonite ($Fs_{80.6\pm0.0}Wo_{14.1\text{-}14.2}$, Fe/Mn=30-31). Oxygen isotopes (R. Tanaka, *OkaU*): laser fluorination analyses on acid-washed subsamples gave, respectively $\delta^{17}O$ = 1.867, 1.815; $\delta^{18}O$ = 3.993, 3.887; $\Delta^{17}O$ = -0.235, -0.232 per mil.
Classification: Achondrite (eucrite, monomict). This specimen is unusual among ophitic-textured eucrites in having relatively coarse grained, strongly zoned pyroxenes lacking obvious exsolution lamellae.
Specimens: 20.5 g of type material and one polished thin section are on deposit at *UWS*. The remaining material is held by GHupé.

Northwest Africa 7036 (NWA 7036)
(Northwest Africa)
Purchased: Nov 2011
Classification: HED achondrite (Eucrite, polymict)
Petrography: Breccia composed dominantly of cumulate eucrite debris (rich in tan pyroxene and maskelynite), with minor diogenitic orthopyroxene, ilmenite, chromite and troilite.
Geochemistry: Diogenitic orthopyroxene ($Fs_{21.6}Wo_{1.7}$; $Fs_{26.3}Wo_{1.7}$, Fe/Mn=25-27). Eucritic pyroxenes include unexsolved pigeonite ($Fs_{42.3}Wo_{13.6}$, Fe/Mn=27), subcalcic augite ($Fs_{43.0}Wo_{30.8}$, Fe/Mn=31) and exsolved pigeonite composed of orthopyroxene ($Fs_{61.8}Wo_{1.4}$, Fe/Mn=30), with exsolution lamellae of clinopyroxene ($Fs_{29.9}Wo_{40.6}$, Fe/Mn=29).

Northwest Africa 7037 (NWA 7037)
(Northwest Africa)

Purchased: Nov 2011
Classification: Ordinary chondrite (L4)

Petrography: Well-formed, medium-sized chondrules. The constituent minerals are mostly equilibrated, but orthopyroxene grains contain remnant, more magnesian cores. Minerals are olivine, orthopyroxene, subcalcic augite, sodic plagioclase, chromite, troilite and altered kamacite.

Geochemistry: Olivine ($Fa_{25.8\text{-}26.4}$), orthopyroxene ($Fs_{20.5\text{-}20.6}Wo_{0.4\text{-}0.3}$, with cores of $Fs_{8.9\text{-}17.4}Wo_{2.1\text{-}0.2}$), subcalcic augite ($Fs_{10.8\text{-}11.6}Wo_{34.7\text{-}29.0}$).

Northwest Africa 7040 (NWA 7040)
(Northwest Africa)
Purchased: 2011 Nov
Classification: Ordinary chondrite (H3.4)

Petrography: Well-developed small, round chondrules and some angular mineral frgaments. Matrix is rich in ferroan olivine with pyrrhotite and altered kamacite. Minerals are olivine, orthopyroxene, subcalcic augite, sodic plagioclase, chromite, troilite and altered kamacite.

Geochemistry: Olivine ($Fa_{2.2\text{-}44.4}$; Cr_2O_3 in ferroan olivine 0.09-0.28 wt.%, mean 0.15, s.d. 0.07, N = 7), orthopyroxene ($Fs_{5.2\text{-}33.1}Wo_{0.4\text{-}2.7}$), subcalcic augite ($Fs_{9.4\text{-}23.9}Wo_{32.6\text{-}36.5}$).

Classification: Ordinary chondrite (H3.4). Subtype estimated from Cr_2O_3 distribution in ferroan olivine based on recommendations by Grossman and Brearley (2005) and Bunch et al. (2012).

Northwest Africa 7041 (NWA 7041)
(Northwest Africa)
Purchased: Nov 2011
Classification: Ordinary chondrite (LL6)

Petrography: Breccia composed of angular clasts containing rare partial chondrules in a fragmental matrix. Minerals are olivine, orthopyroxene, pigeonite, augite, sodic plagioclase, chromite, troilite and altered kamacite.

Geochemistry: Olivine ($Fa_{29.9\text{-}34.6}$), orthopyroxene ($Fs_{24.4\pm0.0}Wo_{1.2\text{-}1.4}$), pigeonite ($Fs_{23.2}Wo_{6.0}$), augite ($Fs_{8.3}Wo_{45.4}$).

Northwest Africa 7042 (NWA 7042)
Morocco
Found: Oct 2011
Classification: Martian meteorite (Shergottite)

History: A large stone was found in October 2011 in southern Morocco and purchased from nomads by two Moroccan dealers.

Physical characteristics: A single 3033 g stone partly coated by thin, brownish remnant fusion crust. Weathered surfaces are mostly brown, with distinctive bright green grains. The fine grained interior has an overall greenish-gray color, with sparkling maskelynite visible in the matrix.

Petrography: (A. Irving and S. Kuehner, *UWS*): Aphyric assemblage of complexly-zoned pyroxene and zoned olivine with interstitial maskelynite (~15 vol.%, intergrown with ferroan pigeonite) and accessory Ti-poor chromite, ilmenite (some intergrown with ulvöspinel), pyrrhotite and merrillite. Sparse tiny grains of barite (from terrestrial weathering) present.

Geochemistry: Olivine (cores $Fa_{28.5\text{-}30.1}$, Fe/Mn=46-52; rims $Fa_{46.0\text{-}48.1}$, Fe/Mn=48-52), pigeonite (core $Fs_{29.0}Wo_{13.4}$, Fe/Mn=29; rims and matrix grains $Fs_{41.5\text{-}44.5}Wo_{17.5\text{-}9.0}$, Fe/Mn=35-36), subcalcic augite ($Fs_{22.4}Wo_{31.4}$, Fe/Mn=26), plagioclase ($An_{48.6\text{-}54.5}Or_{1.7\text{-}1.8}$). Oxygen isotopes (R. Tanaka, *OkaU*): analyses of acid-washed subsamples by laser fluorination gave, respectively $\delta^{17}O$ = 3.102, 3.016; $\delta^{18}O$ = 5.326, 5.079; $\Delta^{17}O$ = 0.298, 0.341 per mil.

Classification: Achondrite (Martian, shergottite).

Specimens: A total of 20.2 g of type material and one polished thin section are on deposit at *UWS*.

Northwest Africa 7043 (NWA 7043)
Morocco
Found: 2011
Classification: Carbonaceous chondrite (CV3)

History: Purchased by Matt Morgan at the Denver Gem and Mineral Show, 2011.

Physical characteristics: 30 pieces. Light surface weathering, saw cut reveals numerous chondrules and a few CAIs set in a dark gray matrix.

Petrography: (C. Agee, *UNM*) Microprobe examination shows many PO and POP chondrules, accessory anorthite, diopside, gehlenite, spinel. Pervasive fine-grained matrix.

Geochemistry: (C. Agee and N. Wilson, *UNM*) EMPA. Type I chondrules: olivine $Fa_{1.6\pm1.3}$, n=19; orthopyroxene $Fs_{1.3\pm0.3}Wo_{0.9\pm0.1}$, n=6, Type II chondrules: olivine $Fa_{25.8\pm11.0}$, Fe/Mn=106±14, Cr_2O_3 (wt%)=0.19±0.07, n=8.

Classification: Carbonaceous Chondrite (CV3), weathering grade W1.

Specimens: 22.6 g including a probe mount on deposit at *UNM*, *MtMorgan* holds the main mass.

Northwest Africa 7044 (NWA 7044)
Morocco
Purchased: 2011
Classification: Ordinary chondrite (H6)

History: Purchased by Matt Morgan at the Denver Gem and Mineral Show in 2011.

Physical characteristics: Oriented stone. Interior is dark with numerous fine metal grains and a few weathering veins.

Petrography: (C. Agee, *UNM*) Microprobe examination shows a largely recrystallized, granoblastic texture with rare indistinct chondrules.

Geochemistry: (C. Agee and N. Wilson, *UNM*) Olivine $Fa_{19.5\pm0.2}$, Fe/Mn=39±2, n=8; low-Ca pyroxene $Fs_{17.1\pm0.1}Wo_{1.3\pm0.2}$, Fe/Mn=23, n=7; plagioclase $Ab_{82.}$

Classification: Ordinary chondrite (H6), weathering grade W2.

Specimens: 22.9 g including a probe mount on deposit at *UNM*, *MtMorgan* holds the main mass.

Northwest Africa 7045 (NWA 7045)
Morocco
Purchased: 2011
Classification: Pallasite (Main group)

History: Purchased by Matt Morgan at the Denver Gem and Mineral Show, 2011.

Physical characteristics: Dark irregular surface with some oxide staining, saw cut reveals olivines set in a dark gray, veined matrix.

Petrography: (C. Agee, *UNM*) Interior shows olivine crystals (to 10 mm) surrounded and penetrated by a matrix of iron oxides or hydroxides. Minor schreibersite observed. No primary Fe-Ni metal detected.

Geochemistry: (C. Agee and N. Wilson, *UNM*) EMPA. Olivine $Fa_{13.6\pm0.2}$, Fe/Mn=41±3, n=3.

Classification: Pallasite, PMG, weathering grade W4.

Specimens: 26.9 g on deposit at *UNM*. *MtMorgan* holds the main mass.

Northwest Africa 7046 (NWA 7046)
Morocco
Found: 2010

Classification: Ordinary chondrite (H4)
History: Purchased by Matt Morgan in at the Denver Gem and Mineral Show, 2011.
Physical characteristics: Dark brown exterior, iron staining, saw cut reveals numerous chondrules, some to 4 mm.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished mount shows a dense population of chondrules: BP, PP, PO, POP, some clasts, 100-2000 μm. Albitic mesostasis and glass, accessory pigeonite and augite, significant oxidation of Fe-Ni metal, sulfide and chromite present.
Geochemistry: C. Agee and N. Wilson, *UNM*) Olivine $Fa_{17.1\pm0.7}$, PMD=4%, Fe/Mn=35±2, n=35. Orthopyroxene $Fs_{15.7\pm5.0}$, PMD=33%, $Wo_{1.1\pm1.1}$, Fe/Mn=27±11, n=34.
Specimens: 24g on deposit at *UNM*. *MtMorgan* holds the main mass.

Northwest Africa 7061 (NWA 7061)
Morocco
Purchased: Apr 2011
Classification: Ordinary chondrite (LL6)
History: Specimen was found near Tantan.
Petrography: Thin section reveals a cm-scale clast and several smaller clasts set in a fine-grained cataclastic matrix. The large clast contains relict chondrules to 3 mm. Elsewhere, clasts are composed of polygonal olivine and low-Ca pyroxene.
Classification: Ordinary chondrite, LL6 breccia
Specimens: Main mass, including polished thin section, reside at *UAb*.

Northwest Africa 7062 (NWA 7062)
Morocco
Purchased: Apr 2011
Classification: HED achondrite (Eucrite, monomict)
History: Specimen comes from the Hamada region.
Petrography: Breccia consisting of mm-scale clasts of pyroxene and plagioclase in a groundmass of the same. Pyroxene is either pigeonite, $Fs_{56-59}Wo_{4.5-10}$ (Fe/Mn=31) or augite $Fs_{27-30}Wo_{39-43}$ (Fe/Mn=32), often with exsolution lamellae. Plagioclase ($An_{90}Or_0$) typically contains microinclusions of pigeonite and SiO_2. Accessory minerals include SiO_2, chromite, ilmenite and troilite.
Specimens: Main mass, including polished thin section, reside at *UAb*.

Northwest Africa 7063 (NWA 7063)
Morocco
Found: 2008
Classification: Ordinary chondrite (L6)
History: A partially crusted 188 g stone was found in 2008 and purchased in Erfoud, Morocco, in 2009. Thomas Webb acquired the samples in June 2011 from a meteorite prospector.
Physical characteristics: Dark brown matte fusion crust covers 80% of stone. The matrix is crosscut by a thin (~100 μm), light-colored (visible in hand specimen), discontinuous region with a microporphyritic texture composed of few olivine and orthopyroxene phenocrysts contained within a very fine-grained (avg. grain-size ~30 μm) recrystallized matrix of olivine, orthopyroxene and plagioclase.
Petrography: Sample displays recrystallized chondritic texture with indistinct chondrules and fragments: GO, BO, RP, POP (avg. diam. ~1.50 mm). Matrix contains 500 μm anhedral grains of apatite.
Geochemistry: Olivine $Fa_{22.89\pm0.82}$, PMD = 0.64%, n=42. Orthopyroxene $Fs_{20.07\pm1.83}$, PMD = 7.39%, $Wo_{1.48\pm7.39}$, n=24.
Classification: Equilibrated ordinary chondrite (L6) S3 W 1
Specimens: 21.2 g and one thin section on deposit at *App*. Thomas *Webb* holds main mass

Northwest Africa 7077 (NWA 7077)
(Northwest Africa)
Purchased: 2011
Classification: Carbonaceous chondrite (CV3)
Petrography: Specimen is characterized by abundant chondrules, up to 5 mm sized CAIs, and mineral fragments set in a fine-grained dark brownish matrix. Some chondrules appear reddish.

Northwest Africa 7080 (NWA 7080)
(Northwest Africa)
Purchased: 2011
Classification: Ordinary chondrite (L6, melt breccia)
Petrography: Hand specimen shows cm-sized light-gray to dark-brown chondritic fragments set in a fine-grained almost black matrix. Thin sections show chondritic fragments are L6 type and the dark matrix is impact melt with small sulfide and metal droplets set in a glassy, partly recrystallized groundmass.

Northwest Africa 7084 (NWA 7084)
(Northwest Africa)
Purchased: 2011
Classification: Ordinary chondrite (LL6, melt breccia)
Petrography: Large number of grayish angular to rounded LL6-type fragments set in a fine-grained dark matrix. Groundmass is partly recrystallized impact melt with sulfide and metal droplets.

Northwest Africa 7086 (NWA 7086)
(Northwest Africa)
Purchased: 2011
Classification: Carbonaceous chondrite (CK4)
Petrography: The meteorite consists of sharply defined chondrules, mineral fragments, and few CAIs set into a fine-grained matrix. Minor phases include feldspar, Cr-rich magnetite, and Ca-pyroxene.

Northwest Africa 7087 (NWA 7087)
(Northwest Africa)
Purchased: 2011
Classification: Ordinary chondrite (LL6)
Petrography: Breccia consisting of LL-type lithic fragments set in a bright and more fine-grained LL-type matrix. There are very few dark fragments that represent melt.

Northwest Africa 7088 (NWA 7088)
(Northwest Africa)
Purchased: 2011
Classification: Ordinary chondrite (LL5/6)
Petrography: Breccia consisting of LL-type lithic fragments set in a bright and more fine-grained LL-type matrix. There are very few dark fragments that represent melt.

Northwest Africa 7095 (NWA 7095)
(Northwest Africa)
Purchased: 2011
Classification: Carbonaceous chondrite (CV3)
Petrography: The meteorite consists of very sharply defined chondrules, whitish CAIs, and irregular shaped olivine amoeboids embedded into a black matrix. Metal is only rarely encountered.

Northwest Africa 7097 (NWA 7097)

(Northwest Africa)
Purchased: 2011
Classification: HED achondrite (Eucrite, polymict)

Petrography: Moderately weathered polymict breccia consisting of fine-grained and more coarse-grained basaltic lithologies, impact melt fragments, and mineral clasts set in a finer grained brecciated groundmass of dominantly calcic plagioclase and exsolved Ca-pyroxene. Minor phases include silica polymorphs, troilite, ilmenite and Ti-rich chromite.

Geochemistry: low Ca-pyroxene $Fs_{45.6}$ (29.2-63.6) $Wo_{7.5}$ (1.9-12.1), Fe/Mn=29-32; high Ca-pyroxene $Fs_{32.8}$ (32.0-33.6) $Wo_{37.2}$ (36.4-37.8), Fe/Mn=29-30; plagioclase $An_{89.1}$ (82.2-92.5). The low-Ca pyroxene Fs ranges may reflect both diogenite and eucrite components.

Northwest Africa 7098 (NWA 7098)
(Northwest Africa)
Purchased: 2011
Classification: HED achondrite (Eucrite, polymict)

Petrography: Fresh, brecciated specimen composed of lithic and mineral clasts set in a clastic matrix; lithic clasts include basaltic clasts and dark impact melt fragments; mineral clasts are dominantly large plagioclase and exsolved pyroxenes. Contains accessory ilmenite and troilite.

Geochemistry: low Ca-pyroxene $Fs_{59.7}$ (59.3-60.1) $Wo_{1.8}$ (1.4-2.6), Fe/Mn=30-32; high Ca-pyroxene $Fs_{25.5}$ (24.2-26.4) $Wo_{43.5}$ (42.5-44.3), Fe/Mn=28-30; plagioclase $An_{91.9}$ (88.2-93.3)

Northwest Africa 7103 (NWA 7103)
(Northwest Africa)
Purchased: 2011
Classification: Carbonaceous chondrite (CO3)

Petrography: The specimen is composed of abundant small chondrules (0.1-0.2 mm in diameter), mineral fragments and rare CAIs, set in a fine-grained partly reddish colored matrix. Dominant minerals are olivine, orthopyroxene, kamacite, and troilite.

Northwest Africa 7104 (NWA 7104)
(Northwest Africa)
Purchased: 2010
Classification: Carbonaceous chondrite (CV3)

Petrography: Exhibits characteristic texture of abundant large chondrules, CAIs, and mineral fragments set into a fine-grained dark matrix. Chondrules and CAIs appear to be flattened and show preferred orientation.

Northwest Africa 7107 (NWA 7107)
(Northwest Africa)
Purchased: 2010
Classification: Carbonaceous chondrite (CV3)

Petrography: Large chondrules and up to several mm-sized CAIs set in a fine-grained dominantly greenish matrix. Contains abundant metal and no magnetite. Chondrules and CAIs appear to be aligned. Olivine $Fa_{31.7\pm12.7}$ (n=43), range: $Fa_{0.72\text{-}40.6}$; low-Ca pyroxene $Fs_{2.4\pm0.15}Wo_{0.71\pm0.08}$ (n=2). Also present are Ni-rich metal, troilite, Ti- and Cr-bearing oxides, and diopside ($Fs_{0.6}Wo_{52}$) containing appreciable Al_2O_3. The meteorite is a CV3 chondrite of the reduced subgroup.

Northwest Africa 7109 (NWA 7109)
Morocco
Found: 2011
Classification: Ordinary chondrite (L5)

History: Purchased by Matt Morgan at the Denver Gem and Mineral Show in 2011.

Physical characteristics: Single stone, interior is brown with numerous small metal grains and a few weathering veins.

Petrography: (C. Agee, *UNM*) Microprobe examination of a polished mount shows a few distinct chondrules set in granoblastic olivine and pyroxene. Plagioclase and kamacite present.

Geochemistry: (C. Agee and N. Wilson, *UNM*) Olivine $Fa_{24.1\pm0.3}$, Fe/Mn=49±5, n=9, low-Ca pyroxene $Fs_{21.3\pm1.9}Wo_{1.5\pm0.2}$, Fe/Mn=31±4, n=7.

Classification: Ordinary chondrite (L5), weathering grade W3.

Specimens: 35 g including a probe mount on deposit at *UNM*, *MtMorgan* holds the main mass.

Northwest Africa 7110 (NWA 7110)
(Northwest Africa)
Purchased: 2011
Classification: Carbonaceous chondrite (CV3)

History: Purchased by Giorgio Tomelleri at the Erfoud market in Morocco.

Physical characteristics: Five fragments weighing 220 g, without fusion crust.

Petrography: (V. Moggi Cecchi, G. Pratesi, S. Caporali, *MSP*) Section contains large (0.3 – 1.8 mm, mean 0.8 mm) type I chondrules of various types (granular, PO and POP), accounting for about 30% of the total, set in a fine-grained matrix. The section contains a 2 × 1 mm AOA and a large (3 mm) CAI. Opaque phases are rare (less than 1%) and mainly represented by framboidal magnetite blebs, sometimes intergrown with pentlandite. Minor oxidized pyrrhotite is also present.

Geochemistry: Olivine shows two compositional ranges: $Fa_{0.4\text{-}2.7}$ in granular, PO, and POP (mean $Fa_{1.2}$, n=21, with up to 0.5 wt% Cr_2O_3), and $Fa_{50.4\text{-}51.2}$ (n=5) in isolated subhedral grains up to 120 μm in the matrix. Low-Ca pyroxene ($Fs_{1.1}En_{98.9}Wo_{1.2}$). Augite ($Fs_{0.8}En_{85.3}Wo_{13.9}$, with 2.3 wt. % Al_2O_3). Oxygen isotopes: (I. Franchi, R.Greenwood, *OU*) $\delta^{17}O$ = -1.01, $\delta^{18}O$ = 3.94, $\Delta^{17}O$ = -3.06 per mil.

Classification: Carbonaceous chondrite, CV3; the abundance of magnetite, the presence of Ni-rich Fe sulfides and rarity of Fe,Ni alloys suggest oxidized subgroup.

Specimens: 20.61 g, one polished thin section and a block are on deposit at *MSP* (*MSP* 5185). Main mass, anonymous.

Northwest Africa 7111 (NWA 7111)
(Northwest Africa)
Purchased: 2011
Classification: Ureilite

History: Purchased by Giorgio Tomelleri at a market in Erfoud, Morocco.

Physical characteristics: Three fragments weighing 59 g, without fusion crust.

Petrography: (V. Moggi Cecchi, G. Pratesi, S. Caporali, *MSP*) The thin section displays a coarse-grained texture consisting primarily of euhedral olivine grains, with subordinate pyroxene. Olivine grains to 1.6 mm (mean 1.2). Common triple junctions. Individual olivine and pyroxenes grains are rimmed by carbon-rich material. Opaque phases are rare and consisting of kamacite, mainly as traces at grain boundaries.

Geochemistry: Olivine $Fa_{20.7}$, Cr_2O_3=0.63 wt%; pigeonite $Fs_{17.2}Wo_{10.1}$, Cr_2O_3=1.1 wt%. Oxygen isotopes: (I. Franchi, R. Greenwood, *OU*) $\delta^{17}O$ = 3.303, $\delta^{18}O$ = 8.12, $\Delta^{17}O$ = -0.9194 per mil.

Classification: Achondrite ureilite (type I).

Specimens: A total of 12.16 g specimen and one thin section is on deposit at *MSP* (MSP 5186). An anonymous person holds the main mass.

Northwest Africa 7116 (NWA 7116)
(Northwest Africa)
Purchased: 2011
Classification: Enstatite chondrite (EL6)
History: Purchased by Giorgio Tomelleri at a market in Erfoud, Morocco.
Physical characteristics: Seven fragments total 12.1 g, without fusion crust.
Petrography: (V. Moggi Cecchi, G. Pratesi, S. Caporali, *MSP*) The thin section displays rare indistinct chondrules set in a fine-grained matrix, consisting of pyroxene, with minor plagioclase. Several subparallel 200 µm-wide veinlets filled with iron oxides/hydroxides present. Chondrules (0.4 to 0.8 mm) are mainly RP type, with minor GP. Opaque phases are mainly kamacite and troilite, almost completely weathered to iron oxides. Accessory phases are alabandite and daubreelite as blades in troilite. The presence of alabandite, An content of plagioclase and Si content of kamacite point to a classification as EL chondrite.
Geochemistry: Orthopyroxene ($Fs_{0.8}Wo_{1.4}$), plagioclase ($An_{14.7}Or_{4.4}$); Si in kamacite = 0.7 wt.%, Ti in troilite = 5.9 wt.%
Classification: Enstatite chondrite (EL6); S2; W2
Specimens: A total of 12.1 g specimen and one thin section is on deposit at *MSP* (MSP 5192). An anonymous person holds the main mass.

Northwest Africa 7119 (NWA 7119)
(Northwest Africa)
Purchased: Nov 2011
Classification: Mesosiderite
Petrography: Aggregate of orthopyroxene, anorthite, kamacite, taenite, Fe sulfide, silica and merrillite.
Geochemistry: Orthopyroxene ($Fs_{24.8\text{-}26.0}Wo_{2.2\text{-}1.9}$, Fe/Mn=19.7-20.5).

Northwest Africa 7122 (NWA 7122)
(Northwest Africa)
Purchased: Oct 2011
Classification: Ordinary chondrite (L4)
Petrography: Well-developed, medium-sized chondrules. The constituent minerals are mostly equilibrated, but orthopyroxene grains contain remnant, more magnesian cores. Minerals are olivine, orthopyroxene, pigeonite, subcalcic augite, sodic plagioclase, chromite, troilite and altered kamacite.
Geochemistry: Olivine ($Fa_{26.4\text{-}26.5}$), orthopyroxene ($Fs_{9.2\text{-}20.2}Wo_{1.2\text{-}1.1}$), pigeonite ($Fs_{8.6}Wo_{8.5}$), subcalcic augite ($Fs_{12.2}Wo_{33.6}$).

Northwest Africa 7128 (NWA 7128)
(Northwest Africa)
Purchased: 2011 Sep
Classification: Ordinary chondrite (LL4)
History: Purchased by Gary Fujihara from a Moroccan dealer in 2011 September.
Petrography: Well-formed, fairly large chondrules and very low metal content. Olivine, orthopyroxene, clinopyroxene, sodic plagioclase, chromite, troilite (some grains to 4 mm), fresh kamacite, and taenite.
Geochemistry: Olivine ($Fa_{27.7\text{-}28.3}$), orthopyroxene ($Fs_{22.6\pm0.0}Wo_{1.5}$).
Classification: Ordinary chondrite (LL4).

Northwest Africa 7132 (NWA 7132)
Morocco
Found: 2010
Classification: Mesosiderite
Petrography: Equal distribution of metal clumps (35 vol%), noritic diogenite (orthopyroxene and plagioclase) clasts (60 vol%), some with recrystallized margins, and large (to 5 mm) olivine xenoliths (dunitic) mantled by eucritic melt crystallization (5 vol%).
Geochemistry: Olivine $Fa_{13.3}$, Fe/Mn=44; orthopyroxene $Fs_{31.2\text{-}33.4}$, Fe/Mn=28; plagioclase An_{93}; metal Ni=5.2-13.3 wt %.
Classification: Mesosiderite (with dunite and and noritic diogenite clasts).

Northwest Africa 7138 (NWA 7138)
Morocco
Found: 2010
Classification: Carbonaceous chondrite (CM2)
Petrography: Wide range of chondrule sizes up to 4 mm. Abundant (AOAs), matrix altered to physillocates.
Geochemistry: Olivine $Fa_{1.5\text{-}66.7}$, Fe/Mn=134, Cr_2O_3 = 0.22-0.42 wt.%; AOA olivine $Fa_{1.5}$; plagioclase An_{87}; diopside $Fs_{2.1}Wo_{50}$; metal Ni = 2.2 wt.%.
Classification: Carbonaceous chondrite (CM2)

Northwest Africa 7139 (NWA 7139)
Morocco
Found: 2010
Classification: HED achondrite (Eucrite, polymict)
Petrography: Polymict breccia with basaltic and cumulate eucrite clasts. Contains orthopyroxene, pigeonite, Ca-pyroxene, silica, ilmenite, and merrillite.
Geochemistry: Basaltic orthopyroxene, $Fs_{56}Wo_{3.0}$; augite, $Fs_{27.7}Wo_{44}$; plagioclase, $An_{88.}$
Classification: Achondrite (Eucrite-pmict)

Northwest Africa 7175 (NWA 7175)
Algeria
Found: 2005
Classification: Ordinary chondrite (LL6)
History: A fireball seen on November 25, 2005, from Tindouf, Algeria, in the direction of Tazarine, Morocco, may be associated with this meteorite found in the Hamada du Draa side in Algeria. All stones are fully crusted. The largest stone (113 g) is oriented.

Northwest Africa 7180 (NWA 7180)
Algeria
Purchased: 11 July 2011
Classification: Ordinary chondrite (H3.6)
Petrography: Chondrules average about 300 µm. The mean olivine Fa content is closest to the H-chondrite range. A few chondrules have isotropic glass. Polysynthetically twinned low-Ca pyroxene grains are common. The review paper by Sears and Hasan (1987) gives the ranges for standard deviations for different subtypes of type-3 OC. The standard deviation of olivine Fa divided by mean Fa in this rock is 37; this corresponds to type 3.6 in the Sears-Hasan table.

Northwest Africa 7181 (NWA 7181)
Morocco
Purchased: 2011
Classification: Ordinary chondrite (L3.5)
History: Purchased by Matt Morgan at the Denver Gem and Mineral Show, 2011.

Physical characteristics: Dark brown exterior, some iron staining, saw cut shows numerous small chondrules set in dark matrix.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished mount shows numerous unequilibrated chondrules, RP, POP, some ringed with sulfide, variable sizes, up to 2 mm. Albitic mesostasis and glass. Most metal is oxidized, abundant weathering veinlets.
Geochemistry: (C. Agee and N. Wilson, *UNM*) Olivine $Fa_{22.8\pm5.1}$, range $Fa_{5\text{-}30}$, PMD=21%, Fe/Mn=59±21, n=32. Orthopyroxene $Fs_{11.4\pm7.6}Wo_{0.9\pm1.3}$, range $Fs_{3\text{-}29}$, PMD=62%, Fe/Mn=27±10, n=28.
Classification: Ordinary chondrite L3.5 Subtype estimate based on standard deviation of olivine and pyroxene. Weathering grade: W3.
Specimens: 20 g on deposit at *UNM*. *MtMorgan* holds the main mass.

Northwest Africa 7189 (NWA 7189)
(Northwest Africa)
Purchased: 2011 Sep
Classification: Ordinary chondrite (H4)
History: Purchased by Eric Twelker in 2011 September from a Moroccan dealer at the Denver Mineral Show.
Petrography: Small, well-formed chondrules and abundant stained metal. Olivine, orthopyroxene, clinopyroxene, sodic plagioclase, chromite, altered kamacite and troilite.
Geochemistry: Olivine ($Fa_{18.6\text{-}18.7}$), orthopyroxene ($Fs_{15.9\text{-}16.2}Wo_{0.9\text{-}1.1}$), clinopyroxene ($Fs_{5.6\text{-}6.1}Wo_{46.4\text{-}46.8}$)
Classification: Ordinary chondrite (H4).

Northwest Africa 7192 (NWA 7192)
(Northwest Africa)
Purchased: 2012 Jan
Classification: Ordinary chondrite (LL4)
History: Purchased by John Higgins in 2012 January from a dealer in Rissani, Morocco.
Petrography: Breccia with clasts consisting of fairly large, relatively closely-packed, well-formed chondrules in a matrix containing a moderate amount of metal. Olivine, orthopyroxene, pigeonite, sodic plagioclase, chromite, troilite and altered kamacite.
Geochemistry: Olivine ($Fa_{26.9\text{-}27.2}$), orthopyroxene ($Fs_{21.3}Wo_{0.2}$; remnant cores $Fs_{12.2}Wo_{2.0}$), pigeonite ($Fs_{19.6\text{-}21.0}Wo_{12.0\text{-}13.3}$).
Classification: Ordinary chondrite (L4).

Northwest Africa 7195 (NWA 7195)
(Northwest Africa)
Purchased: 2011 Jan
Classification: Ureilite
History: Purchased in January 2012 by Greg Hupé from a Moroccan dealer at the Tucson Gem and Mineral Show.
Physical characteristics: A single fresh, extremely hard, black stone weighing 60.1 g, which was very difficult to cut. Contains wispy shreds of fresh metal throughout.
Petrography: (A. Irving and S. Kuehner, *UWS*; T. Bunch, *NAU*) Composed of fairly large grains of olivine and low-Ca pyroxene with interstitial narrow metal-rich zones. Both olivine and pyroxene are completely recrystallized to aggregates of tiny polygonal subgrains.
Geochemistry: Olivine cores $Fa_{18.3\text{-}18.6}$ (CaO=0.2 wt.%, Cr_2O_3=0.4 wt.%), rims $Fa_{2.0\text{-}6.9}$; orthopyroxene $Fs_{14.6}Wo_{0.4}$; pigeonite $Fs_{7.0}Wo_{10.2}$, $Fs_{6.5}Wo_{21.8}$.
Classification: Achondrite (ureilite). The complete recrystallization of silicates is unusual among ureilites, and places this specimen with other very highly shocked ureilites such as NWA 6871.

Specimens: 12.1 g and one thin section are on deposit at *UWS*. GHupé holds the main mass.

Northwest Africa 7196 (NWA 7196)
Morocco
Purchased: 2009
Classification: Ordinary chondrite (LL6)
History: Purchased by *Reed* in Tucson, 2009.
Physical characteristics: Single stone. Cut surface reveals numerous chondrules, to 3 mm, and fine metal/sulfide grains, set in a dark brown matrix.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished mount shows approximately 70% olivine, 20% pyroxene, 5% plagioclase, ubiquitous troilite and Fe,Ni-metal.
Geochemistry: (C. Agee and N. Wilson, *UNM*) Olivine $Fa_{30.3\pm0.5}$, Fe/Mn=63±2, n=10, low-Ca pyroxene $Fs_{24.8\pm0.3}Wo_{1.7\pm0.5}$, Fe/Mn=37±2, n=10.
Classification: Ordinary chondrite (LL6), weathering grade W2.
Specimens: 24.6 g including a probe mount on deposit at *UNM*, *Reed* holds the main mass.

Northwest Africa 7197 (NWA 7197)
Morocco
Purchased: 2009
Classification: Ordinary chondrite (L3.8)
History: Purchased by B. Reed in Tucson, 2009.
Physical characteristics: Cut surface shows gray matrix with some patches of red-brown oxidation, chondrules to 3mm, some rimmed by metal or sulfide.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished mount shows olivine, orthopyroxene, clinopyroxene, feldspathic mesostasis, BO, PO, POP chondrules, ubiquitous troilite, Fe-Ni metal, and weathered iron oxide.
Geochemistry: (C. Agee and N. Wilson, *UNM*) Olivine $Fa_{25.6\pm4.3}$, Fe/Mn=59±16, n=37, low-Ca pyroxene $Fs_{14.5\pm7.2}Wo_{1.1\pm0.9}$, Fe/Mn=32±15, n=33, high-Ca pyroxene $Fs_{20.1\pm3.1}Wo_{27.2\pm7.9}$, Fe/Mn=32±3, n=5.
Classification: Ordinary chondrite (L3.8), subtype statistically based on olivine sigma of Fa=4.3 or PMD=15 (n=37) and low-Ca pyroxene sigma of Fs=7.2 or PMD=47 (n=33). Weathering grade W3.
Specimens: 25.1 g including a probe mount on deposit at *UNM*, *Reed* holds the main mass.

Northwest Africa 7203 (NWA 7203)
(Northwest Africa), Morocco
Purchased: 2011
Classification: Angrite
History: One stone covered by fusion crust was purchased by Luc Labenne in Tucson, Ariz., in 2011.
Petrography: (T. Mikouchi, *UTok*). The thin section shows a very fine- to medium-grained variolitic texture mainly composed of Ca-rich olivine and anorthitic plagioclase associated with intersitial Al-Ti-rich clinopyroxene. The largest grain size reaches to 1 mm, but it drastically becomes fine-grained showing feather-like intergrowth (<10 μm). Minor phases include ülvospinel and troilite. The presence of thin melt veins (~100 μm wide) suggests moderate shock. The variolitic texture suggests rapid cooling of magma, which is common for "quenched" angrites.
Geochemistry: (T. Mikouchi, *UTok*). Both olivine and Al-Ti-rich clinopyroxene are extensively zoned up to mg# <0.01. The most magnesian olivine is Fo_{57}, but contains ~1 wt% CaO. Kirschsteinite olivine (up to 20 wt% CaO) coexists with fayalitic olivine, and they

show a complex intergrowth texture. The most magnesian Al-Ti-rich pyroxene has mg#=0.5. Al-Ti-rich clinopyroxene has Al_2O_3=6-10 wt% and TiO_2=2-4 wt%. Plagioclase is essentially Na-free and pure anorthite (An>99.5).
Classification: Quenched angrite most similar to NWA 1296, but the texture is different, ruling out the pairing.

Northwest Africa 7206 (NWA 7206)
Morocco
Purchased: 2011 Jan
Classification: HED achondrite (Eucrite, polymict)
History: One stone was purchased by anonymous collector in Tucson, USA, in January 2011.
Physical characteristics: Irregularly shaped, 22 g, light to dark brown stone. The brecciated texture is visible on a surface. Lacks fusion crust.
Petrography: (C.A. Lorenz, *Vernad*) The meteorite is a melt-matrix breccia consisting of 40 vol% rounded mineral and lithic fragments (0.5 to 1 cm) embedded in a dark matrix. The lithic clasts are medium-grained pyroxene-plagioclase (eucritic) rocks of metaigneous origin, some with subophitic texture, consisting of pigeonite with lamellae of augite, minor augite with lamellae of pigeonite, silica and rare phosphate, chromite and ilmenite. Also contains fine-grained melt-breccia clasts. Matrix is a fine-grained aggregate of pyroxene and feldspar, with numerous small lithic and mineral clasts.
Geochemistry: (N.N. Kononkova, *Vernad*) Pyroxene $En_{34-39}Wo_{2-4}$, Fe/Mn=30, $En_{28-31}Wo_{40-42}$; feldspar is $An_{88-90}Ab_{10-12}$.
Classification: Eucrite (polymict)
Specimens: 7.48 g and one thin polished section are on deposit at *Vernad*. Anonymous collector holds the main mass.

Northwest Africa 7207 (NWA 7207)
(Northwest Africa)
Purchased: 2010 Feb
Classification: Carbonaceous chondrite (CV3)
History: One stone was purchased by an anonymous buyer in Tucson, USA, in February 2010
Physical characteristics: A 92 g stone with dark gray interior, covered by shiny black fusion crust.
Petrography: (M.A. Ivanova, *Vernad*) The meteorite consists of fine-grained matrix, chondrules (to 2 mm) and their fragments and refractory inclusions to several mm. Minor phases include plagioclase, spinel, chromite, sulfides, magnetite, Fe,Ni metal grains. The meteorite shows minor weathering.
Geochemistry: Olivine $Fa_{0.34-65.5}$. Pyroxene is represented by low-Ca pyroxene $Fs_{0.9-7.0}Wo_{0.9-4.3}$ and augite $Fs_{1.9-3.6}Wo_{35-41}$. Oxygen isotopic compositions: (I. A Franchi and R. C Greenwood, *OU*, by laser fluorination): $\delta^{18}O$ = 2.473, $\delta^{17}O$ = -1.897, $\Delta^{17}O$ = -3.183 (all per mil).
Classification: Carbonaceous chondrite (CV3).
Specimens: 18.47 g and one polished section are on deposit at *Vernad*. The anonymous buyer holds the main mass.

Northwest Africa 7208 (NWA 7208)
(Northwest Africa)
Purchased: 2010 Feb
Classification: Carbonaceous chondrite (CV3)
History: One stone was purchased by an anonymous buyer in Tucson, USA, in February 2010.
Physical characteristics: A 39 g stone covered with a brown-black fusion crust.
Petrography: (M.A. Ivanova, *Vernad*) The meteorite consists of fine-grained matrix, chondrules to 2 mm, and abundant refractory inclusions to several mm. One big (1.5 cm) dark inclusion was found in the section. Minor phases include spinel, chromite, magnetite, sulfides, and Fe,Ni metal grains in olivine. The dark inclusion consists of smaller chondrules (< 1 mm) and their fragments, isolated olivine grains, opaques embedded in a fine-grained matrix.
Geochemistry: Olivine $Fa_{0.44-35}$. Low-Ca pyroxene $Fs_{0.68-7.0}Wo_{0.9-4.8}$, plus augite and diopside in refractory inclusions. Olivine in dark inclusion is $Fa_{0.52-53}$ and low-Ca pyroxene is $Fs_{1.8-6.0}Wo_{0.4-2.71}$. Oxygen isotopic compositions: (I. A Franchi and R. C Greenwood, *OU*, by laser fluorination): $\delta^{18}O$ = 1.038; $\delta^{17}O$ = -3.465, $\Delta^{17}O$ = -4.005 (all per mil). Oxygen isotopic composition of the dark inclusion is: $\delta^{18}O$ = 5.16, $\delta^{17}O$ = -0.32, $\Delta^{17}O$ = -2.72 (all per mil).
Specimens: 8.23 g and one polished section are on deposit at *Vernad*. The anonymous buyer holds the main mass.

Northwest Africa 7209 (NWA 7209)
Morocco
Purchased: Feb 2008
Classification: Carbonaceous chondrite (CO3)
History: Samples were found in Morocco and sent to *Cascadia* in April 2010.
Physical characteristics: Lacks fusion crust. Many chondrules visible in cut faces, most of which have dark rims.
Petrography: (K. Armstrong and A. Ruzicka, *Cascadia*) Contains ~40 area% chondrules (diameter 0.17±0.15 mm), AOAs, sparse CAIs, and ~1% metal. Roughly 25% of metal and sulfide is replaced with secondary phases.
Geochemistry: Olivine ranges $Fa_{3.6-55.3}$ (N=12) but is predominantly forsteritic (Fa mean 5.5±1.5, median 5.3, N=10).
Classification: Carbonaceous chondrite (CO3)
Specimens: Two slices (8.4 g, 11.7 g) plus one polished thin section are on deposit at *Cascadia*. The main mass is held by Mr. Fred *Olsen*.

Northwest Africa 7210 (NWA 7210)
(Northwest Africa)
Purchased: Jan 2006
Classification: Carbonaceous chondrite (CM2)
History: Pieces were found in a 30 cm-diameter area, south of Erfoud, Morocco, in January, 2006.
Physical characteristics: Medium dark gray, sparse fusion crust. Many chondrules and some CAIs are visible.
Petrography: (K. Armstrong, A. Ruzicka, *Cascadia*): Contains ~19 area% chondrules (diameter 0.21±0.12 mm), ~1% metal, AOAs, and sparse CAIs. Extensive replacement of chondrule mesostasis but <10% of the metal is replaced with secondary phases.
Geochemistry: Olivine $Fa_{0.12-26.43}$ and is predominantly forsteritic (Fa mean 0.51±0.89, median 0.19, N=13).
Classification: Carbonaceous chondrite (CM2)
Specimens: 5.0 g and two polished thin sections are on deposit at *Cascadia*. Mr. Keith Dickson holds the main mass.

Northwest Africa 7241 (NWA 7241)
(Northwest Africa)
Purchased: 2011
Classification: Ordinary chondrite (L4)
Petrography: Brecciated. Up to several cm-sized lithic and mineral fragments set in a more fine-grained matrix. All lithologies are L4 type material.

Northwest Africa 7249 (NWA 7249)
Morocco
Purchased: 2012
Classification: Ordinary chondrite (L5)
History: Purchased by Blaine Reed in Tucson, February 2012.
Physical characteristics: One stone with weathered tan surface. Interior shows a few chondrules to 5 mm set in a dark-brown matrix, with disseminated fine metal/sulfide.
Petrography: Microprobe examination of a polished mount shows numerous chondrules, PO and BO, most with mesostasis, very small scattered plagioclase grains also present, metal is >75% oxidized.
Geochemistry: Olivine $Fa_{25.4\pm1.5}$, Fe/Mn=52±4, n=30; orthopyroxene $Fs_{21.0\pm1.0}Wo_{1.5\pm1.5}$, Fe/Mn=30±2, n=28.
Classification: Ordinary chondrite (L5), weathering grade W3.
Specimens: 45.9 g including a probe mount on deposit at *UNM*, *Reed* holds the main mass.

Northwest Africa 7250 (NWA 7250)
Morocco
Purchased: 2012
Classification: Ordinary chondrite (LL6)
History: Purchased by Blaine Reed in Tucson, February 2012.
Physical characteristics: 816 g fusion-crusted stone. Interior shows angular breccia clasts to 5 mm set in a light-gray matrix, with scattered fine metal/sulfide, but also a few larger sulfide grains to 2 mm.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished mount shows dominant olivine, with some orthopyroxene, clinopyroxene, and ubiquitous albitic plagioclase crystals to 100 µm, a few indistinct chondrules, one very large mixed-phase sulfide grain.
Geochemistry: (C. Agee and N. Wilson, *UNM*) Olivine $Fa_{29.9\pm1.4}$, Fe/Mn=61±3 (n=13).
Classification: Ordinary chondrite (LL6), possible mixed LL6-chondrite lithologies, weathering grade W1.
Specimens: 24.0 g including a probe mount on deposit at *UNM*, *Reed* holds the main mass.

Northwest Africa 7252 (NWA 7252)
Morocco
Purchased: 2007
Classification: Carbonaceous chondrite (CK5)
History: Purchased by B. Reed in Tucson, 2007.
Physical characteristics: Single stone, dark weathered fusion crust, interior shows dark brown matrix with sparse chondrules.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished mount shows primarily fine-grained texture with olivine, plagioclase, pyroxene, magnetite, iron oxidation from weathering, and a few chondrules to 1 mm.
Geochemistry: (C. Agee and N. Wilson, *UNM*) Olivine $Fa_{27.3\pm0.6}$, Fe/Mn=105±8, n=17; low-Ca pyroxene $Fs_{24.8\pm1.6}Wo_{0.8\pm0.3}$, Fe/Mn=69±14, n=3, plagioclase $Or_{2\pm1}Ab_{46\pm8}An_{52\pm8}$, n=11.
Classification: Carbonaceous chondrite (CK5). Fe/Mn, Fs, Fa consistent with CK chondrite. Plagioclase, high An content (An_{52}) consistent with CK; high An content and high Fe/Mn rule out LL.
Specimens: 22 g including a probe mount on deposit at *UNM*; *Reed* holds the main mass.

Northwest Africa 7253 (NWA 7253)
Morocco
Purchased: 2012
Classification: HED achondrite (Eucrite)
History: Purchased by Blaine Reed in Tucson 2012.
Physical characteristics: Many small fragments, some with shiny black fusion crust, light desert coating on exterior. Broken surface shows fresh, fine-grained mix of plagioclase and pyroxene.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished mount shows ~55% pyroxene and ~40% plagioclase, with minor silica, chromite and ilmenite. Olivine is ubiquitous in grain boundaries. Some pyroxenes show zoning with Mg-rich cores, twinning absent.
Geochemistry: (C. Agee and M. Spilde, *UNM*) Unequilibrated basalt with a range of pyroxene compositions consistent with type-2 eucrites (Takeda and Graham, 1991). Low Ca-pyroxene $Fs_{45.9\pm13.1}Wo_{6.5\pm3.0}$, Fe/Mn=32±1, n=66, high-Ca pyroxene $Fs_{37.4\pm7.6}Wo_{31.0\pm8.7}$, Fe/Mn=32±1, N=23, plagioclase $Or_{0.6\pm0.3}Ab_{10.7\pm3.7}An_{88.8\pm4.0}$, n=15, olivine $Fa_{82.0\pm0.8}$, Fe/Mn=42±1, n=19.
Classification: Achondrite (Eucrite). Unequilibrated eucrite with pyroxene compositions similar to Pasamonte. Minimal weathering, some fine grained cataclastic brecciation.
Specimens: 24.2 g including a probe mount on deposit at *UNM*, *Reed* holds 190 g, Yinan Wang holds 180 g.

Northwest Africa 7254 (NWA 7254)
Morocco
Purchased: 2004
Classification: Ordinary chondrite (L3.4)
History: Purchased by Blaine Reed in Denver, 2004.
Physical characteristics: Saw cut reveals numerous chondrules of variable sizes and fine-grained metal set in dark-brown matrix. Brecciated. A distinct 2-cm rectangular clast with exotic granoblastic lithology was observed.
Petrography: (C. Agee, *UNM*) Microprobe examination shows a variety of chondrules POP and BO, about 25% of metal oxidized. Exotic clast containing olivine and augite, small amount of kamacite, and no chondrules.
Geochemistry: (C. Agee and N. Wilson, *UNM*) Olivine mean $Fa_{20.9\pm10.0}$, range $Fa_{0.5\text{-}34.0}$, PMD=45%, Fe/Mn=59±18, Cr_2O_3=0.14±0.23 wt%, n=37; low-Ca pyroxene $Fs_{16.4\pm9.4}$, range $Fs_{2.5}$-$Fa_{35.4}$, PMD=63%, $Wo_{1.8\pm1.8}$, Fe/Mn=26±16, n=24. Exotic clast: olivine $Fa_{41.6\pm5.9}$, Fe/Mn=70±10, n=5.
Classification: Ordinary chondrite (L3.4) weathering grade W2. Exotic brachinite-like clast.
Specimens: 22.8 g including a probe mount on deposit at *UNM*, *Reed* holds the main mass.

Northwest Africa 7255 (NWA 7255)
Morocco
Purchased: 2004
Classification: Carbonaceous chondrite (CO3.5)
History: Purchased by Blaine Reed in Denver, 2004.
Physical characteristics: One stone, saw cut reveals numerous small chondrules set in dark-brown matrix.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished mount shows a variety of small chondrules (typically 50-300 microns) set in fine-grained weathered matrix.
Geochemistry: (C. Agee and N. Wilson, *UNM*) Type I chondrules $Fa_{6.6\pm3.9}$ range 0.7-14.5, Fe/Mn=66±39, Cr_2O_3 0.02-0.71 wt%, n=14, Type II chondrules $Fa_{32.9\pm8.4}$ range 18.5-47.9, Fe/Mn=112±29, Cr_2O_3 0.03-0.23 wt%, n=19. Low-Ca pyroxene mean $Fs_{4.0}$ range 0.8-18.6 and $Wo_{1.5\pm1.2}$, n=24.
Classification: Carbonaceous chondrite (CO3.5), subtype based mean values and distribution of Fa compositions, similar to Lancé (Scott and Jones, 1990), weathering grade W3.

Specimens: 21.9 g including a probe mount on deposit at *UNM*, *Reed* holds the main mass.

Northwest Africa 7256 (NWA 7256)
Morocco
Purchased: 2004
Classification: Carbonaceous chondrite (CV3)
History: Purchased by Blaine *Reed*, Erfoud, Morocco, 2004.
Physical characteristics: Many fragments, saw cut reveals numerous chondrules up to 5 mm set in dark brown matrix, parallel fractures.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished mount shows a variety of chondrules PO, POP, and a few CAIs, fine-grained matrix, weathering veins.
Geochemistry: (C. Agee and N. Wilson, *UNM*) Type I chondrules: olivine $Fa_{1.9\pm1.4}$, Cr_2O_3=0.26±0.13 wt%, n=24; low-Ca pyroxene $Fs_{2.6\pm2.2}Wo_{1.5\pm1.2}$, Fe/Mn=14±7, n=18, Type II chondrules: $Fa_{41.2\pm13.9}$, Fe/Mn=122±19, n=27.
Classification: Carbonaceous chondrite (CV3), weathering grade W3.
Specimens: 25.5 g including a probe mount on deposit at *UNM*, *Reed* holds the main mass.

Northwest Africa 7257 (NWA 7257)
(Northwest Africa)
Purchased: 2012 January
Classification: Martian meteorite (Shergottite)
History: Purchased by David Gregory in January 2012 from a Moroccan dealer at the Tucson Gem and Mineral Show.
Physical characteristics: A single, fresh gray stone (180 g) partially coated by light-brown weathering products. The medium-grained interior is dominated by randomly oriented elongate prismatic pyroxene grains and ~25 vol.% sparkling maskelynite.
Petrography: (A. Irving and S. Kuehner, *UWS*): Medium grained (pyroxene up to 6 mm long by 0.8 mm wide, plagioclase up to 2.5 mm long by 0.7 mm wide), with an intersertal texture. Prismatic grains of twinned and complexly-zoned clinopyroxene are accompanied by squat laths of maskelynite and accessory ilmenite, Cr-bearing ulvöspinel, pyrrhotite, chlorapatite, merrillite and rare fayalite. Regions of K-rich mesostasis are composed of microlites in partly devitrified brownish glass. Melt inclusions within pyroxene (surrounded by radial microcracks) are rich in K and P, and contain rare daughter crystals of hercynite.
Geochemistry: Pigeonite ($Fs_{29.8\text{-}34.3}Wo_{15.3\text{-}13.3}$, Fe/Mn=29-33), subcalcic augite ($Fs_{21.1\text{-}38.9}Wo_{32.4\text{-}29.1}$, Fe/Mn=26-34), ferropigeonite rims ($Fs_{44.6\text{-}54.1}Wo_{11.4\text{-}18.0}$, Fe/Mn=33-37), plagioclase ($An_{44.0\text{-}45.1}Or_{2.2\text{-}2.7}$). Oxygen isotopes (R. Tanaka, *OkaU*): analyses of acid-washed subsamples by laser fluorination gave, respectively $\delta^{17}O$ 2.83, 2.85; $\delta^{18}O$ 4.82, 4.74; $\Delta^{17}O$ 0.294, 0.352 per mil.
Classification: Achondrite (Martian, shergottite).
Specimens: 20.1 g of type material and one polished thin section are on deposit at *UWS*. The main mass is held by *Gregory*.

Northwest Africa 7258 (NWA 7258)
Morocco
Found: 2011
Classification: Martian meteorite (Shergottite)
History: Purchased through Hmanis (Ali and Simon).
Physical characteristics: Interior is pale green-tinged grey. A paper-thin patch of rusty discoloration is visible beneath the fusion crust. Shock classification S5, based on complete maskelynitization, and on mosaic extinction in pyroxenes.
Petrography: Texture and mode are very Shergotty-like. Pyroxene (75 vol%) laths are up to 4 × 0.5 mm, mildly aligned; zoning shows Shergotty-like Wo-bimodality, starting near $En_{59}Wo_{11}$ and $En_{46}Wo_{34}$. Plagioclase/maskelynite (20 vol%) is $Ab_{50}Or_{2.2}$ to $Ab_{52}Or_7$ (59 analyses).
Geochemistry: Bulk-rock INAA and fused-bead EPMA results from two 0.5-g chips include Ga/Al = 0.00051, Al_2O_3 = 5.2 wt%. REE are ~15 × CI chondrites, except REE near Tb ~20 × CI. Siderophile contents are at typical shergottite levels (e.g., 70 µg/g Ni).
Classification: Bulk O-isotopic composition is martian (B-G. Choi and I. Ahn, CO_2 laser-fluorination at *KOPRI*): $\delta^{18}O$ = 4.716, $\delta^{17}O$ = 2.804, and $\Delta^{17}O$ = +0.33 (all per mil). Among NWA shergottites, it features a unique combination of mode, texture, and Al-poor, REE-rich bulk composition.
Specimens: The *UCLA* material is derived from a single sawn corner of the meteorite.

Northwest Africa 7259 (NWA 7259)
Morocco
Found: 2010
Classification: HED achondrite (Eucrite, polymict)
Physical characteristics: Half fusion-crusted stone.
Petrography: The texture is typical of polymict eucrite breccias, with diverse basaltic-gabbroic textures represented among clasts. Pyroxenes mostly show typical noncumulate-eucritic exsolution.
Geochemistry: Low-Ca pyroxene (based on 7 analyses) ranges from $En_{48}Wo_3$ to $En_{34}Wo_3$; high-Ca px (5) from $En_{36}Wo_{44}$ to $En_{29}Wo_{44}$; plagioclase (9) from An_{87} to An_{91}. Avg. pyroxene Fe/Mn (wt. ratio) = 29.8.
Classification: Polymict eucrite breccia.

Northwest Africa 7273 (NWA 7273)
(Northwest Africa)
Purchased: 2012 Apr
Classification: Ordinary chondrite (LL6)
History: Purchased by Greg Hupé in 2012 April from a dealer in Erfoud, Morocco.
Petrography: Fragmental breccia composed of angular clasts (up to 1.1 mm across) in a very sparse dark matrix (rich in iron hydroxides from altered metal). Clasts contain very sparse chondrules and chondrule fragments, and consist of olivine, orthopyroxene, clinopyroxene, sodic plagioclase, chromite, troilite and kamacite.
Geochemistry: Olivine ($Fa_{31.6\text{-}32.0}$), orthopyroxene ($Fs_{24.8\text{-}25.5}Wo_{2.4}$), clinopyroxene ($Fs_{10.7\text{-}11.0}Wo_{43.6\text{-}43.4}$).
Classification: Ordinary chondrite (LL6).

Northwest Africa 7277 (NWA 7277)
Morocco
Purchased: 2004
Classification: Ordinary chondrite (LL6)
History: Purchased by Blaine Reed in Denver, 2004.
Physical characteristics: Single stone, saw cut reveals a few poorly defined chondrules, and metal/sulfide grains, set in a weathered, light and dark brown matrix.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished mount shows 70% olivine, 15% pyroxene, 10% plagioclase, finely disseminated troilite and Fe,Ni-metal. Plagioclase up to 100 µm, chondrules barely discernible.
Geochemistry: (C. Agee and N. Wilson, *UNM*) Olivine $Fa_{31.4\pm0.8}$, Fe/Mn=64±3, n=10; low-Ca pyroxene $Fs_{25.9\pm0.4}Wo_{1.8\pm0.3}$, Fe/Mn=38±2, n=8, high-Ca pyroxene $Fs_{10.7\pm0.6}Wo_{44.5\pm0.8}$, Fe/Mn=28±2, n=2, plagioclase $Ab_{84.8\pm0.9}An_{10.7\pm1.1}Or_{4.5\pm0.2}$, n=2.

Classification: Ordinary chondrite (LL6), weathering grade W3.
Specimens: 22.4 g including a probe mount on deposit at *UNM*, *Reed* holds the main mass.

Northwest Africa 7278 (NWA 7278)
Morocco
Found: 2010
Classification: Ordinary chondrite (L4)
History: One partially crusted stone weighing 84.9g was found and purchased in Agadir in 2010. Thomas Webb acquired the sample from a meteorite prospector in 2011.
Physical characteristics: Dark blackish-brown matte fusion crust covers ~40% of the stone. The fusion crust covers one side of the wedge-shaped stone and contains several well-developed regmaglypts and displays a few small areas where rollover lipping.
Petrography: (Anthony Love, *App*): Sample displays recrystallized chondritic texture with densely-packed, well-defined (avg. dia. of 0.66 mm) chondrules (POP, PO, RP, BO, PP, poikolitic OP and Al-rich chondrules with relict spinel) and fragments in a slightly recrystallized matrix. A 1.5-3.0 mm thick granulated zone, containing deformed chondrules and elongated metal grains in 25-300 µm clastic debris, crosscuts the sample in an anastomosing pattern.
Geochemistry: (A. Love, *App*) Olivine $Fa_{25.77\pm4.97}$, PMD=3.52%, n=15. Low-Ca pyroxene $Fs_{21.72}Wo_{2.94}$ (PMD-Fs=3.39, PMD-Wo=54.67, n=14). Plagioclase $An_{28.93}$, PMD=49.35, n=6. Spinel - Mg# 0.5
Specimens: 16 g, one polished mount and one thin section on deposit at *App*. *Webb* holds main mass

Nova 011
Russia
Purchased: 2009
Classification: Iron meteorite (IAB-sHL)
History: An anonymous person purchased a cut piece of an iron meteorite at the Anapa town market (Krasnodar region, Russia).
Physical characteristics: The total mass and number of pieces are unknown. The purchased piece was ~100 g. The whole meteorite mass could be >1 kg based on the shape of the cut piece.
Petrography: (C. A. Lorenz, S. N. Teplyakova, *Vernad*) The average kamacite bandwidth is 1.5 mm. Accessory phases are schreibersite, troilite and iron hydroxides. Weathering is minimal.
Geochemistry: (M. Humayun, *FSU*, by LA-ICP-MS): Ni = 118939; Au 2.44; Pt 4.01; Ir 0.715; Os 0.794; Re 0.068; W 0.318; Sb 0.29; Sn 0.78; Pd 6.17; Rh 1.22; Ru 4.87; Mo 7.5; As 18; Ge 82; Ga 34; Zn 0.3; Cu 259; Co 4718; Cr 10; S 63; P 515 (all ppm).
Classification: Iron, coarse octahedrite. Data plots within the IAB-sHL field of Wasson and Kallemeyn (2002).
Specimens: 26.7 g and one polished section are on deposit at *Vernad*. An anonymous collector holds the main mass.

Old Homestead 003 31°27'10"S, 127°53'25.8"E
Western Australia, Australia
Found: 2002
Classification: HED achondrite (Howardite)
History: A single mass was found by P. Devine near the reported 1991 find-site of the Old Homestead 001 howardite (MetBull 74).
Physical characteristics: Rounded, compact stone weighs 1.78 kg, has a pitted light brown surface lacking fusion crust. While the surface is weathered the interior remains fresh.
Petrography: (A.W.R. Bevan, *WAM,* and T. Kennedy, *UWA*) Breccia of lithic clasts including eucritic (some showing ophitic texture) and minor diogenitic components set in a clastic, welded, melt matrix of mineral fragments and glass. Abundant pyroxene and plagioclase feldspar, other minerals include olivine, chromite, ilmenite and Fe-Ni metal. Petrologically distinct from Old Homestead 001.
Geochemistry: (A. Bevan, P. Downes, *WAM*; E. Hancock, *GSWA*; and T. Kennedy, *UWA*): Rare olivine ($Fa_{3.9-45.5}$), pyroxene ($Fs_{8.9-67.5}Wo_{1.2-86.0}$) and plagioclase ($An_{88.2-96.8}Ab_{3.1-10.9}Or_{0.06-0.77}$). Oxygen isotopes (I. A. Franchi, *OU*) replicate analyses $\delta^{17}O$ = 2.37, 2.30; $\delta^{18}O$ = 5.02, 4.88; $\Delta^{17}O$ = -0.232, -0.235 (all per mil).
Classification: Achondrite (howardite). Not paired with Old Homestead 001.
Specimens: Main mass and three thin sections, *WAM*.

O'Malley 002 30°59'35.2"S, 131°19'57.1"E
South Australia, Australia
Found: 6 Apr 2011
Classification: Ordinary chondrite (L5)
History: Single piece found by A. Tait on the Nullarbor plain.
Physical characteristics: Dark reddish-brown stone, ~70% fusion crusted with weathered broken surfaces.
Petrography: (A. Tait, *Monash*). Indistinct chondrule populations include; PO, RP and BO. The matrix has been recrystalized and is transparent. Olivine recrystallised and anhedral, plagioclase is typically > 50 µm. Metal grains and sulfides have almost been completely oxidized. Olivine has undulose extinction, and no shock lamellae. The sample has many melt pockets, and a series of melt networks cross cut the entire sample.
Geochemistry: (A.Tait, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{24.8-25.3}$, mean=25.03 mol%, std=0.29, n=4; Low-Ca pyroxene $Fs_{19.9-20.8}$, mean=20.47 mol %, std=0.40, n=4.
Classification: Ordinary Chondrite (L5, S4, W3).

O'Malley 003 30°59'10.4"S, 131°19'55.6"E
South Australia, Australia
Found: 6 Apr 2011
Classification: Ordinary chondrite (H6)
History: Three broken pieces found in a 25 m^2 area by A. Langendam, E. Mare and A. Tomkins on the Nullarbor Plain.
Physical characteristics: Three flat broken highly weathered fragments, with no fusion crust.
Petrography: (E. Mare, *Monash*) Few recognizable chondrules (up to 1 mm) in a heavily recrystallized matrix. Plagioclase to >50 µm. Chondrule types include POP, RP, CC, BO, PP. Fe-Ni metal grains are unusually small and along with troilite have almost completely been replaced by oxides which make up 20% of this meteorite. Olivine grains have sharp extinction.
Geochemistry: (E. Mare, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{18.6-19.4}$, mean=19.01 mol%, std=0.34, n=4; Low-Ca pyroxene $Fs_{16.6-17.7}$, mean=17.07 mol%, std=0.43, n=4.
Classification: Ordinary chondrite (H6, S1, W4)

O'Malley 004 30°37'29.0"S, 131°28'14.3"E
South Australia, Australia
Found: 7 Apr 2011
Classification: Ordinary chondrite (LL6)
History: Single piece found by A. Tomkins on the Nullarbor plain.
Physical characteristics: Flat dark greenish stone shows ~30% pitted remnant fusion crust.
Petrography: (A. Tait, *Monash*). A transparent microcrystalline recrystallized matrix dominates the sample; matrix grains are dominantly small. Chondrules have been heavily equilibrated with

the surrounding matrix resulting in diffuse chondrule edges. Chondrule populations include; BO, PO, RP. Plagioclase grains have been transformed to maskelynite and range in size from (~50-100 μm). Olivine show mosaicism, undulose extinction and shock lamellae. Opaque shock-fracture networks cross-cut the sample, and melt pockets also exist. This sample has minor terrestrial weathering, except for oxidation of some larger troilite crystals.
Geochemistry: (A. Tait, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{31.4-32.0}$, mean=31.74 mol%, std=0.27, n=4; Low-Ca pyroxene $Fs_{25.5-26.4}$, mean=26.04 mol%, std=0.47, n=3.
Classification: Ordinary Chondrite (LL6, S5, W1).

O'Malley 005 30°39'13.1"S, 131°28'26.0"E
South Australia, Australia
Found: 7 Apr 2011
Classification: Ordinary chondrite (H5)
History: Single piece found by A. Tait on the Nullarbor Plain.
Physical characteristics: Small rounded weathered stone with some remnant fusion crust.
Petrography: (E. Mare, *Monash*) Indistinct chondrules (not clearly defined) in recrystallized matrix. Mineralogy includes olivine, pyroxene, plagioclase, Fe-Ni metal, and troilite. Chondrule types include CC, RP, PO, PP, POP. Fe-Ni metal grains (1%) are mostly <20 μm. Troilite grains (1-2%) are up to 300 μm but mostly <50 μm. Metal and troilite have been heavily replaced by oxides, which also occur in significant veins 50-100 μm, and account for ~15% of the meteorite. Olivine shows undulose extinction.
Geochemistry: (E. Mare, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{19.0-19.8}$, mean=19.29 mol%, std=0.32, n=5; Low-Ca pyroxene $Fs_{16.9-17.9}$, mean=17.32 mol%, std=0.41, n=5.
Classification: Ordinary chondrite (H5, S2, W3)

O'Malley 006 30°39'25.2"S, 131°28'41.3"E
South Australia, Australia
Found: 07 Apr 2011
Classification: Ordinary chondrite (H5)
History: Single piece found by E. Mare on the Nullarbor Plain.
Physical characteristics: Small flattish stone, dark reddish brown, some lichens.
Petrography: (E. Mare, *Monash*) Stone shows moderately well defined chondrules in a recrystallized, rusted matrix. Chondrule types include RP, POP, CC, PO, PP. Fe-Ni metal grains (<<1%) average ~5 μm. Troilite grains (3%) are up to 200 microns and show some oxidation. Metal and troilite are partly replaced by oxides which make up ~7% of the meteorite. Olivine grains show sharp extinction, however there are extensive melt networks where brecciated silicates are suspended in oxides after troilite and metal.
Geochemistry: (E. Mare, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{18.7-19.1}$, mean=18.84 mol%, std=0.19, n=4; Low-Ca pyroxene $Fs_{16.5-17.0}$, mean=16.83 mol%, std=0.24, n=4.
Classification: Ordinary chondrite (H5, S3, W3)

O'Malley 007 30°41'25.7"S, 131°28'24.7"E
South Australia, Australia
Found: 7 Apr 2011
Classification: Ordinary chondrite (H5)
History: Single piece found by A. Tomkins on the Nullarbor Plain.
Physical characteristics: Dark red stone with 60% rounded remnant fusion crust and a broken face.
Petrography: (E. Mare, *Monash*) Many chondrules (to 1 mm) but few are well defined. The matrix is recrystallized and rusted. Chondrule types include RP, CC, PO, PP, BO. Fe-Ni metal grains (3%) are up to 300 μm. Troilite grains (5%) are up to 200 μm and sometimes form rims around chondrules. Both metal and troilite are partly (but not significantly) replaced by oxides, which comprise 5-10% of this meteorite. Olivine grains show undulose extinction.
Geochemistry: (E. Mare, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{18.9-19.2}$, mean=19.00 mol%, std=0.13, n=4; Low-Ca pyroxene $Fs_{16.7-17.3}$, mean=17.01 mol%, std=0.28, n=4.
Classification: Ordinary chondrite (H5, S2, W2)

O'Malley 008 30°45'29.0"S, 131°26'52.9"E
South Australia, Australia
Found: 8 Apr 2011
Classification: Ordinary chondrite (L6)
History: Single piece found by A. Tomkins on the Nullarbor plain.
Physical characteristics: Small flat dark-brown stone lacking fusion crust and partially covered with lichens.
Petrography: (A. Tait, *Monash*) Transparent recrystallized matrix. Chondrule edges are not readily distinguished. Chondrule populations include; RP, PO, POP, BO, PP (the majority are porphyritic). Plagioclase grains are ~50 μm. Metal grains and sulfides have been completely oxidized. Olivine grains show undulose extinction, and no shock lamellae.
Geochemistry: (A. Tait, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{25.3-25.8}$, mean=25.48 mol%, std=0.21, n=4; Low-Ca pyroxene $Fs_{21.4-21.9}$, mean=21.73 mol%, std=0.21, n=3.
Classification: Ordinary Chondrite (L6, S2, W4).

O'Malley 009 30°56'1.8"S, 131°21'42.1"E
South Australia, Australia
Found: 9 Apr 2011
Classification: Ordinary chondrite (H4)
History: Single piece found by A. Tomkins on the Nullarbor plain.
Physical characteristics: Dark brown stone, rounded, lacking fusion crust.
Petrography: (A. Tait, *Monash*) Larger chondrules have distinct grain boundaries, although they are somewhat obscured by iron oxide from weathering coating grain boundaries. Chondrule populations include; GOP, RP, POP, PO. Plagioclase grains are 2-50 microns. Olivine has sharp extinction and no shock lamellae. Weathering has oxidized all the Fe-Ni metal grains and much of the troilite. Troilite grains are (~150 μm) in diameter. Small (< 20 μm) metal grains reside in chondrules that protected them from weathering.
Geochemistry: (A. Tait, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{18.6-20.6}$, mean=19.30 mol%, std=0.92, n=4; Low-Ca pyroxene $Fs_{17.0-17.4}$, mean=17.18 mol%, std=0.17, n=4.
Classification: Ordinary Chondrite (H4, S1, W3).

O'Malley 010 30°56'03.0"S, 131°21'40"E
South Australia, Australia
Found: 9 Apr 2011
Classification: Ordinary chondrite (L5)
History: Single piece found by A. Tomkins on the Nullarbor plain.
Physical characteristics: Single rounded dark-brown stone with ~40% pitted and broken fusion crust.
Petrography: (A. Tait, *Monash*) The matrix has been recrystallized and chondrule edges are indistinct. Subhedral olivine grains are up

to 300 μm. Relict chondrule populations include; BO, CP, RP, PO. Plagioclase is readily discernible by reflected light. A third of olivine grains show undulose extinction, and some have shock lamellae. Metal grains and sulfides have been oxidized in uneven pockets throughout the sample, with an overall moderate amount of oxidation.
Geochemistry: (A. Tait, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{24.7-25.4}$, mean=25.08 mol%, std=0.31, n=4; Low-Ca pyroxene $Fs_{21.2-21.8}$, mean=21.49 mol%, std=0.21, n=5.
Classification: Ordinary Chondrite (L5, S2, W2).

O'Malley 011 30°53'36.4"S, 131°23'24.0"E
South Australia, Australia
Found: 9 Apr 2011
Classification: Ordinary chondrite (L6)
History: Single piece found by A. Tomkins on the Nullarbor plain.
Physical characteristics: Rounded oblong stone covered by fusion crust.
Petrography: (A. Tait, *Monash*) Transparent matrix and subhedral olivine grains. Chondrules edges are diffuse and poorly defined. Chondrule populations include; BO, PO. Plagioclase is dominantly <100 μm. Troilite (typically <150 μm) is more abundant than Fe-Ni metal grains (in a ratio of 10:1). The largest metal grains are <300 μm. Olivine has sharp extinction. Weathering of metal grains and troilite is not complete.
Geochemistry: (A. Tait, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{24.8-25.5}$, mean=25.25 mol%, std=0.31, n=4; Low-Ca pyroxene $Fs_{21.4-21.7}$, mean=21.56 mol%, std=0.11, n=4.
Classification: Ordinary Chondrite (L6, S1, W2).

O'Malley 012 30°53'34.1"S, 131°23'29.1"E
South Australia, Australia
Found: 9 Apr 2011
Classification: Ordinary chondrite (L4)
History: Single piece found by A. Tomkins on the Nullarbor plain.
Physical characteristics: Flatish dark brown stone with ~30% fusion crust.
Petrography: (A. Tait, *Monash*) Large variety of well-sorted and well-defined chondrules including; GOP, CP, BO, POP and RP, all of which were on the order of 900 μm in diameter. Matrix is transparent and recrystallized. Plagioclase is very fine grained. Olivine grains show extensive undulose extinction. Troilite and Fe-Ni metal are extensively weathered; few metal grains remain.
Geochemistry: (A. Tait, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{22.3-22.8}$, mean=22.59 mol%, std=0.25, n=4; Low-Ca pyroxene $Fs_{19.5-20.4}$, mean=20.01 mol%, std=0.38, n=5.
Classification: Ordinary Chondrite (L4, S2, W3).

O'Malley 013 30°53'08.2"S, 131°22'55.1"E
South Australia, Australia
Found: 9 Apr 2011
Classification: Ordinary chondrite (L4)
History: Single piece found by A. Tait on the Nullarbor Plain.
Physical characteristics: Small dark-brown stone lacking fusion crust.
Petrography: (E. Mare, *Monash*) Stone contains abundant well-defined chondrules (to 2 mm) in a recrystallized matrix. Chondrule types include BO, RP, CC, PO, PP and POP. Large Fe-Ni metal grains (~100 μm) are present in one corner of the meteorite, elsewhere the metal grains are small (10-50 μm). Troilite (3-5%) is more abundant than metal (1%). Troilite forms rims around some chondrules, and is in some places oxidized in thin parallel lines. Oxides have partly replaced metal and troilite and make up 4-5% of the meteorite. Olivine grains have undulose extinction and shock lamellae.
Geochemistry: (E. Mare, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{22.5-23.3}$, mean=22.94 mol%, std=0.27, n=7; Low-Ca pyroxene $Fs_{19.3-20.1}$, mean=19.76 mol%, std=0.30, n=9.
Classification: Ordinary chondrite (L4, S3, W2)

O'Malley 014 30°53'06.6"S, 131°22'48.4"E
South Australia, Australia
Found: 9 Apr 2011
Classification: Ordinary chondrite (H6)
History: Two pieces found by E. Mare on the Nullarbor Plain.
Physical characteristics: Two small flatish pieces.
Petrography: (E. Mare, *Monash*) Few recognizable chondrules (to 2 mm) in a recrystallized and rusted matrix. Plagioclase to 100 μm. Chondrule types include CC, PP, PO, RP and POP. Fe-Ni metal grains (<1%) <100 μm. Troilite grains (5%) are larger (up to 300 microns, average 50-100 microns). Oxides have heavily replaced metal and troilite and make up ~20% of the meteorite. Olivine grains have weak undulose extinction.
Geochemistry: (E. Mare, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{19.6-20.1}$, mean=19.57 mol%, std=0.38, n=6; Low-Ca pyroxene $Fs_{17.1-17.9}$, mean=17.59 mol%, std=0.28, n=9.
Classification: Ordinary chondrite (H6, S2, W3)

O'Malley 015 30°32'18.3"S, 131°15'18.9"E
South Australia, Australia
Found: 10 Apr 2011
Classification: Ordinary chondrite (L5)
History: Single piece found by A. Tomkins on the Nullarbor plain.
Physical characteristics: Single rounded greenish sample with rust spots that appears very fresh, but lacking fusion crust.
Petrography: (A. Tait, *Monash*) Matrix is clear and recrystallized. Chondrules edges poorly defined. Plagioclase is readily discernible. Olivine and pyroxene are subhedral and up to 400 μm. Chondrule population includes; GOP, C, BO, POP and RP. Shock lamellae are present in many of the large olivine crystals, and undulose extinction is common. Metal grains to 1 mm. Melt pockets exist around the edges of most metal grains. Some metal grains have been slightly oxidized, but most are intact.
Geochemistry: (A. Tait, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{23.4-24.4}$, mean=24.04 mol%, std=0.43, n=4; Low-Ca pyroxene $Fs_{20.6-21.5}$, mean=21.01 mol%, std=0.39, n=4.
Classification: Ordinary Chondrite (L5, S3, W1).

O'Malley 016 30°32'24.7"S, 131°15'18.3"E
South Australia, Australia
Found: 10 Apr 2011
Classification: Ordinary chondrite (H4)
History: Single piece found by A. Tomkins on the Nullarbor plain.
Physical characteristics: Dark reddish brown stone, ~60% fusion crusted.
Petrography: (A. Tait, *Monash*) A finely recrystallized matrix surrounds well-defined chondrules, although the matrix is difficult to distinguish due to weathering. Plagioclase is absent across most of the sample, although a few small (<5 μm) grains were found. Chondrule populations include BO, RP, and PO. Most olivine

grains have undulose extinction, but no shock lamellae. The sample is extensively oxidized; Fe-Ni metal is almost completely destroyed.
Geochemistry: (A. Tait, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{19.3-19.7}$, mean=19.47 mol%, std=0.19, n=4; Low-Ca pyroxene $Fs_{16.8-17.2}$, mean=16.99 mol%, std=0.21, n=4.
Classification: Ordinary Chondrite (H4, S2, W4).

O'Malley 017 30°32'41.2"S, 131°15'33.4"E
South Australia, Australia
Found: 10 Apr 2011
Classification: Ordinary chondrite (L6)
History: Three flat broken pieces found by E. Mare on the Nullarbor Plain.
Physical characteristics: Significantly weathered and without fusion crust.
Petrography: (E. Mare, *Monash*) Few indistinct chondrules (to 1 mm) in a heavily recrystallized matrix. Plagioclase to 100 μm. Chondrule types include CC and PO, however most are difficult to distinguish. Fe-Ni metal and troilite have been almost completely replaced by oxides, which comprise 3-5% of the meteorite. A large (7 mm) clast composed of olivine (~15%) and low-Ca pyroxene (~65%) phenocrysts (with minor Ca-pyroxene) in a groundmass (~20%) of plagioclase, skeletal olivine and chromite. Inside this clast there is no evidence for any metal or troilite having been present. Oxides occur along fractures in olivine and pyroxene grains. This clast has indistinct margins, indicating that it has been affected by metamorphism and is most likely to be an unusually large chondrule, rather than a breccia clast. Olivine grains have weak undulose extinction.
Geochemistry: (E. Mare, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{24.5-24.9}$, mean=24.74 mol%, std=0.15, n=10; Low-Ca pyroxene $Fs_{21.0-21.8}$, mean=21.25 mol%, std=0.27, n=7.
Classification: Ordinary chondrite (L6, S2, W4)

O'Malley 018 30°59'16.4"S, 131°20'26.4"E
South Australia, Australia
Found: 11 Apr 2011
Classification: Ordinary chondrite (H4)
History: Four broken fragments were found within a 400 m^2 area of clay pans by A Tomkins.
Physical characteristics: Weathered with minor remnant fusion crust.
Petrography: (A. Tait, *Monash*) Chondrules well defined and well-sorted with an average diameter of ~600 μm. The matrix is fine grained and difficult to distinguish due to weathering; there is no matrix plagioclase. Chondrules types include BO, C, PO, RP. Olivine has sharp extinction. Metal grains have been completely oxidized; troilite remains and is variably weathered.
Geochemistry: (A. Tait, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{18.4-19.0}$, mean=18.79 mol%, std=0.20, n=9; Low-Ca pyroxene $Fs_{16.3-17.3}$, mean=16.68 mol%, std=0.40, n=5.
Classification: Ordinary Chondrite (H4, S1, W4).

O'Malley 019 30°58'49.3"S, 131°20'40.4"E
South Australia, Australia
Found: 11 Apr 2011
Classification: Ordinary chondrite (L6)
History: After an initial broken fragment was found by A. Langendam, a further 105 fragments were recovered in a 300 m2 area by the search team, mostly from within a 25 m^2 area.
Physical characteristics: Fragments with no remnant fusion crust, some with extensive lichen covering.
Petrography: (A. Tait, *Monash*) Matrix is transparent and strongly recrystallized. Chondrules edges are diffuse. Chondrules vary significantly in size and composition; varieties include CO, RP, BO, PO, POP. Large plagioclase grains (> 40 μm) are common. Metal grains are larger than troilite, with an average size of ~400 μm; troilite has an average grain size of ~100 μm. Troilite is more abundant than metal. Pyroxenes and olivine have undulose extinction. Fe-Ni metal grains are ~20% oxidised.
Geochemistry: (A. Tait, *Monash*) Microprobe analyses show that olivine and pyroxene compositions are uniform: olivine $Fa_{25.5-25.9}$, mean=25.76 mol%, std=0.21, n=4; Low-Ca pyroxene $Fs_{22.0-23.0}$, mean=22.35 mol%, std=0.47, n=4.
Classification: Ordinary Chondrite (L6, S2, W2).

Ooldea 001 30°32'45.7"S, 131°58'13.8"E
South Australia, Australia
Found: 12 Apr 2010
Classification: Ordinary chondrite (L6)
History: Several broken weathered pieces were found on the surface by A Tomkins, and then another 30 odd pieces were recovered by the team over an area of ~ 100 m^2.
Physical characteristics: Many fragments of weathered dark brown material, no fusion crust discernible.
Petrography: (A. Tomkins, *Monash*) Poorly defined chondrules to 6 mm, sit in a strongly recrystallized matrix. Some plagioclase-dominated domains exceed 300 μm. Chondrule types include RP, POP, PP, BO and PO. Olivine grains show mosaicism and planar deformation fractures, plagioclase has been converted to maskelynite. Fe-Ni metal grains are almost completely rusted out, and the majority of troilite has been destroyed by weathering.
Geochemistry: (A. Tomkins, *Monash*) Microprobe analyses show that olivine and pyroxene have uniform compositions: olivine $Fa_{25.0-26.1}$, mean=25.44 mol%, std=0.41, n=5; Low-Ca pyroxene $Fs_{21.7-22.2}$, mean=21.90 mol%, std=0.21, n=5.
Classification: Ordinary chondrite (L6, S5, W3)

Pecora Escarpment 01021 (PCA 01021) 85°40.380'S, 68°43.055'W
Antarctica
Found: 2002 Jan 18
Classification: HED achondrite (Eucrite, monomict)
Petrography: Very fine grained specimen with ophitic texture and vesicles. Exsolved pigeonite (with very fine clinopyroxene lamellae), calcic plagioclase, silica polymorph, ilmenite and troilite.
Geochemistry: Orthopyroxene host $Fs_{61.7-62.2}Wo_{2.5-3.3}$, Fe/Mn=33-34; clinopyroxene lamellae $Fs_{38.5-44.8}Wo_{31.1-24.7}$, Fe/Mn=31-32; plagioclase $An_{81.8-88.4}Or_{1.4-0.7}$. Oxygen isotopes (R. Tanaka, *OkaU*): analyses of acid-washed sub-samples by laser fluorination gave, respectively $\delta^{17}O$ 1.873, 1.740; $\delta^{18}O$ 3.981, 3.831; $\Delta^{17}O$ -0.223, -0.276 per mil.
Classification: Momomict eucrite
Specimens: Remaining stone plus one polished thick section at *FMNH*

Pecora Escarpment 01023 (PCA 01023)
85°39.190'S, 68°36.190'W
Antarctica
Found: 2002 Jan 18

Classification: Enstatite chondrite (EH4)
Petrography: Small, separated well-formed RP chondrules and some mineral fragments set in a dark red-brown to black matrix. A single forsterite grain was found. Accessory minerals include daubreelite, troilite (some Ni-bearing), Ni-poor metal, caswellsilverite and albite. Only one olivine grain found. Kamacite contains 2.8 to 3.1 wt% Si and 2.8 to 3.5 wt% Ni.
Geochemistry: Orthopyroxene $Fs_{0.5}Wo_{0.5}$; $Fs_{4.5}Wo_{4.7}$, olivine $Fa_{0.05}$
Classification: EH4. Almost identical to PCA 01027 and very likely paired with it.
Specimens: Remaining stone plus one polished thin section at *FMNH*

Pecora Escarpment 01026 (PCA 01026)
85°39.123'S, 68°34.160'W
Antarctica
Found: 2002 Jan 20
Classification: Primitive achondrite (Acapulcoite)
Petrography: Metamorphic texture with triple grain junctions; grain size is mostly 0.2-0.4 mm with a few grains to 1 mm. Assemblage of olivine, orthopyroxene, clinopyroxene, kamacite (~15 vol.%, with cuspate grain shapes), troilite and twinned sodic plagioclase.
Geochemistry: Olivine $Fa_{7.4-7.6}$, Fe/Mn=17; orthopyroxene $Fs_{8.1-8.4}$, Fe/Mn=11; clinopyroxene $Fs_{3.9}Wo_{42.3-42.6}$, Fe/Mn=7-8; plagioclase $An_{18.8}Or_{2.9-3.2}$. Oxygen isotopes (R. Tanaka, *OkaU*): analyses of acid-washed sub-samples by laser fluorination gave, respectively $\delta^{17}O$ -0.580, -0.538; $\delta^{18}O$ 1.103, 1.244; $\Delta^{17}O$ -1.161, -1.193 per mil.
Classification: Acapulcoite
Specimens: Remaining stone plus one polished thin section at *FMNH*

Pecora Escarpment 01027 (PCA 01027)
85°39.112'S, 68°38.510'W
Antarctica
Found: 2002 Jan 20
Classification: Enstatite chondrite (EH4)
Petrography: Small, separated well-formed RP chondrules and some mineral fragments are set in a dark red-brown to black matrix. Accessory minerals include kamacite, daubreelite, Cr-bearing troilite (some Ti-bearing), schreibersite and perryite. Kamacite contains 2.8 to 3.1 wt% Si and 2.8 to 3.5 wt% Ni.
Geochemistry: Orthopyroxene $Fs_{0.9}Wo_{0.1}$ and $Fs_{6.2}Wo_{3.7}$.
Classification: EH4. Almost identical to PCA 01023 and very likely paired with it.
Specimens: Remaining stone plus one polished thin section at *FMNH*

Pecora Escarpment 01030 (PCA 01030)
85°39.259'S, 68°34.323'W
Antarctica
Found: 2002 Jan 20
Classification: HED achondrite (Diogenite, polymict)
Petrography: Fragmental breccia consisting mostly of disaggregated material from diogenite protoliths, plus grains of calcic plagioclase and exsolved pigeonite derived probably from cumulate eucrites. Accessory minerals include chromite, ilmenite and troilite. Orthopyroxene exhibits undulose extinction and plagioclase is partly recrystallized (exhibiting complex twinning and some polygonal subgrains). Eucritic material makes up less than 10 vol.% of the specimen.
Geochemistry: Diogenitic orthopyroxene $Fs_{18.7}Wo_{1.3}$, $Fs_{24.4}Wo_{3.0}$, rim $Fs_{34.0}Wo_{3.5}$, Fe/Mn=28-32; orthopyroxene host $Fs_{51.2}Wo_{1.6}$, Fe/Mn=27; clinopyroxene exsolution lamellae $Fs_{20.9-25.3}Wo_{43.9-41.3}$.
Classification: Diogenite-pmict
Specimens: Remaining stone plus one polished thin section at *FMNH*

Pingrup 33°34'59.38"S, 118°39'23.83"E
Western Australia, Australia
Found: 2011
Classification: Ordinary chondrite (H5, melt breccia)
History: A mass of unknown original weight was found on a rock dump on agricultural land near the township of Pingrup. The meteorite was broken by the finder and a sample sent for assay. Subsequently, the stone was brought to the *WAM*.
Physical characteristics: The irregular, broken mass is deeply weathered and mantled in a crust of brown oxides and oxyhydroxides of iron. The interior is dark and heavily stained with iron oxides.
Petrography: (A. W. R. Bevan, *WAM*) Microscopically there are few discernible chondrules. The stone is extensively shock-melted and abundant, large, blackened shock melt veins pervade the fabric of the meteorite. Vestiges of the original chondritic texture are also severely shocked. Most of the metal and troilite grains have been shock-melted and now occur as large Fe/FeS globules with a eutectic texture, some metal and troilite remain unmelted. Accessory minerals include chromite.
Geochemistry: (A. W. R. Bevan and P. Downes, *WAM*) Olivine $Fa_{19.1}$; orthopyroxene $Fs_{16.8}Wo_{1.5}$; metal Ni=8.4 Co=0.46 (all wt %); chromite Cr# 83.8, Fe# 82.7.
Classification: Ordinary chondrite (H5-melt breccia); S5; W3.
Specimens: Main mass and one thin section at *WAM*.

Pizzetti Well 26°15'42"S, 120°44'E
Western Australia, Australia
Found: circa 1980
Classification: Ordinary chondrite (H5)
History: Four fragments were found close together approximately 1.5 km S of Pizzetti Well.
Physical characteristics: (A. W. R. Bevan and P. J. Downes, *WAM*) The four fragments (145 g, 57.93 g, 10.3 g and 5.43 g) are deeply weathered and represent an almost complete, but disintegrated stone.
Petrography: (A. W. R. Bevan and P. J. Downes, *WAM*) Microscopically, discernible chondrules with microcrystalline mesostases are set in a moderately recrystallized and iron-stained matrix. Barred and porphyritic olivine chondrules, and radiating pyroxene chondrules are evident. Accessory minerals include kamacite, taenite and chromite.
Geochemistry: (A. W. R. Bevan and P. Downes, *WAM*) Olivine $Fa_{19.4}$; orthopyroxene $Fs_{17.7}Wo_{1.0}$; kamacite Ni=6.59, Co=0.5 (all wt%); chromite Cr# 86.1, Fe# 84.2.
Classification: Ordinary chondrite (H5); S2; W3.
Specimens: Main mass and thin section, *WAM*

Plainview (e) 34.185131°N, 101.705579°W
Hale County, Texas, USA
Found: 2010 June
Classification: Ordinary chondrite (H5)
History: Found by McCartney Taylor in a pile of rocks in the backyard of an elderly woman's property in the town of Plainview, Hale County, Texas, in June 2010. The woman stated that she had found it many years ago during a rock collecting trip in the region.

Physical characteristics: A single dense stone (1250 g) covered by a dark brown weathering patina and some remnant weathered fusion crust. Interior is dark brown with some fresh metal.
Petrography: (A. Irving and S. Kuehner, *UWS*) Sparse chondrules (predominantly BO). Mineralogy is olivine, orthopyroxene, sodic plagioclase, minor clinopyroxene, chromite, altered kamacite and troilite.
Geochemistry: Olivine ($Fa_{18.7\text{-}18.9}$), orthopyroxene ($Fs_{15.9\text{-}16.0}Wo_{1.2\text{-}1.6}$), clinopyroxene ($Fs_{6.8}Wo_{45.9}$).
Classification: Ordinary chondrite (H5, S2, W3). This specimen may be paired with other similar H chondrite stones named Plainview found in Hale County.
Specimens: A 40 g slice and one polished thin section are on deposit at *UWS*. The main mass is held by Mr. M. Taylor

Qaşr Tarcine 33°14.60'N, 9°51.983'E
Madaniyin, Tunisia
Found: 2 May 2010
Classification: Ordinary chondrite (L6)
History: A single rock of 150 g was found southwest of Medenine by an anonymous finder.
Petrography: (A. Bischoff, *IfP*): Brown, weathered stone. In thin section the texture is highly recrystallized with a few relic chondrules visible. Olivine and pyroxene are compositionally homogeneous.
Classification: Ordinary chondrite, L6, S3, W3.
Specimens: A mass of 20 g and one thin section are on deposit at *IfP*. An anonymous collector holds the main mass.

Qijiaojing 43°45'N, 92°55'E
Xinjiang Province, China
Found: 2003 Nov
Classification: Iron meteorite (ungrouped)
History: Found in the East-Station of Thirteen-Houses of Hamia, in the town of Qijiaojing, Hami City, Xinjiang province. The meteorite is called "Hami" in Lin and Hsu (2008).
Physical characteristics: A 160 kg iron meteorite, with well-preserved fusion crust and regmaglypts.
Petrography: Metal is a polycrystalline aggregate of kamacite grains. Taenite present as irregular blebs <10 µm, located on kamacite grain boundaries. No other minerals were observed.
Geochemistry: Bulk composition by INAA: Ni 106 mg/g, Co 5.36 mg/g, Cr 237 µg/g, Cu 74 µg/g, Ir 0.922 µg/g, Ga <2 µg/g, Ge <10 µg/g, Au 298 ng/g.
Classification: Ungrouped iron. Ni, Ga, Ge, and Ir similar to IIICD irons, but Au is much too low for this group.
Specimens: 63 g type specimen at *PMO*. The finder holds the main mass.

San Bernardino Wash 34°0'2"N, 115°43'47"W
California, USA
Found: 2010
Classification: Ordinary chondrite (L5)
History: Bob Perkins of Highland, California found the first and second stones while metal-detecting for gold with Gary Crabtree near the "Rusty Gold Mine," in the Dale Mining District. Several fragments were subsequently found by Fred Mason, of Arizona.

San Juan 055 (SJ 055) 25°26.36'S, 69°51.81'W
Antofagasta, Chile
Found: 2010 Oct 14
Classification: Ordinary chondrite (H3)
Petrography (J. Gattacceca, A. Hutzler, *CEREGE*): $Fa_{0.4\text{-}18.9}$, PMD=63.9, N=17; $Fs_{5.8\text{-}16.9}$, PMD=20.2, N=6. Cr_2O_3 in ferroan olivine is 0.06±0.07 wt% (n=14). Mean chondrule size 340 µm. Sub-type 3.2 to 3.5

Sawyer 37°31.435'N, 98°37.796'W
Kansas, USA
Found: 2006 Sept 28
Classification: Ordinary chondrite (H4)
History: Found on the ground by Mr. Michael McFall on September 28, 2006, while he was sowing wheat on his farm, about 3 miles east and 1.5 miles north of Sawyer, Kansas.
Physical characteristics: A single, dense, rust-colored mass of 8.1 kg.
Petrography: (A. Irving and S. Kuehner, *UWS*) The specimen contains fairly well-formed chondrules. Primary minerals are olivine, orthopyroxene, sodic plagioclase, chromite, troilite and rare fresh kamacite. Most metal has been altered to iron hydroxides and minor terrestrial barite is present.
Geochemistry: Olivine, $Fa_{19.1\text{-}19.3}$; orthopyroxene, $Fs_{16.1\text{-}17.2}Wo_{1.1\text{-}1.7}$; clinopyroxene, $Fs_{5.8}Wo_{43.6}$.
Classification: Ordinary chondrite (H4, S2, W3)
Specimens: A total of 20 g and one polished thin section are on deposit at *UWS*. The main mass is held by Mr. M. McFall, Pratt, Kansas.

Sayh al Uhaymir 525 (SaU 525) 20°57.87'N, 56°43.22'E
Al Wusta, Oman
Found: 24 Nov 2006
Classification: Ureilite
History: One incomplete individual was recovered in the Oman desert by an anonymous collector.
Physical characteristics: Dark-brown color, 212 g. 30% fusion crusted.
Petrography: (C.A. Lorenz, *Vernad*) Porphyritic texture consisting of 12 vol% rounded olivines to 5 mm, embedded in a dark matrix. Matrix consists of small olivine and pyroxene grains and interstitial glass. Rare phases are metal Fe, troilite, and diamond.
Geochemistry: (N.N. Kononkova, *Vernad*, EMP) Olivine has reverse zoning from Fa_{18} (0.2-0.3 CaO, 0.4-0.7 Cr_2O_3, Fe/Mn=30) to Fa_{11} (Fe/Mn=18). Matrix: pyroxene is $En_{73.4}Wo_{25.5}$ (Fe/Mn=1), olivine is $Fa_{0.7}$ (Fe/Mn=1), interstitial glass is $An_{66}Ab_{28}Or_{6.}$ Oxygen isotopic composition (I. Franchi, R. Greenwood, *OU*, laser fluorination) is: $\delta^{17}O$ 3.687; $\delta^{18}O$ 7.821; $\Delta^{17}O$ -0.416 (per mil).
Specimens: A total of 32.15 g sample and one thin polished section are on deposit at *Vernad*. The anonymous collector holds the main mass.

Sayh al Uhaymir 537 (SaU 537) 20°23'44.2"N, 56°38'9.2"E
Al Wusta, Oman
Found: 19 Mar 2011
Classification: HED achondrite (Eucrite, polymict)
Petrography: Fresh, coarse-grained rock composed of up to mm-sized lithic and mineral fragments in a fine-grained clastic matrix. Fragments include basaltic lithologies, exsolved Ca-rich pyroxene, and plagioclase. Opaques are troilite and chromite; silica polymorphs are rare. Low-Ca pyroxene $Fs_{35.2}$ (30.7-37.1) $Wo_{2.4}$ (1.7-5.8), Fe/Mn=29; high-Ca-pyroxene $Fs_{14.3}Wo_{44.1}$ ($Fs_{12.5\text{-}16.0}Wo_{43.2\text{-}45.2}$), Fe/Mn=24; plagioclase $An_{92.0}$ (90.5-92.7).

Seminole (f) 32°42.023'N, 102°40.361'W
Gaines County, Texas, USA
Purchased: 2008 Apr

Classification: Ordinary chondrite (H5)
History: Found by a rancher in April 2008 among a group of rocks at the corner of a plowed field located 1.75 miles south of the town of Seminole in Gaines County, Texas, and purchased by Philip Mani.
Physical characteristics: A single 5421 g stone covered by a dark brown weathering patina and with several fissures. Interior is black with obvious metal.
Petrography: (A. Irving and S. Kuehner, *UWS*) Sparse chondrules (mostly BO). Mineralogy is olivine, orthopyroxene, sodic plagioclase, chromite, merrillite, kamacite and troilite.
Geochemistry: Olivine ($Fa_{18.5\text{-}21.0}$, FeO/MnO = 34.5-53.9), orthopyroxene ($Fs_{16.6\text{-}16.8}Wo_{0.8}$, FeO/MnO = 24.4).
Classification: Ordinary chondrite (H5, S2-3, W2). This specimen is likely paired with other H chondrite stones named Seminole found in Gaines County.
Specimens: A 38.1 g polished slice is on deposit at *UWS*. The main mass is held by *PMani*.

Seminole (g) 32°43'N, 102°39'W
Texas, USA
Found: 1999
Classification: Ordinary chondrite (H5)
History: Found in Gaines County, Texas, in 1999 by a rancher, and sent to the late M. Prinz (*AMNH*), who provided it to Russ Kempton (NEMS), who in turn donated it to Don Edwards in September 2000.
Physical characteristics: A single dense, dark stone (640.4 g) with brown, weathered exterior surfaces.
Petrography: (A. Irving and S. Kuehner, *UWS*) Sparse chondrules (mostly BO). Mineralogy is olivine, orthopyroxene, sodic plagioclase, chromite, merrillite, kamacite and troilite.
Geochemistry: Olivine ($Fa_{18.6\text{-}19.3}$, Fe/Mn=42.9); orthopyroxene ($Fs_{16.7\text{-}16.8}Wo_{0.9}$, Fe/Mn=26.6).
Classification: Ordinary chondrite (H5, S2-3, W2). This specimen may be paired with other H chondrite stones named Seminole found in Gaines County.
Specimens: A 28.2 g polished slice is on deposit at *UWS*. The main mass is held by D. Edwards.

[NOTE: details withheld pending a journal review; the final version in MetBull 100 will be expanded]

Silistra 44°7'N, 27°16'E
Silistra, Bulgaria
Fell: 19 July 1917
Classification: Ungrouped achondrite
History: A bolide was observed in the sky over Elena, Razgrad, and Silistra, Bulgaria, and Tulcea, Romania (fall direction SW - NE) at around 7 am on July 19, 1917. Several fragments were recovered but a single one reached the Mineralogy Museum of the University of Sofia (Dimov, 1975). Coordinates given are for Silistra town.
Physical characteristics: A single 0.15 g fragment (1.1 × 0.4 cm) was preserved; one side shows a smooth rounded fusion crust, the other a cut or broken inner surface. Porosity is estimated to be 86%.
Petrography: No crystals are observed on the SEM section. CT-scan and µXRF indicate very minor amount of dense crystals ~100 µm size.
Geochemistry: Oxygen isotopic composition lies on the HED fractionation line: (J. Gattacceca, C. Sonzogni, *CEREGE*).
Classification: The material is composed almost entirely of vesicular glass, possibly related to eucrites.
Specimens: The main mass remaining after analysis is 0.125 g and resides at *USof* (curator E. Neykova). One polished micro-section and 10 mg are at *CEREGE*..

Silistra 44°7'N, 27°16'E
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Classification: Ungrouped achondrite
History: A bolide was observed in the sky over Elena, Razgrad, and Silistra, Bulgaria, and Tulcea, Romania (fall direction SW - NE) at around 7 am on July 19, 1917. Several fragments were recovered but a single one reached the Mineralogy Museum of the University of Sofia (Dimov, 1975). Coordinates given are for Silistra town.
Physical characteristics: A single 0.15 g fragment (1.1 × 0.4 cm) was preserved; one side shows a smooth rounded fusion crust, the other a cut or broken inner surface. Porosity is estimated to be 86%. The material is composed of vesicular glass and looks like a dark pumice. µCT-scan indicates homogeneous distribution of bubbles with moderate elongation. Bubbles diameter ranges from 10 µm to 3 mm, with median diameter of 70 µm. Based on fusion crust shape the full initial object can be estimated to be ~2 cc, 0.8 g object with a shape similar to core tektite.
Petrography: No crystals are observed on the SEM section. CT-scan and µXRF indicate very minor amount of dense crystals ~100 µm size identified as chromite and ilmenite based on Cr and Ti spots on the µXRF map.
Geochemistry: Oxygen isotopic composition was measured in *CEREGE* on two 1.5 mg powdered samples and lies on the HED fractionation line: $\delta^{17}O$ = 2.64 and 2.50 ‰, $\delta^{18}O$ = 5.55 and 5.30 ‰, and $\Delta^{17}O$ = -0.27 and -0.27‰ per mil (J. Gattacceca, C. Sonzogni, *CEREGE*). HED falls were measured during the same session and fit with reference values. EMPA analysis (mean of 14 points) of the glass yield composition similar to cumulate eucrite: Fe/Mn= 29, Fe/Mg= 0.8 (atomic ratio); SiO_2 48.6, FeO 15.2, Al_2O_3 14.2,CaO 9.9, MgO 9.2, MnO 0.5, Cr_2O_3 0.4, NaO 0.3, TiO_2 0.1 (wt.%). K, Ni, S, Cl were undetectable. Average total at 98.2% suggest minor volatiles and Fe^{3+}. Rare gas analyses (B. Marty, *CRPG*) indicate strong atmospheric contamination but significant content of cosmogenic ^{21}Ne, pointing toward an apparent residence time in space of 0.2 Ma. Cosmogenic ^{3}He is also present. Rare gas data indicate strong heating during atmospheric entry, but probably below the fusion temperature.
Classification: The material is composed almost entirely of vesicular glass, possibly related to eucrites based on oxygen isotopes and composition.
Specimens: The main mass remaining after analysis is 0.125 g and resides at *USof* (curator E. Neykova). One polished micro-section and 10 mg are at *CEREGE*.

Sleeper Camp 025 30°10'45"S, 126°24'02"E
Western Australia, Australia
Found: 2005
Classification: Ordinary chondrite (H5)
History: A single stone was found on open plain in the Sleeper Camp area of the Nullarbor Region.
Physical characteristics: (A.W. R. Bevan, *WAM*): Deeply weathered and broken 7 × 4 × 3 cm stone, with remnant fusion crust along one face.
Petrography: (A. W. R. Bevan, *WAM*): Microscopically, the meteorite contains discernible, but indistinct chondrules set in a moderately crystalline, iron-stained matrix. Barred and porphyritic olivine chondrules, and radiating pyroxene chondrules predominate. Blackened shock veins locally disrupt the chondritic texture.

Contains kamacite, taenite and tetrataenite. Accessory minerals include, troilite and chromite.
Geochemistry: (A. W. R. Bevan and P. J. Downes, *WAM*) Mineral compositions as determined by EMP: olivine $Fa_{19.9}$; low-Ca pyroxene $Fs_{17.3}Wo_{1.3}$; kamacite Ni=6.64 Co=0.5 (all wt%); chromite Cr# 85.1.
Classification: Ordinary chondrite (H5); S3/4; W2.
Specimens: Main mass and one thin section at *WAM*.

Sleeper Camp 026 30°10'25"S, 126°26'04"E
Western Australia, Australia
Found: 2005
Classification: Ordinary chondrite (L6)
History: A single stone was found in the Sleeper Camp area of the Nullarbor Region.
Physical characteristics: (A. W. R. Bevan, *WAM*): Rounded, slightly conical stone, with a maximum dimension of 5 cm is covered by fusion crust.
Petrography: (A. W. R. Bevan, *WAM*): Microscopically, the meteorite contains barely discernible chondrules set in a recrystallized, iron-stained matrix. Large grains (>50 μm) of plagioclase are partially converted to maskelynite. Olivine shows mosaicism, and closely spaced planar fractures and deformation features. Metal includes kamacite and taenite. Accessory minerals include troilite and chromite.
Geochemistry: (A. W. R. Bevan and P. J. Downes, *WAM*) Mineral compositions as determined by EMP: olivine $Fa_{25.7}$; low-Ca pyroxene $Fs_{21.9}Wo_{1.5}$; kamacite Ni=6.21 Co=0.96 (all wt%); chromite Cr# 86.9.
Classification: Ordinary chondrite (L/LL6); S4/5; W2.
Specimens: Main mass and one thin section at *WAM*.

Sleeper Camp 027 30°09'37"S, 126°20'54"E
Western Australia, Australia
Found: 2005
Classification: Ordinary chondrite (H5)
History: A single stone was found in the Sleeper Camp area of the Nullarbor Region.
Physical characteristics: (A. W. R. Bevan, *WAM*): The small, weathered, but almost completely crusted stone measures 2.5 × 1.5 × 1.5 cm.
Petrography: (A. W. R. Bevan, *WAM*): Microscopically, the meteorite contains discernible, but indistinct chondrules set in a moderately crystalline, heavily iron stained matrix. Barred and porphyritic olivine chondrules, and radiating pyroxene chondrules predominate. Incipient, minor shock veins locally disrupt the chondritic texture. Metal includes kamacite, taenite and tetrataenite. Accessory minerals include, troilite and chromite.
Geochemistry: (A. W. R. Bevan and P. J. Downes, *WAM*): Mineral compositions as determined by EMP: olivine $Fa_{19.8}$; low-Ca pyroxene $Fs_{17.5}Wo_{1.3}$; kamacite Ni=6.7 Co=0.5 (all wt%); chromite Cr# 85.5 #Fe83.7.
Classification: Ordinary chondrite (H5); S3; W2.
Specimens: Main mass and one thin section *WAM*.

Sołtmany 54°00.53'N, 22°00.30'E
Warmińsko-mazurskie, Poland
Fell: 2011 Apr 30, 6:03 CEST
Classification: Ordinary chondrite (L6)
History: At 6:03 CEST, April 30, 2011, a stone penetrated the edge of a roof and onto a concrete step at a farm in the village of Sołtmany, Poland. It was immediately found by the owners of the farm, alarmed by loud noise. Mr. Roman Rzepka from the nearby town of Giżycko, recognized the stone as meteoritic, and informed scientists. On May 2, fragments of the stone were purchased and distributed among laboratories for examination.
Physical characteristics: The meteorite was broken by the impact into 813 g, 155 g and many smaller pieces. Later the main mass was broken by the finder. Total mass is at least 1066 g. Most pieces have 1-1.5 mm thick fusion crust. The crust is of the same thickness all around the meteorite, what suggests the stone was a single fall. The hole in the roof and the trace of impact onto the step below showed that the fall was nearly vertical. Internally, the stone is nearly white, with clearly visible troilite and FeNi grains (to 3 mm), dispersed uniformly throughout the meteorite. Only a few chondrules are visible.
Petrography: (Łukasz Karwowski, *USil*) Chondrule and matrix olivines and pyroxenes show homogeneous compositions. Low-Ca pyroxene is usually accompanied by Ca pyroxene. In larger grains of feldspar albitic twinning is visible. Sparse chondrules (to 2 mm) are well crystallized and lack glass. There is accessory F-Cl-bearing apatite. Opaque minerals are represented by troilite, kamacite, taenite, and rare chromite. Small grains of copper are visible in taenite grains.
Geochemistry: Olivine $Fa_{25.6}$; low-Ca pyroxene $Fs_{21.9}Wo_{1.5}$; high-Ca pyroxene $En_{46.6}Fs_{8.8}Wo_{44.6}$; feldspar $Ab_{85}Or_5An_{10}$; kamacite Fe 95.87, Ni 5.23, Co 0.74 wt%; troilite Fe 50.23, S 49.69 wt%. Accessory: chromite, Fe-Cl apatite, metallic Cu in taenite.
Classification: Equilibrated ordinary chondrite (L6), W0, S2.
Specimens: 65g at *USil* (type specimen). Also 120 g at *UTWroc*.

Stewart Valley 001 (StV 001) 36°12.348'N, 116°10.225'W
California, USA
Found: 2001 Feb 17
Classification: Ordinary chondrite (H6)
Physical characteristics: Type-specimen is from the 4th find (of more than 1000 fragments continually being found from this locality); a weathered-brown broken stone; a few finds are whole individuals with relatively fresh fusion crust (combined weight in excess of 24 kg). Some pieces can be reassembled into their original mass.

Stewart Valley 002 (StV 002) 36°12.455'N, 116°10.151'W
California, USA
Found: 2001 Feb 17
Classification: Ordinary chondrite (L6)
Physical characteristics: Type specimen is from the 22nd find from this locality, but is the first of more than two dozen freshly fusion-crusted, whole individual L-chondrites, forming an overlapping strewn-field.

Stewart Valley 003 (StV 003) 36°12.692'N, 116°10.071'W
California, USA
Found: 2001 Feb 17
Classification: Ordinary chondrite (H4)
Physical characteristics: The 30th find from this locality; a small, relict fusion-crusted whole individual. The rock contains abundant polysynthetically twinned low-Ca clinopyroxene grains, consistent with type 3 or 4. It has well-defined chondrules with no glassy mesostases, consistent with high-type 3 or type 4, but its fine-grained matrix is not opaque and is somewhat recrystallized, more consistent with type 4.

Stewart Valley 004 (StV 004) 36°15.328'N, 116°11.131'W
Nevada, USA
Found: 2001 May 04

Classification: Ordinary chondrite (L6)
Physical characteristics: Type specimen is from the 89th find from this locality, but is the 2nd of more than two dozen freshly fusion-crusted, whole individual L-chondrites, forming an overlapping strewn-field.

Stewart Valley 005 (StV 005) 36°13.744'N, 116°10.761'W
Nevada, USA
Found: 2001 May 04
Classification: Ordinary chondrite (L6)
Physical characteristics: Type specimen is from the 205th find from this locality, and is the 3rd of more than two dozen freshly fusion-crusted, whole individual L chondrites, forming an overlapping strewn-field.

Stewart Valley 006 (StV 006) 36°14.237'N, 116°10.332'W
Nevada, USA
Found: 2001 Jun 29
Classification: Ordinary chondrite (H4)
Physical characteristics: Type specimen is from the 225th find from this locality, a small, weathered individual.

Stewart Valley 007 (StV 007) 36°14.233'N, 116°10.345'W
Nevada, USA
Found: 2001 Jun 29
Classification: Ordinary chondrite (H4)
Physical characteristics: Type specimen is the entire mass of the 226th find from this locality, a small, freshly fusion-crusted whole individual.

Stewart Valley 008 (StV 008) 36°14.246'N, 116°10.334'W
Nevada, USA
Found: 2001 Jul 14
Classification: Ordinary chondrite (H6)
Physical characteristics: A single small, orange-brown, weathered fragment (most likely paired to StV 001).

Stewart Valley 009 (StV 009) 36°10.534'N, 116°09.540'W
California, USA
Found: 2003 Apr 05
Classification: Ordinary chondrite (LL5)
Physical characteristics: A single oblong, gray-brown, 40% fusion-crusted stone, that is unpaired.

Stewart Valley 010 (StV 010) 36°11.083'N, 116°08.605'W
California, USA
Found: 2003 Apr 25
Classification: Ordinary chondrite (H5)
Physical characteristics: A single (41.7 g) brown, fusion-crusted stone that is unpaired.

Stewart Valley 011 (StV 011) 36°12.610'N, 116°10.095'W
California, USA
Found: 2003 Oct 12
Classification: Ordinary chondrite (H6)
Physical characteristics: Type specimen is the entire mass of the 673rd find from this locality; a single small, gray-brown, relict fusion-crusted stone (most likely paired to StV 001).

Stewart Valley 012 (StV 012) 36°14.100'N, 116°11.015'W
Nevada, USA
Found: 26 Feb 2012
Classification: Ordinary chondrite (H6)
History: Jason Snyder found several meteorite fragments on February 26, 2012, while he was hunting for meteorites on the Stewart Valley Dry Lake near Pahrump, Nevada. Some were clumped together and the smaller pieces formed a 12-inch elliptical pattern. The largest piece, which was at the center, was slightly buried and weighed 27.8 g. Twelve pieces were recovered at that spot and weighed a total of 64.1 g. More pieces were recovered within 100 m, and ranged from sub-gram to several grams.
Physical characteristics: Dark, rough, weathered exterior. Saw cut reveals ~15% bright, sub-mm metal grains, some aligned, set in a dark brown matrix, parallel veins or fractures.
Petrography: (C. Agee, *UNM*) Microprobe examination of a polished thin section shows a few equilibrated, indistinct chondrules. Olivine, pyroxene, plagioclase, chlor-apatite, troilite and abundant kamacite present.
Geochemistry: (C. Agee and N. Wilson, *UNM*) Olivine $Fa_{19.1\pm0.2}$, Fe/Mn=38±1, n=3; low-Ca pyroxene $Fs_{17.3\pm0.3}Wo_{1.0\pm0.2}$, Fe/Mn=23±1, n=3; plagioclase $Ab_{73}An_{25}Or_2$; and kamacite Fe=93.75 Ni=5.97 Co=0.31 wt%.
Classification: Ordinary chondrite (H6), weathering grade W1.
Specimens: 60.3 g plus a polished thin section on deposit at *UNM*, Jason Snyder holds the main mass.

Stockyard Creek 23°15'20"S, 116°54'3"E
Western Australia, Australia
Found: 2008
Classification: Ordinary chondrite (H5)
History: A single stone was found by B. Crawford while he was prospecting. The stone was found within 4 km of the site of recovery of the Warden meteorite (MetBull 69)
Physical characteristics: (A. W. R. Bevan and P. J. Downes, *WAM*) The stone is an irregular, rounded mass weighing 2.7 kg and measuring 16 × 12 × 10 cm. The surface is 80% covered with fusion crust. Where the interior is exposed, it is iron stained and fresh metal particles are visible.
Petrography: (A. W. R. Bevan and P. J. Downes, *WAM*) Microscopically, recognizable chondrules, including barred olivine, porphyritic olivine and radiating pyroxene types, are set in a microcrystalline matrix. Accessory minerals include troilite, kamacite, taenite, tetrataenite and chromite.
Geochemistry: Mineral compositions and geochemistry: (A. W. R. Bevan and P. Downes, *WAM*) Olivine, $Fa_{19.3}$; low-Ca orthopyroxene, $Fs_{17.1}$ $Wo_{1.1}$; chromite, Cr# 85 Fe# 83.6; kamacite, Ni=6.78, Co=0.51 (both wt%).
Classification: Ordinary chondrite (H5); S2; W1
Specimens: Main mass (*WAM*)

Sutter's Mill 38°48'14"N, 120°54'29"W
California, United States
Fell: 22 Apr 2012
Classification: Carbonaceous chondrite (C)
History: (P. Jenniskens, *SETI*): A bright daytime east-to-west moving fireball was seen on April 22, 2012, from locations over California and Nevada between 7:51:10 and 7:51:30 am local daylight time (UT-7). The meteoroid fragmented towards the end of its trajectory. A loud sonic boom was heard in a wide region around Lake Tahoe. Wind gusts were felt and houses shook. At least a kiloton of kinetic energy was released, based on the infrasound signal detected at two stations. Eye witnesses in the townships of Coloma and Lotus, El Dorado County, reported hearing whistling sounds and some smelled a "welding" odor. U.S. National Climatic Data Center's "NEXRAD" Doppler weather radar sweeps detected the falling meteorites. In data analyzed by Marc Fries, *PSI*, and

Robert Matson, *SAIC*, the radar-defined strewn field is centered on the Sutter's Mill historic site. On April 24, Robert Ward searched under the radar footprint and collected the first 5.5 g meteorite in Henningsen-Lotus Park. Later that day, Peter Jenniskens recovered a crushed 4 g fragment in the parking lot of that same park. A third find was made by Brien Cook, before heavy rain descended on the area in the following two days. After the rains more fragments were found including at the Sutter's Mill site in the James W. Marshall Gold Discovery State Historic Park.

Physical characteristics: As of November 27th, 2012, 90 fragments have been recovered with a total mass of 992.5 g. A tally is maintained at the Sutter's Mill Meteorite Consortium website: http://asima.seti.org/sm/.

Petrography: (M. Zolensky, *JSC*): A small piece was examined for petrography, taken from the stone found by Jenniskens on the parking lot surface, which had been crushed by an automobile tire and had some adhering terrestrial soil. The meteorite is unusually hard compared to CM2 chondrites, and microprobe totals for the matrix are also high for CM2, suggesting possibly incomplete aqueous alteration or, alternatively, mild thermal metamorphism. Various coarse-grained components are embedded within an opaque fine-grained matrix including chondrules, fine-grained porous olivine aggregates, fine-grained porous low-Ca pyroxene aggregates, large isolated lithic and mineral fragments (both olivine, low-Ca pyroxene), abundant CAIs, and grains of pyrrhotite and pentlandite. The components are often rimmed by fine-grained dust mantles. Chondrule diameters are generally less than 0.4 mm with a few exceeding 1 mm. Some chondrule contents are partially altered to tochilinite and cronstedtite and/or serpentine. Fe-Ni metal occurs (as a minor constituent) in chondrules and aggregate olivine crystals. The porous aggregates are irregular in shape and measure up to a couple of hundred microns across. The CAI are typical layered CM variety, with spinel cores, diopside rims and cronstedtite or Fe-rich serpentine between. The matrix includes abundant tochilinite intergrown with serpentine with a layered structure. Veins are present consisting of pyrrhotite, pentlandite, and Fe-Ni-Cr phosphides. One small, embayed grain of oldhamite was observed in matrix. Several grains of a refractory carbon phase were observed in the matrix, measuring up to 10 μm. No carbonates were observed.

Geochemistry: Most olivines in the chondrules and coarse-grained components are forsterite (below Fa_3), but some Fe-rich olivine is present (Fa_{23}). Coarse-grained olivine grains in the matrix are similar, although the iron-rich ones are up to Fa_{37}. Olivine, from 22 analyses, averaged Fa_4, with a range $Fa_{1\text{-}29}$. Low-Ca pyroxene, from 19 analyses averaged Fs_4Wo_2, with a range Fs_2Wo_1 - Fs_7Wo_4.

Classification: Carbonaceous chondrite.

Specimens: Current institutional holdings include *ASU* - 24.9 g, *FMNH* - 10.1 g, *UAz* - 15.9, and *UNM* - 11.0 g. 3 g of the crushed 4 g specimen and a 17 g specimen are located at *ARC*.

Thika 1°0.167'S, 37°9.017'E
Kiambu County, Kenya
Fell: 16 July 2011
Classification: Ordinary chondrite (L6)

History: A bright fireball in multiple pieces was observed from southern Kenya traveling to the northwest around 10 am on the July 16, 2011. Residents around Kiambu County in the Thika District reported multiple loud explosions and loud screaming noises, with ground shaking. The first piece (~2.5 kg) landed within 1 m of a woman tilling her field in the village of Kihum Wiri (also spelled Kiumwiri). This meteorite was subsequently removed by the military and taken to the University of Nairobi. Multiple pieces were then found in the nearby village of Mwana Wikio. Two meteorites smashed through greenhouses in Mwana Wikio and one through a house in nearby Muguga village. Stones were recovered from a 7.7 × 1.6 km strewnfield bearing N30°W. The main mass, 3.575 kg, was found outside Rose Kamande's house in Kihum Wiri the day after the fall. Total known mass is currently 14.2 kg totaling 14 individuals, distributed primarily as large stones, e.g., 3575 g, ~2.5 kg, 1.75 kg and 1.3 kg. Only a few small stones have so far been recovered. All stones were recovered before rainfall.

Physical characteristics: Stones are angular and fusion crusted. Interior of the fresh stones is white.

Petrography: Shock stage S1 and weathering W0. One thin shock vein is present in the section, otherwise none are recognizable in the stones. The sections show poorly defined chondrules in a recrystallized matrix. Recognizable chondrules (to 1.6 mm) include BO, RP, and POP. Common accessory minerals include chlorapatite, merrillite, and Ti-rich chromite, and rare ilmenite. Merrillite is particularly abundant with ~50 grains larger than 100 microns on the one-inch-round thin section. Largest merrillite is 600 microns across. Much of the metal and sulfide occurs as separate, blocky grains.

Geochemistry: (Laurence Garvie, *ASU*) Microprobe analyses show olivine, $Fa_{24.5\pm0.3}$ (n=11) and FeO/MnO=50.0 (n=11), pyroxene $Fs_{20.5\pm0.3}Wo_{1.6\pm0.5}$ (n=9), and diopside $Fs_{7.7\text{-}8.1}Wo_{45.0}$ (n=2). Representative analysis of chlorapatite (normalized to three P atoms) is $Ca_{4.93}Fe_{0.02}(PO_4)_3Cl_{0.71}F_{0.26}$ and merrillite (normalized to seven P atoms) is $Ca_{8.9}Na_{0.8}Mg_{0.8}Fe_{0.3}(PO_4)_7$.

Classification: Ordinary chondrite, L6, S1, W0.

Specimens: *ASU* holds a 377 g stone (70% fusion crusted), 29.82 g in six pieces, and two thin sections. *Farmer* holds the 3.575 kg mass and another 3 kg.

Tissint 29°28.917'N, 7°36.674'W
Tata, Morocco
Fell: 18 July 2011
Classification: Martian meteorite (Shergottite)

History: (H. Chennaoui Aoudjehane, *FSAC*, and A. Aaronson) At about 2 am local time on July 18, 2011, a bright fireball was observed by several people in the region of the Oued Drâa valley, east of Tata, Morocco. One eyewitness, Mr Aznid Lhou, reported that it was at first yellow in color, and then turned green illuminating all the area before it appeared to split into two parts. Two sonic booms were heard over the valley. In October 2011, nomads began to find very fresh, fusion-crusted stones in a remote area of the Oued Drâa intermittent watershed, centered about 50 km ESE of Tata and 48 km SSW of Tissint village, in the vicinity of the Oued El Gsaïb drainage and also near El Ga'ïdat plateau known as Hmadat Boû Rba' ine. The largest stones were recovered in the El Ga'ïdat plateau, whereas the smallest one (a few grams) closer to the El Aglâb Mountains. One 47 g crusted stone was documented as being found at 29°28.917' N, 7°36.674' W.

Physical characteristics: Several fusion-crusted stones have been collected ranging from 1 to 987 g, with a total weight of around 7 kg. The stones are almost completely coated by glistening black fusion crust, characterized by thicker layers on exterior ridges as well as much glossier regions (above interior olivine macrocrysts). Some stones have thinner secondary fusion crust on some surfaces. The crust on some stones has been broken in places to reveal the interior, which appears overall pale gray in color with larger, very pale yellow olivine macrocrysts, and sporadic small pockets and some very thin veinlets of black glass. No terrestrial weathering is evident.

Petrography: (A. Irving and S. Kuehner, *UWS*): Olivine macrocrysts (to 1.5 mm) and microphenocrysts (to 0.4 mm) are set in a finer groundmass of patchily zoned pyroxene, plagioclase (maskelynite), Ti-poor chromite, ilmenite, pyrrhotite and minor merrillite. Both the larger olivine macrocrysts and smaller olivine microphenocrysts exhibit thin ferroan rims against the groundmass, and contain tiny chromite inclusions. Narrow ferroan zones also occur within the interior of some olivine macrocrysts.
Geochemistry: Olivine (cores of large macrocrysts $Fa_{19.4\text{-}20.2}$, Fe/Mn=42-44; rims $Fa_{43.2\text{-}60.4}$, Fe/Mn=50-55), cores of microphenocrysts $Fa_{29.1\text{-}30.2}$, Fe/Mn=45-46; rims up to $Fa_{53.3}$, Fe/Mn=53), orthopyroxene cores ($Fs_{24.0\text{-}24.4}Wo_{4.1\text{-}4.6}$, Fe/Mn=30-32), pigeonite ($Fs_{26.1\text{-}51.6}Wo_{11.9\text{-}16.9}$, Fe/Mn=31-35), subcalcic augite ($Fs_{21.7\text{-}23.3}Wo_{25.0\text{-}24.2}$, Fe/Mn=26-28), plagioclase ($An_{61.1\text{-}64.3}Or_{0.5\text{-}0.4}$). Oxygen isotopes (R. Tanaka, *OkaU*): analyses of acid-washed subsamples by laser fluorination gave, respectively $\delta^{17}O$ = 2.849, 2.892; $\delta^{18}O$ = 4.844, 4.943; $\Delta^{17}O$ = 0.299, 0.290 per mil. Bulk composition (G. Chen and C. Herd, *UAb*) ICPMS analysis of powdered interior material gave Sm/Nd=0.646, indicating that this specimen has affinities with the depleted compositional group of shergottites.
Classification: Achondrite (Martian, olivine-phyric shergottite).
Specimens: A total of 30.3 g of type material and one polished thin section are on deposit at *UWS*. Other known institutional specimens include 370 g (*ASU*), 58 g (*UAb*), and 108 g (*UNM*). The remaining material is held by anonymous dealers and collectors.

Uasara
Antofagasta, Chile
Find date unknown
Classification: Iron meteorite (IIAB)
History: The seller stated that a woman found the meteorite on a path after seeing a fireball but the moderate weathering is inconsistent with this scenario. The location was between Antofagasta and the Andes. The name Uasara means desert in the Aymaran language spoken by the Aymara people of the Andes.
Petrography: (J.T. Wasson, *UCLA*) Two polished and etched specimens were examined; they show mottled textures with tiny (~0.1 mm) light and dark "stars", apparently the result of shock followed by reheating. There are compositional halos around sulfides and phosphides. One edge of the sample shows thick flow features that may have originated during atmospheric passage. One edge of the sample shows a very ragged oxidize surface with many pock marks. There are tiny (0.2- 1 mm) holes that pass from this surface into the polished and etched face 1 to 2 mm from the edge of the specimen. Rhabdites are small but common, typical of low-Au IIAB irons.
Geochemistry: 4.45 mg/g Co, 55.5 mg/g Ni, 59.5 µg/g Ga, 178 µg/g Ge, 3.76 µg/g As, 48.2 µg/g Ir, and 0.479 µg/g Au. All elements are within the fields defined by IIAB irons. The Ir content puts the meteorite near the high extreme where it joins two other irons from N. Chile, Sierra Gorda and Negrillos.
Classification: Iron, IIAB. This mass may be paired with Sierra Gorda or Negrillos or both. Given the uncertainty in the discovery location of the new iron, it may have been found near Sierra Gorda but the (poorly defined) location of Negrillos is 340 km distant from Sierra Gorda. The composition of the new iron is slightly closer to that of Negrillos. Because of uncertainty in the pairing, it is being treated as a new iron.
Specimens: 97.9 g type specimen, *UCLA*; main mass, T. Heitz.

Villa Regina 39°6'S, 67°4'W
Rio Negro, Argentina
Found: before 2005
Classification: Iron meteorite (IIIAB)
History: Meteorite purchased from a person from Patagonia who stated that it had been found on a farm near Villa Regina by a relative.
Petrography: (J. Wasson, *UCLA*): Observations based on 37 × 26 mm slab, 4 to 6 mm thick, etched on all cut surfaces. Om; bandwidth 0.8±0.1 mm. Heat altered zone ~2 mm wide on outer surfaces. Small FeS nodules, only 8 mm^2 in a total area of about 2100 mm^2. No schreibersite was identified. Structure is deformed and fractured. Weathering is minor.
Geochemistry: Co = 5.01 mg/g, Ni = 79.3 mg/g, Ga = 19.3 µg/g, Ge <70 µg/g, As = 4.30 µg/g, Ir = 4.32 µg/g, Au = 0.598 µg/g.
Classification: Iron, IIIAB. The composition of Villa Regina puts it in all IIIAB fields on element-Au diagrams. Its nearest relatives are Mount Wegener and Ssyromolotovo, but it is resolvable from these in terms of Ir and they were found on different continents. It is thus not paired with any other iron.

Windimurra 28°5'49.1"S, 118°27'20.2"E
Western Australia, Australia
Found: 2004
Classification: Ordinary chondrite (H4/5)
History: Several large, fractured and broken, crusted masses and many smaller fragments totaling more than 30 kg were found scattered on the surface over a large area near Windimurra Station. The first find was about 3 km N of Kantie Murdana Hill.
Physical characteristics: (A. Bevan, *WAM*). Some fragmental material retains fresh, black fusion crust. Chondrules are clearly visible on broken and cut surfaces. Fresh metal (with only very minor oxide staining) and discontinuous, elongated, thick (up to 2 mm) metal veins are also evident on some sections.
Petrography: (A. W. R. Bevan, *WAM*, and A. Tomkins, *Monash*). Chondrules with devitrified mesostases are well pronounced. Chondrule types including porphyritic olivine, porphyritic pyroxene, barred olivine, radiating pyroxene and cryptocrystalline, occur in a generally microcrystalline matrix. In some pyroxene chondrules, grains of polysynthetically twinned clinopyroxene occur. Metal grains are heterogeneously distributed and large metal grains and metal and troilite veins locally invade the fabric of the meteorite. A large elongated clast of dark, fine-grained H-group material was observed in one section. Accessory minerals include chromite.
Geochemistry: (A. W. R. Bevan and P. Downes, *WAM*). Olivine $Fa_{19.7\pm0.3}$; low-Ca pyroxene $Fs_{17.8\pm0.4}Wo_{0.36\text{-}1.3}$; chromite (in the H-group clast), Fe# 85.0, Cr# 85.1; kamacite, Ni=6.8, Co=0.50 (both wt.%).
Classification: Ordinary chondrite (H4/5); S2; W1
Specimens: Main mass and four thin sections at *WAM*.

Xifu 36°18'N, 120°29'E
Qingdao city, Shandong province, China
Found: 18 May 2004
Classification: Iron meteorite (IAB complex)
History: The meteorite was excavated from ~3 m underground at a construction site in Xifu town, Qingdao city, Shandong province.
Physical characteristics: The specimen is cone-shaped (130 cm high, 260 cm perimeter at the base) and has a mass of about 3 tons.
Petrography: A coarsest octahedrite with bandwidth >3 mm. Neumann bands cross the kamacite in various orientations. Schreibersite present as grain-boundary precipitates and irregular inclusions. Carbides, graphite, and troilite not observed.

Geochemistry: Composition by INAA: Ni 74.1 mg/g, Ga 58.8 µg/g, Ge 150 µg/g Ge, W 0.913 µg/g, Re <110 ng/g, Ir <150 ng/g.
Classification: Composition is similar to IAB irons (Lin and Hsu, 2008).
Specimens: 40 g type specimen at *PMO*; main mass is preserved at a park in Xifu town. The Xifu town government has ownership.

Yelland 001 (Yd 001) 39°33'28.83"N, 114°25'37.74"W
White Pine Co., Nevada, USA
Found: 2011 Aug 29
Classification: Ordinary chondrite (L6)
History: A small stone was found by John Harrison near the edge of a dry lake bed adjacent to the Red Hills Range, Nevada, on August 29, 2011.
Physical characteristics: The 4.5 g broken stone is partly coated by black fusion crust. Fresh metal is visible on a cut surface.
Petrography: Rare indistinct chondrules. Constituent minerals are olivine, orthopyroxene, clinopyroxene, sodic plagioclase, chromite, troilite, kamacite and Ni-poor taenite.
Geochemistry: Olivine $Fa_{25.3\text{-}25.5}$, orthopyroxene $Fs_{20.5\text{-}20.9}Wo_{1.9\text{-}1.7}$, clinopyroxene $Fs_{8.3}Wo_{43.2\text{-}43.4}$.
Classification: Ordinary chondrite (L6, S2, W1/2).
Specimens: A 1.1 g specimen is on deposit at *UWS*. The main mass is held by Mr. J. Harrison.

Zhaoping 24°14'N, 111°11'E
Zhaoping County, Guangdong province, China
Found: June 1983
Classification: Iron meteorite (IAB complex)
History: Discovered in Zhaoping County, Guangdong province.
Physical characteristics: The egg-shaped mass weighs about 2 tons and is about 120 cm long, with a maximum diameter of 65 cm.
Petrography: Shows a coarse Widmanstätten structure and numerous Neumann lines. Minor phases include schreibersite, troilite, graphite, and ferrous phosphate. Average bandwidth 1.94 mm.
Geochemistry: Bulk composition by INAA: Ni 93.4 mg/g, Ga 85.9 µg/g, Ge 418 µg/g, Co 5.24 mg/g, Ir 1.94 µg/g, W 0.774 µg/g, and Au 1.62 µg/g.
Classification: Composition plots in IAB complex fields. Similar in composition to Udei Station grouplet, and close to the low-Au, low-Ni grouplet.
Specimens: 160 g type specimen at *PMO*. The main mass still resides in the field of Huangyao Village, Zhaoping County, Guangdong province, China.

Acknowledgements–This Bulletin was prepared by the Meteorite Nomenclature Committee of the Meteoritical Society under the Principal Editorship of Laurence Garvie. Members for 2013 are Chris Herd (Chair), Carl Agee, Henning Haack, Knut Metzler, Takashi Mikouchi, Smail Mostefaoui, Pierre Rochette, Alex Ruzicka, Caroline Smith, Michael Weisberg, Kees Welten, Linda Welzenbach. Jeffrey Grossman (MBD Editor) also votes in this committee.

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Name	Country	Date	Latitude	Longitude	Mass (g)	Pieces	Class	Shock	Weath	Fa	Fs	Wo	Mag	TS mass (g)	TS loc	Main mass	Classifier	Finder	Comment
Acfer 392	Tmng., Algeria	Dec 1997	27°31'N	3°52'E	74	1	H~5		W1				5.13	15	Kiel	anonymous	R. Bartoschewitz	anonymous	Chondrules up to 2 mm in recrystallized matrix.
Acfer 393	Tmng., Algeria	Dec 1997	27°35'N	4°02'E	74	1	H~6		W1				5.00	15	Kiel	anonymous	"	"	Chondrules up to 2 mm in recrystallized matrix.
Acfer 394	Tmng., Algeria	Oct 2001	27°31.12'N	3°52.82'E	364	6	CR2	S1/2	W3	2.2±1.3	1.8	0.8		25	UCLA	Richard Pélisson	Ellen Harju and Alan Rubin	Richard Pélisson	
Acfer 395	Tmng., Algeria	Oct 2001	27°30.55'N	3°53.26'E	394	13	CR2	S1/2	W1	2.4±1.0	2.8	0.5		29	UCLA	Richard Pélisson	"	"	
Acfer 396	Tmng., Algeria	Oct 2001	27°30.72'N	3°53.87'E	148	1	CR2	S1/2	W2	1.2±0.5	2.0	1.0		29	UCLA	Richard Pélisson	"	"	
Acfer 397	Tmng., Algeria	Oct 2001	27°30.54'N	3°53.75'E	105	1	CR2	S1/2	W2	1.6±0.9	1.2	0.8		20	UCLA	Richard Pélisson	"	"	
Acfer 398	Tmng., Algeria	Oct 2001	27°30.13'N	3°51.65'E	97	1	CR2	S1/2	W2	0.8±0.27	2.1	0.8		19.4	UCLA	Richard Pélisson	Ellen Harju and Alan Rubin, UCLA	"	
Acfer 399	Tmng., Algeria	Oct 2001	27°30.16'N	3°52.35'E	89	1	CR2	S1/2	W2	1.7±0.7	2.1	5.1		17.8	UCLA	Richard Pélisson	"	"	
Acfer 400	Tmng., Algeria	Oct 2001	27°30.05'N	3°51.97'E	101	1	CR2	S1/2	W2	1.9±0.9	2.3	2.5		20	UCLA	Richard Pélisson	"	"	
Ackerly	Texas, USA	June 1995	32°35.42'N	101°46.33'W	3046	1	L5		W4	24.7	21.5	1.5		516	TCU	M.J.Grigg, Ackerly, TX	R. Mayne, TCU	M.J. Grigg	
Al Huwaysah 001	Az Zah., Oman	31 Dec 2009	22°48.292'N	55°19.645'E	3150.5	237	LL6	S3	W4	28.2				3150.5	NMBE	NMBE	F. Zurfluh (IFGBE), B. Hofmann (NMBE), and E. Gnos (MHNGE)	U. Eggenberger, Gnos, N. Greber, Zurfluh	
Al Huwaysah 002	Az Zah., Oman	13 Dec 2009	22°47.912'N	55°19.004'E	690.5	1	LL6	S3	W3	26.8	21.8	1.6		690.5	NMBE	NMBE	"	"	Shock vein (SV)
Al Huwaysah 003	Az Zah., Oman	1 Jan 2010	22°44.917'N	55°22.394'E	273.05	1	L4-6	S2-4	W3	25.5	21.1	1.9		273.05	NMBE	NMBE	"	"	breccia
Al Huwaysah 004	Az Zah., Oman	1 Jan 2010	22°44.840'N	55°23.713'E	141.51	1	H5	S2	W3	17.5	15.6	1.3		141.51	NMBE	NMBE	"	"	
Al Huwaysah 006	Az Zah., Oman	2 Jan 2010	22°44.246'N	55°19.146'E	16.412	1	L6	S2	W3	24.1	20.3	1.6		16.412	NMBE	NMBE	"	"	
Al Huwaysah 007	Az Zah., Oman	2 Jan 2010	22°44.036'N	55°19.224'E	1.563	1	L6	S4	W3	23.7	19.9	1.5		1.563	NMBE	NMBE	"	"	
Al Huwaysah 008	Az Zah., Oman	2 Jan 2010	22°44.278'N	55°19.275'E	356.2	127	H4	S3	W4	17.0	15.4	1.2		356.2	NMBE	NMBE	"	"	
Al Huwaysah 009	Az Zah., Oman	2 Jan 2010	22°45.448'N	55°24.841'E	3407.8	119	H6	S3	W4	19.4				3407.8	NMBE	NMBE	"	"	Shock veins
Al Huwaysah 011	Az Zah., Oman	3 Jan 2010	22°45.587'N	55°23.448'E	112.76	1	L4-5	S4	W1	22.0	18.8	1.3		112.76	NMBE	NMBE	"	"	
Al Huwaysah 012	Az Zah., Oman	3 Jan 2010	22°40.651'N	55°20.416'E	4694.9	1125	H5	S1	W4	17.9	15.8	1.4		4694.9	NMBE	NMBE	"	"	
Al Huwaysah 014	Az Zah., Oman	4 Jan 2010	22°41.159'N	55°19.255'E	45.522	1	H6	S1	W3	18.2	17.9	1.4		45.522	NMBE	NMBE	"	"	
Al Huwaysah 016	Az Zah., Oman	4 Jan 2010	22°41.888'N	55°20.016'E	1330.9	332	H5	S4	W3	17.7	15.5	1.4		1330.9	NMBE	NMBE	"	"	
Al Huwaysah 017	Az Zah., Oman	4 Jan 2010	22°44.311'N	55°21.748'E	439.58	1	L6	S4	W1	22.9	19.5	2.3		439.58	NMBE	NMBE	"	"	
Allan Hills 09001	Antarctica	29 Nov 2009	76°44.642'S	159°22.343'E	0.5	1	L5/6	S4	W1	24.2	20.4	1.4	4.78	0.5	MNA-SI	MNA-SI	A.M. Fioretti, R. Carampin, CNR		Meteorite recovered by L. Folco and P. Rochette during the XXV PNRA expedition.
Allan Hills 09002	Antarctica	29 Nov 2009	76°44.547'S	159°22.475'E	71.6	1	L6	S4	W1	25.0	21.1	1.4	4.63	71.6	MNA-SI	MNA-SI	"	"	Meteorite recovered by L. Folco and P. Rochette during the XXV PNRA expedition.
Allan Hills 09003	Antarctica	29 Nov 2009	76°44.547'S	159°22.475'E	15.5	1	L6	S4	W0	25.0	20.9	1.7	4.55	15.5	MNA-SI	MNA-SI	"	"	Meteorite recovered by L. Folco and P. Rochette during the XXV PNRA expedition.
Apache Junction	Arizona, USA	prior to 2005	33°27'N	111°31'W	25000	1	IIIAB		minor					1100	ASU	Carleton Moore	Laurence Garvie, ASU; John Wasson, UCLA	anonymous	
Assamakka	Agadez, Niger	21 Mar 2002	19°16'N	5°55'E	4400	1	IVA-an		mod					68.1	MNB	Josef Geltl	A. Greshake and C. Koeberl	Josef Geltl, Ostermünchen, Germany	
Benešov (a)	Stredocesky, Czech Rep.	9 Apr 2011	49°46'N	14°38'E	9.72	2	LL3.5	S3	W3	28.2	23.7	1.2		9.2	CzAS	CzAS	Jakub Haloda, PCU	M. Mlejnsky, J. Borovicka, H. Zichova	
Benešov (b)	Stredocesky, Czech Rep.	9 Apr 2011	49°46'N	14°38'E	1.54	1	H5	S3	W3	19.1	17.1	1.0		1.5	CzAS	CzAS	"	P. Spurny, A. Spurna	
Bernic Lake	Manitoba, Canada	Oct 2002	50°26.307'N	95°31.762'W	9162	2	IAB-MG	high	Severe					8718, 444	ROM; UA	ROM	S. Kissin, LHU	D. Erstelle	

Biduna Blowhole 002	S. Australia	6 Apr 2011	31°01'58.7"S	131°17'07.7"E	13	1	L4	S2	W2	25.22	21.67	1.32		8.7	Monash	Monash	E. R. Mare	A.Tomkins	
Biduna Blowhole 003	S. Australia	6 Apr 2011	31°01'10.7"S	131°18'14.2"E	0.4	1	L6	S4	W1	25.54	21.73	1.42		0.3	Monash	Monash	"	"	
Binneringie	W. Australia	circa 1946	31°29'15"S	122°7'26"E	9056	1	H5	S2	W3	19.8	17.8	1.24		176	WAM	P. Simmonds	A. W. R. Bevan, WAM	Unknown	
Bluewing 032	Nevada, USA	1999-2000	40°16'N	118°56'W	78	1	L5	S4	W3	23.7				14.17 after TS	UCLA	Nicholas Gessler	Alan Rubin, UCLA		
Bou Azarif	Centre-South, Morocco	9 Dec 2010	31°9.386'N	5°9.157'W	100000	Many	H5	S3	W4	18.2	17.9	2.3	4.75	20	UHAC	with finder	H. Chennaoui, N. Larouci, A. Jambon	Belaid Hassan	
Buck Mountains 004	Arizona, USA	9 Oct 2005	34°42.065'N	114°11.307'W	145.8	1	H3-6	S4-5	W2	17.7	12.9	1.1		136.8	Cascadia	Cascadia	A. Ruzicka and M. Hutson, Cascadia	Dennis Asher	
Buck Mountains 005	Arizona, USA	9 Oct 2007	34°42.202'N	114°11.458'W	859.7	36	L6	S4	W2	25.0	20.7	1.6		77.0	Cascadia	Dennis Asher	"	"	
BUC 10943	Antarctica	2010			27.8	1	CO3		B	0-39				27.8	JSC	JSC	SI	ANSMET	
BUC 10944	Antarctica	2010			39.7	1	CK4		A/B	33-34	15-29			39.7	JSC	JSC	"	"	
BUC 10958	Antarctica	2010			0.1	1	LL6		B					0.1	JSC	JSC	"	"	
BUC 10959	Antarctica	2010			0.3	1	H6		B/C					0.3	JSC	JSC	"	"	
Bunker Hill	Kansas, USA	Dec 2002	38°50.9'N	98°43.43'W	28000	1	L6	S2	W2/3	24.1-24.7	20.5-20.9; 6.9-8.5	1.5-1.8; 45.4-44.0		24	UWS	unknown	A. Irving and S. Kuehner, UWS	J. Scott	
Caleta el Cobre 001	Antofag., Chile	19 Oct 2010	24°15.96'S	70°02.00'W	9	1	H6		W4	18.41±0.13	16.25±0.39	1.47±0.2	4.50	3	CEREGE	Chil	J. Gattacceca, A. Hutzler, CEREGE	J. Gattacceca	
Caleta el Cobre 002	Antofag., Chile	16 Oct 2010	24°15'S	70°31'W	18	1	H6		W3	19.08±0.41	16.81±0.33	1.36±0.22	4.55	4	CEREGE	Chil	"	"	
Caleta el Cobre 003	Antofag., Chile	16 Oct 2010	24°15'S	70°31'W	338	4	H5		W2	18.54±0.17	16.77±1.15	1.19±0.19	5.08	40	CEREGE	Chil	"	"	
Caleta el Cobre 004	Antofag., Chile	16 Oct 2010	24°15'S	70°31'W	254	1	H5		W2	18.05±0.28	15.88±0.29	1.06±0.22	5.25	30	CEREGE	Chil	"	M. Valenzuela	
Caleta el Cobre 005	Antofag., Chile	16 Oct 2010	24°15'S	70°31'W	193	10	H5		W2	18.64±0.80	16.96±1.14	0.99±0.39	5.04	30	CEREGE	Chil	"	M. Gounelle	
Caleta el Cobre 006	Antofag., Chile	17 Oct 2010	24°15'S	70°31'W	179	1	L6		W3	25.43±1.03	20.59±0.43	1.53±0.31	4.53	32	CEREGE	Chil	"	J. Gattacceca	
Caleta el Cobre 007	Antofag., Chile	17 Oct 2010	24°15'S	70°31'W	24	1	L6		W3	22.97±0.27	19.44±0.42	0.82±0.33	4.52	6	CEREGE	Chil	"	C. Cournède	
Caleta el Cobre 008	Antofag., Chile	16 Oct 2010	24°15'S	70°31'W	15	1	H6		W3	19.57±0.73	17.04±1.10	1.12±0.51	4.62	4	CEREGE	Chil	"	M. Gounelle	
Caleta el Cobre 009	Antofag., Chile	16 Oct 2010	24°15'S	70°31'W	95	1	L4		W1	22.73±0.35	19.05±0.22	0.99±0.22	4.77	20	CEREGE	Chil	"	"	
Caleta el Cobre 010	Antofag., Chile	16 Oct 2010	24°15'S	70°31'W	47	1	L4		W1	22.99±0.52			4.90	12	CEREGE	Chil	"	A. Hutzler	
Caleta el Cobre 011	Antofag., Chile	16 Oct 2010	24°15'S	70°31'W	32	1	L6		W4	25.07±0.37	20.52±0.19	1.25±0.23	4.39	8	CEREGE	Chil	"	N. Laridhi	
Caleta el Cobre 012	Antofag., Chile	16 Oct 2010	24°15'S	70°31'W	17	1	L4		W1	22.89±0.60	19.56±0.29	1.11±0.15	4.81	6	CEREGE	Chil	"	M. Gounelle	
Caleta el Cobre 013	Antofag., Chile	16 Oct 2010	24°15'S	70°31'W	105	1	L4		W3	22.98±1.14	19.45±0.15	1.09±0.12	4.73	25	CEREGE	Chil	"	P. Rochette	
Caleta el Cobre 014	Antofag., Chile	16 Oct 2010	24°15'S	70°31'W	20	1	H4		W2	18.75±0.13	16.45±0.33	1.19±0.37	4.82	6	CEREGE	Chil	"	M. Gounelle	
Caleta el Cobre 015	Antofag., Chile	16 Oct 2010	24°15'S	70°31'W	115	1	L6		W3	25.36±0.66	20.82±0.26	1.74±0.13	4.34	35	CEREGE	Chil	"	"	
Caleta el Cobre 016	Antofag., Chile	16 Oct 2010	24°15'S	70°31'W	34	5	H5		W2	18.58±0.51	16.64	1.25	4.83	9	CEREGE	Chil	"	P. Rochette	
Caleta el Cobre 017	Antofag., Chile	16 Oct 2010	24°15'S	70°31'W	41	4	H5		W2	19.43±0.95	16.59±0.30	1.31±0.15	4.95	10	CEREGE	Chil	"	M. Gounelle	
Caleta el Cobre 018	Antofag., Chile	16 Oct 2010	24°15'S	70°31'W	6.0	1	H5		W4	18.1±0.5	14.9	0.8	4.47	2	CEREGE	Chil	J. Gattacceca, F. Caste, CEREGE	J. Gattacceca	
Caleta el Cobre 019	Antofag., Chile	17 Oct 2010	24°15'S	70°31'W	1.1	1	H6		W3	18.8±0.3	16.2±0.3	1.4±0.1	4.62	0.5	CEREGE	Chil	"	Cécile Cournède	
Conception Junction	Missouri, USA	2006	40°16'N	94°41'W	17000	1	Pal-MG-a		minor	11.7				113.58	UCLA	Aston, Ward, Gheesling	J. T. Wasson, UCLA	Anonymous	
Cook 012	S. Australia	17 Apr 2010	30°54'49.6"S	130°54'13.9"E	6.6	1	H4	S2	W3	17.91	16.38	1.94		5.1	Monash	Monash	A. Tomkins	A.Tomkins	
Cook 013	S. Australia	17 Apr 2010	30°56'51.9"S	130°54'30.9"E	46.8	1	H6	S5	W3	19.11	17.71	1.58		29.6	Monash	Monash	"	K.Bell	
Corn	Oklahoma, USA	1994	35°24'18"N	98°44'56"W	5176	1	H5	S2	W2	17.9-18.3	16.0-16.6	1.2		21	UWS	Stimpson	A. Irving and S. Kuehner, UWS	K. Gossen	
Dar al Gani 1016	Al Jufrah, Libya	3 Mar 1999	27°15.152'N	16°5.023'E	11.65	1	L~6						4.53	2.2	UPVI	Gehler	R. Bartoschewitz	anonymous	
Dar al Gani 1017	Al Jufrah, Libya	8 Mar 1999	27°26.322'N	15°56.903'E	176.78	2	LL~6						4.02	29.6	UPVI	Gehler	"	"	
Dar al Gani 1053	Al Jufrah, Libya	2006	27°14.50'N	16°13.96'E	98	2	CV3	mod	low	1.5 (0.6-2.6)	4.4 (0.7-16.5)	1.0		28	MSP	OAM	V. Moggi Cecchi, S. Caporali, G. Pratesi, MSP	Mario Riva	
Dhofar 1461	Zufar, Oman	23 Feb 2008	19°01.161'N	54°22.142'E	44.7	2	L~6		W2				4.76	8.9	Kiel	anonymous	R. Bartoschewitz	anonymous	Chondrules to 1 mm in recrystallized matrix with melt pools.
Dhofar 1462	Zufar, Oman	24 Feb 2008	18°20.973'N	54°15.008'E	400.8	1	L~4		W1				4.50	21.3	Kiel	anonymous	"	"	Well-defined chondrules (to 3 mm) and mineral fragments in poorly recrystallized matrix.
Dhofar 1474	Zufar, Oman	27 Feb 2008	18°36.634'N	54°10.293'E	388.7	1	L~6		W2				4.8	22.2	Kiel	anonymous	"	"	
Dhofar 1498	Zufar, Oman	4 May 2009	19°15.427'N	54°53.922'E	54.8	1	H~6		W4				4.74	11.0	Kiel	anonymous	"	"	Chondrules to 2 mm in recrystallized limonite-stained matrix.
Dhofar 1499	Zufar, Oman	5 May 2009	19°15.445'N	54°51.487'E	68.3	1	H~5		W4				4.86	13.7	Kiel	anonymous	"	"	Chondrules to 2 mm in recrystallized matrix.

Dhofar 1500	Zufar, Oman	5 May 2009	19°10.955'N	54°35.67'E	2448	many	L~6		W4				4.47	21.1	Kiel	anonymous	"	"	Poorly defined chondrules to 2 mm in a limonite-stained recrystallized matrix.
Dhofar 1501	Zufar, Oman	6 May 2009	18°48.313'N	54°21.185'E	10.6	1	H~5		W4				4.75	2.1	Kiel	anonymous	"	"	Chondrules to 2 mm in a limonite-stained recrystallized matrix.
Dhofar 1502	Zufar, Oman	6 May 2009	18°48.03'N	54°21.08'E	17.0	1	H~5		W4				4.67	3.4	Kiel	anonymous	"	"	Chondrules to 2 mm in recrystallized limonite-stained matrix.
Dhofar 1503	Zufar, Oman	6 May 2009	18°43.407'N	54°18.93'E	16.9	1	H~5		W4				4.64	3.4	Kiel	anonymous	"	"	Chondrules to 1.5 mm in recrystallized limonite-stained matrix.
Dhofar 1504	Zufar, Oman	7 May 2009	18°13.428'N	54°14.778'E	208.2	1	L~5		W2				4.70	22.3	Kiel	anonymous	"	"	Surface with rather fresh fusion crust. Poorly defined chondrules to 2.5 mm in recrystallized matrix with melt veins and pockets.
Dhofar 1505	Zufar, Oman	10 May 2009	18°09.538'N	54°16.135'E	222.2	1	L~6		W4				4.34	20.2	Kiel	anonymous	"	"	Poorly defined chondrules and chondrule fragments to 2 mm in recrystallized matrix
Dhofar 1506	Zufar, Oman	10 May 2009	18°09.618N	54°10.63'E	362.2	1	L~6		W4				4.58	20.3	Kiel	anonymous	"	"	Poorly defined chondrules in recrystallized matrix with limonite veins.
Dhofar 1507	Zufar, Oman	10 May 2009	18°40.823'N	54°08.833'E	2400	1	L~6		W4				4.44	20.3	Kiel	anonymous	"	"	Poorly defined chondrules to 2 mm in recrystallized matrix with melt veins and vugs.
Dhofar 1508	Zufar, Oman	11 May 2009	18°37.278N	54°26.185'E	1645	1	L~5		W2				4.73	23.1	Kiel	anonymous	"	"	Chondrules to 2 mm in recrystallized matrix with melt pockets. Metal:sulfide ~1
Dhofar 1509	Zufar, Oman	11 May 2009	18°37.423'N	54°17.275'E	48.7	1	H~4		W4				4.93	9.8	Kiel	anonymous	"	"	Well-defined chondrules to 1.5 mm and mineral fragments in a poorly recrystallized matrix with melt pockets.
Dhofar 1510	Zufar, Oman	11 May 2009	18°38.07'N	54°16.315'E	118.7	1	L~6		W3				4.55	20.7	Kiel	anonymous	"	"	Poorly defined chondrules to 2 mm in a limonite-stained recrystallized matrix.
Dhofar 1511	Zufar, Oman	11 May 2009	18°38.393'N	54°14.88'E	17973	3	L~5		W2				4.81	20.0	Kiel	anonymous	"	"	Poorly defined chondrules in a recrystallized matrix with melt pools.
Dhofar 1514	Zufar, Oman	20 Nov 2008	18°20'19"N	54°23'22"E	1749	1	R3.6	S2	W2	0.6-41.7	4.8-27.4	0.4-3.2		44.0	UWS	Farmer	A. Irving and S. Kuehner, UWS,		Contains Cr-magnetite, awaruite.
Dhofar 1519	Zufar, Oman	20 Nov 2008	18°27.67'N	54°21.98'E	388	1	Ureil			21.9-22.2; 10.´	18.1-18.2; 7.8	8.1-8.3; 8.8		24.3	UWS	Farmer	A. Irving and S. Kuehner	M. Farmer	Reduced rims on ol and pigeonite. Field name: MF08-5.
Dhofar 1523	Zufar, Oman	21 Nov 2008	18°21'06"N	54°14'26"E	234	1	L4	S2	W2	22.8-23.1	18.7-18.8	1.0-0.6		39	UWS	M. Farmer	A. Irving and S. Kuehner, UWS	"	MF08-10; Oxygen isotopes (D. Rumble, CIW): d17O = 5.65, 5.52; d18O = 3.91, 3.90; D17O = 0.939, 0.995 per mil
Dhofar 1527	Zufar, Oman	Mar 2009	19°23.37'N	54°28.02'E	42.6	1	Lun-fld brc		W4/5	20.1-36.8	21.1-29.4	8.0-11.4		8.56	NHMD	With finder	Henning Haack	Jim Labenne	
Dhofar 1528	Zufar, Oman	Jun 2009	18°28.13'N	54°10.49'E	213.2	1	Lun-fld brc		W4/5	8.5-27.0	21.1-29.4	8.0-11.4		20.0	NHMD	With finder	"	Luc Labenne	
Dhofar 1529	Zufar, Oman	18 Mar 2006	18°12.30'N	54°17.87'E	175	1	H3.2	S2	W2	1.5-71.1	2.0-17.5; 7.9	0.4-1.5; 34.5		34	UWS	Farmer	A. Irving and S. Kuehner	M. Farmer	Cr2O3 in Fe olivine 0.01-0.46 wt.%. Field name: MF06-1.
Dhofar 1538	Zufar, Oman	20 Nov 2006	18°52.63'N	54°22.05'E	231	1	L3.7	S2	W2/3	17.9-39.2	15.6-16.3; 7.2	1.6-0.8; 39.7		20.9	UWS	Farmer	"	"	Cr2O3 in Fe olivine 0.01-0.03 wt.%. Field name: MF06-10.
Dhofar 1540	Zufar, Oman	26 Nov 2006	18°38.32'N	54°43.43'E	2481	1	H3.9	S2	W3	15.0-16.8	11.7-13.1; 7.2-10.0	0.4-1.8; 30.4-42.7		57	UWS	Farmer	"	"	Cr2O3 in Fe olivine 0.01-0.03 wt.%. Field name: MF06-12.
Dhofar 1541	Zufar, Oman	29 April 2006	18°37.65'N	54°44.55'E	398	1	H6	S4	W1/2	14.6-15.4	13.0-13.7	0.3-0.4		53	UWS	Farmer	A. Irving and S. Kuehner, UWS	"	Impact-modified OC composed of regions of H6 material in fine grained, recrystallized matrix.
Dhofar 1549	Zufar, Oman	8 Jan 2008	18°25.82'N	54°14.23'E	67	1	LL3.4	S2	W2	11.7-56.6	1.9; 26.6; 11.3-15.8	1.0;17.1; 27.5-41.1		13.95	UWS	Farmer	A. Irving and S. Kuehner	"	Cr2O3 in Fe olivine 0.01-0.09 wt.%. Field name: MF08-20
Dhofar 1552	Zufar, Oman	12 Jan 2008	18°45.87'N	54°19.33'E	454	1	L-melt brc	S4	W1	24.9-25.1	20.9-21.2; 7.5	1.5-1.3; 45.0		37.1	UWS	Farmer	A. Irving and S. Kuehner, UWS	"	
Dhofar 1558	Zufar, Oman	9 Apr 2009	18°23.59'N	54°39.86'E	11400	1	L4	S2	W1/2	27.2-27.6	22.8-22.9	1.6		21.3	UWS	Anonymous	A. Irving and S. Kuehner	Anonymous	Field name: M380. Ca-pyroxene Fs8.2-8.7 Wo45.5-45.0
Dhofar 1571	Zufar, Oman	10 Jan 2006	18°27.20'N	54°10.00'E	154	1	Ureil		low	21.6; 8.7	18.4	8.0		20	UWS	Farmer	"	M. Farmer	Reduced rims on olivine and pigeonite. Field name: MF10-8.
Dhofar 1575	Zufar, Oman	9 Apr 2009	18°32'N	54°08'E	2800	1	Ureil		low	21.5; 3.6	17.7-17.8	6.0-5.8		25	UWS	R. Ward	"	R. Ward	Reduced rims on ol and pigeonite. Field name: R38.
Dhofar 1579	Zufar, Oman	2009	19°17'43.00" N	54°53'34.00" E	314.3	1	L6	S3	W3	23.6	20.1			20.2	MNB	anonymous finc	A. Greshake, MNB		
Dhofar 1594	Zufar, Oman	10 Dec 2004	18°59.37'N	54°26.05'E	176	1	H6-melt brc		W3	18.9	17.1	1.3		33.1	Vernad	anonymous	C. A. Lorenz, Vernad.	"	

Dhofar 1596	Zufar, Oman	15 Apr 2004	18°19.27'N	54°11.97'E	110	1	H5-melt brc		W2	19.3	17	1.3		22	Vernad	anonymous	C. A. Lorenz, Vernad	"	
Dhofar 1613	Zufar, Oman	2009	18°41'43.50" N	54°28'27.30"E	8.6	1	L5	S3	W2	25.5	23.1	1.4		2.18	PSF	F. Kuntz	T. Bunch and J. Wittke, NAU	F. Kuntz	
Dhofar 1614	Zufar, Oman	2009	18°43'42.90" N	54°31'58.10"E	12.5	1	L5	S2	W3	25.4	22.9	1.3		2.55	PSF	F. Kuntz	"	"	
Dhofar 1615	Zufar, Oman	2009	19°21'18.50" N	54°52'10.60"E	129.8	1	L5	S3	W2	23.8	21.2	1.8		20.02	PSF	F. Kuntz	"	"	
Dhofar 1624	Zufar, Oman	10 May 2009(	18°09.815'N	54°16.525'E	621	1	H-melt rk	S2	W3	17.8 (17.4-18.3)	14.7 (13.9-15.1)	3.3-4.9	5.11	20.0	Kiel	anonymous	R. Bartoschewitz	anonymous	
Dhofar 1625	Zufar, Oman	10 May 2009(	18°40.185'N	54°12.815'E	308.6	1	H~4		W1				5.06	20.0	Kiel	anonymous	"	"	Well-developed chondrules to 2 mm in a moderately recrystallized matrix.
Dhofar 1626	Zufar, Oman	2 Oct 2006	18°18.69'N	54°07.70'E	223	1	Euc-an							42.4	Vernad	DMUH	C. A. Lorenz, Vernad		
Dhofar 1627	Zufar, Oman	2010	19°0.645'N	54°32.246'E	86.1	1	Lun-fld brc			24-36	18-33			17.2	WUSL	anonymous finc	S Seddio, B. Jolliff, Korotev	anonymous	
Dhofar 1630	Zufar, Oman	12 Dec 2004	18°41.80'N	54°22.30'E	1357	15	H5	S2	W4	18.4	16	1.2		295	Vernad	anonymous	C. A. Lorenz, Vernad		
Dhofar 1631	Zufar, Oman	6 Dec 2004	18°42.72'N	54°24.02'E	3770	1	H5	S1	W2	16.4	15.6	2.3		387	Vernad	anonymous	"	"	
Dhofar 1632	Zufar, Oman	7 Dec 2004	18°34.25'N	54°26.94'E	110	1	L5	S2	W4	24.9	21.3	1.8		36.1	Vernad	anonymous	"	"	
Dhofar 1633	Zufar, Oman	11 Dec 2004 .	19°08.55'N	54°46.15'E	88	1	H5	S2	W3	18.2	15.7	1.4		28.7	Vernad	anonymous	"	"	
Dhofar 1634	Zufar, Oman	30 Nov 2004	18°49.55'N	54°25.77'E	46	1	H5	S2	W2	17.2	15.1	1.4		10.48	Vernad	anonymous	"	"	
Dhofar 1635	Zufar, Oman	5 Dec 2004	18°56.56'N	54°19.14'E	330	1	H5	S1	W4	18.3	15.6	1.2		69	Vernad	anonymous	"	"	
Dhofar 1636	Zufar, Oman	2 Dec 2004	18°24.09'N	54°19.43'E	1078	1	L5	S3	W4	24.8	20.1	1.5		414	Vernad	anonymous	"	"	
Dhofar 1637	Zufar, Oman	5 Dec 2004	18°57.99'N	54°16.90'E	44	1	H5	S1	W3	17.2	14.8	1.1		9.93	Vernad	anonymous	"	"	
Dhofar 1638	Zufar, Oman	2 Dec 2004	18°24.37'N	54°18.82'E	1248	1	L5	S2	W3	24.4	20	1.5		412	Vernad	anonymous	"	"	
Dhofar 1639	Zufar, Oman	4 Dec 2004	18°58.62'N	54°22.48'E	16	1	L5	S1	W3	24.1	19.8	1.5		3.35	Vernad	anonymous	"	"	
Dhofar 1640	Zufar, Oman	30 Nov 20040	18°55.37'N	54°34.37'E	144	2	H5	S2	W4	18.3	15.8	1.2		61.2	Vernad	anonymous	"	"	
Dhofar 1642	Zufar, Oman	12 Oct 2009	18°55.571'N	54°43.518'E	1540	3	H6	S2	W3	17.9	16			24	MNB	Mr. Tomasz Jakubowski	A. Greshake, MNB	Mr. Tomasz Jakubowski	
Dhofar 1643	Zufar, Oman	13 Mar 2011	19°17'22.8"N	54°33'3.3"E	122.2	1	L6	S3	W3	23.7	19.7			21	MNB	aonymous finder	"		
Dhofar 1644	Zufar, Oman	14 Mar 2011	18°57'3.9"N	54°30'54.2"E	11.8	1	H6	S2	W2/3	18.4	16			2.4	MNB	aonymous finder	"	"	
Dhofar 1645	Zufar, Oman	15 Mar 2011	18°54'56.4"N	54°29'42.7"E	48.5	2	H6	S2	W3	18.6	16.8			10.4	MNB	aonymous finder	"	"	
Dhofar 1646	Zufar, Oman	15 Mar 2011	18°56'12.2"N	54°28'33.6"E	66.9	2	L6	S2	W2	23.3	19.9			14.8	MNB	aonymous finder	"	"	
Dhofar 1647	Zufar, Oman	1 Dec 2011	19°08.222'N	54°49.487'E	444	1	H6	S2	W2	18.3	16.2			20.6	MNB	Marcin Cimala	"	"	
Dhofar 1648	Zufar, Oman	2 Dec 2011	19°10.259'N	54°41.405'E	262	1	LL5/6	S3	W2	28.4	23.4			21.8	MNB	anonymous	"	"	Shock veining.
Dhofar 1649	Zufar, Oman	3 Dec 2011	19°02.737'N	54°34.907'E	143	1	L6	S3	W3	23.9	20.2			23.4	MNB	Marcin Cimala	"	"	
Dhofar 1650	Zufar, Oman	3 Dec 2011	19°03.493'N	54°34.315'E	930	1	H6	S2	W3	18.9	16.5			21.2	MNB	anonymous	"	"	
Dhofar 1651	Zufar, Oman	4 Dec 2011	18°59.536'N	54°28.270'E	2170	1	L6	S3	W2/3	24	20.4			20	MNB	anonymous	"	"	
Dhofar 1652	Zufar, Oman	4 Dec 2011	18°43.438'N	54°32.436'E	800	1	L6	S3	W2/3	23.9	20.2			24.2	MNB	Marcin Cimala	"	"	
Dhofar 1653	Zufar, Oman	5 Dec 2011	18°35.874'N	54°27.037'E	2724	1	H6	S2	W4	18.2	16			23.6	MNB	Marcin Cimala	"	"	
Dhofar 1654	Zufar, Oman	6 Dec 2011	18°40.726'N	54°17.256'E	50000	1	L5	S2	W2/3	24.2	20.4			99.8	MNB	anonymous	"	"	
Dhofar 1655	Zufar, Oman	6 Dec 2011	18°23.867'N	54°29.477'E	1218	1	L6	S2	W2/3	24.2	20.4			22.2	MNB	Marcin Cimala	"	"	
Dhofar 1656	Zufar, Oman	7 Dec 2011	18°20.082'N	54°24.156'E	420	1	L6	S2	W2	24	20.2			20.8	MNB	anonymous	"	"	
Dhofar 1657	Zufar, Oman	11 Dec 2011	18°21.609'N	54°23.662'E	883	1	H6	S2	W4	18.5	16.1			23	MNB	anonymous	"	"	
Dhofar 1658	Zufar, Oman	11 Dec 2011	18°21.580'N	54°24.423'E	3150	1	LL6	S2	W2	29.9	24.9			30.4	MNB	anonymous	"	"	Breccia.
Dhofar 1659	Zufar, Oman	12 Dec 2011	18°21.601'N	54°24.583'E	3695	1	L6	S1	W3	24.2	20			22.8	MNB	Marcin Cimala	"	"	
Dhofar 1660	Zufar, Oman	13 Dec 2011	18°53.170'N	54°28.143'E	256	1	L6	S2	W2/3	23.9	20.2			22.6	MNB	Marcin Cimala	"	"	
Dhofar 1661	Zufar, Oman	13 Dec 2011	18°59.484'N	54°40.816'E	63	1	H6	S2	W2/3	17.2	15.5			12.6	MNB	Marcin Cimala	"	"	
Dhofar 1662	Zufar, Oman	14 Dec 2011	19°06.312'N	54°48.361'E	545	1	H6	S3	W3	18	16			22.4	MNB	Marcin Cimala	"	"	
Dhofar 1663	Zufar, Oman	14 Dec 2011	19°08.343'N	54°52.412'E	422	1	H5	S1	W3	17.9	16			25.4	MNB	Marcin Cimala	"	"	
Dhofar 1664	Zufar, Oman	14 Dec 2011	19°10.740'N	54°55.960'E	2266	1	H6	S1	W3	18.5	16.2			37.2	MNB	Marcin Cimala	"	"	
DOM 08021	Antarctica	2008			1009.1	1	LL5		C					1009.1	JSC	JSC	SI	ANSMET	
DOM 08023	Antarctica	2008			834.1	1	LL6		B/C					834.1	JSC	JSC	"	"	
DOM 08024	Antarctica	2008			912.3	1	LL6		B/C					912.3	JSC	JSC	"	"	
DOM 08027	Antarctica	2008			240.6	1	LL6		A/Be					240.6	JSC	JSC	"	"	
DOM 08028	Antarctica	2008			281.7	1	L5		B/C					281.7	JSC	JSC	"	"	
DOM 08029	Antarctica	2008			227	1	LL5		A/B					227	JSC	JSC	"	"	
DOM 08030	Antarctica	2008			255.3	1	L5		B/C					255.3	JSC	JSC	"	"	

DOM 08031	Antarctica	2008	325.9	1	LL6	B		325.9	JSC	JSC	"	"
DOM 08036	Antarctica	2008	153.1	1	LL6	A/B		153.1	JSC	JSC	"	"
DOM 08060	Antarctica	2008	49.4	1	LL6	C		49.4	JSC	JSC	"	"
DOM 08063	Antarctica	2008	58.7	1	LL6	B		58.7	JSC	JSC	"	"
DOM 08065	Antarctica	2008	56.3	1	LL6	B		56.3	JSC	JSC	"	"
DOM 08067	Antarctica	2008	28.9	1	LL6	B		28.9	JSC	JSC	"	"
DOM 08068	Antarctica	2008	19.1	1	LL6	C		19.1	JSC	JSC	"	"
DOM 08069	Antarctica	2008	34	1	LL6	B		34	JSC	JSC	"	"
DOM 08070	Antarctica	2008	35.1	1	LL6	C		35.1	JSC	JSC	"	"
DOM 08071	Antarctica	2008	23	1	L6	C		23	JSC	JSC	"	"
DOM 08072	Antarctica	2008	28.4	1	LL6	B/C		28.4	JSC	JSC	"	"
DOM 08073	Antarctica	2008	25	1	LL6	B/C		25	JSC	JSC	"	"
DOM 08074	Antarctica	2008	38.7	1	LL6	B		38.7	JSC	JSC	"	"
DOM 08075	Antarctica	2008	20.9	1	LL6	B		20.9	JSC	JSC	"	"
DOM 08076	Antarctica	2008	16.5	1	LL6	B		16.5	JSC	JSC	"	"
DOM 08078	Antarctica	2008	16.8	1	LL6	B/C		16.8	JSC	JSC	"	"
DOM 08079	Antarctica	2008	12.5	1	LL6	B/C		12.5	JSC	JSC	"	"
DOM 08085	Antarctica	2008	10.3	1	LL6	B/C		10.3	JSC	JSC	"	"
DOM 08086	Antarctica	2008	28.8	1	LL5	C		28.8	JSC	JSC	"	"
DOM 08088	Antarctica	2008	34.1	1	L5	B/C		34.1	JSC	JSC	"	"
DOM 08091	Antarctica	2008	31.8	1	L6	C		31.8	JSC	JSC	"	"
DOM 08092	Antarctica	2008	47.8	1	LL6	B/C		47.8	JSC	JSC	"	"
DOM 08093	Antarctica	2008	24.4	1	LL5	B/C		24.4	JSC	JSC	"	"
DOM 08094	Antarctica	2008	55.8	1	L5	C		55.8	JSC	JSC	"	"
DOM 08095	Antarctica	2008	18	1	L5	C		18	JSC	JSC	"	"
DOM 08098	Antarctica	2008	21.3	1	LL5	B		21.3	JSC	JSC	"	"
DOM 08099	Antarctica	2008	21.2	1	L6	C		21.2	JSC	JSC	"	"
DOM 08100	Antarctica	2008	15.4	1	LL6	B		15.4	JSC	JSC	"	"
DOM 08101	Antarctica	2008	22.7	1	LL6	B		22.7	JSC	JSC	"	"
DOM 08102	Antarctica	2008	18.9	1	LL6	B/C		18.9	JSC	JSC	"	"
DOM 08105	Antarctica	2008	13.7	1	LL6	B/C		13.7	JSC	JSC	"	"
DOM 08106	Antarctica	2008	16.2	1	LL6	B		16.2	JSC	JSC	"	"
DOM 08107	Antarctica	2008	16.9	1	LL6	B		16.9	JSC	JSC	"	"
DOM 08108	Antarctica	2008	14.9	1	LL6	B/C		14.9	JSC	JSC	"	"
DOM 08109	Antarctica	2008	23.3	1	LL5	B/C		23.3	JSC	JSC	"	"
DOM 08120	Antarctica	2008	7.2	1	LL6	B		7.2	JSC	JSC	"	"
DOM 08121	Antarctica	2008	6.5	1	LL6	B/C		6.5	JSC	JSC	"	"
DOM 08122	Antarctica	2008	11.3	1	L6	C		11.3	JSC	JSC	"	"
DOM 08123	Antarctica	2008	20.3	1	LL6	B/C		20.3	JSC	JSC	"	"
DOM 08124	Antarctica	2008	18.2	1	LL6	B		18.2	JSC	JSC	"	"
DOM 08125	Antarctica	2008	20.9	1	L6	C		20.9	JSC	JSC	"	"
DOM 08126	Antarctica	2008	13.5	1	L5	C		13.5	JSC	JSC	"	"
DOM 08127	Antarctica	2008	15	1	L5	C		15	JSC	JSC	"	"
DOM 08128	Antarctica	2008	18.3	1	LL6	B/C		18.3	JSC	JSC	"	"
DOM 08129	Antarctica	2008	14.2	1	LL6	B/C		14.2	JSC	JSC	"	"
DOM 08130	Antarctica	2008	17.2	1	H5	C		17.2	JSC	JSC	"	"
DOM 08131	Antarctica	2008	9.5	1	H5	C		9.5	JSC	JSC	"	"
DOM 08132	Antarctica	2008	14.5	1	LL6	B/C		14.5	JSC	JSC	"	"
DOM 08133	Antarctica	2008	9.3	1	L5	C		9.3	JSC	JSC	"	"
DOM 08134	Antarctica	2008	14.9	1	L5	C		14.9	JSC	JSC	"	"
DOM 08135	Antarctica	2008	12.8	1	L5	C		12.8	JSC	JSC	"	"
DOM 08136	Antarctica	2008	18.8	1	H5	C		18.8	JSC	JSC	"	"
DOM 08137	Antarctica	2008	13.7	1	LL6	C		13.7	JSC	JSC	"	"
DOM 08138	Antarctica	2008	8.4	1	L6	C		8.4	JSC	JSC	"	"
DOM 08139	Antarctica	2008	21.8	1	CO3	A/B	0-60	21.8	JSC	JSC	"	"
DOM 08140	Antarctica	2008	39.1	1	LL6	B		39.1	JSC	JSC	"	"
DOM 08141	Antarctica	2008	20.4	1	LL6	B		20.4	JSC	JSC	"	"
DOM 08142	Antarctica	2008	21.1	1	L5	C		21.1	JSC	JSC	"	"
DOM 08143	Antarctica	2008	13.9	1	L6	C		13.9	JSC	JSC	"	"
DOM 08144	Antarctica	2008	35.3	1	L5	C		35.3	JSC	JSC	"	"
DOM 08145	Antarctica	2008	20.4	1	L5	B/C		20.4	JSC	JSC	"	"
DOM 08146	Antarctica	2008	30	1	LL5	B		30	JSC	JSC	"	"
DOM 08147	Antarctica	2008	44.1	1	LL6	A/B		44.1	JSC	JSC	"	"

DOM 08148	Antarctica	2008	34	1	LL6	B	34	JSC	JSC	"	"
DOM 08149	Antarctica	2008	43.4	1	H6	C	43.4	JSC	JSC	"	"
DOM 08150	Antarctica	2008	12.2	1	LL6	B/C	12.2	JSC	JSC	"	"
DOM 08151	Antarctica	2008	18.5	1	LL6	A/B	18.5	JSC	JSC	"	"
DOM 08152	Antarctica	2008	17	1	H5	B/C	17	JSC	JSC	"	"
DOM 08153	Antarctica	2008	9.3	1	LL6	B/C	9.3	JSC	JSC	"	"
DOM 08154	Antarctica	2008	10.4	1	L5	B/C	10.4	JSC	JSC	"	"
DOM 08155	Antarctica	2008	22.2	1	LL6	B/C	22.2	JSC	JSC	"	"
DOM 08156	Antarctica	2008	14.4	1	LL6	B/C	14.4	JSC	JSC	"	"
DOM 08157	Antarctica	2008	19.1	1	LL6	B/C	19.1	JSC	JSC	"	"
DOM 08158	Antarctica	2008	6.9	1	L6	B/C	6.9	JSC	JSC	"	"
DOM 08159	Antarctica	2008	13.8	1	L5	B/C	13.8	JSC	JSC	"	"
DOM 08160	Antarctica	2008	35.6	1	LL6	B/C	35.6	JSC	JSC	"	"
DOM 08161	Antarctica	2008	18.8	1	LL6	B/C	18.8	JSC	JSC	"	"
DOM 08162	Antarctica	2008	31.2	1	H4	B/C	31.2	JSC	JSC	"	"
DOM 08163	Antarctica	2008	19.9	1	L6	B/C	19.9	JSC	JSC	"	"
DOM 08164	Antarctica	2008	60.7	1	L5	B/C	60.7	JSC	JSC	"	"
DOM 08165	Antarctica	2008	50	1	LL6	A/B	50	JSC	JSC	"	"
DOM 08166	Antarctica	2008	38.2	1	L6	B/C	38.2	JSC	JSC	"	"
DOM 08167	Antarctica	2008	37.3	1	H5	B/C	37.3	JSC	JSC	"	"
DOM 08168	Antarctica	2008	20.4	1	L5	A/B	20.4	JSC	JSC	"	"
DOM 08169	Antarctica	2008	38.5	1	L6	B/C	38.5	JSC	JSC	"	"
DOM 08170	Antarctica	2008	11	1	LL6	B/C	11	JSC	JSC	"	"
DOM 08171	Antarctica	2008	17.4	1	LL6	B/C	17.4	JSC	JSC	"	"
DOM 08172	Antarctica	2008	38	1	H6	Ce	38	JSC	JSC	"	"
DOM 08173	Antarctica	2008	15.4	1	LL6	B/C	15.4	JSC	JSC	"	"
DOM 08174	Antarctica	2008	28.4	1	LL6	B	28.4	JSC	JSC	"	"
DOM 08175	Antarctica	2008	15.6	1	LL6	B/C	15.6	JSC	JSC	"	"
DOM 08176	Antarctica	2008	8.4	1	LL6	C	8.4	JSC	JSC	"	"
DOM 08177	Antarctica	2008	31	1	LL6	B/C	31	JSC	JSC	"	"
DOM 08178	Antarctica	2008	22.5	1	LL6	B/C	22.5	JSC	JSC	"	"
DOM 08179	Antarctica	2008	29.8	1	LL6	B/C	29.8	JSC	JSC	"	"
DOM 08180	Antarctica	2008	22.7	1	LL5	A/B	22.7	JSC	JSC	"	"
DOM 08181	Antarctica	2008	35.2	1	LL6	B	35.2	JSC	JSC	"	"
DOM 08182	Antarctica	2008	42.7	1	LL5	B/C	42.7	JSC	JSC	"	"
DOM 08183	Antarctica	2008	28.3	1	L6	B/C	28.3	JSC	JSC	"	"
DOM 08184	Antarctica	2008	32.8	1	LL6	B/C	32.8	JSC	JSC	"	"
DOM 08185	Antarctica	2008	49.3	1	LL6	B/C	49.3	JSC	JSC	"	"
DOM 08186	Antarctica	2008	74.4	1	LL6	B	74.4	JSC	JSC	"	"
DOM 08187	Antarctica	2008	27.9	1	LL6	C	27.9	JSC	JSC	"	"
DOM 08188	Antarctica	2008	77.5	1	L6	C	77.5	JSC	JSC	"	"
DOM 08189	Antarctica	2008	30.8	1	LL6	B	30.8	JSC	JSC	"	"
DOM 08190	Antarctica	2008	15.5	1	LL6	C	15.5	JSC	JSC	"	"
DOM 08191	Antarctica	2008	19.2	1	LL6	C	19.2	JSC	JSC	"	"
DOM 08192	Antarctica	2008	23.3	1	LL6	B	23.3	JSC	JSC	"	"
DOM 08193	Antarctica	2008	20.2	1	LL6	B	20.2	JSC	JSC	"	"
DOM 08194	Antarctica	2008	14.4	1	LL6	C	14.4	JSC	JSC	"	"
DOM 08195	Antarctica	2008	40.7	1	LL6	B/C	40.7	JSC	JSC	"	"
DOM 08196	Antarctica	2008	28.3	1	L6	B/C	28.3	JSC	JSC	"	"
DOM 08197	Antarctica	2008	22.6	1	LL6	B	22.6	JSC	JSC	"	"
DOM 08198	Antarctica	2008	13.9	1	LL6	B/C	13.9	JSC	JSC	"	"
DOM 08199	Antarctica	2008	21.6	1	L5	C	21.6	JSC	JSC	"	"
DOM 08220	Antarctica	2008	9.6	1	L5	C	9.6	JSC	JSC	"	"
DOM 08221	Antarctica	2008	41.2	1	LL6	B	41.2	JSC	JSC	"	"
DOM 08222	Antarctica	2008	16.6	1	LL6	B/C	16.6	JSC	JSC	"	"
DOM 08223	Antarctica	2008	21.3	1	LL6	B	21.3	JSC	JSC	"	"
DOM 08224	Antarctica	2008	31.6	1	L6	C	31.6	JSC	JSC	"	"
DOM 08225	Antarctica	2008	21.7	1	LL6	B/C	21.7	JSC	JSC	"	"
DOM 08226	Antarctica	2008	21.2	1	LL6	B/C	21.2	JSC	JSC	"	"
DOM 08227	Antarctica	2008	20.4	1	L6	C	20.4	JSC	JSC	"	"
DOM 08228	Antarctica	2008	18.1	1	LL6	B	18.1	JSC	JSC	"	"
DOM 08229	Antarctica	2008	11.2	1	LL6	B/C	11.2	JSC	JSC	"	"
DOM 08250	Antarctica	2008	22.9	1	L6	C	22.9	JSC	JSC	"	"

DOM 08251	Antarctica	2008	20	1	LL6	B	20	JSC	JSC	"	"
DOM 08252	Antarctica	2008	28.8	1	LL6	B	28.8	JSC	JSC	"	"
DOM 08253	Antarctica	2008	37.9	1	LL6	B	37.9	JSC	JSC	"	"
DOM 08254	Antarctica	2008	25.5	1	LL6	B	25.5	JSC	JSC	"	"
DOM 08255	Antarctica	2008	29.3	1	LL6	B	29.3	JSC	JSC	"	"
DOM 08256	Antarctica	2008	78.5	1	LL5	B/C	78.5	JSC	JSC	"	"
DOM 08257	Antarctica	2008	19.8	1	L5	C	19.8	JSC	JSC	"	"
DOM 08258	Antarctica	2008	48.4	1	LL6	B/C	48.4	JSC	JSC	"	"
DOM 08259	Antarctica	2008	64.2	1	LL6	B/C	64.2	JSC	JSC	"	"
DOM 08260	Antarctica	2008	9	1	LL6	B	9	JSC	JSC	"	"
DOM 08261	Antarctica	2008	22.6	1	L6	C	22.6	JSC	JSC	"	"
DOM 08262	Antarctica	2008	15	1	LL6	B/C	15	JSC	JSC	"	"
DOM 08263	Antarctica	2008	12.4	1	L5	C	12.4	JSC	JSC	"	"
DOM 08264	Antarctica	2008	8.4	1	L5	C	8.4	JSC	JSC	"	"
DOM 08265	Antarctica	2008	6.2	1	L6	B	6.2	JSC	JSC	"	"
DOM 08266	Antarctica	2008	30.1	1	LL6	B	30.1	JSC	JSC	"	"
DOM 08267	Antarctica	2008	19.8	1	LL6	B/C	19.8	JSC	JSC	"	"
DOM 08268	Antarctica	2008	30	1	LL6	B	30	JSC	JSC	"	"
DOM 08269	Antarctica	2008	29.3	1	LL6	C	29.3	JSC	JSC	"	"
DOM 08270	Antarctica	2008	29.5	1	LL6	B/C	29.5	JSC	JSC	"	"
DOM 08271	Antarctica	2008	65	1	L6	C	65	JSC	JSC	"	"
DOM 08272	Antarctica	2008	52.7	1	LL6	B/C	52.7	JSC	JSC	"	"
DOM 08273	Antarctica	2008	56.6	1	LL6	B/C	56.6	JSC	JSC	"	"
DOM 08274	Antarctica	2008	33.2	1	LL6	B	33.2	JSC	JSC	"	"
DOM 08275	Antarctica	2008	60.9	1	LL6	B	60.9	JSC	JSC	"	"
DOM 08276	Antarctica	2008	36.8	1	LL6	B/C	36.8	JSC	JSC	"	"
DOM 08277	Antarctica	2008	21	1	LL6	B	21	JSC	JSC	"	"
DOM 08278	Antarctica	2008	83.6	1	LL6	A/B	83.6	JSC	JSC	"	"
DOM 08279	Antarctica	2008	30.9	1	LL6	B	30.9	JSC	JSC	"	"
DOM 08280	Antarctica	2008	24	1	L6	B/C	24	JSC	JSC	"	"
DOM 08281	Antarctica	2008	15.3	1	LL6	B	15.3	JSC	JSC	"	"
DOM 08282	Antarctica	2008	20.8	1	LL6	A/B	20.8	JSC	JSC	"	"
DOM 08283	Antarctica	2008	8.9	1	L6	C	8.9	JSC	JSC	"	"
DOM 08285	Antarctica	2008	25	1	LL6	B	25	JSC	JSC	"	"
DOM 08286	Antarctica	2008	9.5	1	LL6	B	9.5	JSC	JSC	"	"
DOM 08287	Antarctica	2008	12.6	1	LL6	B	12.6	JSC	JSC	"	"
DOM 08288	Antarctica	2008	14	1	L6	B/C	14	JSC	JSC	"	"
DOM 08289	Antarctica	2008	6.4	1	LL6	B	6.4	JSC	JSC	"	"
DOM 08290	Antarctica	2008	24.8	1	LL6	C	24.8	JSC	JSC	"	"
DOM 08291	Antarctica	2008	28.7	1	LL6	B/C	28.7	JSC	JSC	"	"
DOM 08292	Antarctica	2008	29.2	1	LL5	B/C	29.2	JSC	JSC	"	"
DOM 08293	Antarctica	2008	20.8	1	LL6	B	20.8	JSC	JSC	"	"
DOM 08294	Antarctica	2008	28.7	1	L6	C	28.7	JSC	JSC	"	"
DOM 08295	Antarctica	2008	28.5	1	H5	C	28.5	JSC	JSC	"	"
DOM 08296	Antarctica	2008	23.7	1	L6	C	23.7	JSC	JSC	"	"
DOM 08297	Antarctica	2008	57.1	1	LL6	C	57.1	JSC	JSC	"	"
DOM 08298	Antarctica	2008	23.9	1	LL6	C	23.9	JSC	JSC	"	"
DOM 08299	Antarctica	2008	22.2	1	LL6	B	22.2	JSC	JSC	"	"
DOM 08300	Antarctica	2008	9.7	1	LL6	B	9.7	JSC	JSC	"	"
DOM 08302	Antarctica	2008	15.6	1	L6	C	15.6	JSC	JSC	"	"
DOM 08303	Antarctica	2008	11.1	1	L6	C	11.1	JSC	JSC	"	"
DOM 08304	Antarctica	2008	5.4	1	L5	C	5.4	JSC	JSC	"	"
DOM 08305	Antarctica	2008	5.6	1	L5	C	5.6	JSC	JSC	"	"
DOM 08307	Antarctica	2008	9.6	1	L5	C	9.6	JSC	JSC	"	"
DOM 08308	Antarctica	2008	2.8	1	L6	C	2.8	JSC	JSC	"	"
DOM 08309	Antarctica	2008	9.2	1	LL6	B	9.2	JSC	JSC	"	"
DOM 08310	Antarctica	2008	4.9	1	LL6	B/C	4.9	JSC	JSC	"	"
DOM 08311	Antarctica	2008	3.4	1	L6	C	3.4	JSC	JSC	"	"
DOM 08313	Antarctica	2008	18.5	1	L5	C	18.5	JSC	JSC	"	"
DOM 08314	Antarctica	2008	12.9	1	L6	C	12.9	JSC	JSC	"	"
DOM 08315	Antarctica	2008	7.3	1	L6	C	7.3	JSC	JSC	"	"
DOM 08317	Antarctica	2008	28.2	1	L6	C	28.2	JSC	JSC	"	"
DOM 08318	Antarctica	2008	7.1	1	L5	C	7.1	JSC	JSC	"	"

DOM 08320	Antarctica	2008	7.1	1	L6	C			7.1	JSC	JSC	"	"
DOM 08322	Antarctica	2008	3	1	LL6	B/C			3	JSC	JSC	"	"
DOM 08323	Antarctica	2008	15.9	1	L5	C			15.9	JSC	JSC	"	"
DOM 08324	Antarctica	2008	12.4	1	LL6	B			12.4	JSC	JSC	"	"
DOM 08329	Antarctica	2008	8.3	1	L5	C			8.3	JSC	JSC	"	"
DOM 08340	Antarctica	2008	4	1	L5	B/C			4	JSC	JSC	"	"
DOM 08341	Antarctica	2008	3.4	1	LL6	B/C			3.4	JSC	JSC	"	"
DOM 08342	Antarctica	2008	2.2	1	L6	C			2.2	JSC	JSC	"	"
DOM 08360	Antarctica	2008	14.6	1	L6	C			14.6	JSC	JSC	"	"
DOM 08361	Antarctica	2008	38.7	1	LL6	B/C			38.7	JSC	JSC	"	"
DOM 08362	Antarctica	2008	19.8	1	LL6	B/C			19.8	JSC	JSC	"	"
DOM 08363	Antarctica	2008	24.3	1	LL6	B			24.3	JSC	JSC	"	"
DOM 08364	Antarctica	2008	21	1	LL5	B/C			21	JSC	JSC	"	"
DOM 08365	Antarctica	2008	19	1	L6	C			19	JSC	JSC	"	"
DOM 08366	Antarctica	2008	48.7	1	L6	C			48.7	JSC	JSC	"	"
DOM 08367	Antarctica	2008	20.9	1	H6	C			20.9	JSC	JSC	"	"
DOM 08368	Antarctica	2008	28.5	1	LL6	B			28.5	JSC	JSC	"	"
DOM 08369	Antarctica	2008	18	1	LL6	C			18	JSC	JSC	"	"
DOM 08380	Antarctica	2008	2.8	1	H6	C			2.8	JSC	JSC	"	"
DOM 08381	Antarctica	2008	3.2	1	H6	C			3.2	JSC	JSC	"	"
DOM 08382	Antarctica	2008	2.3	1	H6	C			2.3	JSC	JSC	"	"
DOM 08383	Antarctica	2008	2.1	1	H6	C			2.1	JSC	JSC	"	"
DOM 08384	Antarctica	2008	2.6	1	LL6	C			2.6	JSC	JSC	"	"
DOM 08385	Antarctica	2008	2.5	1	L3	C	9-29	2-14	2.5	JSC	JSC	"	"
DOM 08386	Antarctica	2008	4.9	1	LL6	C			4.9	JSC	JSC	"	"
DOM 08388	Antarctica	2008	6.1	1	L6	C			6.1	JSC	JSC	"	"
DOM 08389	Antarctica	2008	2.5	1	L6	C			2.5	JSC	JSC	"	"
DOM 08400	Antarctica	2008	49.9	1	L6	C			49.9	JSC	JSC	"	"
DOM 08401	Antarctica	2008	97.9	1	L5	C			97.9	JSC	JSC	"	"
DOM 08402	Antarctica	2008	55.8	1	L5	B			55.8	JSC	JSC	"	"
DOM 08403	Antarctica	2008	78.7	1	L5	B/C			78.7	JSC	JSC	"	"
DOM 08404	Antarctica	2008	70.3	1	L6	C			70.3	JSC	JSC	"	"
DOM 08405	Antarctica	2008	92.8	1	L5	C			92.8	JSC	JSC	"	"
DOM 08406	Antarctica	2008	45.9	1	L5	C			45.9	JSC	JSC	"	"
DOM 08407	Antarctica	2008	115.6	1	L6	B/C			115.6	JSC	JSC	"	"
DOM 08408	Antarctica	2008	71.3	1	LL6	A/B			71.3	JSC	JSC	"	"
DOM 08409	Antarctica	2008	76.5	1	LL5	A/B			76.5	JSC	JSC	"	"
DOM 08410	Antarctica	2008	29.3	1	L6	B			29.3	JSC	JSC	"	"
DOM 08420	Antarctica	2008	54.8	1	LL6	B			54.8	JSC	JSC	"	"
DOM 08421	Antarctica	2008	49.1	1	LL6	B			49.1	JSC	JSC	"	"
DOM 08422	Antarctica	2008	17.9	1	LL6	B/C			17.9	JSC	JSC	"	"
DOM 08423	Antarctica	2008	24.9	1	LL5	C			24.9	JSC	JSC	"	"
DOM 08424	Antarctica	2008	53.1	1	LL6	B			53.1	JSC	JSC	"	"
DOM 08425	Antarctica	2008	31.4	1	LL6	B			31.4	JSC	JSC	"	"
DOM 08426	Antarctica	2008	24.8	1	LL6	B/C			24.8	JSC	JSC	"	"
DOM 08427	Antarctica	2008	45	1	LL6	B			45	JSC	JSC	"	"
DOM 08428	Antarctica	2008	19.7	1	LL6	B/C			19.7	JSC	JSC	"	"
DOM 08429	Antarctica	2008	23.3	1	LL6	B			23.3	JSC	JSC	"	"
DOM 10100	Antarctica	2010	426	1	How	A/B		23-58	426	JSC	JSC	"	"
DOM 10102	Antarctica	2010	61.1	1	CV3	B	1-32	1	61.1	JSC	JSC	"	"
DOM 10103	Antarctica	2010	73.6	1	Euc-brc	B/C		27-62	73.6	JSC	JSC	"	"
DOM 10104	Antarctica	2010	201	1	CO3	A/B	0-53		201	JSC	JSC	"	"
DOM 10105	Antarctica	2010	40.9	1	How	A/B		22-65	40.9	JSC	JSC	"	"
DOM 10120	Antarctica	2010	65.7	1	How	A/B		2-63	65.7	JSC	JSC	"	"
DOM 10121	Antarctica	2010	16.2	1	CO3	A	1-39		16.2	JSC	JSC	"	"
DOM 10299	Antarctica	2010	14.8	1	CO3	A/B	1-66		14.8	JSC	JSC	"	"
DOM 10350	Antarctica	2010	27.3	1	Diog	B/C		24-30	27.3	JSC	JSC	"	"
DOM 10351	Antarctica	2010	38.4	1	CV3	A/B	0-13		38.4	JSC	JSC	"	"
DOM 10363	Antarctica	2010	2.5	1	LL6	B/C			2.5	JSC	JSC	"	"
DOM 10837	Antarctica	2010	471.4	1	How	A/B		26-55	471.4	JSC	JSC	"	"
DOM 10838	Antarctica	2010	31.9	1	How	A/B	12	22-62	31.9	JSC	JSC	"	"
DOM 10839	Antarctica	2010	58.7	1	How	A/B		25-61	58.7	JSC	JSC	"	"
DOM 10900	Antarctica	2010	26.1	1	CO3	A/B	1-45		26.1	JSC	JSC	"	"

El Atchane 014	Ouargla, Algeria	Dec 1997	29°10'N	3°44'E	13	1	L~5		W2				4.55	2.6	Kiel	anonymous	R. Bartoschewitz	anonymous	Well-defined chondrules to 2 mm in a recrystallized matrix.
El Atchane 015	Ouargla, Algeria	Dec 1997	28°54'N	4°31'E	717	1	H~4		W0/1				5.08	20	Kiel	anonymous	"	"	Well-defined chondrules to 2 mm in a poorly crystallized matrix. Metal:sulfide ~2
El Atchane 016	Ouargla, Algeria	Dec 1998	29°22'N	4°45'E	156	1	H5	S1	W0/1	17.4 (17.1-17.	15.1 (14.2-15.)	0.5-2.7	5.09	20	Kiel	anonymous	R. Bartoschewitz (Analysts: R. Bartoschewitz, P. Appel, B. Mader, Kiel)	"	
El Atchane 017	Ouargla, Algeria	Dec 1997	29°32'N	4°19'E	148	1	H~4/5		W2				4.97	20	Kiel	anonymous	R. Bartoschewitz	"	Well-defined chondrules to 2 mm in recrystallized matrix.
El Médano 001	Antofag., Chile	17 Oct 2010	~24°51'S	~70°32'W	10	1	H6		W2	18.55±0.63	16.45±0.26	1.25±0.09	4.98	3	CEREGE	Chil	J. Gattacceca, A. Hutzler, CEREGE	A. Hutzler	
El Médano 002	Antofag., Chile	17 Oct 2010	~24°51'S	~70°32'W	12	5	L6		W3	25.18±1.28	20.88±0.34	1.33±0.12	4.58	4	CEREGE	Chil	"	M. Valenzuela	
El Médano 003	Antofag., Chile	17 Oct 2010	~24°51'S	~70°32'W	11	1	H5		W2	18.57±0.19	16.40±0.16	1.34±0.11	4.99	3	CEREGE	Chil	"	M. Uehara	
El Médano 004	Antofag., Chile	17 Oct 2010	~24°51'S	~70°32'W	151	1	H4		W1	17.37±0.27	15.15±0.25	1.17±0.76	5.32	35	CEREGE	Chil	"	N. Laridhi	
El Médano 005	Antofag., Chile	17 Oct 2010	~24°51'S	~70°32'W	582	5	L6		W2	24.59±0.25	20.45±0.22	1.66±0.15	4.59	115	CEREGE	Chil	"	J. Gattacceca	
El Médano 006	Antofag., Chile	18 Oct 2010	~24°51'S	~70°32'W	55	1	LL6		W4	28.68±0.69	24.22±1.36	2.35±0.31	3.85	12	CEREGE	Chil	"	"	Dark-light breccia.
El Médano 007	Antofag., Chile	18 Oct 2010	~24°51'S	~70°32'W	31	1	LL6		W4	28.34±0.18	23.88±0.18	2.38±0.18	3.46	9	CEREGE	Chil	"	"	Numerous shock veins.
El Médano 008	Antofag., Chile	18 Oct 2010	~24°51'S	~70°32'W	33	1	L6		W3	25.63±1.52	19.99±0.19	1.40±0.24	4.31	10	CEREGE	Chil	"	M. Uehara	
El Médano 009	Antofag., Chile	18 Oct 2010	~24°51'S	~70°32'W	65	1	L6		W3	24.85±0.92	20.35±0.25	1.52±0.23	4.61	19	CEREGE	Chil	"	J. Gattacceca	
El Médano 010	Antofag., Chile	18 Oct 2010	~24°51'S	~70°32'W	7	1	H4		W4	17.29±0.45	15.22±1.11	1.58±0.38	4.57	3	CEREGE	Chil	"	"	
El Médano 011	Antofag., Chile	18 Oct 2010	~24°51'S	~70°32'W	87	1	H6		W3	17.92±0.17	16.04±0.43	1.51±0.32	4.81	22	CEREGE	Chil	"	"	
El Médano 012	Antofag., Chile	18 Oct 2010	~24°51'S	~70°32'W	54	2	H6		W3	18.41±0.40	16.10±0.19	1.72±0.02	4.79	18	CEREGE	Chil	"	M. Gounelle	
El Médano 013	Antofag., Chile	18 Oct 2010	24°51'S	70°32'W	5.2	1	CO3			16.59±16.41	3.03±1.99	3.17±1.19	4.37	2	CEREGE	Chil	"	M. Uehara	
El Médano 014	Antofag., Chile	18 Oct 2010	24°51'S	70°32'W	54	3	H4		W2	16.8±0.4	15.1±0.5	0.99±0.4	4.95	13	CEREGE	Chil	"	M. Valenzuela	
El Médano 015	Antofag., Chile	18 Oct 2010	24°51'S	70°32'W	98	1	H4		W3	17.4±0.6	15.5±0.3	0.9±0.2	4.73	30	CEREGE	Chil	"	M. Gounelle	
El Médano 016	Antofag., Chile	18 Oct 2010	24°51'S	70°32'W	57	1	L6		W4	24.7±0.3	20.5±0.3	1.6±0.3	4.01	15	CEREGE	Chil	"	A. Hutzler	
El Médano 017	Antofag., Chile	18 Oct 2010	24°51'S	70°32'W	156	2	L6		W3	25.0±0.3	20.3±0.4	1.6±0.2	4.03	36	CEREGE	Chil	"	P. Rochette	
El Médano 018	Antofag., Chile	18 Oct 2010	24°51'S	70°32'W	15	1	H4		W3	16.7±0.2	15.1±0.3	0.7±0.2	4.77	6	CEREGE	Chil	"	"	
El Médano 019	Antofag., Chile	18 Oct 2010	24°51'S	70°32'W	11	1	H3		W3	18.30±5.69	13.69±11.45	1.59±0.80	4.48	4	CEREGE	Chil	J. Gattacceca and A. Hutzler, CEREGE	M. Gounelle	
El Médano 020	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	102	1	L6		W3	24.6±0.3	20.5±0.5	1.6±0.1	4.28	30	CEREGE	Chil	J. Gattacceca, A. Hutzler, CEREGE	P. Rochette	
El Médano 021	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	50	1	H6		W3	18.3±0.2	16.2±0.1	1.6±0.1	4.78	12	CEREGE	Chil	"	M. Uehara	
El Médano 022	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	47	2	H6		W3	18.5±0.3	16.5±0.3	1.7±0.1	4.87	16	CEREGE	Chil	"	P. Rochette	
El Médano 023	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	115	1	L6		W3	24.0±0.8	20.2±0.4	1.6±0.5	4.37	32	CEREGE	Chil	"	M. Uehara	
El Médano 024	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	9	1	H5		W3	18.6±0.2	16.8±1.2	1.1±0.2	4.47	3	CEREGE	Chil	"	C. Cournède	
El Médano 025	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	132	1	H6		W3	18.4±0.2	16.2±0.3	1.4±0.3	4.91	30	CEREGE	Chil	"	P. Rochette	
El Médano 026	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	154	1	L6		W3	25.2±1.1	20.6±0.4	1.6±0.3	4.71	25	CEREGE	Chil	"	"	
El Médano 027	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	46	1	H5		W3	19.16±0.36	16.81±0.31	1.50±0.13	4.93	15	CEREGE	Chil	"	J. Gattacceca	
El Médano 028	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	141	3	L5		W1	24.20±0.37	20.35±0.68	1.35±0.47	4.76	32	CEREGE	Chil	"	M. Gounelle	
El Médano 029	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	392	15	L5		W1	24.00±0.30	20.24±0.15	1.30±0.31	4.90	74	CEREGE	Chil	"	J. Gattacceca	
El Médano 030	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	32	2	H6		W3	19.23±0.55	16.43±0.39	1.15±0.07	4.45	9	CEREGE	Chil	"	C. Cournède	
El Médano 031	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	35	1	H5		W2	19.93±0.99	17.65±0.64	1.44±0.14	4.90	10	CEREGE	Chil	"	J. Gattacceca	
El Médano 032	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	28	1	H6		W2	18.86±0.12	16.68±0.26	1.74±1.65	4.73	9	CEREGE	Chil	"	"	
El Médano 033	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	45	1	H5		W4	19.02±0.37	16.70±0.34	1.50±0.07	4.48	13	CEREGE	Chil	"	N. Laridhi	
El Médano 034	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	10	1	H6		W3	19.12±0.33	16.45±0.35	1.23±0.19	4.61	3	CEREGE	Chil	"	C. Cournède	
El Médano 035	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	72	1	H5		W2	19.28±0.54	16.28±0.27	1.08±0.25	4.93	21	CEREGE	Chil	"	J. Gattacceca	
El Médano 036	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	54	1	H5		W3	18.45±0.32	16.28±0.21	1.05±0.19	4.77	13	CEREGE	Chil	"	"	
El Médano 037	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	111	1	L6		W3	24.70±0.97	20.38±0.34	1.05±0.22	4.54	32	CEREGE	Chil	"	A. Hutzler	
El Médano 038	Antofag., Chile	18 Oct 2010	24°51'S	70°32'W	3.8	1	H6		W3	18.2±0.2	16.1±0.5	1.4±0.0	4.66	1	CEREGE	Chil	J. Gattacceca, F. Caste, CEREGE	Cécile Cournède	
El Médano 039	Antofag., Chile	18 Oct 2010	24°51'S	70°32'W	3.1	1	H5		W3	16.9±0.2	15.1	1.1	4.64	1	CEREGE	Chil	J. Gattacceca, CEREGE	Matthieu Gounelle	
El Médano 040	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	3.6	1	H6		W4	19.3±0.2	16.6	1.7	4.62	1	CEREGE	Chil	J. Gattacceca, F. Caste, CEREGE	Cécile Cournède	
El Médano 041	Antofag., Chile	21 Oct 2010	24°51'S	70°32'W	1.9	1	H5		W3	18.4±0.3	15.5	1.2	4.53	0.5	CEREGE	Chil	"	Matthieu Gounel	
El Mirage Dry Lake 003	California, USA	23 Oct 2010	34°38.059' N	117°33.730' W	6.9	1	H6	S3	W4	17.4	15.7	1.1		2	UCLA	with finder	Alan Rubin, UCLA	Scott Johnson	

El Mirage Dry Lake 004	California, USA	14 May 2011	34°39'28.2" N	117°35'56.1" W	271	1	LL6	S2	W0	29.9±0.2 (n=11)	26.3	1.7		26	UCLA	with finder	"	Lynn Peltier Murphy	
Estación Imilac	Antofag., Chile	June 2004	24°13'47.4"S	68°53'33.1"W	1908	1	H5	S4	W1	18.0	16.0		5.32	23	SI	Rodrigo Martin	M. Zolensky, JSC; I Valenzuela, Chil	Rodrigo Martinez	
FRO 09001	Antarctica	9 Dec 2009	72°57.165'S	160°26.690'E	4	1	H5	S2	W2	19.8	17.1	1.4		4	MNA-SI	MNA-SI	A.M. Fioretti, R. Carampin, CNR		Meteorite recovered by L. Folco and P. Rochette during the XXV PNRA expedition.
FRO 09002	Antarctica	9 Dec 2009	72°57.164'S	160°26.794'E	2.4	1	L4	S3	W2	24.1	21.0	1.0		2.4	MNA-SI	MNA-SI	"	"	"
FRO 09003	Antarctica	9 Dec 2009	72°57.177'S	160°26.831'E	8.4	1	L5	S5	W1	24.4	22.0	1.5		8.4	MNA-SI	MNA-SI	"	"	"
FRO 09004	Antarctica	9 Dec 2009	72°57.213'S	160°27.003'E	0.4	1	H6	S2	W2	18.7	16.4	1.3		0.4	MNA-SI	MNA-SI	"	"	"
FRO 09005	Antarctica	9 Dec 2009	72°57.233'S	160°27.013'E	15.1	1	H4	S3	W3	18.6±0.2	16.9±0.3			15.1	MNA-SI	MNA-SI	M. D'Orazio, G. Paoli, DST-PI	"	"
FRO 09006	Antarctica	9 Dec 2009	72°57.234'S	160°27.149'E	49.9	1	L6	S5	W2	24.8±0.8	22.4±1.1			49.9	MNA-SI	MNA-SI	"	"	"
FRO 09007	Antarctica	9 Dec 2009	72°57.235'S	160°27.367'E	23.4	1	L4	S2	W2	25.9±0.8	21±2			23.4	MNA-SI	MNA-SI	"	"	"
FRO 09009	Antarctica	9 Dec 2009	72°57.160'S	160°27.919'E	19.7	1	H5	S2	W4	18.5±0.3	17.4±0.8			19.7	MNA-SI	MNA-SI	"	"	"
FRO 09010	Antarctica	9 Dec 2009	72°57.160'S	160°27.919'E	0.6	1	H6	S3	W1	18.6±0.1	17.7±0.4			0.6	MNA-SI	MNA-SI	"	"	"
FRO 09011	Antarctica	9 Dec 2009	72°57.160'S	160°27.919'E	4.5	1	H6	S3	W2	18.2±0.2	17.5±1.1			4.5	MNA-SI	MNA-SI	"	"	"
FRO 09012	Antarctica	9 Dec 2009	72°57.160'S	160°27.919'E	12.7	1	H6	S4	W2	18.9	16.7			12.7	MNA-SI	MNA-SI	M. Macrì, M. Serracino, A. Maras, DST-La Sapianza-Roma	"	"
FRO 09014	Antarctica	9 Dec 2009	72°57.167'S	160°28.342'E	10.6	1	H6	S3	W2	18.7	17.1			10.6	MNA-SI	MNA-SI	"	"	"
FRO 09015	Antarctica	9 Dec 2009	72°57.135'S	160°28.290'E	27.3	1	H6	S3	W2	19.0	17.2			27.3	MNA-SI	MNA-SI	"	"	"
FRO 09016	Antarctica	9 Dec 2009	72°57.177'S	160°28.591'E	8.5	1	H4	S3	W2	19.6	17.9			8.5	MNA-SI	MNA-SI	"	"	"
FRO 09017	Antarctica	9 Dec 2009	72°57.166'S	160°28.775'E	2.3	1	L4	S2	W1	24.0	21.1			2.3	MNA-SI	MNA-SI	"	"	"
FRO 09018	Antarctica	9 Dec 2009	72°57.165'S	160°29.022'E	41.4	1	H5	S3	W1	18.8	16.6			41.4	MNA-SI	MNA-SI	"	"	"
FRO 09019	Antarctica	9 Dec 2009	72°57.165'S	160°29.022'E	16.6	1	L4	S2	W1	25.8	21.8	0.7		16.6	MNA-SI	MNA-SI	S. Caporali, V.M. Cecchi, G. Pratesi, MSP	"	"
FRO 09020	Antarctica	9 Dec 2009	72°57.146'S	160°29.113'E	12.9	1	H4	S2	W1	18.8	16.0	1.4		12.9	MNA-SI	MNA-SI	"	"	"
FRO 09021	Antarctica	9 Dec 2009	72°57.186'S	160°29.206'E	16.2	1	L4	S2	W1	24.0	19.9	1.6		16.2	MNA-SI	MNA-SI	"	"	"
FRO 09022	Antarctica	9 Dec 2009	72°57.151'S	160°29.357'E	8.2	1	H6	S3	W2	18.6	16.9	1.3		8.2	MNA-SI	MNA-SI	"	"	"
FRO 09023	Antarctica	9 Dec 2009	72°57.147'S	160°29.446'E	26	1	H5	S2	W2	18.4	16.0	1.0		26	MNA-SI	MNA-SI	"	"	"
FRO 09024	Antarctica	9 Dec 2009	72°57.187'S	160°29.780'E	13.7	1	H5	S1	W2	18.8	17.0	1.1		13.7	MNA-SI	MNA-SI	"	"	"
FRO 09025	Antarctica	9 Dec 2009	72°57.187'S	160°29.780'E	11.7	1	H4	S1	W3	15.5	14.4	0.4		11.7	MNA-SI	MNA-SI	"	"	"
FRO 10002	Antarctica	8 Jan 2011	72°57.174'S	160°28.779'E	2.7	1	H6	S2	W2	17.8	14.1	1.3	4.97	1.70	MNA-SI	MNA-SI	J. Nava, G. Capitani UNIMIB	PNRA-KOREAMET	
FRO 10003	Antarctica	8 Jan 2011	72°57.161'S	160°28.928'E	2.9	1	L3	S3	W1	22.0 ± 3.4	15.5 ± 1.9	1.4 ± 1.1	4.78	2.24	MNA-SI	MNA-SI	"	"	
FRO 10015	Antarctica	8 Jan 2011	72°57.129'S	160°30.093'E	3.5	1	H4	S2	W1	17.4	14.9	1.2	5.00	2.82	MNA-SI	MNA-SI	"	"	
FRO 10018	Antarctica	8 Jan 2011	72°57.123'S	160°29.232'E	2.6	1	H6	S4	W2	19.6	16.2	1.9	5.23	1.94	MNA-SI	MNA-SI	"	"	
FRO 10019	Antarctica	8 Jan 2011	72°57.138'S	160°30.228'E	4.3	1	H4	S3	W2	19.0	14.3	1.4	5.19	3.69	MNA-SI	MNA-SI	"	"	
FRO 10024	Antarctica	8 Jan 2011	72°57.121'S	160°30.371'E	3.9	1	H5	S3	W1	17.6	15.0	1.2	5.16	2.95	MNA-SI	MNA-SI	"	"	
FRO 10027	Antarctica	8 Jan 2011	72°57.121'S	160°30.371'E	4.0	1	H5	S3	W1	17.7	15.4	1.2	5.32	2.86	MNA-SI	MNA-SI	I. De Leo, G. Capitani, UNIMIB	"	
FRO 10028	Antarctica	8 Jan 2011	72°57.146'S	160°29.451'E	0.9	1	H4	S3	W2	16.2	14.3	1.6	4.91	0.12	MNA-SI	MNA-SI	"	"	
FRO 10035	Antarctica	9 Jan 2011	72°57.114'S	160°31.174'E	2.5	1	H6	S5	W2	17.1	15.3	1.6	5.01	1.88	MNA-SI	MNA-SI	"	"	Breccia, shock veins.
FRO 10041	Antarctica	10 Jan 2011	72°57.141'S	160°29.019'E	0.4	1	H6	S3	W2	17.0	14.9	1.4	5.07	0.10	MNA-SI	MNA-SI	"	"	
FRO 10044	Antarctica	12 Jan 2011	72°57.851'S	160°30.644'E	15.2	1	H4	S2	W1	16.4 ± 0.4	14. ± 3.5	1.7	5.11	5.49; 6.03	MNA-SI, KOPRI	KOPRI	"	"	
FRO 10057	Antarctica	15 Jan 2011	72°57.110'S	160°30.407'E	3.0	1	H3	S3	W2	17.0 ± 2.1	14.0 ± 5.9	1 ± 0.5	4.95	2.12	MNA-SI	MNA-SI	"	"	
FRO 10062	Antarctica	15 Jan 2011	72°57.030'S	160°27.816'E	0.6	1	L6	S3	W1	26.9	22.2	1.7	4.29	0.21	MNA-SI	MNA-SI	C. Ventura Bordenca, A Maras, M. Serracino, URoma, IGAG	"	
FRO 10063	Antarctica	15 Jan 2011	72°57.046'S	160°27.504'E	13.1	1	Ureil	S5	low	20.6	15.4	6.4	4.38	5.83; 4.72	MNA-SI, KOPRI	MNA-SI	L. Folco, MNA-SI	"	Olivine-pigeonite rock, equigranular texture, medium grained, C-rich material along silicate grain boundaries, reduced rims around olivine.

FRO 10066	Antarctica	16 Jan 2011	72°57.098'S	160°27.010'E	1.9	1	L6	S5	W1	25.6	22.2	1.6	4.51	0.69; 0.78	MNA-SI, KOPRI	KOPRI	C. Ventura Bordenca, A. Maras, M. Serracino, URoma, IGAG	"	
FRO 10069	Antarctica	16 Jan 2011	72°57.198'S	160°26.762'E	11.4	1	Ureil	S1	low	19.1	16.5	5.2	4.09	5.21; 4.44	MNA-SI, KOPRI	MNA-SI	L. Folco, MNA-SI	"	Olivine-pigeonite rock, poikilitic texture, coarse grained, C-rich material along silicate grain boundaries, reduced rims around olivine.
FRO 10074	Antarctica	16 Jan 2011	72°57.127'S	160°27.875'E	3.9	1	H6	S2	W1	19.8	17.8	1.2	5.01	0.88	MNA-SI	MNA-SI	C. Ventura Bordenca, A. Maras, M. Serracino, URoma, IGAG	"	
FRO 10075	Antarctica	16 Jan 2011	72°57.127'S	160°27.875'E	2.1	1	H6	S2	W1	19.6	17.6	1.2	5.03	1.11	MNA-SI	MNA-SI	"	"	
FRO 10076	Antarctica	16 Jan 2011	72°57.998'S	160°31.657'E	2.5	1	H4	S2	W1	19.2	17.3	1.1	5.21	1.80	MNA-SI	MNA-SI	"	"	
FRO 10077	Antarctica	16 Jan 2011	72°57.998'S	160°31.657'E	3.5	1	H6	S1	W1	19.5	17.1	1.5	5.32	2.31	MNA-SI	MNA-SI	"	"	
FRO 10080	Antarctica	9 Jan 2011	72°57.144'S	160°30.198'E	0.3	1	L6	S5	W1	22.3	19	1.6	5.07	0.22	MNA-SI	MNA-SI	L. Folco, MNA-SI	"	Blackening, shock veins.
FRO 10083	Antarctica	9 Jan 2011	72°57.077'S	160°30.925'E	5.9	1	LL3	S3	W1	13.9±13.9	11.5±7.5	1.7±0.9	4.09	2.59; 2.71	MNA-SI, KOPRI	KOPRI	"	"	0.8 mm avg. chondrule size, metal abundance ca. 2 vol%
FRO 10084	Antarctica	9 Jan 2011	72°57.035'S	160°31.031'E	1.0	1	H5	S4	W1	16.8	14.9	2	5.27	0.62	MNA-SI	MNA-SI	"	"	Shows shock veins.
FRO 10086	Antarctica	10 Jan 2011	72°57.117'S	160°30.454'E	4.7	1	H6	S2	W2	17.9	15.8	1.4	4.90	3.43	MNA-SI	MNA-SI	"	"	
FRO 10087	Antarctica	10 Jan 2011	72°57.117'S	160°30.454'E	2.4	1	H6	S1	W2	17.5	16.8	1.4	4.69	1.33	MNA-SI	MNA-SI	"	"	
FRO 10091	Antarctica	10 Jan 2011	72°57.144'S	160°28.190'E	4.8	1	L5	S3	W1	22.8	18.2	1	4.70	3.28	MNA-SI	MNA-SI	"	"	
FRO 10092	Antarctica	12 Jan 2011	72°57.788'S	160°29.995'E	2.1	1	L4	S3	W1	22.0 ± 0.5	14.3 ± 5.3	0.8 ± 0.7	4.78	1.32	MNA-SI	MNA-SI	"	"	
FRO 10097	Antarctica	15 Jan 2011	72°57.171'S	160°29.105'E	7.7	1	LL3	S1	W1	18.2 ± 7.0	10.5 ± 6.5	1.2 ± 0.6	4.18	2.96; 3.48	MNA-SI, KOPRI	KOPRI	"	"	0.7 mm avg. chondrule size, metal abundance ca. 2 vol%
FRO 10098	Antarctica	15 Jan 2011	72°57.170'S	160°29.108'E	2.1	1	LL3	S1	W1/2	12.4 ± 8.1	8.0 ± 5.8	0.8 ± 0.3	4.15	1.04	MNA-SI	MNA-SI	"	"	0.7 mm avg. chondrule size, metal abundance ca. 2 vol%, true glass to devitrified glass in chondrules.
FRO 10101	Antarctica	15 Jan 2011	72°57.087'S	160°30.652'E	1.2	1	H5	S1	W1	18.8	16.2	1.3	5.13	0.51	MNA-SI	MNA-SI	"	"	
FRO 10102	Antarctica	15 Jan 2011	72°57.082'S	160°27.902'E	1.3	1	LL3	S5	W1	17.4 ± 5.9	8.1 ± 3.1	1.2 ± 0.7	4.29	0.40; 0.56	MNA-SI, KOPRI	KOPRI	"	"	0.6 mm avg. chondrule size, metal abundance ca. 1 vol%
FRO 10103	Antarctica	15 Jan 2011	72°57.095'S	160°27.703'E	1.5	1	H6	S2	W1	17.3	15.2	1.6	5.08	0.91	MNA-SI	MNA-SI	"	"	
FRO 10104	Antarctica	15 Jan 2011	72°57.116'S	160°27.378'E	0.6	1	H4	S2	W1	17.6	15.6	1.2	5.32	0.17	MNA-SI	MNA-SI	"	"	
FRO 10105	Antarctica	15 Jan 2011	72°57.258'S	160°25.714'E	4.4	1	L6	S3	W1/2	22.4 ± 0.3	19.8 ± 1.5	2.1 ± 0.2	4.68	2.97	MNA-SI	MNA-SI	"	"	
FRO 10107	Antarctica	15 Jan 2011	72°57.183'S	160°27.215'E	1.8	1	H5	S3	W1	16.9	15.4	1.3	5.20	0.82	MNA-SI	MNA-SI	"	"	
FRO 10109	Antarctica	16 Jan 2011	72°57.176'S	160°27.179'E	2.4	1	H5	S2	W1	17	15.2	1.2	5.20	1.37	MNA-SI	MNA-SI	"	"	
Griffith Wash	Arizona, USA	14 July 2011	35°3'59"N	114°5'51"W	93	1	L6	S4	W2	24.6±0.5	20.6	1.8		21.6	UCLA	finder	Alan Rubin, UCLA	Frank R. Campagnano	
Hayy 001	Al Wusta, Oman	6 Feb 2010	20°50.479'N	57°37.797'E	4208	231	H5	S3	W3	17.9	15.9	1.3		4208	NMBE	NMBE	F. Zurfluh (IFGBE) B. Hofmann (NMBE), and E. Gnos (MHNGE)	B. Hofmann, C. Opitz, R. Trappitsch, F. Zurfluh	
Huaxi	Guizhou, China	13 July 2010	26°27'52.88" N	106°37'56.68" E	1600	4	H5	S3	W0	19.6	17.0			398	IGCAS	Zhou Xinglun	Li Shijie, IGCAS		
Jepara	Jawa Tengah, Indonesia	May 2008	6°36'S	110°44'E	499500	1	Pal-MG		W4	12-13				250	UJena	anonymous	Falko Langenhorst, UBayr	anon	
Jiddat al Harasis 320	Al Wusta, Oman	31 Jan 2007	19°59.946'N	56°24.671'E	25.7	~30	Meso				29.9-31.3			5.20	Kiel	Bart	R. Bartoschewitz, P Appel, B. Mader (Kiel)	R. Bartoschewitz	
Jiddat al Harasis 385	Al Wusta, Oman	20 Feb 2003	19°21.688'N	55°53.969'E	161.6	1	L~6		W3				4.62	20.3	Kiel	anonymous	R. Bartoschewitz	anonymous	Chondrules up to 1 mm in recrystallized matrix with melt pockets. Metal:sulfide ~ 1.5.
Jiddat al Harasis 514	Zufar, Oman	20 Jan 2008	19°31.597'N	55°11.725'E	20.2	1	EL4	S2	W3		2.0	0.7		20.2	NMBE	NMBE	E. Gnos, B. Hofmann	A. Al-Kathiri, E. Gnos, B. Hofmann, A. Grimberg, E. Janots	
Jiddat al Harasis 556	Al Wusta, Oman	24 Jan 2008	19°39.429'N	55°35.392'E	36.6	1	How							36.6	NMBE	NMBE	E. Gnos and B. Hofmann	E. Gnos, B. Hofmann, A. Grimberg, E. Janots	

Jiddat al Harasis 560	Al Wusta, Oman	25 Jan 2008	19°51.362'N	56°6.346'E	108.6	3	H4	S2	W4	16.1-20.9	14.1-16.4	0.2-3.0		108.6	NMBE	NMBE	E. Gnos, B. Hofmar	"	Paired JaH 559.
Jiddat al Harasis 625	Al Wusta, Oman	2009	19°58'52.80" N	56°27'40.90" E	62.8	1	L4	S2	W2/3	24	20.1 (16.2-28.0)			12.6	MNB	anonymous finder	A. Greshake, MNB		
Jiddat al Harasis 626	Al Wusta, Oman	April 2010	19°47.09'N	55°57.55'E	466	3	Euc-pm	high	low		32.1-39.3; 30.6-33.5; 51.8	6.3-5.1; 31.9-29.8; 12.7		20.2	PSF	F. Kuntz	A. Irving and S. Kuehner, UWS	F. Kuntz	
Jiddat al Harasis 628	Al Wusta, Oman	2009	19°50'22.40"	55°46'3.20"E	16000	many	H5	S2	W3	19.7	18.0	1.4		42.83	PSF	F. Kuntz	T. Bunch and J. Wittke, NAU	"	
Jiddat al Harasis 641	Zufar, Oman	9 Mar 2011	19°00'27.2"N	55°10'28.9"E	25.3	1	Ureil		low	11.7-11.9; rims 3.3	9.9-10.0	4.4		5.2	UWS	Anonymous	A. Irving and S. Kuehner, UWS		
Jiddat al Harasis 643	Al Wusta, Oman	22 Jan 2010	19°36.355'N	56°41.987'E	132.809	1	LL6	S2	W3	29.0	23.9	2.1	3.23	132.809	NMBE	NMBE	F. Zurfluh (IFGBE) B. Hofmann (NMBE), and E. Gnos (MHNGE)	A. Bretscher, B. Hofmann, C. Opitz, R. Trappitsch, J. Walbrecker, F. Zurfluh	
Jiddat al Harasis 644	Al Wusta, Oman	23 Jan 2010	19°48.732'N	56°40.235'E	2272.8	4	L6	S6	W3	24.2	20.5	1.7		2272.8	NMBE	NMBE	"	"	Shock veins with ringwoodite.
Jiddat al Harasis 645	Al Wusta, Oman	26 Jan 2010	19°26.296'N	56°36.481'E	3030	15	H5	S1	W3	20.3				3030	NMBE	NMBE	"	A. Bretscher, B. Hofmann, F. Zurfluh	
Jiddat al Harasis 646	Al Wusta, Oman	26 Jan 2010	19°31.127'N	56°39.960'E	3020	35	H4	S2	W3	18.0	15.8	1.2		3020	NMBE	NMBE	"	"	
Jiddat al Harasis 647	Al Wusta, Oman	27 Jan 2010	19°49.197'N	56°39.622'E	365.6	7	L6	S4	W4	24.0	20.4	1.5		365.6	NMBE	NMBE	"	"	
Jiddat al Harasis 648	Al Wusta, Oman	29 Jan 2010	19°24.107'N	56°33.956'E	1577.9	35	H4	S2	W3	17.6	15.5	1.1		1577.9	NMBE	NMBE	"	A. Bretscher, B. Hofmann, C. Opitz, R. Trappitsch, F. Zurfluh	
Jiddat al Harasis 649	Al Wusta, Oman	29 Jan 2010	19°28.164'N	56°33.468'E	15.946	1	L6	S4	W4	23.9	20	1.8		15.946	NMBE	NMBE	"	"	
Jiddat al Harasis 650	Al Wusta, Oman	29 Jan 2010	19°30.326'N	56°32.600'E	868	1	H5	S2	W3	17.9				868	NMBE	NMBE	"	"	
Jiddat al Harasis 652	Al Wusta, Oman	29 Jan 2010	19°40.861'N	56°27.073'E	242.35	1	H4-6	S2	W3	18.5	16.4	1.3		242.35	NMBE	NMBE	"	"	
Jiddat al Harasis 653	Al Wusta, Oman	29 Jan 2010	19°43.967'N	56°22.973'E	57.604	1	H5	S3	W3	18.0	15.9	1.5		57.604	NMBE	NMBE	"	"	
Jiddat al Harasis 654	Al Wusta, Oman	26 Nov 2011	19°58.255'N	56°26.526'E	80	1	H4	S1	W2	17±4.8 (8.4-17.9, n=26)	11.6±1.8 (5.7-16.3, n=26)			19	MNB	anonymous	A. Greshake, MNB		
Jiddat al Harasis 655	Al Wusta, Oman	28 Nov 2011	19°49.789'N	56°26.568'E	56	1	L5	S1	W3	24.3	20.3			12	MNB	Marcin Cimala	"	"	
Jiddat al Harasis 656	Al Wusta, Oman	28 Nov 2011	19°39.169'N	55°44.911'E	1225	1	L6	S3	W3	23.7	20.1			33.8	MNB	anonymous	"	"	
Jiddat al Harasis 657	Al Wusta, Oman	16 Dec 2011	19°46.818'N	56°30.156'E	720	1	L5	S1	W3	24.5	20.4			26	MNB	anonymous	"	"	
Khatyrka	Chukotskiy avt. ok Russia	July, 2011	62°39'11.36"N	174°30'1.54"E	0.1	9	CV3			cdl Fa 0-18; r Fa48-50	1	1		0.1	SI	See text	G. J. MacPherson, SI	See text	
Košice	Vychodoslovensky Slovakia	28 Feb 2010	48°45.82'N	21°10.58'E	4300	77	H5	S3	W0	18.6	16.6	1.2		4300	CUB	SAS	D. Ozdin, P. Uher, J Haloda, P.Konecny	J.Toth et al.	
Ksar el Hajoui	Eastern, Morocco	May 2010	31°59'35.4"N	2°59'36.5"W	3100	2	L6		W1	23.7±0.3	20.1±0.1	1.3	4.66	21.12	CEREGE	P. Thomas	J. Gattacceca	M. Abderrahman	
Ksar Ghilane 001	Tatawin, Tunisia	10 Jan 2008	32°40.860'N	9°43.723'E	5511	129	L6	S3	W2	23.0	21.2	1.7		47.8	UPC	David Allepuz	J. Llorca, UPC	David Allepuz - José Vicente Casado	
Ksar Ghilane 002	Quibili, Tunisia	13 Jan 2010	32°48.375'N	9°49.970'E	538	1	Sherg	high						20.1	UPC	José Vicente Casado	J. Llorca, UPC and . Bischof and J. Roszjar, IfP	José Vicente Casado and David Allepuz	
Ksar Ghilane 003	Quibili, Tunisia	13 Jan 2010	32°48.094'N	9°50.466'E	299	1	L6	S2	W2	24.1	20.4	1.3		23.1	UPC	José Vicente Casado	J. Llorca, UPC	José Vicente Casado - David Allepuz	
Ksar Ghilane 004	Tatawin, Tunisia	16 Jan 2010	32°49.053'N	9°57.311'E	335	1	H5	S1	W2	19.2	16.9	0.9		22.9	UPC	José Vicente Casado	"	"	
Ksar Ghilane 005	Quibili, Tunisia	16 Jan 2010	32°50.447'N	9°54.423'E	73	3	L6	S4	W3	24.8	20.0	1.1		15.0	UPC	David Allepuz	"	David Allepuz - José Vicente Casado	
Ksar Ghilane 006	Quibili, Tunisia	30 Jan 2011	32°48.377'N	9°50.260'E	26	18	H4	S3	W3	17.2	15.6	0.8		10.3	UPC	José Vicente Casado	"	José Vicente Casado-David Allepuz-Jordi Llorca	

Ksar Ghilane 007	Quibili, Tunisia	31 Jan 2011	32º45.499'N	9º51.558'E	5381	83	H6	S4	W3	18.5	16.0	1.1		62.7	UPC	Jordi Llorca	"	Jordi Llorca-José Vicente Casado-David Allepuz	
Ksar Ghilane 008	Quibili, Tunisia	31 Jan 2011	32º45.664'N	9º51.979'E	295	3	H5	S2	W3	17.8	15.0	2.9		22.4	UPC	José Vicente Casado	"	Jose Vicente Casado-David Allepuz-Jordi Llorca	
Ksar Ghilane 009	Quibili, Tunisia	31 Jan 2011	32º45.766'N	9º51.925'E	173	2	H6	S4	W2	18.7	17.5	2.2		21.1	UPC	José Vicente Casado	"	"	Breccia
La Yesera 003	Antofag., Chile	May 2003	23°17'27.1"S	70°28'20.6"W	447	1	L4	S3	W4	24.2	20.5		4.21	22	SI	Rodrigo Martín	M. Zolensky M. Valenzuela	Rodrigo Martínez	Field name La Yesera 005. Main mass in University of Chile.
La Yesera 004	Antofag., Chile	May 2003	23°17'19.0"S	70°28'28.9"W	1489	1	L6	S2	W3	25.9	21.1		4.39	22	SI	Rodrigo Martín	"	"	Field name La Yesera 006. Main mass: Chil.
Lake Carnegie	Western Australia, Australia	Feb 1992	26°13'S	122°30'E	12.1	1	Euc-cm				29.4-61.1	4.7-41.7		11	WAM	WAM	A. W. R. Bevan, WAM, and T. Kennedy, UWA	Unknown	
LaPaz Icefield 10030	Antarctica	2010			50.8	1	CK5		A/B	35				50.8	JSC	JSC	SI	ANSMET	
LaPaz Icefield 10031	Antarctica	2010			12.3	1	R6		A/B	39	32			12.3	JSC	JSC	"	"	
LaPaz Icefield 10032	Antarctica	2010			1.5	1	CO3		A/B	1-42				1.5	JSC	JSC	"	"	
LaPaz Icefield 10033	Antarctica	2010			16.9	1	R6		A/B	38-39	30			16.9	JSC	JSC	"	"	
Leonora	Western Australia, Australia	circa 1990	28°50'42.7"S	121°23'49.2"E	2572	1	L4	S2	W2	24.8	21.5	0.96		2572	WAM	WAM	A. W. R. Bevan, WAM	Unknown	
Los Vientos 001	Antofag., Chile	29 Dec 2009	24°42.000'S	69°45.000'W	73	1	Diog-pm	mod	minor		20.1-33.4	0.4-3.0		15.5	ASU	finder	Laurence Garvie, ASU	Eric Christensen	
Los Vientos 002	Antofag., Chile	27 Oct 2010	24°41'S	69°46'W	30750	1	L6		W1	23.2±0.8	19.8	1.5	4.86	174	CEREGE	MMC	J. Gattacceca, F. Caste, CEREGE	Rodrigo Martinez	Numerous shock veins up to several mm thick.
Los Vientos 003	Antofag., Chile	14 Apr 2011	24°41'S	69°46'W	25450	3	H5		W1	16.9±0.5	14.7±0.0	1.1±0.1	5.27	98	CEREGE	MMC	"	"	Found 1200 m from Los Vientos 004 with which it is likely paired.
Los Vientos 004	Antofag., Chile	22 Apr 2011	24°41'S	69°46'W	29300	5	H5		W1	16.4±0.1	14.7±0.1	1.0±0.1	5.30	35	CEREGE	MMC	"	"	Likely paired with Los Vientos 003..
Lucerne Valley 094	California, USA	29 Feb 2008	34°29.227'N	116°57.688'W	3.50	2	CK5							1.15	UCLA	Verish	A. Rubin, UCLA	Robert Verish	Visually-paired with LV 100.
Lucerne Valley 095	California, USA	29 Feb 2008	34°29.194'N	116°57.552'W	1.10	1	CK5							0.50	UCLA	Verish	"	"	Visually-paired with LV 100.
Lucerne Valley 098	California, USA	28 Mar 2008	34°29.222'N	116°57.357'W	1.5	1	CK4	S2	W4	32.6±0.8 (n=10)				1.5	UCLA	UCLA	"	M. Morgan	Probably paired to LV 028.
Lucerne Valley 099	California, USA	28 Mar 2008	34°29.240'N	116°57.633'W	3.20	1	CK5							1.72	UCLA	Verish	"	Robert Verish	Visually-paired with LV 100.
Lucerne Valley 100	California, USA	28 Mar 2008	34°29.243'N	116°57.639'W	0.80	1	CK5	S3	W3	Fa32.5±0.4 (n=16)				0.35 + ts	UCLA	Verish	"	"	
Lynch 002	Western Australia, Australia	25 Sept 2010	31°23'58.3"S	127°08'40.8" E	36.54	1	Lunar		mod					36.54	WAM	WAM	C.L.Smith, A. Kearsley (NHM) A.W.R.Bevan (WAM), I. A. Franchi (OU)	K. Bermingham	
Majuba 007	Nevada, USA	7 June 2007	40°37'00"N	118°23'05"W	1823.3	1	H4		W3	19 (18-22)	16-23	1-3		27.8	AMNH, BYU	BYU	Joseph Boesenberg, AMNH	Eric Magnuson	Found while searching for gold nuggets.
Mangum	Oklahoma, USA	2008	34.849°N	99.704°W	750	1	H4	S2	W1	18.2±0.0	16.0-16.1	0.9-1.0		23.9	UWS	R. Chambless	A. Irving and S. Kuehner, UWS	R. Chambless	
Metameur 004	Madaniyin, Tunisia	13 Mar 2010	33°15.016'N	10°23.350'E	10	1	H6	S3	W2	18.5	16.5			2.0	IfP	Finder, Tunisia	A. Bischoff, M. Matthes, IfP	anonymous	
Miller Butte 09001	Antarctica	6 Dec 2009	71°54.213'S	160°29.389'E	0.1	1	H5	S5	W5	20±2	16.5±0.5		5.22	0.1	MNA-SI	MNA-SI	M. D'Orazio, G. Paoli, DST-PI		Meteorite recovered by L. Folco and P. Rochette during the XXV PNRA expedition.
MIL 090002	Antarctica	2009			3971	1	Pal		B	12-13				3971	JSC	JSC	SI	ANSMET	
MIL 090005	Antarctica	2009			1194.4	1	L5		B/C					1194.4	JSC	JSC	"	"	
MIL 090009	Antarctica	2009			1246.9	1	LL5		A/B					1246.9	JSC	JSC	"	"	
MIL 090018	Antarctica	2009			1112.3	1	L6		A					1112.3	JSC	JSC	"	"	
MIL 090019	Antarctica	2009			793.8	1	CO3		B	0-42				793.8	JSC	JSC	"	"	
MIL 090023	Antarctica	2009			898.6	1	LL5		B					898.6	JSC	JSC	"	"	
MIL 090029	Antarctica	2009			356.4	1	Pal		B	12-13				356.4	JSC	JSC	"	"	
MIL 090140	Antarctica	2009			1.8	1	L6		C					1.8	JSC	JSC	"	"	

MIL 090141	Antarctica	2009	1	1	LL6	A/B			1	JSC	JSC	"	"
MIL 090142	Antarctica	2009	0.9	1	LL5	C			0.9	JSC	JSC	"	"
MIL 090143	Antarctica	2009	3.9	1	L6	C			3.9	JSC	JSC	"	"
MIL 090144	Antarctica	2009	0.7	1	L6	C			0.7	JSC	JSC	"	"
MIL 090145	Antarctica	2009	1.9	1	LL5	C			1.9	JSC	JSC	"	"
MIL 090146	Antarctica	2009	1.7	1	LL6	B/C			1.7	JSC	JSC	"	"
MIL 090147	Antarctica	2009	2.2	1	LL6	B/C			2.2	JSC	JSC	"	"
MIL 090148	Antarctica	2009	2.5	1	LL6	B/C			2.5	JSC	JSC	"	"
MIL 090149	Antarctica	2009	1.3	1	LL6	B/C			1.3	JSC	JSC	"	"
MIL 090152	Antarctica	2009	40.4	1	CO3	A	0-56	7	40.4	JSC	JSC	"	"
MIL 090153	Antarctica	2009	97.5	1	How	A/B		23-59	97.5	JSC	JSC	"	"
MIL 090154	Antarctica	2009	16.3	1	CK6	B	31-32		16.3	JSC	JSC	"	"
MIL 090159	Antarctica	2009	45.5	1	Diog	B		12-35	45.5	JSC	JSC	"	"
MIL 090169	Antarctica	2009	4.2	1	L4	B/C	8-24	14-20	4.2	JSC	JSC	"	"
MIL 090170	Antarctica	2009	2.5	1	CV3	B	0-11		2.5	JSC	JSC	"	"
MIL 090171	Antarctica	2009	10.4	1	CV3	B	0-11		10.4	JSC	JSC	"	"
MIL 090173	Antarctica	2009	2.1	1	CV3	B	0-11	1	2.1	JSC	JSC	"	"
MIL 090179	Antarctica	2009	1.2	1	CV3	B	0-35		1.2	JSC	JSC	"	"
MIL 090206	Antarctica	2009	17	1	Ach-ung	B	26-28	26	17	JSC	JSC	"	"
MIL 090220	Antarctica	2009	28	1	Diog	A/B		32-34	28	JSC	JSC	"	"
MIL 090221	Antarctica	2009	34	1	Diog	B		32-37	34	JSC	JSC	"	"
MIL 090227	Antarctica	2009	62.8	1	CO3	B	0-52		62.8	JSC	JSC	"	"
MIL 090232	Antarctica	2009	106.0	1	LL6	A/B			106.0	JSC	JSC	"	"
MIL 090234	Antarctica	2009	104.0	1	L5	B/C			104.0	JSC	JSC	"	"
MIL 090237	Antarctica	2009	73.4	1	L5	B/C			73.4	JSC	JSC	"	"
MIL 090238	Antarctica	2009	71.3	1	LL6	B/C			71.3	JSC	JSC	"	"
MIL 090239	Antarctica	2009	54.3	1	L6	B/C			54.3	JSC	JSC	"	"
MIL 090240	Antarctica	2009	25.6	1	LL6	A/B			25.6	JSC	JSC	"	"
MIL 090241	Antarctica	2009	11.1	1	H6	C			11.1	JSC	JSC	"	"
MIL 090242	Antarctica	2009	11.3	1	LL5	B/C			11.3	JSC	JSC	"	"
MIL 090243	Antarctica	2009	25	1	L5	A/B			25	JSC	JSC	"	"
MIL 090244	Antarctica	2009	29.7	1	LL5	B			29.7	JSC	JSC	"	"
MIL 090245	Antarctica	2009	18	1	LL6	B/C			18	JSC	JSC	"	"
MIL 090246	Antarctica	2009	13.4	1	L5	C			13.4	JSC	JSC	"	"
MIL 090247	Antarctica	2009	8.2	1	LL6	C			8.2	JSC	JSC	"	"
MIL 090248	Antarctica	2009	15.3	1	H5	C			15.3	JSC	JSC	"	"
MIL 090249	Antarctica	2009	14.6	1	H6	C			14.6	JSC	JSC	"	"
MIL 090250	Antarctica	2009	14.8	1	H6	C			14.8	JSC	JSC	"	"
MIL 090251	Antarctica	2009	4.5	1	LL6	B			4.5	JSC	JSC	"	"
MIL 090252	Antarctica	2009	5.9	1	LL6	C			5.9	JSC	JSC	"	"
MIL 090253	Antarctica	2009	5.1	1	L5	C			5.1	JSC	JSC	"	"
MIL 090254	Antarctica	2009	4.9	1	L5	C			4.9	JSC	JSC	"	"
MIL 090255	Antarctica	2009	2.5	1	H6	C			2.5	JSC	JSC	"	"
MIL 090256	Antarctica	2009	2.2	1	L6	B			2.2	JSC	JSC	"	"
MIL 090257	Antarctica	2009	4	1	LL6	B			4	JSC	JSC	"	"
MIL 090258	Antarctica	2009	0.8	1	L5	C			0.8	JSC	JSC	"	"
MIL 090260	Antarctica	2009	1.7	1	L5	C			1.7	JSC	JSC	"	"
MIL 090261	Antarctica	2009	7.6	1	H6	C			7.6	JSC	JSC	"	"
MIL 090262	Antarctica	2009	0.3	1	LL6	B			0.3	JSC	JSC	"	"
MIL 090263	Antarctica	2009	7.9	1	H6	C			7.9	JSC	JSC	"	"
MIL 090264	Antarctica	2009	0.5	1	CO3	B	0-39		0.5	JSC	JSC	"	"
MIL 090265	Antarctica	2009	3.5	1	L5	C			3.5	JSC	JSC	"	"
MIL 090266	Antarctica	2009	13	1	L5	C			13	JSC	JSC	"	"
MIL 090267	Antarctica	2009	5.5	1	H6	C			5.5	JSC	JSC	"	"
MIL 090268	Antarctica	2009	4.3	1	LL6	A			4.3	JSC	JSC	"	"
MIL 090269	Antarctica	2009	5	1	L5	C			5	JSC	JSC	"	"
MIL 090270	Antarctica	2009	42.6	1	L5	Ce			42.6	JSC	JSC	"	"
MIL 090271	Antarctica	2009	39.8	1	LL6	A			39.8	JSC	JSC	"	"
MIL 090272	Antarctica	2009	19.7	1	LL6	B/C			19.7	JSC	JSC	"	"
MIL 090273	Antarctica	2009	31	1	L6	C			31	JSC	JSC	"	"
MIL 090274	Antarctica	2009	49.5	1	LL6	C			49.5	JSC	JSC	"	"
MIL 090275	Antarctica	2009	14.4	1	LL6	A			14.4	JSC	JSC	"	"
MIL 090276	Antarctica	2009	7.9	1	LL6	A			7.9	JSC	JSC	"	"

MIL 090277	Antarctica	2009	5	1	LL5	B			5	JSC	JSC	"	"
MIL 090278	Antarctica	2009	21	1	L6	B/C			21	JSC	JSC	"	"
MIL 090279	Antarctica	2009	57.6	1	L5	C			57.6	JSC	JSC	"	"
MIL 090290	Antarctica	2009	85.9	1	L5	B/C			85.9	JSC	JSC	"	"
MIL 090295	Antarctica	2009	6.4	1	L5	B			6.4	JSC	JSC	"	"
MIL 090296	Antarctica	2009	13.9	1	H6	C			13.9	JSC	JSC	"	"
MIL 090297	Antarctica	2009	16.7	1	L5	C			16.7	JSC	JSC	"	"
MIL 090298	Antarctica	2009	11.7	1	L5	C			11.7	JSC	JSC	"	"
MIL 090299	Antarctica	2009	21.0	1	L6	B/C			21.0	JSC	JSC	"	"
MIL 090335	Antarctica	2009	4.5	1	LL5	B	31	25	4.5	JSC	JSC	"	"
MIL 090342	Antarctica	2009	2.8	1	CO3	B	0-36		2.8	JSC	JSC	"	"
MIL 090354	Antarctica	2009	0.8	1	CV3	B	0-36	1-5	0.8	JSC	JSC	"	"
MIL 090360	Antarctica	2009	2.4	1	L6	C			2.4	JSC	JSC	"	"
MIL 090361	Antarctica	2009	7.4	1	LL6	A/B			7.4	JSC	JSC	"	"
MIL 090362	Antarctica	2009	2.7	1	L6	C			2.7	JSC	JSC	"	"
MIL 090363	Antarctica	2009	2.4	1	H6	C			2.4	JSC	JSC	"	"
MIL 090364	Antarctica	2009	6.6	1	H5	C			6.6	JSC	JSC	"	"
MIL 090365	Antarctica	2009	3.1	1	L6	C			3.1	JSC	JSC	"	"
MIL 090366	Antarctica	2009	2.7	1	L6	C			2.7	JSC	JSC	"	"
MIL 090367	Antarctica	2009	9	1	L6	C			9	JSC	JSC	"	"
MIL 090368	Antarctica	2009	6.1	1	L5	C			6.1	JSC	JSC	"	"
MIL 090369	Antarctica	2009	1.3	1	CO3	C	1-54	1	1.3	JSC	JSC	"	"
MIL 090370	Antarctica	2009	0.7	1	L6	B/C			0.7	JSC	JSC	"	"
MIL 090371	Antarctica	2009	0.9	1	L6	B/C			0.9	JSC	JSC	"	"
MIL 090372	Antarctica	2009	0.9	1	LL5	B			0.9	JSC	JSC	"	"
MIL 090373	Antarctica	2009	0.9	1	L6	B/C			0.9	JSC	JSC	"	"
MIL 090374	Antarctica	2009	1.1	1	L6	B/C			1.1	JSC	JSC	"	"
MIL 090375	Antarctica	2009	1	1	L6	B/C			1	JSC	JSC	"	"
MIL 090376	Antarctica	2009	1.8	1	H6	B/C			1.8	JSC	JSC	"	"
MIL 090377	Antarctica	2009	4.8	1	L6	C			4.8	JSC	JSC	"	"
MIL 090378	Antarctica	2009	1.7	1	L6	C			1.7	JSC	JSC	"	"
MIL 090379	Antarctica	2009	2.1	1	L5	C			2.1	JSC	JSC	"	"
MIL 090380	Antarctica	2009	1.2	1	LL5	C			1.2	JSC	JSC	"	"
MIL 090381	Antarctica	2009	4	1	L5	C			4	JSC	JSC	"	"
MIL 090382	Antarctica	2009	1.3	1	H5	C			1.3	JSC	JSC	"	"
MIL 090383	Antarctica	2009	1.8	1	L5	C			1.8	JSC	JSC	"	"
MIL 090384	Antarctica	2009	2.9	1	L6	C			2.9	JSC	JSC	"	"
MIL 090385	Antarctica	2009	3.8	1	H6	C			3.8	JSC	JSC	"	"
MIL 090386	Antarctica	2009	4.3	1	H6	C			4.3	JSC	JSC	"	"
MIL 090387	Antarctica	2009	1.5	1	L6	C			1.5	JSC	JSC	"	"
MIL 090388	Antarctica	2009	1.8	1	L6	C			1.8	JSC	JSC	"	"
MIL 090389	Antarctica	2009	2.9	1	L6	C			2.9	JSC	JSC	"	"
MIL 090390	Antarctica	2009	18.6	1	LL6	A/B			18.6	JSC	JSC	"	"
MIL 090391	Antarctica	2009	11.2	1	LL6	B/C			11.2	JSC	JSC	"	"
MIL 090392	Antarctica	2009	8.3	1	CO3	A/B	0-50	4	8.3	JSC	JSC	"	"
MIL 090393	Antarctica	2009	1.2	1	L5	C			1.2	JSC	JSC	"	"
MIL 090394	Antarctica	2009	0.8	1	L6	B			0.8	JSC	JSC	"	"
MIL 090395	Antarctica	2009	2.3	1	LL6	B			2.3	JSC	JSC	"	"
MIL 090396	Antarctica	2009	1.7	1	L6	C			1.7	JSC	JSC	"	"
MIL 090397	Antarctica	2009	0.6	1	L6	B			0.6	JSC	JSC	"	"
MIL 090398	Antarctica	2009	1.6	1	L6	C			1.6	JSC	JSC	"	"
MIL 090399	Antarctica	2009	1	1	L6	B			1	JSC	JSC	"	"
MIL 090400	Antarctica	2009	57.5	1	L6	C			57.5	JSC	JSC	"	"
MIL 090401	Antarctica	2009	92.3	1	L5	C			92.3	JSC	JSC	"	"
MIL 090402	Antarctica	2009	85.3	1	L6	B/C			85.3	JSC	JSC	"	"
MIL 090403	Antarctica	2009	68.8	1	L5	C			68.8	JSC	JSC	"	"
MIL 090404	Antarctica	2009	98.0	1	L5	C			98.0	JSC	JSC	"	"
MIL 090407	Antarctica	2009	52.0	1	L6	B/Ce			52.0	JSC	JSC	"	"
MIL 090408	Antarctica	2009	31.8	1	L6	C			31.8	JSC	JSC	"	"
MIL 090409	Antarctica	2009	50.5	1	L5	A/B			50.5	JSC	JSC	"	"
MIL 090420	Antarctica	2009	0.9	1	L6	B			0.9	JSC	JSC	"	"
MIL 090421	Antarctica	2009	1.3	1	LL5	B			1.3	JSC	JSC	"	"
MIL 090422	Antarctica	2009	0.4	1	L6	C			0.4	JSC	JSC	"	"

MIL 090423	Antarctica	2009	1.5	1	L5	C			1.5	JSC	JSC	"	"
MIL 090424	Antarctica	2009	1.9	1	LL6	C			1.9	JSC	JSC	"	"
MIL 090425	Antarctica	2009	0.9	1	L6	C			0.9	JSC	JSC	"	"
MIL 090426	Antarctica	2009	1.6	1	L6	C			1.6	JSC	JSC	"	"
MIL 090427	Antarctica	2009	2.2	1	CO3	B	0-56	1-2	2.2	JSC	JSC	"	"
MIL 090428	Antarctica	2009	2	1	CO3	B	1-47		2	JSC	JSC	"	"
MIL 090429	Antarctica	2009	1.7	1	L6	C			1.7	JSC	JSC	"	"
MIL 090430	Antarctica	2009	10.9	1	LL6	B/C			10.9	JSC	JSC	"	"
MIL 090431	Antarctica	2009	1.3	1	H5	C			1.3	JSC	JSC	"	"
MIL 090432	Antarctica	2009	3.9	1	L5	C			3.9	JSC	JSC	"	"
MIL 090433	Antarctica	2009	5.6	1	L5	C			5.6	JSC	JSC	"	"
MIL 090434	Antarctica	2009	4.1	1	LL6	C			4.1	JSC	JSC	"	"
MIL 090435	Antarctica	2009	7.7	1	H6	C			7.7	JSC	JSC	"	"
MIL 090436	Antarctica	2009	3.2	1	L6	C			3.2	JSC	JSC	"	"
MIL 090437	Antarctica	2009	4.3	1	CO3	B	1-47		4.3	JSC	JSC	"	"
MIL 090438	Antarctica	2009	7.4	1	H6	C			7.4	JSC	JSC	"	"
MIL 090439	Antarctica	2009	2.5	1	CO3	C	1-33	1-3	2.5	JSC	JSC	"	"
MIL 090440	Antarctica	2009	0.9	1	CM1/2	B/C	0-43		0.9	JSC	JSC	"	"
MIL 090441	Antarctica	2009	15.3	1	EL6	Be		0-1	15.3	JSC	JSC	"	"
MIL 090442	Antarctica	2009	21.1	1	L5	B			21.1	JSC	JSC	"	"
MIL 090443	Antarctica	2009	7.9	1	CM2	Be	0-34		7.9	JSC	JSC	"	"
MIL 090444	Antarctica	2009	1.1	1	CV3	B	1-35		1.1	JSC	JSC	"	"
MIL 090445	Antarctica	2009	1.1	1	L5	B/C			1.1	JSC	JSC	"	"
MIL 090446	Antarctica	2009	8.6	1	CO3	B	0-40		8.6	JSC	JSC	"	"
MIL 090447	Antarctica	2009	19.6	1	L5	B			19.6	JSC	JSC	"	"
MIL 090448	Antarctica	2009	5.2	1	L6	C			5.2	JSC	JSC	"	"
MIL 090449	Antarctica	2009	25.3	1	LL6	B			25.3	JSC	JSC	"	"
MIL 090450	Antarctica	2009	98.6	1	LL6	B			98.6	JSC	JSC	"	"
MIL 090452	Antarctica	2009	46.1	1	LL6	B			46.1	JSC	JSC	"	"
MIL 090455	Antarctica	2009	82.4	1	LL6	B			82.4	JSC	JSC	"	"
MIL 090456	Antarctica	2009	38.9	1	LL6	A/B			38.9	JSC	JSC	"	"
MIL 090460	Antarctica	2009	25.7	1	LL6	B			25.7	JSC	JSC	"	"
MIL 090471	Antarctica	2009	14.1	1	LL5	B			14.1	JSC	JSC	"	"
MIL 090472	Antarctica	2009	25.4	1	LL5	B			25.4	JSC	JSC	"	"
MIL 090475	Antarctica	2009	20.0	1	LL6	B			20.0	JSC	JSC	"	"
MIL 090476	Antarctica	2009	25.9	1	L5	C			25.9	JSC	JSC	"	"
MIL 090477	Antarctica	2009	25.1	1	LL6	AB			25.1	JSC	JSC	"	"
MIL 090479	Antarctica	2009	9.2	1	LL6	B			9.2	JSC	JSC	"	"
MIL 090483	Antarctica	2009	15.9	1	CO3	B	0-45	1	15.9	JSC	JSC	"	"
MIL 090486	Antarctica	2009	5.9	1	CO3	B	0-40		5.9	JSC	JSC	"	"
MIL 090487	Antarctica	2009	2.1	1	CM1/2	C	0-1		2.1	JSC	JSC	"	"
MIL 090488	Antarctica	2009	2.1	1	CO3	B	1-51	1-32	2.1	JSC	JSC	"	"
MIL 090490	Antarctica	2009	1.6	1	H6	B/C			1.6	JSC	JSC	"	"
MIL 090491	Antarctica	2009	1.9	1	H6	B/C			1.9	JSC	JSC	"	"
MIL 090492	Antarctica	2009	2.1	1	LL6	A/B			2.1	JSC	JSC	"	"
MIL 090493	Antarctica	2009	3.0	1	L5	C			3.0	JSC	JSC	"	"
MIL 090494	Antarctica	2009	1.9	1	L6	B/C			1.9	JSC	JSC	"	"
MIL 090495	Antarctica	2009	1.0	1	L6	B	25-26	21-23	1.0	JSC	JSC	"	"
MIL 090496	Antarctica	2009	1.3	1	H6	B/C			1.3	JSC	JSC	"	"
MIL 090497	Antarctica	2009	0.6	1	H5	B			0.6	JSC	JSC	"	"
MIL 090498	Antarctica	2009	0.7	1	LL5	B			0.7	JSC	JSC	"	"
MIL 090499	Antarctica	2009	2.1	1	H6	C			2.1	JSC	JSC	"	"
MIL 090500	Antarctica	2009	0.8	1	H6	C			0.8	JSC	JSC	"	"
MIL 090501	Antarctica	2009	3.2	1	H6	C			3.2	JSC	JSC	"	"
MIL 090502	Antarctica	2009	3.1	1	H5	C			3.1	JSC	JSC	"	"
MIL 090503	Antarctica	2009	0.6	1	H6	C			0.6	JSC	JSC	"	"
MIL 090504	Antarctica	2009	1.5	1	H6	C			1.5	JSC	JSC	"	"
MIL 090505	Antarctica	2009	9.2	1	LL5	B			9.2	JSC	JSC	"	"
MIL 090506	Antarctica	2009	3.2	1	H6	C			3.2	JSC	JSC	"	"
MIL 090507	Antarctica	2009	2.5	1	H6	C			2.5	JSC	JSC	"	"
MIL 090508	Antarctica	2009	1.6	1	H5	C			1.6	JSC	JSC	"	"
MIL 090509	Antarctica	2009	0.9	1	H6	C			0.9	JSC	JSC	"	"
MIL 090510	Antarctica	2009	0.6	1	H6	B			0.6	JSC	JSC	"	"

MIL 090511	Antarctica	2009	0.5	1	H6	B			0.5	JSC	JSC	"	"
MIL 090512	Antarctica	2009	0.7	1	H6	C			0.7	JSC	JSC	"	"
MIL 090513	Antarctica	2009	1.2	1	L6	C			1.2	JSC	JSC	"	"
MIL 090514	Antarctica	2009	0.9	1	CO3	B	0-40		0.9	JSC	JSC	"	"
MIL 090515	Antarctica	2009	1.4	1	L6	C			1.4	JSC	JSC	"	"
MIL 090516	Antarctica	2009	0.6	1	H6	B			0.6	JSC	JSC	"	"
MIL 090517	Antarctica	2009	3.9	1	L6	C			3.9	JSC	JSC	"	"
MIL 090518	Antarctica	2009	0.9	1	H6	B/C			0.9	JSC	JSC	"	"
MIL 090519	Antarctica	2009	2.3	1	H6	C			2.3	JSC	JSC	"	"
MIL 090520	Antarctica	2009	1.8	1	H6	C			1.8	JSC	JSC	"	"
MIL 090521	Antarctica	2009	2.7	1	CK6	B	28	21	2.7	JSC	JSC	"	"
MIL 090522	Antarctica	2009	0.3	1	H6	B			0.3	JSC	JSC	"	"
MIL 090523	Antarctica	2009	3.0	1	H6	B/C			3.0	JSC	JSC	"	"
MIL 090524	Antarctica	2009	2.8	1	H6	B/C			2.8	JSC	JSC	"	"
MIL 090525	Antarctica	2009	1.9	1	H6	B/C			1.9	JSC	JSC	"	"
MIL 090526	Antarctica	2009	1.7	1	L6	B/C			1.7	JSC	JSC	"	"
MIL 090527	Antarctica	2009	0.9	1	H6	B			0.9	JSC	JSC	"	"
MIL 090528	Antarctica	2009	2.3	1	H6	C			2.3	JSC	JSC	"	"
MIL 090529	Antarctica	2009	0.9	1	H6	B			0.9	JSC	JSC	"	"
MIL 090540	Antarctica	2009	0.3	1	H6	C			0.3	JSC	JSC	"	"
MIL 090541	Antarctica	2009	1.0	1	L6	B			1.0	JSC	JSC	"	"
MIL 090542	Antarctica	2009	0.6	1	H6	Be			0.6	JSC	JSC	"	"
MIL 090543	Antarctica	2009	4.8	1	CO3	C	0-39	1-34	4.8	JSC	JSC	"	"
MIL 090544	Antarctica	2009	3.0	1	H5	C			3.0	JSC	JSC	"	"
MIL 090545	Antarctica	2009	1.3	1	L6	Ce			1.3	JSC	JSC	"	"
MIL 090546	Antarctica	2009	1.7	1	H6	Ce			1.7	JSC	JSC	"	"
MIL 090547	Antarctica	2009	2.4	1	H6	C			2.4	JSC	JSC	"	"
MIL 090548	Antarctica	2009	6.3	1	H6	Ce			6.3	JSC	JSC	"	"
MIL 090549	Antarctica	2009	2.2	1	H6	C			2.2	JSC	JSC	"	"
MIL 090550	Antarctica	2009	13.5	1	L6	C			13.5	JSC	JSC	"	"
MIL 090551	Antarctica	2009	4.9	1	H5	C			4.9	JSC	JSC	"	"
MIL 090552	Antarctica	2009	5.2	1	LL6	B/C			5.2	JSC	JSC	"	"
MIL 090553	Antarctica	2009	7.8	1	LL6	A			7.8	JSC	JSC	"	"
MIL 090555	Antarctica	2009	2.6	1	L5	B/C			2.6	JSC	JSC	"	"
MIL 090556	Antarctica	2009	1.3	1	L6	C			1.3	JSC	JSC	"	"
MIL 090557	Antarctica	2009	3.1	1	L5	C			3.1	JSC	JSC	"	"
MIL 090559	Antarctica	2009	8.7	1	L6	C			8.7	JSC	JSC	"	"
MIL 090570	Antarctica	2009	4.6	1	LL6	B/C			4.6	JSC	JSC	"	"
MIL 090571	Antarctica	2009	6.2	1	L5	A/B			6.2	JSC	JSC	"	"
MIL 090572	Antarctica	2009	2.9	1	L5	B			2.9	JSC	JSC	"	"
MIL 090573	Antarctica	2009	16.0	1	L5	C			16.0	JSC	JSC	"	"
MIL 090574	Antarctica	2009	2.9	1	LL5	B			2.9	JSC	JSC	"	"
MIL 090575	Antarctica	2009	7.9	1	L5	A/B			7.9	JSC	JSC	"	"
MIL 090576	Antarctica	2009	3.6	1	L6	A/B			3.6	JSC	JSC	"	"
MIL 090577	Antarctica	2009	8.1	1	LL5	B/C			8.1	JSC	JSC	"	"
MIL 090578	Antarctica	2009	8.3	1	H6	C			8.3	JSC	JSC	"	"
MIL 090579	Antarctica	2009	9.8	1	L6	B/C			9.8	JSC	JSC	"	"
MIL 090580	Antarctica	2009	147.2	1	LL6	A/B			147.2	JSC	JSC	"	"
MIL 090581	Antarctica	2009	88.2	1	LL6	A/B			88.2	JSC	JSC	"	"
MIL 090582	Antarctica	2009	83.8	1	LL6	B			83.8	JSC	JSC	"	"
MIL 090583	Antarctica	2009	32.7	1	L6	B/C			32.7	JSC	JSC	"	"
MIL 090584	Antarctica	2009	65.5	1	LL5	B/C			65.5	JSC	JSC	"	"
MIL 090585	Antarctica	2009	56.2	1	L5	B			56.2	JSC	JSC	"	"
MIL 090587	Antarctica	2009	7.3	1	LL6	A/B			7.3	JSC	JSC	"	"
MIL 090590	Antarctica	2009	4.7	1	LL6	B			4.7	JSC	JSC	"	"
MIL 090592	Antarctica	2009	6.7	1	L6	B/C			6.7	JSC	JSC	"	"
MIL 090595	Antarctica	2009	1.9	1	L6	C			1.9	JSC	JSC	"	"
MIL 090599	Antarctica	2009	3.0	1	L6	C			3.0	JSC	JSC	"	"
MIL 090600	Antarctica	2009	12.5	1	L6	C			12.5	JSC	JSC	"	"
MIL 090601	Antarctica	2009	1.3	1	LL6	B			1.3	JSC	JSC	"	"
MIL 090602	Antarctica	2009	12.6	1	L5	C			12.6	JSC	JSC	"	"
MIL 090603	Antarctica	2009	15.9	1	LL6	A			15.9	JSC	JSC	"	"
MIL 090604	Antarctica	2009	7.1	1	L6	C			7.1	JSC	JSC	"	"

MIL 090605	Antarctica	2009	1.3	1	LL5	B/C			1.3	JSC	JSC	"	"
MIL 090606	Antarctica	2009	5.7	1	L6	B			5.7	JSC	JSC	"	"
MIL 090607	Antarctica	2009	0.5	1	L6	B			0.5	JSC	JSC	"	"
MIL 090608	Antarctica	2009	3.3	1	L6	B			3.3	JSC	JSC	"	"
MIL 090609	Antarctica	2009	13.8	1	L5	B			13.8	JSC	JSC	"	"
MIL 090620	Antarctica	2009	93.4	1	L6	B			93.4	JSC	JSC	"	"
MIL 090621	Antarctica	2009	32.9	1	L6	A			32.9	JSC	JSC	"	"
MIL 090622	Antarctica	2009	152.4	1	H5	C			152.4	JSC	JSC	"	"
MIL 090623	Antarctica	2009	78.0	1	H5	C			78.0	JSC	JSC	"	"
MIL 090624	Antarctica	2009	35.0	1	L6	A/B			35.0	JSC	JSC	"	"
MIL 090625	Antarctica	2009	54.6	1	L6	A/B			54.6	JSC	JSC	"	"
MIL 090626	Antarctica	2009	119.0	1	H5	C			119.0	JSC	JSC	"	"
MIL 090627	Antarctica	2009	40.4	1	L5	B/C			40.4	JSC	JSC	"	"
MIL 090628	Antarctica	2009	53.7	1	L6	A			53.7	JSC	JSC	"	"
MIL 090629	Antarctica	2009	30.6	1	H5	C			30.6	JSC	JSC	"	"
MIL 090630	Antarctica	2009	11.1	1	L5	B			11.1	JSC	JSC	"	"
MIL 090631	Antarctica	2009	6.9	1	H6	C			6.9	JSC	JSC	"	"
MIL 090632	Antarctica	2009	0.5	1	L5	B			0.5	JSC	JSC	"	"
MIL 090633	Antarctica	2009	9.4	1	L5	A/B			9.4	JSC	JSC	"	"
MIL 090634	Antarctica	2009	19.4	1	L6	B			19.4	JSC	JSC	"	"
MIL 090635	Antarctica	2009	10.8	1	H6	C			10.8	JSC	JSC	"	"
MIL 090636	Antarctica	2009	26.5	1	L5	C			26.5	JSC	JSC	"	"
MIL 090637	Antarctica	2009	16.4	1	H6	B			16.4	JSC	JSC	"	"
MIL 090638	Antarctica	2009	24.5	1	L6	B			24.5	JSC	JSC	"	"
MIL 090639	Antarctica	2009	4.9	1	L6	A/B			4.9	JSC	JSC	"	"
MIL 090642	Antarctica	2009	38.2	1	LL6	A/B			38.2	JSC	JSC	"	"
MIL 090643	Antarctica	2009	59.7	1	LL6	A/B			59.7	JSC	JSC	"	"
MIL 090647	Antarctica	2009	85.4	1	LL6	B			85.4	JSC	JSC	"	"
MIL 090651	Antarctica	2009	116.2	1	LL6	A/B			116.2	JSC	JSC	"	"
MIL 090652	Antarctica	2009	14.1	1	H6	B/C			14.1	JSC	JSC	"	"
MIL 090653	Antarctica	2009	87.2	1	LL6	A/B			87.2	JSC	JSC	"	"
MIL 090654	Antarctica	2009	82.3	1	L6	B			82.3	JSC	JSC	"	"
MIL 090655	Antarctica	2009	27.4	1	LL6	A/B			27.4	JSC	JSC	"	"
MIL 090656	Antarctica	2009	19.3	1	L5	B/C			19.3	JSC	JSC	"	"
MIL 090658	Antarctica	2009	12.8	1	H6	B/C			12.8	JSC	JSC	"	"
MIL 090659	Antarctica	2009	17.4	1	L5	B/C			17.4	JSC	JSC	"	"
MIL 090660	Antarctica	2009	6.5	1	LL6	B	30	24-29	6.5	JSC	JSC	"	"
MIL 090661	Antarctica	2009	3.7	1	H5	C			3.7	JSC	JSC	"	"
MIL 090662	Antarctica	2009	7.0	1	H6	C			7.0	JSC	JSC	"	"
MIL 090663	Antarctica	2009	31.6	1	L6	B			31.6	JSC	JSC	"	"
MIL 090664	Antarctica	2009	5.2	1	H6	C			5.2	JSC	JSC	"	"
MIL 090665	Antarctica	2009	7.2	1	H6	C			7.2	JSC	JSC	"	"
MIL 090666	Antarctica	2009	5.5	1	L5	C			5.5	JSC	JSC	"	"
MIL 090667	Antarctica	2009	1.4	1	L5	C			1.4	JSC	JSC	"	"
MIL 090668	Antarctica	2009	5.2	1	L6	A/B			5.2	JSC	JSC	"	"
MIL 090669	Antarctica	2009	2.0	1	H6	C			2.0	JSC	JSC	"	"
MIL 090670	Antarctica	2009	9.2	1	H6	B/C			9.2	JSC	JSC	"	"
MIL 090671	Antarctica	2009	3.1	1	H6	C			3.1	JSC	JSC	"	"
MIL 090673	Antarctica	2009	1.0	1	L6	A/B	25-26	8-22	1.0	JSC	JSC	"	"
MIL 090674	Antarctica	2009	6.6	1	H5	C			6.6	JSC	JSC	"	"
MIL 090675	Antarctica	2009	13.9	1	L5	B/C			13.9	JSC	JSC	"	"
MIL 090676	Antarctica	2009	5.1	1	L5	B/C			5.1	JSC	JSC	"	"
MIL 090677	Antarctica	2009	3.9	1	CV3	B/C	4-11	0-8	3.9	JSC	JSC	"	"
MIL 090678	Antarctica	2009	8.7	1	L6	C			8.7	JSC	JSC	"	"
MIL 090679	Antarctica	2009	9.8	1	L6	C			9.8	JSC	JSC	"	"
MIL 090680	Antarctica	2009	20.4	1	L5	C			20.4	JSC	JSC	"	"
MIL 090681	Antarctica	2009	19.6	1	H5	C			19.6	JSC	JSC	"	"
MIL 090682	Antarctica	2009	2.6	1	L5	B			2.6	JSC	JSC	"	"
MIL 090684	Antarctica	2009	1.4	1	L5	C			1.4	JSC	JSC	"	"
MIL 090685	Antarctica	2009	2.3	1	L5	B/C			2.3	JSC	JSC	"	"
MIL 090689	Antarctica	2009	4.9	1	LL6	B			4.9	JSC	JSC	"	"
MIL 090690	Antarctica	2009	100.5	1	L6	B/C			100.5	JSC	JSC	"	"
MIL 090693	Antarctica	2009	52.8	1	L6	B/C			52.8	JSC	JSC	"	"

MIL 090694	Antarctica	2009	25.2	1	L5	C			25.2	JSC	JSC	"	"
MIL 090697	Antarctica	2009	28.9	1	L6	B/C			28.9	JSC	JSC	"	"
MIL 090698	Antarctica	2009	8.9	1	L6	B/C			8.9	JSC	JSC	"	"
MIL 090700	Antarctica	2009	2.0	1	CM2	B	0-68	2	2.0	JSC	JSC	"	"
MIL 090701	Antarctica	2009	12.1	1	LL6	A/B			12.1	JSC	JSC	"	"
MIL 090702	Antarctica	2009	5.2	1	LL6	B/C			5.2	JSC	JSC	"	"
MIL 090703	Antarctica	2009	21.8	1	L6	C			21.8	JSC	JSC	"	"
MIL 090704	Antarctica	2009	11.7	1	L6	C			11.7	JSC	JSC	"	"
MIL 090705	Antarctica	2009	4.9	1	CO3	B	0-63	10-38	4.9	JSC	JSC	"	"
MIL 090706	Antarctica	2009	10	1	L6	C			10	JSC	JSC	"	"
MIL 090707	Antarctica	2009	13.5	1	L5	B/C			13.5	JSC	JSC	"	"
MIL 090708	Antarctica	2009	2.6	1	CO3	B	1-43		2.6	JSC	JSC	"	"
MIL 090709	Antarctica	2009	2.8	1	L5	C			2.8	JSC	JSC	"	"
MIL 090710	Antarctica	2009	0.7	1	CO3	B	0-48	2	0.7	JSC	JSC	"	"
MIL 090711	Antarctica	2009	1.5	1	LL6	C			1.5	JSC	JSC	"	"
MIL 090712	Antarctica	2009	1.1	1	CO3	B	1-51		1.1	JSC	JSC	"	"
MIL 090713	Antarctica	2009	1.3	1	LL5	C			1.3	JSC	JSC	"	"
MIL 090714	Antarctica	2009	1.9	1	CO3	B	0-49		1.9	JSC	JSC	"	"
MIL 090715	Antarctica	2009	0.5	1	L6	C			0.5	JSC	JSC	"	"
MIL 090716	Antarctica	2009	0.8	1	CO3	B	1-33	1	0.8	JSC	JSC	"	"
MIL 090717	Antarctica	2009	2.5	1	CO3	Be	1-43	1	2.5	JSC	JSC	"	"
MIL 090718	Antarctica	2009	1.3	1	LL6	B			1.3	JSC	JSC	"	"
MIL 090719	Antarctica	2009	2.4	1	L5	C			2.4	JSC	JSC	"	"
MIL 090720	Antarctica	2009	0.7	1	H5	C			0.7	JSC	JSC	"	"
MIL 090721	Antarctica	2009	0.8	1	H5	C			0.8	JSC	JSC	"	"
MIL 090722	Antarctica	2009	1.3	1	CO3	A/B	1-49		1.3	JSC	JSC	"	"
MIL 090723	Antarctica	2009	0.6	1	CO3	B	0-55		0.6	JSC	JSC	"	"
MIL 090724	Antarctica	2009	0.6	1	H6	C			0.6	JSC	JSC	"	"
MIL 090725	Antarctica	2009	2.5	1	L6	C			2.5	JSC	JSC	"	"
MIL 090726	Antarctica	2009	1.8	1	LL5	B			1.8	JSC	JSC	"	"
MIL 090727	Antarctica	2009	0.6	1	CO3	C	0-65		0.6	JSC	JSC	"	"
MIL 090728	Antarctica	2009	0.4	1	H6	C			0.4	JSC	JSC	"	"
MIL 090729	Antarctica	2009	0.6	1	L6	C			0.6	JSC	JSC	"	"
MIL 090730	Antarctica	2009	1.9	1	CO3	B	0-31	1	1.9	JSC	JSC	"	"
MIL 090731	Antarctica	2009	10.9	1	L6	C			10.9	JSC	JSC	"	"
MIL 090732	Antarctica	2009	7.1	1	L5	C			7.1	JSC	JSC	"	"
MIL 090733	Antarctica	2009	8.3	1	LL6	B/C			8.3	JSC	JSC	"	"
MIL 090734	Antarctica	2009	3.7	1	LL6	B/C			3.7	JSC	JSC	"	"
MIL 090735	Antarctica	2009	3.7	1	L6	C			3.7	JSC	JSC	"	"
MIL 090736	Antarctica	2009	2.3	1	LL6	C			2.3	JSC	JSC	"	"
MIL 090737	Antarctica	2009	2.9	1	L5	C			2.9	JSC	JSC	"	"
MIL 090738	Antarctica	2009	1.7	1	L6	C			1.7	JSC	JSC	"	"
MIL 090739	Antarctica	2009	2.6	1	L6	C			2.6	JSC	JSC	"	"
MIL 090740	Antarctica	2009	123.0	1	L5	B			123.0	JSC	JSC	"	"
MIL 090741	Antarctica	2009	129.8	1	L6	C			129.8	JSC	JSC	"	"
MIL 090742	Antarctica	2009	114.3	1	L6	C			114.3	JSC	JSC	"	"
MIL 090743	Antarctica	2009	133.9	1	L5	C			133.9	JSC	JSC	"	"
MIL 090744	Antarctica	2009	47.6	1	LL6	B			47.6	JSC	JSC	"	"
MIL 090745	Antarctica	2009	36.4	1	L6	B			36.4	JSC	JSC	"	"
MIL 090746	Antarctica	2009	97.5	1	L6	C			97.5	JSC	JSC	"	"
MIL 090747	Antarctica	2009	67.4	1	L6	C			67.4	JSC	JSC	"	"
MIL 090748	Antarctica	2009	115.2	1	L6	C			115.2	JSC	JSC	"	"
MIL 090749	Antarctica	2009	57.1	1	LL6	B			57.1	JSC	JSC	"	"
MIL 090750	Antarctica	2009	6.1	1	H5	C			6.1	JSC	JSC	"	"
MIL 090751	Antarctica	2009	3.7	1	LL6	B			3.7	JSC	JSC	"	"
MIL 090752	Antarctica	2009	8.3	1	H5	C			8.3	JSC	JSC	"	"
MIL 090753	Antarctica	2009	6.7	1	L6	C			6.7	JSC	JSC	"	"
MIL 090754	Antarctica	2009	3.5	1	L6	Ce			3.5	JSC	JSC	"	"
MIL 090755	Antarctica	2009	2	1	H6	B			2	JSC	JSC	"	"
MIL 090756	Antarctica	2009	2.5	1	H6	C			2.5	JSC	JSC	"	"
MIL 090757	Antarctica	2009	5.3	1	H6	C			5.3	JSC	JSC	"	"
MIL 090758	Antarctica	2009	24.9	1	H5	C			24.9	JSC	JSC	"	"
MIL 090759	Antarctica	2009	16.9	1	L6	C			16.9	JSC	JSC	"	"

MIL 090760	Antarctica	2009	70.9	1	LL6	A/B			70.9	JSC	JSC	"	"
MIL 090761	Antarctica	2009	149.6	1	H5	C			149.6	JSC	JSC	"	"
MIL 090762	Antarctica	2009	112.7	1	LL6	B/C			112.7	JSC	JSC	"	"
MIL 090763	Antarctica	2009	65.7	1	H5	B/C			65.7	JSC	JSC	"	"
MIL 090764	Antarctica	2009	68.9	1	H6	B/C			68.9	JSC	JSC	"	"
MIL 090765	Antarctica	2009	86.0	1	H5	B/C			86.0	JSC	JSC	"	"
MIL 090766	Antarctica	2009	69.8	1	H5	B/C			69.8	JSC	JSC	"	"
MIL 090768	Antarctica	2009	28.3	1	H5	B/C			28.3	JSC	JSC	"	"
MIL 090769	Antarctica	2009	15.9	1	H5	B/C			15.9	JSC	JSC	"	"
MIL 090770	Antarctica	2009	2.2	1	L5	C			2.2	JSC	JSC	"	"
MIL 090771	Antarctica	2009	6.4	1	H6	B/C			6.4	JSC	JSC	"	"
MIL 090772	Antarctica	2009	6.1	1	LL5	C			6.1	JSC	JSC	"	"
MIL 090773	Antarctica	2009	10.2	1	L5	B/C			10.2	JSC	JSC	"	"
MIL 090774	Antarctica	2009	5.3	1	L5	B/C			5.3	JSC	JSC	"	"
MIL 090775	Antarctica	2009	8.6	1	L5	C			8.6	JSC	JSC	"	"
MIL 090776	Antarctica	2009	2.3	1	L5	B/C			2.3	JSC	JSC	"	"
MIL 090778	Antarctica	2009	35.1	1	L6	C			35.1	JSC	JSC	"	"
MIL 090779	Antarctica	2009	2.5	1	LL6	A			2.5	JSC	JSC	"	"
MIL 090780	Antarctica	2009	145.1	1	EL6	Ce		0-3	145.1	JSC	JSC	"	"
MIL 090790	Antarctica	2009	34.1	1	L5	C			34.1	JSC	JSC	"	"
MIL 090791	Antarctica	2009	19.4	1	LL6	A			19.4	JSC	JSC	"	"
MIL 090792	Antarctica	2009	17.1	1	L6	C			17.1	JSC	JSC	"	"
MIL 090793	Antarctica	2009	20.3	1	LL5	A/B			20.3	JSC	JSC	"	"
MIL 090794	Antarctica	2009	24.7	1	L5	C			24.7	JSC	JSC	"	"
MIL 090795	Antarctica	2009	24.0	1	L6	B/C			24.0	JSC	JSC	"	"
MIL 090796	Antarctica	2009	21.3	1	L6	C			21.3	JSC	JSC	"	"
MIL 090797	Antarctica	2009	43.1	1	L6	B/C			43.1	JSC	JSC	"	"
MIL 090798	Antarctica	2009	23.4	1	L5	C			23.4	JSC	JSC	"	"
MIL 090800	Antarctica	2009	5.1	1	LL6	B			5.1	JSC	JSC	"	"
MIL 090801	Antarctica	2009	4.5	1	H6	C			4.5	JSC	JSC	"	"
MIL 090802	Antarctica	2009	10.9	1	H5	C			10.9	JSC	JSC	"	"
MIL 090803	Antarctica	2009	14.6	1	H5	C			14.6	JSC	JSC	"	"
MIL 090804	Antarctica	2009	17.8	1	L6	C			17.8	JSC	JSC	"	"
MIL 090805	Antarctica	2009	4.9	1	Ach-ung	C	26-28		4.9	JSC	JSC	"	"
MIL 090806	Antarctica	2009	3.8	1	LL5	B/C			3.8	JSC	JSC	"	"
MIL 090807	Antarctica	2009	9.1	1	EL-melt rock	C		0.1-0.3	9.1	JSC	JSC	"	"
MIL 090808	Antarctica	2009	4.1	1	LL6	B			4.1	JSC	JSC	"	"
MIL 090809	Antarctica	2009	4.7	1	LL6	A			4.7	JSC	JSC	"	"
MIL 090810	Antarctica	2009	3.2	1	H6	B/C			3.2	JSC	JSC	"	"
MIL 090811	Antarctica	2009	2.4	1	L6	C			2.4	JSC	JSC	"	"
MIL 090812	Antarctica	2009	0.9	1	H6	C			0.9	JSC	JSC	"	"
MIL 090813	Antarctica	2009	5	1	L6	C			5	JSC	JSC	"	"
MIL 090814	Antarctica	2009	2.4	1	H6	C			2.4	JSC	JSC	"	"
MIL 090815	Antarctica	2009	1.7	1	H6	C			1.7	JSC	JSC	"	"
MIL 090816	Antarctica	2009	3.6	1	L6	C			3.6	JSC	JSC	"	"
MIL 090817	Antarctica	2009	2.7	1	Pal	B			2.7	JSC	JSC	"	"
MIL 090818	Antarctica	2009	1.4	1	LL6	C			1.4	JSC	JSC	"	"
MIL 090819	Antarctica	2009	1	1	LL6	B			1	JSC	JSC	"	"
MIL 090820	Antarctica	2009	1.5	1	L6	C			1.5	JSC	JSC	"	"
MIL 090821	Antarctica	2009	1.3	1	CO3	B	0-41	1-38	1.3	JSC	JSC	"	"
MIL 090822	Antarctica	2009	1.8	1	H6	C			1.8	JSC	JSC	"	"
MIL 090823	Antarctica	2009	0.9	1	H6	C			0.9	JSC	JSC	"	"
MIL 090824	Antarctica	2009	0.6	1	H6	C			0.6	JSC	JSC	"	"
MIL 090825	Antarctica	2009	2	1	L6	Ce			2	JSC	JSC	"	"
MIL 090826	Antarctica	2009	4.3	1	L5	C			4.3	JSC	JSC	"	"
MIL 090827	Antarctica	2009	1.9	1	LL5	B/C			1.9	JSC	JSC	"	"
MIL 090828	Antarctica	2009	3.7	1	L6	C			3.7	JSC	JSC	"	"
MIL 090829	Antarctica	2009	1.9	1	L6	C			1.9	JSC	JSC	"	"
MIL 090830	Antarctica	2009	33.1	1	LL6	A			33.1	JSC	JSC	"	"
MIL 090831	Antarctica	2009	14.0	1	H5	C	19-20	16-17	14.0	JSC	JSC	"	"
MIL 090832	Antarctica	2009	9	1	L6	C			9	JSC	JSC	"	"
MIL 090833	Antarctica	2009	48	1	H6	C			48	JSC	JSC	"	"

MIL 090834	Antarctica	2009	54	1	L6	C			54	JSC	JSC	"	"
MIL 090835	Antarctica	2009	12.8	1	LL5	A/B			12.8	JSC	JSC	"	"
MIL 090836	Antarctica	2009	13.1	1	H5	C			13.1	JSC	JSC	"	"
MIL 090837	Antarctica	2009	7.4	1	LL5	C			7.4	JSC	JSC	"	"
MIL 090839	Antarctica	2009	1.3	1	H5	C			1.3	JSC	JSC	"	"
MIL 090840	Antarctica	2009	0.7	1	CO3	B	2-71	0-5	0.7	JSC	JSC	"	"
MIL 090841	Antarctica	2009	1.9	1	L6	C			1.9	JSC	JSC	"	"
MIL 090842	Antarctica	2009	6.4	1	H5	C			6.4	JSC	JSC	"	"
MIL 090843	Antarctica	2009	4.5	1	L6	C			4.5	JSC	JSC	"	"
MIL 090844	Antarctica	2009	2.4	1	H5	C			2.4	JSC	JSC	"	"
MIL 090845	Antarctica	2009	2.3	1	L6	C			2.3	JSC	JSC	"	"
MIL 090846	Antarctica	2009	0.9	1	EH6	B		0-2	0.9	JSC	JSC	"	"
MIL 090847	Antarctica	2009	2.8	1	LL6	A/B			2.8	JSC	JSC	"	"
MIL 090848	Antarctica	2009	8.5	1	L5	B			8.5	JSC	JSC	"	"
MIL 090849	Antarctica	2009	6.1	1	L5	B/C			6.1	JSC	JSC	"	"
MIL 090860	Antarctica	2009	130.3	1	L6	B			130.3	JSC	JSC	"	"
MIL 090861	Antarctica	2009	167.7	1	LL6	A/B			167.7	JSC	JSC	"	"
MIL 090862	Antarctica	2009	87.5	1	LL5	B/C			87.5	JSC	JSC	"	"
MIL 090863	Antarctica	2009	70.9	1	LL5	A/Be			70.9	JSC	JSC	"	"
MIL 090864	Antarctica	2009	81.8	1	LL6	B/C			81.8	JSC	JSC	"	"
MIL 090865	Antarctica	2009	130.2	1	LL6	B/C			130.2	JSC	JSC	"	"
MIL 090866	Antarctica	2009	24.9	1	L5	A/B			24.9	JSC	JSC	"	"
MIL 090868	Antarctica	2009	75.7	1	H6	C			75.7	JSC	JSC	"	"
MIL 090869	Antarctica	2009	69.3	1	H6	C			69.3	JSC	JSC	"	"
MIL 090880	Antarctica	2009	30.0	1	LL6	A/B			30.0	JSC	JSC	"	"
MIL 090881	Antarctica	2009	12.1	1	L5	B/C			12.1	JSC	JSC	"	"
MIL 090882	Antarctica	2009	23.6	1	LL6	A/B			23.6	JSC	JSC	"	"
MIL 090883	Antarctica	2009	34.1	1	H5	C			34.1	JSC	JSC	"	"
MIL 090884	Antarctica	2009	26.3	1	LL6	A/B			26.3	JSC	JSC	"	"
MIL 090885	Antarctica	2009	14.6	1	LL6	A/B			14.6	JSC	JSC	"	"
MIL 090886	Antarctica	2009	12.3	1	H6	C			12.3	JSC	JSC	"	"
MIL 090887	Antarctica	2009	5.2	1	H6	C			5.2	JSC	JSC	"	"
MIL 090888	Antarctica	2009	2.3	1	L5	C			2.3	JSC	JSC	"	"
MIL 090889	Antarctica	2009	3.7	1	LL6	A/B			3.7	JSC	JSC	"	"
MIL 090890	Antarctica	2009	5.5	1	CO3	B	0-52	1-4	5.5	JSC	JSC	"	"
MIL 090891	Antarctica	2009	7.0	1	CO3	B	0-47	1-7	7.0	JSC	JSC	"	"
MIL 090892	Antarctica	2009	6.3	1	LL5	B			6.3	JSC	JSC	"	"
MIL 090893	Antarctica	2009	4.2	1	LL6	B/C			4.2	JSC	JSC	"	"
MIL 090894	Antarctica	2009	1.8	1	LL6	C			1.8	JSC	JSC	"	"
MIL 090895	Antarctica	2009	5.3	1	H5	B			5.3	JSC	JSC	"	"
MIL 090896	Antarctica	2009	0.7	1	L5	B			0.7	JSC	JSC	"	"
MIL 090897	Antarctica	2009	2.5	1	CO3	B	1-63	1	2.5	JSC	JSC	"	"
MIL 090898	Antarctica	2009	0.6	1	L6	B			0.6	JSC	JSC	"	"
MIL 090899	Antarctica	2009	2.3	1	H6	C			2.3	JSC	JSC	"	"
MIL 090900	Antarctica	2009	6.4	1	H5	C			6.4	JSC	JSC	"	"
MIL 090901	Antarctica	2009	14.8	1	H6	C			14.8	JSC	JSC	"	"
MIL 090902	Antarctica	2009	4.1	1	L6	C			4.1	JSC	JSC	"	"
MIL 090903	Antarctica	2009	6.1	1	L6	C			6.1	JSC	JSC	"	"
MIL 090904	Antarctica	2009	0.5	1	LL5	B			0.5	JSC	JSC	"	"
MIL 090905	Antarctica	2009	3.7	1	H5	C			3.7	JSC	JSC	"	"
MIL 090906	Antarctica	2009	1.3	1	H6	C			1.3	JSC	JSC	"	"
MIL 090907	Antarctica	2009	1.8	1	CO3	B	1-51	7	1.8	JSC	JSC	"	"
MIL 090908	Antarctica	2009	0.5	1	LL6	B			0.5	JSC	JSC	"	"
MIL 090909	Antarctica	2009	1.8	1	LL5	B/C			1.8	JSC	JSC	"	"
MIL 090910	Antarctica	2009	10.4	1	LL6	A/B			10.4	JSC	JSC	"	"
MIL 090911	Antarctica	2009	9.7	1	L6	B			9.7	JSC	JSC	"	"
MIL 090912	Antarctica	2009	13.8	1	H6	B/C			13.8	JSC	JSC	"	"
MIL 090913	Antarctica	2009	9.5	1	H5	B			9.5	JSC	JSC	"	"
MIL 090914	Antarctica	2009	8.8	1	LL5	A/B			8.8	JSC	JSC	"	"
MIL 090915	Antarctica	2009	7.3	1	CO3	B	0-51		7.3	JSC	JSC	"	"
MIL 090916	Antarctica	2009	5.0	1	LL6	B/C			5.0	JSC	JSC	"	"
MIL 090917	Antarctica	2009	4.5	1	LL6	A/B			4.5	JSC	JSC	"	"
MIL 090918	Antarctica	2009	7.6	1	H6	B/C			7.6	JSC	JSC	"	"

MIL 090919	Antarctica	2009	3.9	1	CO3	B	0-43	10	3.9	JSC	JSC	"	"
MIL 090931	Antarctica	2009	11.9	1	LL6	A/B			11.9	JSC	JSC	"	"
MIL 090932	Antarctica	2009	76.6	1	L6	B			76.6	JSC	JSC	"	"
MIL 090933	Antarctica	2009	23.4	1	L6	C			23.4	JSC	JSC	"	"
MIL 090934	Antarctica	2009	33.3	1	L6	C			33.3	JSC	JSC	"	"
MIL 090935	Antarctica	2009	17.9	1	LL5	A/B			17.9	JSC	JSC	"	"
MIL 090937	Antarctica	2009	29.2	1	Meso	C			29.2	JSC	JSC	"	"
MIL 090938	Antarctica	2009	12.2	1	LL6	A/B			12.2	JSC	JSC	"	"
MIL 090939	Antarctica	2009	16.9	1	LL6	A/B			16.9	JSC	JSC	"	"
MIL 090940	Antarctica	2009	11.8	1	L6	C			11.8	JSC	JSC	"	"
MIL 090941	Antarctica	2009	26.4	1	H5	B			26.4	JSC	JSC	"	"
MIL 090942	Antarctica	2009	8.6	1	L6	C			8.6	JSC	JSC	"	"
MIL 090943	Antarctica	2009	9	1	LL6	B			9	JSC	JSC	"	"
MIL 090944	Antarctica	2009	4.8	1	LL5	B			4.8	JSC	JSC	"	"
MIL 090945	Antarctica	2009	6.7	1	LL6	A			6.7	JSC	JSC	"	"
MIL 090946	Antarctica	2009	3.2	1	LL6	B			3.2	JSC	JSC	"	"
MIL 090947	Antarctica	2009	6.4	1	LL5	B/C			6.4	JSC	JSC	"	"
MIL 090948	Antarctica	2009	3.6	1	LL6	B	29-31	24-25	3.6	JSC	JSC	"	"
MIL 090949	Antarctica	2009	3.8	1	LL5	B			3.8	JSC	JSC	"	"
MIL 090950	Antarctica	2009	1.2	1	LL5	A/B			1.2	JSC	JSC	"	"
MIL 090951	Antarctica	2009	2.1	1	LL5	B/C			2.1	JSC	JSC	"	"
MIL 090952	Antarctica	2009	0.7	1	LL5	B			0.7	JSC	JSC	"	"
MIL 090953	Antarctica	2009	1.8	1	L6	C			1.8	JSC	JSC	"	"
MIL 090954	Antarctica	2009	0.5	1	H6	B			0.5	JSC	JSC	"	"
MIL 090955	Antarctica	2009	0.8	1	CO3	B	0-35		0.8	JSC	JSC	"	"
MIL 090956	Antarctica	2009	0.7	1	L6	B			0.7	JSC	JSC	"	"
MIL 090957	Antarctica	2009	2.9	1	H6	B	19	16	2.9	JSC	JSC	"	"
MIL 090958	Antarctica	2009	1.6	1	H5	C			1.6	JSC	JSC	"	"
MIL 090959	Antarctica	2009	7.5	1	H6	C			7.5	JSC	JSC	"	"
MIL 090960	Antarctica	2009	1.7	1	LL6	B			1.7	JSC	JSC	"	"
MIL 090961	Antarctica	2009	1.0	1	L6	B			1.0	JSC	JSC	"	"
MIL 090962	Antarctica	2009	1.8	1	L5	B/C			1.8	JSC	JSC	"	"
MIL 090963	Antarctica	2009	2.5	1	Ach-ung	C	28-30	10-11	2.5	JSC	JSC	"	"
MIL 090964	Antarctica	2009	0.6	1	L6	B			0.6	JSC	JSC	"	"
MIL 090965	Antarctica	2009	2.6	1	LL6	B			2.6	JSC	JSC	"	"
MIL 090966	Antarctica	2009	1.2	1	H6	C			1.2	JSC	JSC	"	"
MIL 090967	Antarctica	2009	0.3	1	CO3	B	1-41	1	0.3	JSC	JSC	"	"
MIL 090968	Antarctica	2009	2.3	1	L6	C			2.3	JSC	JSC	"	"
MIL 090969	Antarctica	2009	1.8	1	LL6	B			1.8	JSC	JSC	"	"
MIL 090970	Antarctica	2009	4.7	1	H6	C			4.7	JSC	JSC	"	"
MIL 090971	Antarctica	2009	4.8	1	LL6	A/B			4.8	JSC	JSC	"	"
MIL 090972	Antarctica	2009	8.9	1	H6	C			8.9	JSC	JSC	"	"
MIL 090973	Antarctica	2009	5.6	1	L6	B/C			5.6	JSC	JSC	"	"
MIL 090974	Antarctica	2009	2.4	1	LL6	B/C			2.4	JSC	JSC	"	"
MIL 090975	Antarctica	2009	2.8	1	LL6	B/C			2.8	JSC	JSC	"	"
MIL 090976	Antarctica	2009	4.8	1	H6	C			4.8	JSC	JSC	"	"
MIL 090977	Antarctica	2009	3.4	1	H6	C			3.4	JSC	JSC	"	"
MIL 090978	Antarctica	2009	7.5	1	EL-melt rock	C		0-1	7.5	JSC	JSC	"	"
MIL 090979	Antarctica	2009	1.6	1	LL6	B			1.6	JSC	JSC	"	"
MIL 090980	Antarctica	2009	98.1	1	Ureil	C	22	18-19	98.1	JSC	JSC	"	"
MIL 090981	Antarctica	2009	38.5	1	CV3	B/C	0-27		38.5	JSC	JSC	"	"
MIL 090982	Antarctica	2009	1.1	1	CK6	B	30-32		1.1	JSC	JSC	"	"
MIL 090983	Antarctica	2009	1.5	1	CO3	B	1-46	1-3	1.5	JSC	JSC	"	"
MIL 090984	Antarctica	2009	0.8	1	CM1	B			0.8	JSC	JSC	"	"
MIL 090985	Antarctica	2009	3.1	1	CB	B/C	3-15	0-25	3.1	JSC	JSC	"	"
MIL 090986	Antarctica	2009	1.4	1	CM1/2	B	0-23		1.4	JSC	JSC	"	"
MIL 090987	Antarctica	2009	1.2	1	LL6	B/C			1.2	JSC	JSC	"	"
MIL 090988	Antarctica	2009	3.8	1	CO3	B	1-43		3.8	JSC	JSC	"	"
MIL 090989	Antarctica	2009	2.1	1	CO3	B	1-54	1	2.1	JSC	JSC	"	"
MIL 090990	Antarctica	2009	21.9	1	L6	A/B			21.9	JSC	JSC	"	"
MIL 090991	Antarctica	2009	36.0	1	L6	B			36.0	JSC	JSC	"	"
MIL 090992	Antarctica	2009	4.9	1	CM1/2	B	0-52		4.9	JSC	JSC	"	"

Classified as E-impact melt in AMN.

MIL 090993	Antarctica	2009			2.0	1	CM1/2		A	1-56	1-9			2.0	JSC	JSC	"	"	
MIL 090994	Antarctica	2009			6.5	1	CM2		A/B	0-37	2			6.5	JSC	JSC	"	"	
MIL 090996	Antarctica	2009			24.7	1	L6		A/B					24.7	JSC	JSC	"	"	
MIL 090997	Antarctica	2009			43.0	1	L6		A/B					43.0	JSC	JSC	"	"	
MIL 090998	Antarctica	2009			49.3	1	L6		A/B					49.3	JSC	JSC	"	"	
MIL 090999	Antarctica	2009			41.1	1	L6		A/B					41.1	JSC	JSC	"	"	
Mundrabilla 021	Western Australia, Australia	26 Oct 2010	30°46'47"S	127°31'23"E	13	1	H4	S4	W4	18.61	17.12	1.34		6.4	Monash	Monash	A. Tomkins	L. Chlanda	
NWA 1153	(NW Africa)	P 1999			50	1	L6	S6	W1	25.3	21.3			11.6	MNB	H. Stehlik	Ansgar Greshake, MNB		
NWA 1154	(NW Africa)	P 1999			54	2	H5	S2	W1	18.6	16.4			12	MNB	H. Stehlik	"	"	
NWA 1155	(NW Africa)	P 1999			360	1	H5	S2	W3	19.2	16.7			23.4	MNB	H. Stehlik	"	"	
NWA 1156	(NW Africa)	P 1999			80	1	H6	S4	W2	18.4	16.4			18.2	MNB	H. Stehlik	"	"	
NWA 1159	(NW Africa)	P 1999			85	1	L6	S4	W2	24.4	21			18.4	MNB	H. Stehlik	"	"	
NWA 1160	(NW Africa)	P 1999			45	1	H6	S2	W2	18.6	16.8			15	MNB	H. Stehlik	"	"	
NWA 1161	(NW Africa)	P 1999			43	1	H5	S2	W1	18.4	16.3			9.4	MNB	H. Stehlik	"	"	
NWA 1164	(NW Africa)	P 2001			115	1	L6	S4	W1	23.5	19.8			21.8	MNB	H. Stehlik	"	"	
NWA 1166	(NW Africa)	P 2001			240	1	L-melt rock	S4	W2	24.3	20.7			25.2	MNB	H. Stehlik	A. Greshake, MNB	"	
NWA 1616	(NW Africa)	P 2001			45.1	1	CR2	S2	W3	0.5-2.7				9.0	UCLA	Nelson Oakes	Alan Rubin, UCLA	"	Large chondrules w/irreg. surfaces, abundant matrix, large metal grains.Submitted by Alan Rubin.
NWA 3154	(NW Africa)	P Apr 2005			722	1	H4	S2	W0/1	16.9-17.2	15.1	0.3		20.6	UWS	G. Hupe	A. Irving and S. Kuehner, UWS	"	GH-147
NWA 3193	Morocco	2008			95.6	1	CK4	S3	W4	31.2±0.2				20.3	UCLA	JUtas	Alan Rubin, UCLA	"	
NWA 3195	Morocco	2008			15.97	1	L-melt brc	S6	W1	14.5±5.5				5	UCLA	JUtas	"	"	
NWA 3199	(NW Africa)	P Feb 2004			2.6	1	Euc	low	low		59.7-60.4; 31.2-32.4	6.1-4.3; 39.4-38.4		0.7	UWS	Utas	A. Irving and S. Kuehner, UWS	"	NWAU 199.
NWA 3304	NWA	P Feb 2006			414.7	1	CV3	S1		2.5 (0.4-7.5; n=18)	2.3 (0.8-6.2; n=5)	1.1 (0.5-1.7; n=5)	4.32	20	Kiel	HSSH	R. Bartoschewitz	anonymous	
NWA 3322	(NW Africa)	P Apr 2007			1442	1	IAB							21	FUB	R. Bartoschewitz	"	"	
NWA 4165	(NW Africa)	P 2005			432	1	Ureil	high	low	19.6	17.3	9		21	FMNH	FMNH	T. Bunch and J. Wittke, NAU		
NWA 4605	(NW Africa)	P May 2006			59.6	1	L6	S3	W1	23.8	20.3			14.6	MNB	H. Strufe	A. Greshake, MNB	"	
NWA 4606	(NW Africa)	P May 2006			383.2	1	H6	S2	W3	18.6	16.5			28.8	MNB	H. Strufe	"	"	
NWA 4607	(NW Africa)	P May 2006			963.5	3	L4/5	S4	W2	23.6	20			69.9	MNB	H. Strufe	"	"	
NWA 4608	(NW Africa)	P May 2006			833.5	4	L6	S4	W1/2	22.7	19.9			43.4	MNB	H. Strufe	"	"	
NWA 4609	(NW Africa)	P May 2006			738.3	1	H5	S2	W2	18	15.8			27.7	MNB	H. Strufe	"	"	
NWA 4610	(NW Africa)	P May 2006			486.7	1	L6	S4	W1	23	19.4			29.8	MNB	H. Strufe	"	"	
NWA 4611	(NW Africa)	P May 2006			242.1	1	CV3	S2	W2/3	1.2 (0.2-10.6)	0.8 (0.5-1)			22	MNB	H. Strufe	"	"	
NWA 4612	(NW Africa)	P May 2006			26.4	3	L3	S2	W3	11.1 (0.4-19.8)	5.2 (1.9-15.6)			6.6	MNB	H. Strufe	"	"	
NWA 4613	(NW Africa)	P Jan 2006			93.5	1	L5/6	S3	W1	23.3	19.7			18.7	MNB	J. Nauber	"	"	
NWA 4614	(NW Africa)	P Jan 2006			26	1	H5/6	S2	W1	18	16.4			5.4	MNB	J. Nauber	"	"	
NWA 4616	(NW Africa)	P Jan 2006			54.5	1	H6	S2	W1	17.9	15.9			11.1	MNB	J. Nauber	"	"	
NWA 4617	(NW Africa)	P Jan 2006			95	1	H5/6	S2	W2	17.4	15.8			21.6	MNB	J. Nauber	"	"	
NWA 4618	(NW Africa)	P Jan 2006			65	1	H6	S2	W3	17.3	15.4			13.6	MNB	J. Nauber	"	"	
NWA 4620	(NW Africa)	P Jan 2006			56	1	L6	S4	W2	23.6	20.3			14.1	MNB	J. Nauber	"	"	
NWA 4621	(NW Africa)	P Jan 2006			251	1	L6	S4	W1/2	24	20.4			26.5	MNB	J. Nauber	"	"	
NWA 4622	(NW Africa)	P Jan 2006			16	1	L6	S4	W2	23.9	20.3			3.2	MNB	J. Nauber	"	"	
NWA 4623	(NW Africa)	P June 2006			48.5	1	L6	S2	W0/1	23.8	20.1			11	MNB	J. Nauber	"	"	
NWA 4625	(NW Africa)	P June 2006			37	1	H4/5	S2	W1	17.9	14.7-18.9			21.2	MNB	J. Nauber	"	"	
NWA 4627	(NW Africa)	P 2005			26.8	1	H6	S2	W0/1	18.6	16.5			5.8	MNB	J. Nauber	"	"	
NWA 4628	(NW Africa)	P 2006			45.7	1	CO3	S2	W2	0.3-50.4	0.9-4.5			9.5	MNB	Marc Jost	"	"	
NWA 4629	(NW Africa)	P 2006			56.2	1	L5/6	S2	W1	23.4	19.6			11.8	MNB	aonymous finder	"	"	
NWA 4630	(NW Africa)	P 2006			26.4	1	H6	S2	W3	19.3	16.3			6.2	MNB	aonymous finder	"	"	
NWA 4631	(NW Africa)	P 2006			37	1	L5/6	S2	W2	23.4	19.7			8	MNB	aonymous finder	"	"	
NWA 4632	(NW Africa)	P 2006			6500	many	L5	S4	W2	23.2	19.7			57.4	MNB	H. Stehlik	"	"	Breccia.

NWA 4633	(NW Africa)	P 2006	122	1	H4	S2	W1	16.7	10.3-17.0			25.2	MNB	H. Stehlik	Ansgar Greshake, MNB	"	
NWA 4634	(NW Africa)	P 2006	170	1	LL5	S2	W1	27.1	22.5			20.3	MNB	H. Stehlik	"	"	Mineral chemistry of olivine and pyroxene as well as texture are intermediate between L and LL type chondrites.
NWA 4635	(NW Africa)	P 2006	11.2	1	LL5	S2	W2	31.1	26			2.3	MNB	anonymous finder	"	"	
NWA 4637	(NW Africa)	P 2006	36.1	1	L3	S2	W2/3	0.2-25	2-21.7			7.2	MNB	H. Strufe	"	"	
NWA 4638	(NW Africa)	P 2006	54.3	1	H5/6	S2	W3	17	15.2			11.6	MNB	H. Strufe	"	"	
NWA 4639	(NW Africa)	P 2006	52.5	1	LL4-6	S2	W2	27.5	7-23.8			12.5	MNB	H. Strufe	"	"	
NWA 4640	(NW Africa)	P 2006	778.2	1	H5	S2	W2	17.6	15.9			36.4	MNB	H. Strufe	"	"	
NWA 4641	(NW Africa)	P 2006	178.5	1	LL6	S3	W1	29.8	25.2			22.2	MNB	H. Strufe	"	"	
NWA 4644	(NW Africa)	P 2006	159.1	1	L3-6	S3	W2	16.5±9.5 (1.3-29.7, n=13)	13±4.1 (6.2-18.2, n=13)			22.5	MNB	Hanno Strufe	"	"	
NWA 4645	(NW Africa)	P 2006	56.6	1	L(LL)3	S2	W1	17.1±6.8 (8.7-26.1, n=15)	10.5±7.7 (2.5-20.2, n=10)			12.8	MNB	Hanno Strufe	"	"	
NWA 4646	(NW Africa)	P 2006	2042.4	1	L3	S2	W2/3	22.4±16.6 (2.7-51.4, n=11)	18.6±5.3 (1.8-17.6, n=18)			22.6	MNB	Hanno Strufe	"	"	
NWA 4852	Morocco	P 2002	237	1	Ureil	S3	W3	12.6	11.4	9.0		20.6	UCLA	Paul Sipiera	Paul Warren, UCLA	"	
NWA 4945	(NW Africa)	P 2007 Mar	3150	1	EL6	S1	W0		0.2-0.9	45.9		20.3	UWS	Farmer	A. Irving and S. Kuehner, UWS	"	
NWA 4946	(NW Africa)	P 2007 Mar	4543	1	EL6	S1	W0		0.1-0.3; 0.3	1.5-1.4; 46.1		45.5	UWS, BathO	J. Schrader	"	"	
NWA 5136	Morocco	P 2007	223.2	1	LL6	S2/3	W3	31	26	2		20	AMSA	Gheesling	A. Sarafian and R.S. Harris, GSU	"	The main mass was purchased from Aziz Habibi (Erfoud, Morocco) by Dave Gheesling.
NWA 5167	Morocco	2007	859	2	Angrite	mod	mod	43	8	39	4.3	40	UPVI	Moroccan Imports	Jambon et al.	anonymous	
NWA 5234	Algeria	P Feb 2008	399	1	Euc-mm	mod	low		61.4-61.5	2.0-1.9		20.1	UWS	AHupé	A. Irving and S. Kuehner, UWS		
NWA 5275	(NW Africa)	P 2006	2313	2	L4/5	S4	W1	23.1	20.5			25	MNB	Christian Anger	Ansgar Greshake, MNB	"	
NWA 5276	(NW Africa)	P 2006	1289	1	L3-6	S3	W2	15.2-25.0	10.1-21.1			33.2	MNB	Christian Anger	A. Greshake, MNB	"	
NWA 5277	(NW Africa)	P 2007	556	1	L3	S2	W2	0.8-29.5	2.4-19.4			25.2	MNB	Christian Anger	"	"	
NWA 5278	(NW Africa)	P 2007	155	1	L4	S3	W1	22.4	11.6-20.7			23.8	MNB	Christian Anger	Ansgar Greshake, MNB	"	
NWA 5279	(NW Africa)	P 2007	580	1	L3	S2	W1	1.2-17.0	3.3-17.4			25.6	MNB	Christian Anger	A. Greshake, MNB	"	
NWA 5280	(NW Africa)	P 2007	557	1	H3	S2	W2	0.8-18.7	2.4-19.0			28	MNB	Christian Anger	"	"	
NWA 5281	(NW Africa)	P 2007	105.5	1	L3	S2	W2	8.1-23.8	1.1-20.6			23.6	MNB	Christian Anger	"	"	
NWA 5282	(NW Africa)	P 2007	384	1	L4/5	S3	W1	22.4	19.9			23.8	MNB	Christian Anger	Ansgar Greshake, MNB	"	
NWA 5283	(NW Africa)	P 2007	810.4	1	H4	S2	W1	18.9	9.9-16.1			22.6	MNB	Christian Anger	"	"	
NWA 5284	(NW Africa)	P 2007	665	1	L3-6	S3	W2	0.5-27	4.6-21.6			22.8	MNB	Christian Anger	A. Greshake, MNB	"	
NWA 5317	(NW Africa)	P 2004	72	1	H5	S2	W1	17.8	15.9			15	MNB	H. Stehlik	Ansgar Greshake, MNB	"	
NWA 5318	(NW Africa)	P 2004	90	1	H6	S2	W1	17.9	16.2			20.6	MNB	H. Stehlik	"	"	
NWA 5319	(NW Africa)	P 2004	30	1	H3	S2	W0/1	6.4-23.9	3.6-16.7			6.4	MNB	H. Stehlik	A. Greshake, MNB	"	
NWA 5320	(NW Africa)	P 2004	86	1	H5	S2	W2	17.7	15.7			27.4	MNB	H. Stehlik	Ansgar Greshake, MNB	"	
NWA 5321	(NW Africa)	P 2004	52	1	H4	S2	W3	17.2	14.9-19.3			10.4	MNB	H. Stehlik	"	"	
NWA 5322	(NW Africa)	P 2004	70	1	LL5	S2	W1	27.5	22.8			14.2	MNB	H. Stehlik	"	"	
NWA 5323	(NW Africa)	P 2005	200	1	H4/5	S4	W2/3	18.5	14.5-18.7			27.8	MNB	H. Stehlik	"	"	
NWA 5324	(NW Africa)	P 2005	250	1	L6	S4	W2	23.8	20.4			29.2	MNB	H. Stehlik	"	"	

NWA 5325	(NW Africa)	P 2005	150	1	L4	S4	W2	24.1	19.6-24.1		25.4	MNB	H. Stehlik	"	"	
NWA 5326	(NW Africa)	P 2005	250	1	H6	S2	W1	17.7	15.8		20	MNB	H. Stehlik	"	"	
NWA 5327	(NW Africa)	P 2005	44	1	L5	S3	W1	25.4	22.1		17.9	MNB	H. Stehlik	"	"	
NWA 5328	(NW Africa)	P 2005	55	1	H5/6	S2	W3	18.2	16.2		19.8	MNB	H. Stehlik	"	"	
NWA 5329	(NW Africa)	P 2005	35	1	LL5	S2	W1/2	30.3	24.8		8.8	MNB	H. Stehlik	"	"	Breccia.
NWA 5330	(NW Africa)	P 2005	300	1	L6	S4	W1	24.3	20.4		24.6	MNB	H. Stehlik	"	"	Breccia.
NWA 5331	(NW Africa)	P 2005	70	1	LL6	S2	W1	28.5	23.1		15.4	MNB	H. Stehlik	"	"	Breccia.
NWA 5332	(NW Africa)	P 2006	63	1	H5	S2	W2	18.4	16.7		13.8	MNB	H. Stehlik	"	"	
NWA 5333	(NW Africa)	P 2007	160	1	L4	S2	W2	23.8	1.2-19.9		30.8	MNB	H. Stehlik	"	"	
NWA 5334	(NW Africa)	P 2005	1223	1	H5	S2	W2	18.6	16.8		20.2	MNB	H. Stehlik	"	"	
NWA 5336	(NW Africa)	P 2002	1853	1	H6	S2	W3	18.8	16.9		34.2	MNB	H. Strufe	"	"	
NWA 5337	(NW Africa)	P 2007	507.3	1	H5	S2	W1	18	15.6		31.2	MNB	H. Strufe	"	"	
NWA 5338	(NW Africa)	P 2007	60.8	1	H6	S2	W2/3	18.6	16.4		15	MNB	H. Strufe	"	"	
NWA 5392	(NW Africa)	P 2007	188.2	1	H4	S1	W1/2	17.6	14.2±4.4, n=37, range 2.9-16.4		23.4	MNB	Marc Jost	A. Greshake, MNB	"	
NWA 5394	(NW Africa)	P 2003	15.3	1	H6	S2	W3	19.1	17		3.3	MNB	F. Kuntz	"	"	
NWA 5395	(NW Africa)	P 2006	123	1	L6	S4	W2	23.2	19.8		20.2	MNB	F. Kuntz	"	"	
NWA 5396	(NW Africa)	P 2008	29	1	H6	S2	W2/3	18.6	16.8		5.9	MNB	F. Kuntz	"	"	
NWA 5429	(NW Africa)	P late 1990s	4205	1	L3-6	S3	W1	25±2.5	19.5±4		41	IfP	anonymous	A. Bischoff, IfP	"	Breccia containing type 6 and unequilibrated fragaments, shock veins.
NWA 5435	Morocco	2009	444	1	Brach	S3	low	32.7	10.5	45.6	20.14	PSF	F. Kuntz	T. Bunch and J. Wittke, NAU	"	
NWA 5458	Morocco	Sept 2006	5200	many	L6	S3	W2	24.2±0.3			24	UCLA	Tom Phillips	Alan Rubin	"	
NWA 5459	Morocco	Sept 2006	26400	many	L4	S1	W3	24.8±3.7			37.6	UCLA	Tom Phillips	"	"	
NWA 5460	Morocco	Sept 2006	44400	9	H4	S1	W5	17.0±0.2	15.4	1.3	35	UCLA	Tom Phillips	Alan Rubin, UCLA	"	
NWA 5470	(NW Africa)	P 2008	2433	2	H6	S2	W1	18.7	16.7		22.8	MNB	S. Ralew	A. Greshake, MNB	"	
NWA 5548	(NW Africa)	P Sept 2008	56	1	Ach-ung	low	mod	29.9-30.3	9.8-10.0; 24.1±0.05	43.5-43.7; 2.1-2.2	13.7	UWS, BathO	T. Webb	A. Irving and S. Kuehner, UWS	"	
NWA 5559	(NW Africa)	P 2008	64.5	1	LL6	S4	W0/1	27.2	22.6		16.8	MNB	Marc Jost	A. Greshake, MNB	"	
NWA 5560	(NW Africa)	P 2008	83.9	1	H5/6	S1	W2/3	17.6	15.8		20.8	MNB	Marc Jost	"	"	
NWA 5561	(NW Africa)	P 2008	57.8	1	CV3	S2	W2	0.8-70.5	1.1-1.8		12	MNB	Marc Jost	"	"	The meteorite is composed of chondrules, large CAIs, and olivine amoeboids set into black almost opaque matrix. CAIs often show pronounced Wark-Lovering rims.
NWA 5562	(NW Africa)	P 2004	70	1	L6	S3	W2	23.5	19.9		19.6	MNB	H. Stehlik	"	"	
NWA 5563	(NW Africa)	P 2004	62	1	H6	S2	W1	16.3	14.7		14.5	MNB	H. Stehlik	"	"	
NWA 5564	(NW Africa)	P 2004	91	1	L6	S3	W3	24.1	20.2		26.6	MNB	H. Stehlik	"	"	
NWA 5565	(NW Africa)	P 2005	60	1	L4	S3	W1	23.2	6.9-24.6		16.4	MNB	H. Stehlik	"	"	
NWA 5566	(NW Africa)	P 2005	200	1	L6	S2	W0/1	23	19.6		27.6	MNB	H. Stehlik	"	"	
NWA 5567	(NW Africa)	P 2005	21	1	L4	S2	W1	22±1 (19.8-24.2, n=31)	17.6±5.2 (4.2-24.0, n=43)		6.3	MNB	H. Stehlik	"	"	PMD Fa is <5 and PMD Fs is >5
NWA 5568	(NW Africa)	P 2005	50	1	L5/6	S2	W2	23.7	19.9		10.6	MNB	H. Stehlik	"	"	
NWA 5569	(NW Africa)	P 2005	75	1	H5/6	S2	W1	17.5	15.5		15.7	MNB	H. Stehlik	"	"	
NWA 5570	(NW Africa)	P 2005	32	1	L6	S2	W1	23.4	19.7		6.6	MNB	H. Stehlik	"	"	
NWA 5571	(NW Africa)	P 2005	36	1	L6	S3	W2	23.9	20		7.1	MNB	H. Stehlik	"	"	
NWA 5572	(NW Africa)	P 2005	50	1	H5	S2	W2	17.5	15.6		10.6	MNB	H. Stehlik	"	"	
NWA 5573	(NW Africa)	P 2006	42	1	L6	S2	W1	23.3	20		13	MNB	H. Stehlik	"	"	
NWA 5576	(NW Africa)	P 2007	75	1	LL5	S2	W2	26.4	22.2		16.2	MNB	H. Stehlik	"	"	
NWA 5577	(NW Africa)	P 2007	630	1	LL6	S2	W2	28.5	23.6		25.9	MNB	H. Stehlik	"	"	
NWA 5578	(NW Africa)	P 2007	630	1	LL6	S2	W1	28.5	23.2		23.2	MNB	H. Stehlik	"	"	
NWA 5581	(NW Africa)	P 2007	90	1	LL4	S1	W2	29.6	8.5-28.3		21.6	MNB	H. Stehlik	"	"	
NWA 5652	Morocco	2008	365	1	Diog-ol	med	low	30.6; Fe/Mn = 33	23.9; Fe/Mn = 28	4.4	24	NAU	Tutrow	T. Bunch, NAU	"	
NWA 5719	Morocco	2008	392	1	Euc	low	low		56.2; 32.1	8.0; 40.5	21.1	NAU	Aaronson	"	"	Cumulate breccia.
NWA 5720	Morocco	2008	82	1	Meso	low	low		26.3	4.1	16.8	NAU	DPitt	"	"	
NWA 5722	Morocco	2008	78	1	Ureil	low	low	25.5 (core)	21.8 (core)	0.7	18.7	NAU	Anonymous	"	"	Preferred orientation of elongate olivine and pigeonite. Submitted by Bunch.
NWA 5724	Morocco	2008	268	1	How	med	low		24.7; 56.2	2.6; 8.2	21.3	NAU	DPitt	"	"	
NWA 5725	Morocco	2008	37.1	1	Ureil	med	low	26.6 (core)	22.1 (core)	0.7	8.1	NAU	Tutrow	"	"	Stretched olivine and pigeonite grains together with graphite and metal that give a squeezed appearance. Submitted by Bunch.

NWA 5728	Morocco	2008	76	1	LL6	S3	W3	27.7	23.8	1.8	15.5	NAU	Tutrow	"	"	Type specimen mass includes 0.5 g used in thin section preparation.
NWA 5738	Morocco	2009	2200	1	Euc-br	mod	Light		65-29	2-43	24	UCLA	Nick Gessler	P. Warren, UCLA	"	
NWA 5741	(NW Africa)	Feb 2009	37	1	CK4	S2	low	33.1-34.1	8.6-10.4	47.2-46.4	7.4	UWS	AHupe	A. Irving and S. Kuehner, UWS	"	Plagioclase An50.6-54.7Or1.8-1.7
NWA 5742	(NW Africa)	Feb 2009	180	1	Diog				24.5-34.4	2.3-3.1; 7.(	20.0	UWS	AHupe	"	"	
NWA 5804	(NW Africa)	P Oct 2005	726	1	IAB-ung						31.9	UAb	Andreas Gren	C. Herd, UAb	"	
NWA 5956	(NW Africa)	P Feb 2006	285	1	CK3	S2	W1	0.7-38.8	4.7; 18.1	2.6; 11.7	25	UWS	M. Farmer	A. Irving and S. Kuehner	"	MF09-1.
NWA 5961	Morocco	P May 2009	259	1	Euc-mm	low	low		59.1-59.6; 29. 29.3	4.6-5.1; 40.3-40.7	22	UWS	Anonymous	A. Irving and S. Kuehner, UWS	"	
NWA 5969	Morocco	P 2009	4000	1	Brach	low	low	34.2; FeO/MnO = 78	11.2	25.6	21	NAU	Aaronson	T. Bunch and Wittke, NAU	"	
NWA 5971	Morocco	P 2009	484	1	Brach	low	low	34.9; FeO/MnO = 78	10.5	48.2	21.4	NAU	Aaronson	"	"	Paired to NWA 4872.
NWA 5972	Morocco	P 2009	615	1	CR2	S2	W3	2.2; FeO/MnO = 13	3.1	44	25.7	NAU	DPitt	Bunch and Wittke, NAU	"	Phyllosilicates present.
NWA 5975	Morocco	P 2008	720	1	Meso	med	low		23.1	2.1	22	NAU	Aaronson	T. Bunch and Wittke, NAU	"	Metal Ni, 6.2 wt %; plagioclase, An93; chromite cr#, 66
NWA 5976	Morocco	P 2008	158	1	Brach		low	32.4; FeO/MnO = 84	9.8	45.3	21.3	NAU	Aaronson	"	"	
NWA 5980	Morocco	P 2009	298	1	Win	S2	W2	4.1	6.2	2.1	20	NAU	M. Cimala	"	"	Paired to NWA 4024.
NWA 6079	(NW Africa)	P Sep 2008	503	7	LL-melt brc	S4	W1	30.5-30.6	24.7-25.9; 11.5±0.05	3.2-3.9; 41.5-41.9	21.7	UWS	J. Higgins	A. Irving and S. Kuehner	"	JH10-4.
NWA 6105	(NW Africa)	P 18 May 2008	12	4	Euc-pm				39.3-58.2 (low-Ca); 18.0-30.2 (high-Ca)	0.9-10.0 (low-Ca); 32.8-46.3 (high-Ca)	12	UTenn	L. A. Taylor	A. Zhang and B. McFerrin (UTenn)	"	
NWA 6106	NWA	P 18 May 2008	302	1	Euc-pm				33.5-35.8 (low-Ca); 28.7-29.8 (high-Ca)	2.6-10.9 (low-Ca); 37.3-42.1 (high-Ca)	302	UTenn	L.A. Taylor	A. Zhang and E. Worsham (UTenn)	"	
NWA 6151	(NW Africa)	P Feb 2010	125	1	Euc-pm		mod		34.2-34.7; 13.5-16.1	2.0-1.9; 44.5-42.2	20	UWS	Morgan	A. Irving and S. Kuehner, UWS	"	
NWA 6152	(NW Africa)	P Jan 2010	200	18	Brach	low	mod	30.6-30.7	24.6-24.7; 9.8-10.2	2.1±0.0; 43.8-43.2	21.4	UWS	H. Strufe	A. Irving and S. Kuehner	"	HS132
NWA 6153	(NW Africa)	P Jan 2010	37.4	1	E	S1	W5		0.2-0.6	1.4	8.6	UWS	H. Strufe	"	"	Paired with Al Haggounia 001.
NWA 6171	(NW Africa)	P Dec 2009	44	1	Lodr		low	10.3-10.5	8.0-10.5; 3.8-4.4	1.4-2.6; 44.0-41.1	10.6	UWS, BathO	T. Webb	A. Irving and S. Kuehner, UWS	"	
NWA 6172	(NW Africa)	P Dec 2009	153	1	Ach-ung	low	mod	30.3-30.6	9.5-10.0; 24.3-24.6	43.1-43.8; 2.2-2.3	21.8	UWS, BathO	T. Webb	"	"	
NWA 6178	Morocco	P 2009	380	1	How		low	38.5 (n=2)	30.2 (diog) 51.1 (euc)	2.4 (diog) 8.3 (euc)	20.7	NAU	AHabibi	T. Bunch and Wittke, NAU	"	
NWA 6179	Morocco	P 2009	180	1	LL6-melt brc	S5	W3	28.7	24.7	1.7	26	NAU	AHabibi	T. Bunch and J. Wittke, NAU	"	
NWA 6186	Morocco	P 2009	110	1	L3.7	S2	W2	25.2±9.0 (13.9-34.2)	12.3-18.8		20.4	NAU	AHabibi	T. Bunch and Wittke, NAU	"	
NWA 6187	(NW Africa)	P 2009	20	1	Win	S2	W2	4.1 (n=17)	6.8 (n=17)	2.8	5	NAU	AHabibi	"	"	
NWA 6188	Morocco	P 2009	87	1	L3.9	S2	W2	24.6±3.0 (19.8-26.9)	20.3		18.5	NAU	AHabibi	"	"	
NWA 6190	Morocco	P 2009	19	1	R4	S2	low	38.5	21.1		4.2	NAU	AHabibi	T. Bunch and J. Wittke, NAU	"	
NWA 6191	Morocco	P 2009	145	1	L3.7	S3	W1/2	25.5±9.0 (15.5-35.7)	14.7-20.0		21.8	NAU	DPitt	T. Bunch and Wittke, NAU	"	
NWA 6192	Morocco	P 2009	156	1	CV3	S2	low	12.2-54.4	0.3-31.1		20.6	NAU	AStimpson	"	"	
NWA 6193	(NW Africa)	P 2009	68	1	Aubrite	S2	low		0.4 (n=11)	0.8 (n=5)	15.7	NAU	Aaronson	"	"	
NWA 6199	Morocco	P 2009	126	1	L5-melt brc	S5	W3	24.6	21.8	1.8	21	NAU	Gregory	T. Bunch and J. Wittke, NAU	"	

NWA 6200	Morocco	P 2009	149	1	CK5	S3	mod	33.3	31.1	0.4		21.1	NAU	Gregory	T. Bunch and Wittke, NAU	"	Cr2O3 in magnetite = 4.1 wt%; feldspar = Or86An12
NWA 6201	Morocco	P 2009	42	1	Ureil	med	low	21.1 (core)	14.2 (core)	7.3		8.8	NAU	Gregory	"	"	Typical ureilite texture.
NWA 6202	Morocco	P 2009	269	1	Euc	med	low		42-57.1	6.9-38.5		21	NAU	Gregory	"	"	Plag=An93.3
NWA 6221	(NW Africa)	P Apr 2010	109.4	1	Lun-fld brc		minor	12-29	12-21	30-41	3.81	20	UPVI	Meteoritica	A. Jambon, O. Boudouma, D. Badia	anonymous	
NWA 6227	(NW Africa)	P 2009	564	1	H3	S2	W1	2.4-25.3	6.0	0.3		22	UWS	D. Bowers	A. Irving and S. Kuehner	DB10-3	
NWA 6228	(NW Africa)	P 2003	478	2	H3	S2	W2/3	8.7-31.8	6.5-29.9	0.3-3.5		28	UWS	D. Bowers	"	DB10-4	
NWA 6230	(NW Africa)	P 2010 Mar 2	240	1	L3	S2	W2/3	11.3-71.3	3.8-35.9; 22.6-24.7	0.4-0.2; 30.1-27.4		22	UWS	G. Fujihara	"	GF10-3	Cr2O3 in Fe olivine 0.04-0.12 wt%; estimated subtype 3.4
NWA 6265	(NW Africa)	P Apr 2010	400	1	Euc-pm	low	low	84.7-87.1	29.4-31.7	2.8-4.0		20	UWS	M. Cimala	A. Irving and S. Kuehner, UWS		
NWA 6267	(NW Africa)	P 12 Feb 2010	225	1	Diog			35.9-37.6	31.5	3.6		21.3	UWS	M. Jost	A. Irving and S. Kuehner	"	SJS 10001.
NWA 6268	(NW Africa)	P 12 Feb 2010	698	1	Euc-pm			26.4-33.2	64.0-65.0	2.7		21.1	UWS	M. Jost	"	"	
NWA 6271	(NW Africa)	P 12 Feb 2010	54.5	1	Meso		mod		33.2	3.1		12.7	UWS	M. Jost	A. Irving and S. Kuehner, UWS	"	
NWA 6272	(NW Africa)	P 12 Feb 2010	309	1	Ureil			24.2-24.6	13.5-13.9	33.4-33.7		21.9	UWS	M. Jost	"	"	Reduced rims on ol and subcalcic augite.
NWA 6273	(NW Africa)	P 12 Feb 2010	976	1	Euc-mm				62.4-63.0; 26.6-26.8	2.1-2.4; 43.8-43.9		20.3	UWS	M. Jost	"	"	
NWA 6274	(NW Africa)	P 12 Feb 2010	58.1	1	How			66.3-67.7	20.9	1.6		11.7	UWS	M. Jost	"	"	SJS 10010.
NWA 6276	(NW Africa)	P Feb 2008	385	1	L4-6	S2	W2	26.0-27.0	20.8-20.9; 9.1-9.2	1.8-1.7; 43.6-44.1		20	UWS	B. Scarborough	"	"	BS10-4.
NWA 6280	(NW Africa)	P Mar 2010	135	1	R5	S2	low	39.1-39.7	30.2-31.8; 11.5-11.7	0.3-0.2; 6.2-6.5		20.9	UWS	J. Higgins	"	"	JH10-7.
NWA 6281	(NW Africa)	P Mar 2010	130	1	CO3	S2	W1/2	0.6-32.5	6.1; 1.5-2.3	4.2; 5.5-4.9		24	UWS	J. Higgins	"	"	Estimated subtype 3.4; field name JH10-8.
NWA 6282	(NW Africa)	P Mar 2010	129	1	Ureil		low	22.5; 8.2	18.1; 11.8	1.7; 1.2		23	UWS	J. Higgins	"	"	Pyroxene is opx with no pigeonite; JH10-9
NWA 6283	(NW Africa)	P Oct 2006	104	1	H3.6	S2	W2	3.5-25.6	6.1; 10.7; 4.1	4.2; 9.0; 40.6		29	UWS	J. Higgins	A. Irving and S. Kuehner	"	JH10-10; Cr2O3 in Fe olivine 0.02-0.05 wt.%
NWA 6284	(NW Africa)	P Aug 2006	1021	1	L5	S2	W1/2	24.7-25.1	20.4-21.2; 7.5-7.8	4.2-1.9; 46.6-43.8		29	UWS	J. Higgins	A. Irving and S. Kuehner, UWS	"	JH10-11.
NWA 6287	(NW Africa)	P June 2010	4426	1	LL5	S2	W1	27.0-27.1	22.6-22.8; 7.5-8.1	1.4-1.6; 47.4-45.0		79	UWS	J. Higgins	"	"	JH10-14.
NWA 6288	(NW Africa)	P June 2010	293	6	Euc-mm		low		30.2; 58.6; 26.7-28.9	7.3; 6.5 42.8-42.0		21	UWS	J. Higgins	"	"	JH10-15.
NWA 6290	(NW Africa)	P June 2010	1050	10	Diog		low	12.9-13.1; 31.0	22.9-24.9	1.0		21	UWS	J. Higgins	"	"	JH10-17.
NWA 6292	(NW Africa)	P 15 Apr 2010	725	1	Ach-ung		mod	30.2-30.3	24.1-24.3; 9.4	1.9-2.0; 44.1		20	UWS	M. Jost	"	"	d17O 2.42; d18O 4.55; D17O 0.031; paired with NWA5400.
NWA 6293	(NW Africa)	P 1 June 2010	575	1	Diog				32.2-34.2	3.5-2.7		20	UWS	M. Jost	"	"	SJS 10015.
NWA 6294	(NW Africa)	P Feb 2010	134.5	1	Euc-pm				45.8-54.6	1.5-3.2		20	UWS	P. Marmet	"	"	PMMC-33.
NWA 6295	(NW Africa)	P Dec 2009	66	1	H3	S2	W2	7.7-26.3	0.7-22.1; 6.3-15.2	1.3-3.6; 33.1-33.4		13.2	UWS	B. Scarborough	A. Irving and S. Kuehner	BS10-7	Cr2O3 in Fe olivine <0.02 wt.%; estimated subtype 3.7.
NWA 6297	(NW Africa)	P 2009	62.62	1	LL6	S3	W1	28	23.6			12.8	MNB	Marc Jost	Ansgar Greshake, MNB		
NWA 6298	(NW Africa)	P 2009	233	1	L6	S3	W2	24.2	20.4			24.6	MNB	Marc Jost	"	"	
NWA 6299	(NW Africa)	P 2009	478	1	H5	S2	W2/3	17.2	15.4			21.2	MNB	Marc Jost	"	"	
NWA 6300	(NW Africa)	P 2009	231.3	1	H4	S2	W3	16.3	12.4-24.5			21	MNB	Marc Jost	"	"	
NWA 6303	(NW Africa)	P 2009	594	1	L6	S1	W0/1	24.5	20.5			22.6	MNB	Marc Jost	A. Greshake, MNB	"	
NWA 6305	(NW Africa)	P 2009	743	2	LL6	S2	W2/3	29.4	23.9			24	MNB	Marc Jost	"	"	
NWA 6306	(NW Africa)	P 2009	346	1	LL6	S2	W1	29.8	24.6			20.4	MNB	Jean Redelsperger	"	"	
NWA 6319	(NW Africa)	P 2008	79.2	1	H6	S1	W2	17.5	15.6			17	MNB	Peter Marmet	"	"	
NWA 6320	(NW Africa)	P 2008	453	1	L6	S3	W1	23.4	20.3			20.8	MNB	Peter Marmet	"	"	
NWA 6321	(NW Africa)	P 2009	324	1	L3	S3	W1	20.4±18.2 (0.6-68.7, n=10)	1.1-31.5			24.8	MNB	Peter Marmet	"	"	

NWA 6322	(NW Africa)	P 2009	72.5	1	H6	S1	W3	18.6	16.4		15.4	MNB	Peter Marmet	"	"	
NWA 6323	(NW Africa)	P 2009	172.4	1	L6	S3	W1	22.4	19.4		22.2	MNB	Peter Marmet	"	"	
NWA 6324	(NW Africa)	P 2009	654	1	L6	S2	W2	23.8	20.1		23.4	MNB	André Knoefel	"	"	
NWA 6327	(NW Africa)	P 2010	222.4	1	L6	S2	W1	23.8	20		24	MNB	André Knoefel	"	"	
NWA 6328	(NW Africa)	P 2010	35.5	2	L3	S1	W0/1	23±1.8 (18.6-25.3, n=14)	9.5-20.1		7.4	MNB	André Knoefel	"	"	
NWA 6329	(NW Africa)	P 2010	70.8	1	L6	S2	W2	23.8	20.2		14.5	MNB	André Knoefel	"	"	
NWA 6340	(NW Africa)	P June 2010	164	1	Diog		very low	29.8-30.2	23.2-23.5	2.3-2.5	21.9	UWS	B. Booz	A. Irving and S. Kuehner, UWS	"	BB-25.
NWA 6341	(NW Africa)	P June 2010	136	1	CK5/6	S2	low	29.4-29.7	24.4-26.1	4.1-0.6	20.9	UWS	B. Booz	"	"	BB-26.
NWA 6343	(NW Africa)	P June 2010	64.5	1	Euc-pm				61.2-62.8; 26.4-27.1	2.3-1.2; 42.9-42.5	14	UWS	P. Marmet	"	"	PMMC-1006.
NWA 6344	(NW Africa)	P June 2010	942	1	Ureil			20.8; 9.6	17.4; 5.7	6.8; 6.2	20.8	UWS	P. Marmet	"	"	PMMC-1007.
NWA 6345	(NW Africa)	P June 2010	26	1	Euc-pm				53.9-64.4	2.3-1.9	5.4	UWS	P. Marmet	"	"	PMMC-1008..
NWA 6346	(NW Africa)	P July 2010	94.7	1	Ureil			15.1-15.2; 3.0-6.4	12.5-12.8	9.3-9.1	19.75	UWS	P. Marmet	"	"	PMMC-1009
NWA 6347	(NW Africa)	P July 2010	148	1	Euc				43.8-59.2; 31.2-32.7	5.8-6.1; 39.1-38.1	20.7	UWS	Ralew	A. Irving and S. Kuehner	"	Very fine grained; SR10-1.
NWA 6349	(NW Africa)	P Aug 2010	730	1	Brach	low	mod	34.1-34.6	9.9-10.1	46.5-46.4	21.5	UWS	S. Ralew	A. Irving and S. Kuehner, UWS	"	
NWA 6350	(NW Africa)	P Aug 2010	50.5	1	Aubrite		mod		0.1	0.3	10.3	UWS	Ralew	A. Irving and S. Kuehner	"	Paired with NWA 5217; SR10-9.
NWA 6351	(NW Africa)	P Aug 2010	1123	6	Diog-ol		very low	26.4-33.2	64.0-65.0	2.7	20.7	UWS	S. Ralew	"	"	SR10-11; paired with NWA 5480
NWA 6352	(NW Africa)	P Aug 2010	1277	1	CO3	S2	W1	0.9-55.5	1.3-4.2; 1.3-3.9	0.9; 36.7-41.4	21	UWS, BathO	F. Kuntz	A. Irving and S. Kuehner, UWS	"	Cr2O3 in Fe olivine 0.04-0.12 wt%; estimated subtype 3.4; field name K157.
NWA 6353	(NW Africa)	P July 2010	168.3	1	CK5	S2	W1	25.8-25.9	21.7-23.5; 11.3	6.0-0.7; 48.9	20	UWS	T. Webb	"	"	Metal absent; plag An42.0Or1.8-2.7. Contains Cr-bearing magnetite.
NWA 6354	(NW Africa)	P June 2010	54.3	1	Ureil		low	17.3-17.5; 5.0-7.5	14.6-14.9	9.6	10.9	UWS	P. Mani	"	"	
NWA 6363	Morocco	P Oct 2004	300	1	EH6				0.68	1.42	34.4	Vernad	H. Stehlik	C. A. Lorenz, Vernad	H. Stehlik	
NWA 6369	Algeria	2008	14830	1	IAB		minimal				77.78	Vernad	anonymous	S. N. Teplyakova, Vernad		
NWA 6408	(NW Africa)	P 2008	24000	1	H5	S1	W2	17	15.5		178.2	MNB	Tomasz Jakubowski	Ansgar Greshake, MNB	"	
NWA 6409	(NW Africa)	P 2008	11800	1	L6	S3	W1/2	24.5	20.7		78	MNB	Tomasz Jakubowski	"	"	
NWA 6410	(NW Africa)	P 2009	10000	10	L6	S2	W1	24.1	20.3		44	MNB	Tomasz Jakubowski	"	"	
NWA 6411	(NW Africa)	P 2006	43000	1	L5	S3	W1	24.2	20.5		34.6	MNB	Tomasz Jakubowski	"	"	
NWA 6412	(NW Africa)	P 2009	1716	1	H5/6	S1	W1	19.7	18.2		44	MNB	Tomasz Jakubowski	"	"	
NWA 6413	(NW Africa)	P 2009	3200	1	LL6	S2	W2	30	24.5		22.8	MNB	Tomasz Jakubowski	"	"	
NWA 6420	(NW Africa)	P Sep 2010	371	1	How		low		26.1; 39.8; 17.7-19.2	4.1; 2.9 42.7-41.8	21.8	UWS	B. Booz	A. Irving and S. Kuehner, UWS	"	
NWA 6421	(NW Africa)	P Sep 2010	88	5	Diog		low	31.9	25.4-26.6	3.3	17.6	UWS	G. Fujihara	"	"	
NWA 6424	Algeria	P Mar 2010	469	8	Ach-ung	low	mod	30.1	24.6-24.8; 10.1-10.2	2.2; 43.8-44.3	22.3	UWS	Ralew	"	"	
NWA 6424	Algeria	P Mar 2010	469	8	Ach-ung	low	mod	30.1	24.6-24.8; 10.1-10.2	2.2; 43.8-44.3	22.3	UWS	Ralew	"	"	
NWA 6428	Morocco	P Feb 2010	734	1	H4		W4	18.2 (17.5-19.2, n=16)	15.7 (15.3-16.2, n=5)	1.5 (0.7-3.1, n=5)	27.3	SI	Bob Evans	C. Corrigan and T. McCoy	"	
NWA 6430	Morocco	P Feb 2010	506	1	L3		W4	21.5 (12.6-44.2, n=10)	11.8 (0.7-35.5, n=13)	7.6 (0.1-41.2, n=13)	21.3	SI	Bob Evans	C. Corrigan and T. McCoy, SI	"	
NWA 6438	Morocco	2009	225	1	LL5	S2	W2	27.7	23.4	1.7	28.77	PSF	F. Kuntz	T. Bunch and J. Wittke, NAU	"	
NWA 6439	Morocco	2009	447	10	LL4	S2	W2	28.4	23.5	1.9	24.18	PSF	F. Kuntz	"	"	
NWA 6440	Morocco	2009	19.1	1	CR2	S3	W2	1.2	1.6 -4.3	0.3-1.8	3.91	PSF	F. Kuntz	"	"	

NWA 6442	Morocco	2010	237	1	LL5	S3	W2	29.7	24.6	2.8	24.83	PSF	F. Kuntz	"	"	
NWA 6443	Morocco	2010	365	1	H6	S2	W3	19.5	17.2	1.7	21.09	PSF	F. Kuntz	"	"	
NWA 6444	Morocco	2010	164	1	LL4			27.8	23.7	2.0	20.45	PSF	F. Kuntz	"	"	
NWA 6447	Morocco	2010	147	1	CO3.1	S2	W2	36.5±34	0.6 - 25.4	0.3 - 1.5	23.68	PSF	F. Kuntz	"	"	
NWA 6448	(NW Africa)	P June 2010	44.7	1	Win	low	low	4.7-4.9	6.1-6.8	2.3-2.4	9.06	FMNH	FMNH	A. Irving and S. Kuehner, UWS	"	
NWA 6449	(NW Africa)	P 2003	64.6	1	H6	S2	W2	19.0-19.2	16.9	1.4-2.1	13	FMNH	FMNH	"	"	K160; Purchased by F. Kuntz; Almost entirely recrystallized with rare indistinct chondrules.
NWA 6471	(NW Africa)	P Oct 2010	603	1	Ureil	low	low	cores 20.4, rims 12.1	16.5-16.7	3.7	20	UWS	P. Marmet	"	"	
NWA 6474	(NW Africa)	P Sep 2010	312	1	Brach	low	mod	35.7-36.1	9.8-10.0	45.4-46.0	20.2	UWS	M. Jost	"	"	
NWA 6475	Morocco	P Sep 2010	602	14	Euc-pm	low	low		60.7-62.3; 25.6-29.0; 23.6	1.8-1.6; 44.0-41.4; 11.8	20.7	UWS	M. Jost	"	"	
NWA 6476	(NW Africa)	P Feb 2010	800	2	L-melt br	S2	W0/1	25.1-25.3	20.5-20.7; 9.3-10.1	2.2-3.0; 42.0-40.9	24.2	UWS	M. Jost	"	"	
NWA 6478	(NW Africa)	P Feb 2010	437	1	LL6	S2	W2/3	31.8-32.4	25.3-25.5; 9.9-11.0	2.0-2.2; 43.3-43.2	20.8	UWS	M. Jost	"	"	SJS 10023.
NWA 6480	(NW Africa)	P Nov 2010	60.1	1	LL6	S2	W1	30.0-30.5	24.4-24.8; 10.5-11.2	3.8-1.6; 42.8-42.2	12.5	UWS	J. Schrader	"	"	JS10-8.
NWA 6485	(NW Africa)	P June 2010	41.3	1	LL-melt ı		mod	28.5	23.1	3.7	9.59	Vernad	anonymous	C. A. Lorenz, Vernad	"	
NWA 6486	Morocco	P April 2009	4.5	1	L-melt rk						3.5	Vernad	Vernad	"	"	
NWA 6488	Morocco	P Oct 2010	2370	1	Euc-br						64.7	Vernad	Vernad	"	"	
NWA 6493	Morocco	P Feb 2005	41.5	1	L5	S4	W3	23.1±0.2 (n=8)	19.9	2.0 (n=6)	11.6	UCLA	JUtas	A. Rubin, UCLA	anonymous	
NWA 6495	(NW Africa)	P 2005	11.5	1	Euc-pm	low	low		47.2; 18.7-20.0	2.6; 43.9-43.6	4.1	UWS	JUtas	A. Irving and S. Kuehner, UWS		
NWA 6497	(NW Africa)	P Sep 2005	44.6	1	Euc-pm	low	low		57.7; 24.2	1.9: 43.0	10.3	UWS	JUtas	"	"	
NWA 6500	(NW Africa)	P Feb 2009	311	1	LL3.8	S2	W2	27.4±2.8 (n=8)	12.8	0.9 (n=5)	20.0	UCLA	JUtas	A.E. Rubin	anonymous	
NWA 6502	(NW Africa)	P Feb 2009	7.1	1	Euc-mm	low	low		56.5-60.3; 30.4-30.7	6.6-5.5; 40.5-41.7	1.6	UWS	JUtas	A. Irving and S. Kuehner, UWS		
NWA 6503	(NW Africa)	P Feb 2009	20.1	1	LL6	S2	W1/2	29.0±0.0	23.8-24.2; 11.4-12.2	4.0-3.7; 41.4-40.0	5.3	UWS	JUtas	"	"	
NWA 6505	(NW Africa)	P Feb 2009	62	1	CK4	S2	W4	31.4±0.3 (n=10)	1.2 (diopside)	41.0 (diopside, n=1)	13.57	UCLA	JUtas	A. Rubin, UCLA	anonymous	
NWA 6506	Morocco	P 10 Jun 2009	169.3	1	CV3	S2	W4	1.1±0.2 (n=13)	4.2±4.1 (n=15)	1.1±0.5 (n=8)	27.55	UCLA	JUtas	"	"	
NWA 6507	(NW Africa)	P Jun 2009	5.1	1	CR2	S1	W2	8.1±9.4 (n=4)	2.9	0.7 (n=5)	1.306	UCLA	JUtas	"	"	
NWA 6509	Morocco	P 31 Oct 2010	106.6	1	LL3.6	S1	W4	10.0±8.5 (1.2-30.1, n=23)	8.3±6.3 (1.1-21.8, n=18)	1.2±0.8	20.35	UCLA	JUtas	"	"	
NWA 6510	Morocco	P Oct 2010	433.3	1	L4	S4	W5	23.9±0.9 (n=8)	17.1	1.5 (n=4)	20.51	UCLA	JUtas	A.E. Rubin	"	
NWA 6511	Morocco	P 17 Oct 2010	725	1	L3.9	S4	W1	23.9±2.3	13.3	0.9 (n=2)	36.45	UCLA	JUtas	A. Rubin, UCLA	"	
NWA 6532	(NW Africa)	P 2009	110	1	H3	S2	W2	17.6 (1.6-25.2)	11.7 (3.3-23.8)		22.2	MNB	H. Stehlik	A. Greshake, MNB		
NWA 6533	(NW Africa)	P 2009	50	1	H6	S2	W3	16.8	14.9		11.8	MNB	H. Stehlik	"	"	Breccia.
NWA 6534	(NW Africa)	P 2009	36	1	L4	S3	W2/3	22.5	16.4 (11.5-20.4)		11.6	MNB	H. Stehlik	"	"	
NWA 6535	(NW Africa)	P 2009	25	1	H6	S1	W2	17.4	15.3		8.2	MNB	H. Stehlik	"	"	
NWA 6536	(NW Africa)	P 2009	40	1	H6	S2	W1	17.6	15.2		9.4	MNB	H. Stehlik	"	"	
NWA 6537	(NW Africa)	P 2009	180	1	L3	S1	W2	19.4 (7.7-29.1)	15.5 (5.2-23.1)		28	MNB	H. Stehlik	"	"	
NWA 6538	(NW Africa)	P 2009	59	1	LL6	S4	W2	28.1	23		12.4	MNB	H. Stehlik	"	"	
NWA 6539	(NW Africa)	P 2009	29	1	CV3	S2	W2	12.0 (1.1-35.4)	1.1 (0.7-1.6)		8.8	MNB	H. Stehlik	"	"	
NWA 6540	(NW Africa)	P 2007	98	1	H5	S2	W3	17.4	15.5		21.4	MNB	T. Jakubowski	"	"	
NWA 6541	(NW Africa)	P 2005	2460	1	H4/5	S1	W2	18.1	15.6		24.8	MNB	T. Jakubowski	"	"	

NWA 6556	Morocco	2010	224	1	How	S2-5	mod		26.5-38; 59.3-65.2	2.2-4.2; 8.7-12.5	20.2	NAU	Aaronson	Bunch/Wittke, NAU	"	
NWA 6560	Morocco	2010	5888	10	How	S3-4	low		64.2; 23.6-36.8	3.2; 2.3	20.2	NAU	Aaronson	Bunch/Wittke, NAU	"	
NWA 6564	Morocco	2010	188	1	Euc-pm	S2-4	low	43.1	65.1; 31.1	4.1; 1.5	20.6	NAU	GHupé	Bunch/Wittke, NAU	"	
NWA 6566	Morocco	2010	145	1	Euc	S2-4	low				20	NAU	Aaronson	T. Bunch, NAU	"	
NWA 6569	(NW Africa)	P Dec 2010	340	1	L-melt brc	S4	W1	24.0-25.0	20.4-20.6; 7.6-9.0	1.3-1.4; 44.8-41.8	20	UWS	Aaronson	A. Irving and S. Kuehner, UWS	"	
NWA 6572	(NW Africa)	P Oct 2010	50.2	17	Ach-ung	low	mod	30.4-30.5	9.5-9.7; 24.5-24.9	44.2-44.0; 2.1-2.2	10.1	UWS	T. Webb	"	"	
NWA 6573	(NW Africa)	P Oct 2010	37	2	Euc-mm	low	low		62.7-63.2; 29.7-30.3	2.7-2.0; 41.3-41.2	7.4	UWS	G. Fujihara	"	"	GF10-6.
NWA 6575	(NW Africa)	P Dec 2010	135	1	Diog	mod	low		21.7-21.9	1.4	20	UWS	G. Fujihara	"	"	
NWA 6576	(NW Africa)	P Dec 2010	245	many	Pal	low	mod	12.9-13.3			20	UWS	G. Fujihara	"	"	
NWA 6583	(NW Africa)	P Oct 2010	1825	1	Iron-ung						60.5	DST-PI	MGraul	Massimo D'Orazio, DST-PI	"	
NWA 6605	(NW Africa)	P 2010	2237	1	L6	S5	W2	25.5±0.5	21.5±0.5		20	IfP	A.+M. Hmani	K. Metzler, IfP	"	
NWA 6606	(NW Africa)	P Oct 2010	156	1	L5/6	S1	W1	26±0.5	21.5±0.5		20	IfP	anonymous	"	"	
NWA 6608	(NW Africa)	P Oct 2010	257	1	LL5	S1	W3	29.5±0.5	24±0.5		20	IfP	anonymous	"	"	Brecciated.
NWA 6609	(NW Africa)	P 2009	164	1	L4	S1	W4	26±0.5	21±3.5		23	IfP	R. Hobein	"	"	
NWA 6610	(NW Africa)	P Dec 2010	110	1	LL4/5	S1	W3	28±1	23±0.5		20	IfP	anonymous	"	"	
NWA 6613	(NW Africa)	P Nov 2010	161	1	LL6	S1	W4	30.5±0.5	24.5±0.5		20	IfP	anonymous	"	"	
NWA 6614	(NW Africa)	P Nov 2010	174	1	H5	S2	W2	17.5±0.5	15.5±0.5		21	IfP	anonymous	"	"	
NWA 6616	(NW Africa)	P June 2008	770	1	L5-6	S4	W2-3	25±1	21±1		21	IfP	anonymous	"	"	Brecciated.
NWA 6621	(NW Africa)	P Feb 2011	24000	5	H4	S2	W1-2	17.5±1	15.5±1.5		22	IfP	M. Cottingham	"	"	
NWA 6622	(NW Africa)	P Feb 2011	3500	15	L5	S4	W1/2	24.5±1	21±1		27	IfP	M. Cottingham	"	"	
NWA 6623	(NW Africa)	P Feb 2011	4000	1	H5	S1	W1	18±0.5	16.0±0.5		23	IfP	M. Cottingham	"	"	
NWA 6624	(NW Africa)	P Feb 2011	8000	1	H5/6	S4	W4	18.5±0.5	16.5±0.5		21	IfP	M. Cottingham	"	"	
NWA 6625	(NW Africa)	P Feb 2011	6200	1	H4	S2	W3	18.5±0.5	16.5±1		20	IfP	M. Cottingham	"	"	
NWA 6627	(NW Africa)	P Feb 2011	7000	4	L5	S1	W2/3	24±0.5	20.5±0.5		20	IfP	M. Cottingham	"	"	
NWA 6628	(NW Africa)	P Feb 2011	1700	1	L6	S3	W3/4	25±0.5	20.5±0.5		20	IfP	M. Cottingham	"	"	
NWA 6629	(NW Africa)	P Feb 2011	1100	1	LL5	S3	W1-2	27±0.5	22.5±0.5		21	IfP	M. Cottingham	"	"	
NWA 6630	(NW Africa)	P Feb 2011	1000	5	L5	S4	W1	23±0.5	19.5±0.5		20	IfP	M. Cottingham	"	"	
NWA 6632	(NW Africa)	P Feb 2011	300	1	LL6	S3	W1/2	31±1	24±0.5		22	IfP	M. Cottingham	"	"	
NWA 6633	(NW Africa)	P Feb 2011	800	1	L6	S3	W3	24.5±0.5	21±0.5		23	IfP	M. Cottingham	"	"	
NWA 6634	(NW Africa)	P Feb 2011	650	1	L5	S2	W1/2	24±1	20±0.5		21	IfP	M. Cottingham	"	"	
NWA 6635	(NW Africa)	P Feb 2011	225	1	L6	S6	W1/2	24±0.5	20±0.5		20	IfP	M. Cottingham	"	"	Shock veins contain ringwoodite.
NWA 6636	(NW Africa)	P Feb 2011	500	1	L6	S2	W3	24±0.5	20±0.5		22	IfP	M. Cottingham	"	"	
NWA 6637	(NW Africa)	P Feb 2011	700	1	L5	S4	W3/4	23.5±0.5	19.5±1		21	IfP	M. Cottingham	"	"	
NWA 6638	(NW Africa)	P Feb 2011	400	1	L6	S3	W2	25±0.5	21±0.5		24	IfP	M. Cottingham	"	"	
NWA 6639	(NW Africa)	P Feb 2011	1400	2	L5/6	S4	W1/2	25±0.5	21±1		20	IfP	M. Cottingham	"	"	
NWA 6640	(NW Africa)	P Feb 2011	2200	1	H5/6	S1	W3	19±0.5	16.5±0.5		20	IfP	M. Cottingham	"	"	Brecciated.
NWA 6641	(NW Africa)	P Feb 2011	1600	1	L6	S4	W4	23.5±0.5	19.5±0.5		22	IfP	M. Cottingham	"	"	
NWA 6642	(NW Africa)	P Feb 2011	2500	1	L6	S3	W1-2	24±0.5	20±0.5		20	IfP	M. Cottingham	"	"	
NWA 6643	(NW Africa)	P Feb 2011	1725	1	L6	S2	W2	24.5±0.5	20.5±0.5		23	IfP	M. Cottingham	"	"	
NWA 6644	(NW Africa)	P Feb 2011	1100	1	L6	S4	W4	25±0.5	21±0.5		20	IfP	M. Cottingham	"	"	
NWA 6646	(NW Africa)	P Feb 2011	1700	1	L6	S4	W3	24.5±0.5	21±1		23	IfP	M. Cottingham	"	"	
NWA 6647	(NW Africa)	P Feb 2011	400	1	H4	S1	W1/2	16.5±0.5	14.5±4.5		20	IfP	M. Cottingham	"	"	
NWA 6648	(NW Africa)	P Feb 2011	540	1	L5/6	S4	W1/2	24±1	20.5±1		21	IfP	M. Cottingham	"	"	
NWA 6649	(NW Africa)	P Feb 2011	500	1	H5	S1	W2	18.5±0.5	16.5±0.5		20	IfP	M. Cottingham	"	"	
NWA 6650	(NW Africa)	P Feb 2011	375	1	L6	S4	W2	25±0.5	21±0.5		20	IfP	M. Cottingham	"	"	
NWA 6651	(NW Africa)	P Feb 2011	250	1	L6	S3	W3	24.5±0.5	20.5±0.5		23	IfP	M. Cottingham	"	"	
NWA 6652	(NW Africa)	P Feb 2011	450	1	L5/6	S4	W2-3	24.5±0.5	20.5±0.5		21	IfP	M. Cottingham	"	"	
NWA 6653	(NW Africa)	P Feb 2011	425	1	L5	S1	W3	24.5±0.5	20.5±0.5		21	IfP	M. Cottingham	"	"	
NWA 6654	(NW Africa)	P Feb 2011	200	1	L4	S1	W2/3	24±0.5	19.5±1.5		21	IfP	M. Cottingham	"	"	
NWA 6655	(NW Africa)	P Feb 2011	590	1	L6	S3	W2	25±0.5	21±0.5		20	IfP	M. Cottingham	"	"	
NWA 6671	(NW Africa)	P Dec 2010	233.7	1	Euc-pm	low	low		58.4-60.9	6.5-4.3	22.8	UWS	B. Booz	A. Irving and S. Kuehner, UWS	"	
NWA 6672	(NW Africa)	P Sept 2010	99.6	4	Meso	low	mod	12.9, 30.8	24.6-34.1	1.9-6.3	21.4	UWS	B. Booz	"	"	
NWA 6673	(NW Africa)	P Sept 2010	99.8	23	Pal	low	high	12.8-13.1			20.5	UWS	B. Booz	"	"	BB-34.

NWA 6674	(NW Africa)	P 2010	291	5	LL4	S1	W4	30	22	1.4	22.2	MSP	Unknown	Vanni Moggi Cecch Giovanni Pratesi, Stefano Caporali, MSP	"	+ 1 PTS + 1 Block, MSP5140.
NWA 6675	(NW Africa)	P 2010	510	2	Aubrite		high		0.2 (n=20)	0.4	20	MSP	Unknown	V. Moggi Cecchi, G. Pratesi, S. Caporali, MSP	"	
NWA 6676	(NW Africa)	P 2010	1800	2	H5	S1	W3	19	17	1.5	24.1	MSP	Unknown	Vanni Moggi Cecchi, Giovanni Pratesi, Stefano Caporali, MSP	"	+ 1 PTS + 1 Block, MSP5142.
NWA 6677	(NW Africa)	P 2010	5200	2	L4-melt brc	S2	W1	24.8 (24-28)	21	2.0	20.5	MSP	Unknown	V. Moggi Cecchi, G. Pratesi, S. Caporali, MSP	"	
NWA 6678	(NW Africa)	P 2010	64	1	LL4	S4	W1	30 (n=10)	24 (n=10)	3.0	14.7	MSP	Unknown	"	"	
NWA 6679	(NW Africa)	P 2010	266	1	LL5	S2	W1	30	24	1.3	20.2	MSP	Unknown	Vanni Moggi Cecchi, Giovanni Pratesi, Stefano Caporali, MSP	"	+ 1 PTS + 1 Block, MSP5145.
NWA 6680	(NW Africa)	P 2010	195	1	EL6	S2	W5		0.6 (0.3-1.2)	1.4	20.5	MSP	Unknown	V. Moggi Cecchi, G. Pratesi, S. Caporali, MSP	"	
NWA 6681	(NW Africa)	P 2010	150	1	LL5/6	S4	W1	30	24	4.0	21.5	MSP	Unknown	Vanni Moggi Cecchi, Giovanni Pratesi, Stefano Caporali, MSP	"	+ 1 PTS + 1 Block, MSP5147.
NWA 6682	(NW Africa)	P 2010	13000	5	H6	S1	W4	20	17	0.9	33.6	MSP	Unknown	"	"	+ 1 PTS + 1 Block, MSP5148..
NWA 6683	(NW Africa)	P 2010	50	1	H6	S1	W1	20	17	1.4	10	MSP	Unknown	"	"	+ 1 PTS + 1 Block, MSP5149
NWA 6684	(NW Africa)	P 2010	39	1	H3-6	S1-S3	W1	18 (9-25)	19	1.6	8	MSP	Unknown	V. Moggi Cecchi, G. Pratesi, S. Caporali, MSP	"	Olivine mean in H6 portion=Fa20;olivine PMD in H3 portion=30.
NWA 6685	(NW Africa)	P 2010	524	2	Lodr			11	11	1.9	23.4	MSP	Unknown	V.Moggi Cecchi, G. Pratesi, S. Caporali, MSP	"	
NWA 6686	(NW Africa)	P 2010	62	1	How			30.1 (31-34)	24.9 (19-43)	1-3	12.5	MSP	Unknown	V. Moggi Cecchi, G. Pratesi, S. Caporali, MSP	"	
NWA 6687	(NW Africa)	P 2010	42.4	2	Lun-fld brc			38.9 (34-49, n=20)	27.6 (24-31, n=20)	29.1 (27-30, n=20)	8.5	MSP	Unknown	"	"	
NWA 6688	(NW Africa)	P 2010	114.6	1	LL5	S1	W2	27 (n=10)	22 (n=10)	2.9	22.9	MSP	Unknown	"	"	
NWA 6689	(NW Africa)	P 2010	295	4	H4	S2	W3	18	17	1.0	22.7	MSP	Unknown	Vanni Moggi Cecchi, Giovanni Pratesi, Stefano Caporali, MSP	"	+ 1 PTS + 1 Block, MSP5155.
NWA 6690	(NW Africa)	P 2010	88.3	2	Diog				31-38	2-3	18	MSP	Unknown	V. Moggi Cecchi, G. Pratesi, S. Caporali, MSP	"	
NWA 6691	(NW Africa)	P 2010	57.7	1	LL5	S3	W1	31	24	1.9	11.5	MSP	Unknown	Vanni Moggi Cecchi, Giovanni Pratesi, Stefano Caporali, MSP	"	+ 1 PTS + 1 Block, MSP5157.
NWA 6692	(NW Africa)	P 2010	44.6	1	LL5	S2	W2	31	25	1.5	9	MSP	Unknown	"	"	+ 1 PTS + 1 Block, MSP5158.
NWA 6701	(NW Africa)	P Jan 2011	80	3	CO3.1	S1	W1	0.9-50.8	1.2-5.2	1.0-0.8	16	UWS	GHupe	A. Irving and S. Kuehner, UWS	"	GH-389.
NWA 6706	(NW Africa)	P Jan 2011	2109	1	L6-melt brc	S5	W0	24.3-25.2	20.8-21.0	1.6-1.9	20	UWS	GHupé	"	"	
NWA 6707	(NW Africa)	P Mar 2011	91.5	1	Euc	high	very low		24.4-40.8; 15.8-22.3	2.1-2.6; 44.7-42.0	18.3	UWS	GHupé	"	"	
NWA 6709	(NW Africa)	P Mar 2011	494	2	How-an	high	low		48.8; 18.1-19.9	3.4; 41.6-39.9	20	UWS	S. Ralew	"	"	
NWA 6716	(NW Africa)	P Aug 2010	293	1	IIE						20.0	DST-PI	MGraul	Massimo D'Orazio, DST-PI	"	

NWA 6719	(NW Africa)	P Feb 2011	134	1	LL4	S2	W1	29.4-30.0	24.1-24.2	1.8-1.7		20	UWS	G. Fujihara	A. Irving and S. Kuehner, UWS	"	GF11-1.
NWA 6720	(NW Africa)	P Jan 2011	6.5	1	CM2	S1	W1	0.6-30.2	2.0	0.6		1.3	UWS	G. Fujihara	"	"	
NWA 6721	Morocco	Nov 2010	181	16	Lun-fld brc	low	low	52.2-85.5	21.6-27.8; 32.3; 18.2-29.4	5.9-12.4; 3.1; 33.2-27.9		20.2	UWS	Schrader	"	"	
NWA 6723	(NW Africa)	P Feb 2011	141.8	3	How	low	low		57.9; 37.3-45.9	4.2; 29.2-27.3		20.7	UWS	B. Booz	"	"	
NWA 6724	(NW Africa)	P Apr 2011	119	1	Meso	low	low		30.5-31.0	3.1-3.0		20	UWS	GHupé	"	"	
NWA 6725	(NW Africa)	P Jan 2011	32.64	4	CM2	S2	W1	0.3-70.0	1.1-11.4	2.6-1.0		6.6	UWS	M. Cimala	"	"	
NWA 6728	(NW Africa)	P Dec 2009	599	1	L		W1	24.8 (23.4-26.0)	23.7	2.2	4.66	20	Kiel	S. Buhl, Hamb	R. Bartoschewitz	anonymous	Polymict breccia with LL clasts.
NWA 6729	(NW Africa)	P 2009 Dec	113.0	1	H~4						5.18	20	Kiel	S. Buhl, Hamb	"	"	Well-defined chondrules to 3 mm in a poorly crystallized matrix.
NWA 6730	(NW Africa)	P 2010 May	51.0	2	Euc				62.6 (61.8-63.8)	1.4-3.6	3.15	10.4	Kiel	S. Buhl, Hamb	"	"	
NWA 6734	(NW Africa)	P 2004	50.3	1	EL6		W3		0.4 (0.1-1.1)	1.3-1.4	4.46	10.4	Kiel	Bart	"	"	
NWA 6737	(NW Africa)	P 2010	324	1	H~5		W2				4.99	20.0	Kiel	Bart	"	"	Chondrules to 1.5 mm in a recrystallized matrix.
NWA 6738	(NW Africa)	P 2010	179.6	1	H~5		W1				4.93	20.0	Kiel	Bart	"	"	Chondrules to 2 mm in a recrystallized matrix.
NWA 6739	(NW Africa)	P 2010	133.4	1	H~5		W1				5.17	20.0	Kiel	Bart	"	"	Chondrules up 1 mm in a recrystallized matrix.
NWA 6740	(NW Africa)	P 2010	126	1	L~6		W1				4.94	20.0	Kiel	Bart	"	"	Poorly defined chondrules to 1.5 mm in a recrystallized matrix. Darker more fine grained fragment included.
NWA 6741	(NW Africa)	2009	585	1	L~6		W2				4.96	20.0	Kiel	Bart	"	"	Relict chondrules in fine-grained recrystallized matrix.
NWA 6747	(NW Africa)	P 2009	8300	1	H~6		W3				4.84	20	Kiel	Arendt	"	"	Chondrules to 2 mm in a recrystallized matrix.
NWA 6818	Morocco	P 2010	132.45	1	Ureil	S2	W5	21.3	17.7	12.3		27.02	UCLA	Sean Tutorow	Paul Warren, UCLA		
NWA 6819	Morocco	P 2009	500.0	1	Diog-ol	S1	W1	27.6	23.5	3.0		24.05	UCLA	with Sean Tutorow	"	"	
NWA 6820	Morocco	P 2010	20.62	1	Ureil	S1	W4	20.3	17.8	5.9		4.61	UCLA	with Sean Tutorow	"	"	
NWA 6850	(NW Africa)	P 27 June 2009	560	1	L4	S3	W1	21.9	17.7	1.2		20	NSMT	Hori Mineraology, Japan	S.Nishimura, T.Noguchi, M.Kimura, Ibaraki	"	Field Name: SMM09-1.
NWA 6853	(NW Africa)	P	22.28	1	L~6		W4				4.48	4.6	Kiel	anonymous	R. Bartoschewitz	anonymous	Poorly developed chondrules to 1 mm in limonite-stained recrystallized matrix.
NWA 6860	(NW Africa)	P Feb 2011	80.5	several	R5	S2	very low	38.8-38.9	30.4	1.4		16.3	UWS	M. Bandli	A. Irving and S. Kuehner, UWS		B264.
NWA 6861	(NW Africa)	P Feb 2011	10.3	1	CM2	S2	W0	0.2-51.2	1.4	0.9		2.1	UWS	M. Bandli	A. Irving and S. Kuehner, UWS; T. Bunch	"	B265.
NWA 6862	(NW Africa)	P Feb 2011	39.4	1	CM2	S2	W1	0.4-70.3	1.1	0.9		8.6	UWS	M. Bandli	A. Irving and S. Kuehner, UWS	"	B266.
NWA 6863	(NW Africa)	P Feb 2011	76.7	1	CV3	S2	W1	0.4-57.8	0.6-32.7	0.9-0.2		19.6	UWS	M. Bandli	"	"	B267.
NWA 6865	(NW Africa)	P Mar 2011	64	1	LL6	S2	W1	28.5-31.4	21.6-25.4	1.7-0.9		12.9	UWS	S. Ralew	"	"	SR11-4.
NWA 6868	(NW Africa)	P Apr 2011	747	1	LL6	S2	W2	30.4-30.5	25.3-25.6	2.7-3.1		43.4	UWS	J. Higgins	"	"	JH11-1.
NWA 6871	(NW Africa)	P Apr 2011	119	1	Ureil	high	mod	19.4-20.0; 10.5	12.6-13.7	3.7-3.4		20	UWS	G. Catterton	"	"	
NWA 6872	Morocco	P 2004	29	1	L6-melt brc	S6	W1	23.8±1.0	20.7	2.5		8	UCLA	Jeffrey Pringle	Alan Rubin, UCLA	"	
NWA 6874	Morocco	P 2011	90	1	Brach			29.1±1.2	25.4±0.1; 10.3±0.2	2.2; 45.0± 0.3		18	UNM	Piatek	C. Agee, UNM	"	
NWA 6875	Morocco	2011	300	1	Lodr			14.0±0.4	16.2±0.1; 7.3±0.2	2.7; 43.7±0.6		20	UNM	Piatek	"	"	
NWA 6887	Morocco	2011	120	1	Euc				60.7±1.2; 26.6±0.9	2.8±1.0; 44.0±0.9		20	UNM	Piatek	"	"	

NWA 6888	Rio de Oro, Weste Sahara	28 May 2011	24°38.57'N	14°41.27'W	208	1	Lunar						21.7	Vernad	anonymous	Lorenz C.A., Ivanova M.A., Demidova S.I., Vernad	"	
NWA 6901	(NW Africa)	P May 2011			1197	1	Ach-ung	S1	W0	36.4	29.0	3.0	22	Senck	anonymous	J. Zipfel, Senck	"	
NWA 6902	Morocco	P 2007			73	1	H5	S3	W2	18.5±0.5 (n=8)	17.1±1.3 (n=18)	1.2	15	OU	Lee Justice	R. Greenwood, D. Johnson, A.Tindle, OU	"	Stone purchased by Lee Justice from David Bryant (Spacerocks UK) in June 2007. The owner (Lee Justice) was told that the specimen had been purchased in Erfoud, Morocco, shortly before.
NWA 6903	Centre, Morocco	P 2008	32°22.3'N	6°21.6'W	50000	1	IIIAB						318.7	UCLA	Aaronson	J.T. Wasson, UCLA	unknown	
NWA 6909	(NW Africa)	P Nov 2009			188	1	Euc	low	low		38.4-40.7; 71.0-79.1	7.4-8.2; 20.6-17.3	20	UWS	G. Tomelleri	A. Irving and S. Kuehner, UWS		GT09-2.
NWA 6911	(NW Africa)	P Feb 2011			13.58	1	Diog	low	low		22.3-22.4	1.1	2.8	UWS	M. Martin	"	"	MM11-1.
NWA 6912	(NW Africa)	P Feb 2011			27.55	1	Euc-pm	low	low		24.0; 59.3-59.5	2.4; 2.4	5.7	UWS	M. Martin	"	"	MM11-2.
NWA 6913	(NW Africa)	P Feb 2011			35.96	1	Euc-pm	low	low	20.8	22.2; 56.9	3.3; 7.2	7.2	UWS	M. Martin	"	"	MM11-3.
NWA 6914	(NW Africa)	P Feb 2011			40.22	1	Euc-pm	low	low		60.3; 27.4	2.6; 42.1	8.5	UWS	M. Martin	"	"	MM11-4.
NWA 6915	(NW Africa)	P Apr 2011			89.6	1	Ureil	low	low	18.8; 8.1	3.1-3.9	3.8-4.2	18.3	UWS	M. Jost	"	"	
NWA 6916	(NW Africa)	P Apr 2011			520	1	Euc	low	low		58.7-58.8; 28.9-29.3	6.0; 42.0-41.2	21.6	UWS	M. Jost	"	"	SJS 11004.
NWA 6917	(NW Africa)	P Apr 2011			488	1	Euc	low	low		58.5-61.5; 29.3-30.5	5.0-4.3; 41.4-40.8	21	UWS	M. Jost	"	"	SJS 11005.
NWA 6918	(NW Africa)	P Oct 2010			153.6	1	Euc	low	low		62.7-63.0; 27.3-27.5	1.6-1.2; 42.1-42.2	20.5	UWS	M. Jost	"	"	SJS 11006.
NWA 6919	(NW Africa)	P Apr 2011			95	1	Euc	low	low		60.6-61.6; 25.7-26.7	2.2-1.9; 44.3-43.0	20	UWS	A. Hmani	"	"	A1/5.
NWA 6920	(NW Africa)	P Mar 2011			1468	1	How	high	low		22.6-38.9	1.1-2.9	21.5	UWS	A. Hmani	"	"	
NWA 6923	(NW Africa)	P Jun 2011			562	1	Euc-pm	low	low		52.1; 23.1; 37.6; 16.4	2.5; 43.0; 3.1; 42.7	21	UWS	Aaronson	"	"	
NWA 6926	(NW Africa)	P Jan 2011			220	many	Ach-ung	low	very low	51.8-51.9	41.4-41.7	3.7	20	UWS	G. Fujihara	"	"	
NWA 6927	(NW Africa)	P Mar 2011			114	5	Diog	mod	low	31.0	24.9-25.1	3.2-3.6	20	UWS	G. Fujihara	"	"	GF11-6.
NWA 6928	(NW Africa)	P May 2011			223	1	Diog-an	low	very low		33.4-34.1	2.5-1.2	20.9	UWS	G. Fujihara	"	"	
NWA 6929	(NW Africa)	P Mar 2011			165	4	H4	S2	W2	17.2	14.2-14.4	0.5	21	UWS	G. Fujihara	"	"	
NWA 6931	(NW Africa)	2007			20620	1	IAB-MG		minor				270	UCLA	DPitt	J.T. Wasson, UCLA	"	
NWA 6932	(NW Africa)	2008			32000	1	Iron-ung		minor				318.7	UCLA	DPitt	"	"	
NWA 6947	(NW Africa)	P Jun 2011			115777	300	H5	S2	W2	18.9±0.0	16.7-16.9	1.3-0.8	31.9	UWS	David L. Ribeca	A. Irving and S. Kuehner, UWS	"	
NWA 6948	(NW Africa)	P May 2011			56	1	L5-melt brc	S4	W1	22.7-24.2	18.4-19.5	3.6-2.2	11.6	UWS	Aaronson	"	"	
NWA 6949	(NW Africa)	P Aug 2011			418	1	Win	low	low	1.8-2.2	1.1-2.1; 1.5-5.5	1.2-1.4; 45.9-43.8	20.8	UWS	D. Pitt	"	"	
NWA 6950	(NW Africa)	P Aug 2011			1649	1	Lun-gab	mod	very low	31.9-32.7	27.1-28.1; 25.6±0.0; 13.9	4.8-4.5; 9.2-11.1; 36.9	20.1	UWS	Aaronson	"	"	
NWA 6951	(NW Africa)	P Jun 2010			1481	2	L5	S3	W2	24.5±0.0	20.0-20.2	1.8-1.5	56	UWS	J. Higgins	"	"	
NWA 6952	(NW Africa)	P Aug 2010			673	1	L4	S2	W2	24.6-25.1	20.7-20.8	1.5-1.7	49	UWS	J. Higgins	"	"	
NWA 6953	(NW Africa)	P Sept 2011			4160	many	Meso	low	W3	37.6-37.9	24.9; 31.8	2.5; 3.3	118	UWS	J. Higgins	"	"	
NWA 6955	(NW Africa)	P Aug 2011			280	1	LL6	S2	W1	30.3-30.7	24.3-24.7	1.9-2.0	20	UWS	G. Fujihara	"	"	
NWA 6956	(NW Africa)	P Jul 2011			1350	many	L6	S2	W1/2	24.7-24.8	20.9±0.0	1.8±0.0	22	UWS	G. Fujihara	"	"	
NWA 6961	(NW Africa)	P Feb 2011			5104	1	H4	S2	W2	18.1-18.6	15.8-16.0	1.3-1.6	32	UWS	GHupé	"	"	
NWA 6963	South, Morocco	2011	28°00.148'N	11°07.895'W	8-10 kg	3	Sherg				39.7±7.7, 28.1±6.2	13.0±2.3, 31.6±1.9	17	UNM	AHabibi	C. Agee, UNM	"	
NWA 6989	Morocco	2011			118	1	H7			19.3±0.3	17.2±0.3	1.4±0.2	21	UNM	AHabibi	"	"	
NWA 6990	Morocco	2011			395	2	LL7			28.9±0.3	23.8±0.2	3.6±0.6	22	UNM	AHabibi	"	"	
NWA 6991	(NW Africa)	P June 2010			487	1	CV3	low	low	0.3-8.2	0.7-1.1	0.8-1.1	47	ASU	Michael Farmer	Laurence Garvie, ASU	"	
NWA 6992	Algeria	2009			237	1	CR2			1.7±1.0, 16.9±2.0	6.0±3.0, 24.0	3.4±2.8, 1.0	25	UNM	MtMorgan	C. Agee, UNM	"	
NWA 6993	Morocco	2005			47.7	1	L6	S4	W2	24.1±0.4	20.7	1.4	9.72	UCLA	Sean Tutorow	Alan Rubin, UCLA	"	
NWA 6994	Morocco	2005			20.54	1	H4	S2	W1	18.5±0.2	16.0	0.8	4.31	UCLA	Sean Tutorow	"	"	

NWA 6995	Morocco	2005	17.43	1	LL4	S2	W2	28.9±1.2	22.7	2.2	4.38	UCLA	Sean Tutorow	"	"	
NWA 7002	(NW Africa)	P Sep 2011	53	1	LL6	S2	W2	30.9±0.0	24.8-25.1	1.8-2.1	10.6	UWS	Aaronson	A. Irving and S. Kuehner, UWS	"	
NWA 7003	(NW Africa)	P Sep 2011	38.2	1	LL4-5	S2	W1/2	26.7-28.0	25.3	2.1	9.9	UWS	A. Aaronson	"	"	M1292.
NWA 7004	(NW Africa)	P Sep 2011	142	1	H4	S2	W2	18.3-18.6	15.8±0.0	1.3-2.5	21.2	UWS	Aaronson	"	"	
NWA 7007	Western Sahara	P Oct 2011	91	1	Lun-gab	low	very low	42.0-44.4; 98.4	22.5; 34.2-50.0; 66.1	31.2; 29.6-25.9;19.7	18.2	UWS	Anonymous	"	"	
NWA 7008	(NW Africa)	P Jun 2011	10.8	1	Brach	low	low	30.6-31.1	9.5-10.1	43.3-42.2	2.4	UWS	GHupe	"	"	
NWA 7010	(NW Africa)	P Sept 2011	314	1	L5	S2	W2	24.7-25.2	20.8-21.1	1.6-1.5	20	UWS	DPitt	"	"	
NWA 7011	(NW Africa)	P Sept 2011	312	1	LL6	S2	W0/1	32.9-33.1	26.4-26.9	1.6-3.7	20	UWS	DPitt	"	"	
NWA 7012	(NW Africa)	P Sept 2011	42.8	1	Euc-pm	low	low	37.6-37.9; 87.0	37.6-37.9; 56.7; 23.2-23.8	2.0; 4.1; 43.4-42.5	8.6	UWS	DPitt	"	"	
NWA 7013	(NW Africa)	P Sept 2011	102	1	Euc-mm	low	low		60.1-62.6; 25.5-27.3	1.7-2.2; 43.6-43.5	20	UWS	DPitt	"	"	
NWA 7014	(NW Africa)	P Sept 2011	116	1	Euc-mm	low	low		57.5-61.5; 26.7-27.3	2.2-2.1; 43.6-43.5	20	UWS	DPitt	"	"	
NWA 7015	Morocco	2011	888	2	LL4			28.1±0.2	23.6±1.6	2.2±1.1	24.6	UNM	MtMorgan	C. Agee, UNM	"	
NWA 7016	Morocco	2011	571	1	H6			19	17	1.4	22.9	UNM	A. Gharrad and Oakes	"	"	
NWA 7017	Morocco	2011	4669.5	2	L6			24	21	2	27.8	UNM	MtMorgan	"	"	
NWA 7022	(NW Africa)	P Mar 2011	444	1	Lun-fld brc	mod	low	40.6-47.6	22.8-28.8; 26.4-28.8	5.9-6.5; 22.2-18.3	21.6	UWS	P. Utas	A. Irving and S. Kuehner, UWS	"	
NWA 7023	(NW Africa)	P 2003	473	2	Euc-pm	low	low		38.4; 47.7-55.1; 23.0-26.8.	7.3; 5.6-4.8; 39.8-41	20	App; UWS	G. Catterton	A. Love, App; A. Irving and S. Kuehner, UWS	"	
NWA 7026	(NW Africa)	P Oct 2011	629	1	L6-melt brc	S5	W1	23.9-25.4	21.5-22.6	1.2	21.1	UWS	GHupé	A. Irving and S. Kuehner, UWS	"	
NWA 7032	Morocco	Oct 2011	85	1	Sherg	mod	very low	45.7-46.1	26.6; 23.7	15.7; 25.3	17	UWS	Labenne	"	"	
NWA 7033	Morocco	2011	468	1	H4-melt br	S6	W2	19.6±1.2	18.0±2.1	1.5±0.2	24.1	UNM	MtMorgan	C. Agee, UNM	"	
NWA 7034	Morocco	P 2011	319.8	1	Ach-ung				31.6±6.7, 35.5±3.5, 24.3±4.5	3.1±0.8, 8.0±3.3, 38.7±4.6	30	UNM	Jay Piatek	C. Agee	"	
NWA 7035	Morocco	Sep 2011	816	1	Euc-mm	low	low		39.9-41.1; 52.6; 80.6	8.2-10.0; 24.3; 14.1-14.2	20.5	UWS	GHupé	A. Irving and S. Kuehner, UWS	"	
NWA 7036	(NW Africa)	P Nov 2011	95	1	Euc-pm	mod	low		21.6; 26.3; 42.3; 43.0; 61.8; 29.9	1.7; 1.7; 13.6; 30.8; 1.4; 40.6	19	UWS	Aaronson	"	"	
NWA 7037	(NW Africa)	P Nov 2011	253	1	L4	S2	W2	25.8-26.4	20.5-20.6	0.4-0.3	23.5	UWS	Aaronson	"	"	
NWA 7040	(NW Africa)	P Nov 2011	1740	1	H3.4	S2	W2/3	2.2-44.4	5.2-33.1	0.4-2.7	22	UWS	Aaronson	A. Irving and S. Kuehner, UWA	"	M1309.
NWA 7041	(NW Africa)	P Nov 2011	127	1	LL6	S2	W2	29.9-34.6	24.4±0.0	1.2-1.4	20	UWS	Aaronson	A. Irving and S. Kuehner, UWS	"	
NWA 7042	NWA, Morocco	Oct 2011	3033	1	Sherg	mod	low	28.5-48.1	29.0; 41.5-44.5; 22.4	13.4; 17.5-9.0; 31.4	20.2	UWS	anonymous	"	"	
NWA 7043	Morocco	2011	166	30	CV3		W1	1.6±1.3, 25.8±11.0	1.3±03	0.9±0.1	22.6	UNM	MtMorgan	C. Agee, UNM	"	
NWA 7044	Morocco	P 2011	1443	1	H6		W2	19.5±0.2	17.1±0	1.3±0.2	22.9	UNM	MtMorgan	"	"	
NWA 7045	Morocco	P 2011	1127	1	Pal-MG		W4	13.6±0.2			26.9	UNM	MtMorgan	Carl Agee	"	
NWA 7046	Morocco	2010	1819	1	H4		W2	17.1±0.7	15.5 ±5.0	1.1±1.1	24	UNM	MtMorgan	C. Agee, UNM	"	
NWA 7061	Morocco	P Apr 2011	134.2	1	LL6	S4	W1	30.5 ± 0.4 (n=10)	25.0 ± 0.3 (n=10)		134.2	UAb	B. Chatterton	C. Herd, UAb	"	Breccia.
NWA 7062	Morocco	P Apr 2011	62.9	1	Euc-mm	low	low				62.9	UAb	B. Chatterton	"	"	
NWA 7063	Morocco	2008	188	1	L6	S3	W1	22.89±0.82	20.07±1.83	1.48±7.39	21.2	App	Thomas Webb	Anthony Love	"	
NWA 7069	(NW Africa)	P 2011	882	1	L5	S4	W1	23.1	20		26.6	MNB	M. Graul	A. Greshake, MNB	"	
NWA 7070	(NW Africa)	P 2011	1142	19	L3	S2	W1/2	21.9 (12.2-30.5)	17.4 (9.5-25.6)		30.8	MNB	M. Graul	"	"	
NWA 7071	(NW Africa)	P 2011	236	1	LL6	S3	W1	29.6	25.1		23.0	MNB	M. Graul	"	"	

NWA 7072	(NW Africa)	P 2011	507	1	L6	S3	W2	24.6	20.8		23.8	MNB	M. Graul	"	"	
NWA 7073	(NW Africa)	P 2011	1575	1	L6	S3	W2	24.5	20.7		23.6	MNB	M. Graul	"	"	
NWA 7074	(NW Africa)	P 2011	782	1	H4	S2	W1	18.6±0.5 (17.7-19.2, n=15)	14.2±5.7 (6.1-27.4, n=27)		21.8	MNB	M. Graul	"	"	
NWA 7075	(NW Africa)	P 2011	2815	1	L3	S2	W1	14.7 (4.4-24.7)	20.8 (6.1-44.7)		34.8	MNB	M. Graul	"	"	
NWA 7076	(NW Africa)	P 2011	32	1	L4/5	S3	W1	23.8	19.1 (18.0-20.7)		6.4	MNB	M. Graul	"	"	
NWA 7077	(NW Africa)	P 2011	134	1	CV3	S2	W2/3	15.1 (0.7-44.1)	2.3 (0.8-5.3)		20.2	MNB	M. Graul	"	"	
NWA 7079	(NW Africa)	P 2011	134	1	H3	S2	W2	13±6.5 (5.7-28.2, n=23)	14.3±6.2 (4.4-21.4, n=16)		22.0	MNB	H. Strufe	"	"	
NWA 7080	(NW Africa)	P 2011	116	1	L6-melt brc	S2	W1	25.2	21.2		23.0	MNB	H. Strufe	"	"	
NWA 7081	(NW Africa)	P 2011	292	1	L6	S4	W1	23.8	20.5		22.0	MNB	H. Strufe	Ansgar Greshake, MNB	"	
NWA 7082	(NW Africa)	P 2011	159	1	H6	S3	W1/2	18.1	16.1		32.6	MNB	H. Strufe	"	"	
NWA 7083	(NW Africa)	P 2011	55	1	CO3	S1	W2	13.3 (0.4-39.0)	3.1 (0.7-7.8)		11.8	MNB	H. Strufe	A. Greshake, MNB	"	Specimen is characterized by abundant small chondrules, CAIs, and mineral fragments set in a fine-grained dark brownish matrix.
NWA 7084	(NW Africa)	P 2011	72	1	LL6-melt brc	S4	W1	29.6	24.2		16.4	MNB	H. Strufe	"	"	
NWA 7085	(NW Africa)	P 2011	53	1	L6-melt brc	S4	W2	24	20.2		13.2	MNB	H. Strufe	"	"	Hand specimen appears black with few discernable fragments. Optical microscopy reveals small L6-type fragments and chondrules set in an impact melt groundmass.
NWA 7086	(NW Africa)	P 2011	20	1	CK4	S2	W4	28.2	17.0 (9.5-22.0)		4.9	MNB	H. Strufe	"	"	W4 is based on the complete oxidation of the metal and the overall intense brownish staining of the meteorite.
NWA 7087	(NW Africa)	P 2011	119	1	LL6	S4	W1	29.2	23.9		22.0	MNB	H. Strufe	"	"	Breccia.
NWA 7088	(NW Africa)	P 2011	72	1	LL5/6	S2	W1	29.9	24.1		17.6	MNB	H. Strufe	"	"	Breccia.
NWA 7089	(NW Africa)	P 2011	647	1	H4	S2	W2	15.6±2.8 (8.1-18.1, n=29)	15.7±0.5 (14.7-16.6, n=11)		23.6	MNB	H. Strufe	A, Greshake, MNB	"	
NWA 7090	(NW Africa)	P 2011	379	1	L3	S2	W1	18.6±6 (10.3-24.7, n=26)	11.9±7 (5.0-20.9, n=15)		29.8	MNB	H. Strufe	"	"	L classification based on chondrule mean diameter of 0.7 mm and chondrule/matrix ratio.
NWA 7091	(NW Africa)	P 2011	76	1	L4/5	S2	W2/3	23.7	19.9		18.4	MNB	H. Strufe	Ansgar Greshake, MNB	"	
NWA 7092	(NW Africa)	P 2011	59	1	H4	S2	W2	17.7	15.3 (12.0-17.2)		14.6	MNB	H. Strufe	"	"	
NWA 7093	(NW Africa)	P 2011	40	1	L6	S4	W2	23.9	20.6		9.2	MNB	H. Strufe	"	"	
NWA 7094	(NW Africa)	P 2011	7	1	L3	S2	W1	25.2±15.5 (1.2-36.6, n=18)	18.2±5.8 (8.1-29.5, n=38)		1.8	MNB	H. Strufe	A, Greshake, MNB	"	Chondrule mean diameter of 0.6 mm consistent with L type.
NWA 7095	(NW Africa)	P 2011	13	1	CV3	S2	W2	8.9 (0.3-76.8)	2.8 (1.0-5.0)		3.2	MNB	H. Strufe	"	"	
NWA 7096	(NW Africa)	P 2011	20	1	H4	S2	W1	17.6	15.7 (14.5-20.9)		4.8	MNB	H. Strufe	Ansgar Greshake, MNB	"	
NWA 7097	(NW Africa)	P 2011	26	1	Euc-pm	mod	mod		29.2-63.6; 33.6	3 1.9-12.1; 36.4-37.8	6.4	MNB	H. Strufe	A, Greshake, MNB	"	
NWA 7098	(NW Africa)	P 2011	48	4	Euc-pm	mod	low		59.3-60.1; 24.2-26.4	1.4-2.6; 42.5-44.3	10.0	MNB	H. Strufe	"	"	T
NWA 7099	(NW Africa)	P 2011	36	1	LL6	S3	W1	28	23.1		7.6	MNB	H. Strufe	Ansgar Greshake, MNB	"	
NWA 7100	(NW Africa)	P 2011	73	1	H3	S3	W1	18.2±8.1 (4.6-24.9, n=24)	12.9±6.3 (3.7-21.3, n=37)		17.2	MNB	H. Strufe	A. Greshake, MNB	"	
NWA 7101	(NW Africa)	P 2011	64	1	L6	S2	W2	24.3	20.7		14.2	MNB	H. Strufe	Ansgar Greshake, MNB	"	

NWA 7102	(NW Africa)	P 2011			42	1	L3	S2	W1	24.6±3.2 (21-29.5, n=21)	12.8±6.8 (3.3-20.9, n=24)			9.6	MNB	H. Strufe	A. Greshake, MNB	"	
NWA 7103	(NW Africa)	P 2011			13	1	CO3	S1	W2	28.3 (1.1-72.9)	2 (1.2-3.2)			3	MNB	H. Strufe	"	"	
NWA 7104	(NW Africa)	P 2010			782	many	CV3	S3	W3	24 (1.7-58.4)	1.7 (1.3-2.5)			23.6	MNB	C. Giessler	"	"	
NWA 7105	(NW Africa)	P 2010			216	1	L3	S2	W1	15.9±7.6 (1.3-24.6, n=15)	17.2±8.4 (1-29, n=28)			22.4	MNB	C. Giessler	"	"	Chondrule diameter (mean 0.7 mm) and low metal content are in favour of L.
NWA 7106	(NW Africa)	P 2010			115	1	L3	S3	W1	16.8±12 (5.3-37.8, n=23)	15.7±2.6 (9.5-19.9, n=26)			21.2	MNB	C. Giessler	"	"	Chondrule diameter (mean about 0.6), chondrule/matrix ratio, and low metal content argue for L.
NWA 7107	(NW Africa)	P 2010			146	1	CV3	S4	W1	31.7±12.7 (0.72-40.6, n=43)	2.4±0.15	0.71±0.08		20.4	MNB	C. Giessler	Ansgar Greshake, MNB	"	
NWA 7108	(NW Africa)	P 2011			59	1	CV3	S2	W1	0.9-21.5	0.8-1.6			13.2	MNB	A. Bufe	A. Greshake, MNB	"	Large chondrules and CAIs set in a fine-grained geenish-grayish matrix.
NWA 7109	Morocco	2011			1440.5	1	L5		W3	24.1±0.3	21.3±1.9	1.5±0.2		35	UNM	MtMorgan	C. Agee, UNM	"	
NWA 7110	(NW Africa)	P 2011			220	5	CV3	S1	W2	0.4-2.7 (mean 1.2)	1.1	1.2		20.61	MSP	Unknown	V. Moggi Cecchi, G. Pratesi, S. Caporali, MSP	"	Inv.# MSP5185
NWA 7111	(NW Africa)	P 2011			59	3	Ureil	med	W2	20.7	17.2	10.1		12.16	MSP	Unknown	"	unknown	Inv.# MSP5186.
NWA 7112	(NW Africa)	P 2011			1000	7	L6	S5	W2	24	20	2.9		20	MSP	Unknown	Vanni Moggi Cecchi, Giovanni Pratesi, Stefano Caporali, MSP	"	Inv.# MSP5187.
NWA 7113	(NW Africa)	P 2011			53	1	L4	S1	W1	24.8	20.9	1.4		11.15	MSP	Unknown	"	"	Inv.# MSP5188.
NWA 7114	(NW Africa)	P 2011			78.3	1	H4	S2	W4	18.3	15.9	1.3		17.22	MSP	Unknown	"	"	Inv.# MSP5190.
NWA 7115	(NW Africa)	P 2011			10.7	1	H4	S1	W3	18.8	16	0.9		4.44	MSP	Unknown	"	"	Inv.# MSP5191.
NWA 7116	(NW Africa)	P 2011			12.1	1	EL6	S2	W2		0.8	1.4		2.92	MSP	Unknown	V. Moggi Cecchi, G. Pratesi, S. Caporali, MSP	Automatic	Inv.# MSP5192.
NWA 7119	(NW Africa)	P Nov 2011			2254	1	Meso	low	W1/2		24.8-26.0	2.2-1.9		21	UWS	Anonymous	A. Irving and S. Kuehner, UWS		
NWA 7122	(NW Africa)	P Oct 2011			2377	2	L4	S2	W1	26.4-26.5	20.2	1.1		43	UWS	J. Higgins	"	"	
NWA 7128	(NW Africa)	P Sep 2011			260	many	LL4	S2	W0/1	27.7-28.3	22.6±0.0	1.5		21	UWS	G. Fujihara	"	"	GF11-16.
NWA 7132	Morocco	2010			143	1	Meso	mod	low	13.3	31.2-33.4	3.1-5.0		20.38	PSF	F. Kuntz	T. Bunch and J. Wittke, NAU	"	
NWA 7133	Morocco	2010			63.9	2	CO3.1	S2	W3	2 - 65.5	1.2 - 35.4	1.7 - 2.6		13.46	PSF	F. Kuntz	"	"	Typical small chondrules and rare CAIs. Olivine Fe/Mn=114, mean Cr2O3 = 0.28±0.12 wt% (N = 11); orthopyroxene Fs1.1-35.
NWA 7134	Morocco	2010			263	1	LL3.8	S2	W3	29±4.2 (N = 9)	22 2±2.5	1.2-1.9		23.85	PSF	F. Kuntz	"	"	
NWA 7136	Morocco	2010			1300	1	H4	S2	W3	19.4	17.7	1.3		63.7	PSF	F. Kuntz	"	"	
NWA 7137	Morocco	2010			36.6	1	LL5	S3	W3	28.3	23.8	1.4		7.53	PSF	F. Kuntz	"	"	
NWA 7138	Morocco	2010			19.01	1	CM2	S2	W2	1.5 - 66.7	2.1-22.3	1.2-2.3		4.15	PSF	F. Kuntz	"	"	
NWA 7139	Morocco	2010			4.11	1	Euc-pm	mod	low		56-63.4	3.1-13.6		1.11	PSF	F. Kuntz	"	"	
NWA 7140	Morocco	2010			223	1	L5	S3	W2	25.3	21.3	1.3		23.47	PSF	F. Kuntz	"	"	
NWA 7175	Algeria	2005			>400	>25	LL6		W0	27.5±0.2	22.7±1.6	1.6±0.2	3.76	20	CEREGE	P. Thomas	J. Gattacceca, CEREGE	"	
NWA 7176	Saguia el Hamra, W. Sahara	2 Nov 2010	26°00'37.54" N	10°20'10.25" W	160.1	1	L3	S1	W2/3	21.3 (n=18; PMD=28.4)	19.9 (n=12; PMD=37.4)			38.6	Hamb	S. Buhl, Hamb	Jochen Schlüter, Hamb	Sidi Abeidi	
NWA 7177	(NW Africa)	P 2011			17.30	1	LL6	S2	W0	30.2±0.5 (n=10)	24.8	2.2		3.57	UCLA	Sean Tutorow	Alan Rubin, UCLA		Feldspar grains are more than 50 um in size.
NWA 7178	(NW Africa)	P 2011			191.34	22	H5	S3	W1	19.6±0.6 (n=6)	16.2	1.1		25.95	UCLA	Sean Tutorow	"	"	
NWA 7179	(NW Africa)	P 2011			153.57	1	H4	S1	W2	18.4±0.1 (n=6)	16.7	1.1		20.52	UCLA	Sean Tutorow	"	"	
NWA 7180	Algeria	P 11 July 2011			240.5	1	H3.6	S1	W4	16.8±6.2 (n=16)	11.0±4.2 (n=4)	0.6±0.4		35.1	UCLA	William Feek	"	"	
NWA 7181	Morocco	P 2011			543	1	L3.5		W3	22.8±5.1	11.4±7.6	0.9±1.3		20	UNM	MtMorgan	C. Agee	"	

NWA 7189	(NW Africa)	P Sep 2011	2467	1	H4	S2	W2	18.6-18.7	15.9-16.2	0.9-1.1		30.8	UWS	Twelker	A. Irving and S. Kuehner, UWS	"	ET11-3.
NWA 7192	(NW Africa)	P Jan 2012	1780	1	LL4	S2	W1	26.9-27.2	21.3	0.2		60.8	UWS	J. Higgins	"	"	JH11-12.
NWA 7195	(NW Africa)	P Jan 2011	60.1	1	Ureil	high	low	18.3	14.6; 7.0-6.5	0.4; 10.2-21.8		12.1	UWS	GHupé	"	"	
NWA 7196	Morocco	P 2009	385	1	LL6		W2	30.3±0.5	24.8±0.3	1.7±0.5		24.6	UNM	Reed	C. Agee, UNM	"	
NWA 7197	Morocco	P 2009	1148.5	1	L3.8		W3	25.6±4.3	14.5±7.2	1.1±0.9		25.1	UNM	Reed	"	"	
NWA 7198	Morocco	P 1 Mar 2011	108	1	H4		W1	16.7±0.1	14.7±0.0	1.1±0.1	5.53	20	CEREGE	P. Thomas	J. Gattacceca, F. Caste, CEREGE	"	High porosity (21% based on point counting).
NWA 7199	Morocco	P 18 Jul 2011	78	3	H4		W1	18.8±0.3	16.8±0.6	0.9±0.3	5.35	16	CEREGE	P. Thomas	J. Gattacceca, CEREGE	"	Possible fall from Ait Labbes, Morocco, 2009 Nov 13, 21:25 local time.
NWA 7200	(NW Africa)	P 18 Jul 2011	1692	1	H5		W1	17.7±0.3	16.2±1.3	1.0±0.7	5.44	23	CEREGE	P. Thomas	"	"	
NWA 7201	(NW Africa)	P 14 June 2011	89	1	L3		W1	18.2±6.4 (PMD=29%)	10.9±5.1 (PMD=43%)	0.4±0.2	4.74	18	CEREGE	P. Thomas	"	"	Mean apparent chondrule diameter is 600 µm. Cr2O3 in ferroan olivine is 0.13±0.11 wt%.
NWA 7202	Morocco	P 28 Jun 2011	691	1	L6		W3	24.6±0.3	20.5±0.0	1.8±0.0	4.61	23	CEREGE	P. Thomas	"	"	
NWA 7203	Morocco	P 2011	107	1	Angrite	mod	None	41-100	23-49	51-53		25	NHMD	Martin Bizzarro	T. Mikouchi (UTok) and M. Bizzarro (NHMD)	Anonymous	
NWA 7204	(NW Africa)	P 2005	440	1	L4	S3	W3	23.4	18.8	1.7		23.6	Vernad	H. Stehlik	C. A. Lorenz, Vernad		Field name HC009.
NWA 7205	(NW Africa)	P 2005	375	1	L5	S3	W2	23.5	16.7	1.82		20	Vernad	H. Stehlik	"	"	
NWA 7206	Morocco	P Jan 2011	22	1	Euc-pm							7.48	Vernad	anonymous	"	"	
NWA 7207	(NW Africa)	P Feb 2010	92	1	CV3		minimal	0.34-65.5	0.9-7.0	0.9-4.3		18.47	Vernad	anonymous	M. A. Ivanova, Vernad	"	
NWA 7208	(NW Africa)	P Feb 2010	39	1	CV3			0.44-35	0.68-7.0	0.9-4.8		8.23	Vernad	anonymous	"	"	
NWA 7209	Morocco	P Feb 2008	268	1	CO3	S1	W2	5.5				20.1	Cascadia	Fred Olsen	K. Armstrong, A. Ruzicka, Cascadia	"	
NWA 721	Morocco	P 1 Jan 2001	194	1	CR2	S2	W2	2.1±1.3				20.3	UCLA	David Gregory	Ellen Harju and Alan Rubin	"	
NWA 7210	(NW Africa)	P Jan 2006	24	7	CM2	S1	W1	0.51				5.0	Cascadia	Keith Dickson	K. Armstrong, A. Ruzicka, Cascadia	"	
NWA 7211	(NW Africa)	P 1 Aug 2011	51.6	1	LL4	S1	W3	27.2±1.5 (n=7)	19.7	0.5		10.4	UCLA	Scott Feek	Alan Rubin, UCLA	"	The sample contains rare polysynthetically twinned low-Ca clinopyroxene grains.
NWA 7212	(NW Africa)	P 1 Jan 2012	301.3	1	H4	S1	W5	17.2±0.2 (n=7)	15.6	1.1		24.88	UCLA	Scott Feek	"	"	
NWA 7235	(NW Africa)	P 2011	1830	1	LL6	S2	W2	29.4	23.8			30.2	MNB	H. Strufe	Ansgar Greshake, MNB	"	
NWA 7236	(NW Africa)	P 2011	505	1	L6	S3	W2	24	19.9			21.6	MNB	H. Strufe	"	"	
NWA 7237	(NW Africa)	P 2011	558	1	L6	S2	W3	22.8	19.5			26.4	MNB	H. Strufe	"	"	
NWA 7238	(NW Africa)	P 2011	124	1	L4	S2	W3	22.9	18.8 (10.0-31.5)			24.2	MNB	H. Strufe	"	"	
NWA 7239	(NW Africa)	P 2011	988	1	L4	S2	W1	24.9	13.2 (5.3-26.0)			26.0	MNB	H. Strufe	"	"	
NWA 7240	(NW Africa)	P 2011	54	1	L4	S2	W3	22.1	18.8 (14.2-27.4)			13.4	MNB	H. Strufe	"	"	
NWA 7241	(NW Africa)	P 2011	42	1	L4	S2	W1	22.9	24.1 (6.2-39.3)			10.6	MNB	H. Strufe	"	"	Breccia.
NWA 7242	(NW Africa)	P 2011	23	1	H4/5	S1	W1	16.9	14.1 (14.4-15.8)			5.8	MNB	H. Strufe	"	"	
NWA 7245	(NW Africa)	P 2010	1183	1	L5/6	S2	W2	22.8	19.5			21.6	MNB	T. Jakubowski	"	"	
NWA 7249	Morocco	P 2012	6760	1	L5		W3	25.4±1.5	21.0±1.0	1.5±1.5		45.9	UNM	Reed	C. Agee	"	
NWA 7250	Morocco	P 2012	816	1	LL6		W1	29.9±1.4				24	UNM	Reed	C.Agee	"	
NWA 7252	Morocco	P 2007	276	1	CK5			27.3±0.6	24.8±1.6	0.8±0.3		22	UNM	Reed	C. Agee, UNM	"	
NWA 7253	Morocco	P 2012	404	Many	Euc			82.0±0.8	45.9±13.1, 37.4±7.6	6.5±3.0, 31.0±8.7		24.2	UNM	Blaine Reed, Yinan Wang	"	"	
NWA 7254	Morocco	P 2004	1447	1	L3.4		W2	20.9±10.0	16.4±9.4	1.8±1.8		22.8	UNM	Reed	"	"	
NWA 7255	Morocco	P 2004	607	1	CO3.5		W3	6.6±3.9 (0.7-14.5); 32.9±8.4 (18.5-47.9)	4.0 (0.8-18.6)	1.5±1.2		21.9	UNM	Reed	"	"	
NWA 7256	Morocco	P 2004	4932	Many	CV3		W3	1.9±1.4, 41.2±13.9	2.6±2.2	1.5±1.2		25.5	UNM	Reed	C. Agee	"	

NWA 7257	(NW Africa)	P Jan 2012			180	1	Sherg	mod	low		20.2; 21.1-48.7	12.4; 32.4-12.6		20.1	UWS	D. Gregory	A. Irving and S. Kuehner, UWS	"	
NWA 7258	Morocco	2011			310	1	Sherg	high	minimal		diverse	bimodal		20.8	UCLA	E. Thompson	P. Warren, UCLA	"	
NWA 7259	Morocco	2010			73.2	10	Euc-pm	mod	Light		diverse	bimodal		15.9	UCLA	Sean Tutorow	"	"	
NWA 7273	(NW Africa)	P Apr 2012			115	1	LL6	S2	W1	31.6-32.0	24.8-25.5	2.4		20.1	UWS	GHupé	A. Irving and S. Kuehner, UWS	"	GH-434.
NWA 7277	Morocco	P 2004			342	1	LL6		W3	31.4±0.8	25.9±0.4	1.8±0.3		22.4	UNM	Reed	C. Agee, UNM	"	
NWA 7278	Morocco	2010			84.9	1	L4	S2	W2	25.77+/- 4.97				17	App	Thomas Webb	A. Love, App	"	
NWA 7282	Morocco	P 18 May 2011			40	1	LL6		W1	28.1±0.1	23.4±0.3	1.6±0.0	4.08	8	CEREGE	P. Thomas	J. Gattacceca, F. Caste, CEREGE	"	
NWA 7283	Morocco	P 29 Jun 2011			188	2	LL6		W0	30.0±0.3	25.2±0.4	2.2±0.0	3.79	22	CEREGE	P. Thomas	J. Gattacceca, CEREGE	"	Possible fall from Anoual region, Morocco.
NWA 7286	(NW Africa)	P 2011			102	1	LL4			27.4-28.5	23.2 - 24.1	0.6 - 1.4		20	PMO	Zuokai Ke	W. Hsu	"	Purchased by Ke Zuokai from a meteorite dealer.
Nova 011	(unknown)	P 2009			100	1	IAB-sHL		minimal					26.7	Vernad	anonymous	C. A. Lorenz, S. N. Teplyakova, Vernad	"	
Old Homestead 003	Western Australia, Australia	2002	31°27'10"S	127°53'25.8"E	1780	1	How			3.9-45.5	8.9-67.5	1.2-86.0		1780	WAM	WAM	A. W. R. Bevan (WAM) and T. Kennedy (UWA)	P. Devine	
O'Malley 002	S. Australia	6 Apr 2011	30°59'35.2"S	131°19'57.1"E	4.6	1	L5	S4	W3	25.03	20.47	1.32		3.3	Monash	Monash	A.W. Tait	A. Tait	
O'Malley 003	S. Australia	6 Apr 2011	30°59'10.4"S	131°19'55.6"E	11.1	3	H6	S1	W4	19.01	17.07	1.22		8.3	Monash	Monash	E. R. Mare	E. Mare	
O'Malley 004	S. Australia	7 Apr 2011	30°37'29.0"S	131°28'14.3"E	19	1	LL6	S5	W1	31.74	26.04	2.12		9.7	Monash	Monash	A.W. Tait	A.Tomkins	
O'Malley 005	S. Australia	7 Apr 2011	30°39'13.1"S	131°28'26.0"E	0.7	1	H5	S2	W3	19.29	17.32	1.10		0.4	Monash	Monash	E. R. Mare	"	
O'Malley 006	S. Australia	7 Apr 2011	30°39'25.2"S	131°28'41.3"E	2.3	1	H5	S3	W3	18.84	16.83	1.22		1.5	Monash	Monash	"	E. Mare	
O'Malley 007	S. Australia	7 Apr 2011	30°41'25.7"S	131°28'24.7"E	24.3	1	H5	S2	W2	19.00	17.01	1.37		17.9	Monash	Monash	"	A.Tomkins	
O'Malley 008	S. Australia	8 Apr 2011	30°45'29.0"S	131°26'52.9"E	3.4	1	L6	S2	W4	25.48	21.73	1.53		2	Monash	Monash	A.W. Tait	"	
O'Malley 009	S. Australia	9 Apr 2011	30°56'1.8"S	131°21'42.1"E	8.4	1	H4	S1	W3	19.30	17.18	1.51		5.8	Monash	Monash	"	"	
O'Malley 010	S. Australia	9 Apr 2011	30°56'03.0"S	131°21'40"E	52.9	1	L5	S2	W2	25.08	21.49	1.26		46.5	Monash	Monash	"	"	
O'Malley 011	S. Australia	9 Apr 2011	30°53'36.4"S	131°23'24.0"E	33.6	1	L6	S1	W2	25.25	21.56	1.59		28.4	Monash	Monash	"	"	
O'Malley 012	S. Australia	9 Apr 2011	30°53'34.1"S	131°23'29.1"E	14.1	1	L4	S2	W3	22.59	20.01	1.10		10.6	Monash	Monash	"	"	
O'Malley 013	S. Australia	9 Apr 2011	30°53'08.2"S	131°22'55.1"E	7.3	1	L4	S3	W2	22.94	19.76	1.13		5	Monash	Monash	E. R. Mare	A.Tait	
O'Malley 014	S. Australia	9 Apr 2011	30°53'06.6"S	131°22'48.4"E	9.4	2	H6	S2	W3	19.57	17.59	1.24		5.6	Monash	Monash	"	E. Mare	
O'Malley 015	S. Australia	10 Apr 2011	30°32'18.3"S	131°15'18.9"E	63.9	1	L5	S3	W1	24.04	20.01	1.02		56.1	Monash	Monash	A.W. Tait	A.Tomkins	
O'Malley 016	S. Australia	10 Apr 2011	30°32'24.7"S	131°15'18.3"E	17.5	1	H4	S2	W4	19.47	16.99	1.18		12.8	Monash	Monash	"	"	
O'Malley 017	S. Australia	10 Apr 2011	30°32'41.2"S	131°15'33.4"E	4.9	1	L6	S2	W4	24.74	21.25	1.39		3.5	Monash	Monash	E. R. Mare	E. Mare	
O'Malley 018	S. Australia	11 Apr 2011	30°59'16.4"S	131°20'26.4"E	105.2	4	H4	S1	W4	18.79	16.68	1.02		91.7	Monash	Monash	A.W. Tait	A.Tomkins	
O'Malley 019	S. Australia	11 Apr 2011	30°58'49.3"S	131°20'40.4"E	786.3	106	L6	S2	W3	25.76	22.35	1.36		772.8	Monash	Monash	"	A. Langendam	
Ooldea 001	S. Australia	12 Apr 2010	30°32'45.7"S	131°58'13.8"E	587.4	35	L6	S5	W3	25.44	21.90	1.62		373.5	Monash	Monash	A. Tomkins	A. Tomkins	
Pampa de Mejillones 001	Antofag., Chile	June 1999	23°09'23.0"S	70°28'28.5"W	635	1	L5		W4	24.0	20.1			20	SI	Rodrigo Martínez	M. Zolensky	Rodrigo Martínez	Field name Pampa H.
Pampa de Mejillones 002	Antofag., Chile	April 2003	23°12'50.6"S	70°26'51.2"W	162	1	H5	S2	W3	18.3	16.9		4.88	22	SI	Rodrigo Martínez	M. Zolensky M. Valenzuela	"	Field name Pampa I. Main mass in University of Chile.
Pampa de Mejillones 003	Antofag., Chile	April 2003	23°15'47.9"S	70°27'16.5"W	321	1	H5	S2	W2	19.4	16.9			20	SI	Rodrigo Martínez	M. Zolensky	"	Field name Yesera 003.
Pampa de Mejillones 004	Antofag., Chile	May 2003	23°12'17.3"S	70°27'0.7"W	3155	1	L6	S3	W4/5	25.6	21.6		4.34	23	SI	Rodrigo Martínez	M. Zolensky, JSC; I Valenzuela, Chil	"	Field name Pampa J.
Pampa de Mejillones 005	Antofag., Chile	May 2003	23°13'17.0"S	70°27'50.2"W	222	1	H4	S1	W4	19.1	15.1			20	SI	Rodrigo Martínez	M. Zolensky	"	Field name Pampa K.
Pampa de Mejillones 006	Antofag., Chile	May 2003	23°12'46.5"S	70°27'16.5"W	67	38	L5	S2	W2	24.5	20.7			13.5	SI	Rodrigo Martínez	"	"	Field name Pampa L.
Pampa de Mejillones 007	Antofag., Chile	May 2003	23°13'44.8"S	70°27'20.7"W	1075	5	L6	S3	W4	24.8	21.2		4.77	21	SI	Rodrigo Martínez	M. Zolensky M. Valenzuela	"	Field name Pampa M. Main mass in University of Chile.
Pampa de Mejillones 008	Antofag., Chile	May 2003	23°11'17.5"S	70°30'59.5"W	25	1	H5	S1	W4	18.7	16.4			5	SI	Rodrigo Martínez	M. Zolensky	"	Field name Morro la Mina.
Pampa de Mejillones 009	Antofag., Chile	May 2003	23°16'13.1"S	70°27'29.6"W	238	9	H5	S1	W4	18.5	16.5			20	SI	Rodrigo Martínez	"	"	Field name La Yesera 004. Main mass in University of Chile.
Pampa de Mejillones 010	Antofag., Chile	July 2004	23°12'08"S	70°26'7"W	360	1	L5	S3	W3	25.1	21.8		4.39	51	NHM	University of Chile	M. Valenzuela and S. Russel	M. Valenzuela, S. Russel, P. Bland and M. Gounelle (field party)	Field name Pampa N. Maino mass in University of Chile.

Pampa de Mejillones 011	Antofag., Chile	July 2004	23°08'9.8"S	70°29'31.0"W	46	1	L5	S4/5	W5	25.3	21.5		4.32	13	NHM	University of Chile	"	"	Field name Pampa O. Main mass in University of Chile.
Pampa de Mejillones 012	Antofag., Chile	03 Jun 2006	23°09'44.0"S	70°26'10.8"W	360	1	H4	S2	W5	18.34±0.10	16.33±0.55	0.99±0.38	4.77	105	Chil	Chil	M. Valenzuela, J. Gattacceca and M. Bourot-Denise	P. Rochette, C. Suavet and M. Valenzuela (field party)	Other mass in CEREGE
Pampa de Mejillones 013	Antofag., Chile	04 June 2006	23°13'24.5"S	70°26'24.8"W	46	1	H6	S2	W5	20.06±0.57	17.14±0.17	1.56 +- 0.1	4.47	20	Chil	University of Chile	"	"	
Pampa de Mejillones 014	Antofag., Chile	6 June 2006	23°13'48.6"S	70°25'19.9"W	3650	3	L/LL4-6	S3	W2	26.42±0.55, n=11	22.18±0.99, n=8		4.55	1670	Chil	Chil	"	"	Breccia; other mass in CEREGE.
Paposo 002	Antofag., Chile	23 Apr 2011	25°0'S	70°28'W	2407	1	L/LL4		W1	26.5±0.4 (25.5-27.2, PMD=1%)	18.6±3.3 (12.4-22.5, PMD=15%)	1.5±1.2	4.37	81	CEREGE	MMC	J. Gattacceca, F. Caste, CEREGE	Andrew Trench	Some pyroxenes zoned.
PAT 10326	Antarctica	2010			0.7	1	L6		B					0.7	JSC	JSC	SI	ANSMET	
PAT 10327	Antarctica	2010			0.9	1	L5		B					0.9	JSC	JSC	"	"	
PAT 10328	Antarctica	2010			1	1	L6		B					1	JSC	JSC	"	"	
PAT 10329	Antarctica	2010			1	1	L6		B					1	JSC	JSC	"	"	
PAT 10330	Antarctica	2010			0.6	1	L6		B					0.6	JSC	JSC	"	"	
PCA 01002	Antarctica	17 Jan 2002	85°40.008'S	69°02.417'W	41.5	1	H5	S2	W1	18.9-19.0	16.4-16.5	1.4±0.0		41.5	FMNH	FMNH	A. Irving and S. Kuehner, UWS	B. Sattler	Sparse chondrules; cpx Fs5.8-6.5Wo45.2-44.7
PCA 01005	Antarctica	17 Jan 2002	85°41.055'S	68°47.486'W	0.2	1	L6	S2	W1	24.3-24.7	21.1-21.3	1.3±0.0		0.2	FMNH	FMNH	"	R. Garriott	Rare remnant chondrules.
PCA 01007	Antarctica	17 Jan 2002	85°41.052'S	68°48.134'W	12.95	1	H5	S2	W1	20.5-20.6	16.0-16.3	1.0-1.3		12.95	FMNH	FMNH	"	D. Butts	Sparse chondrules; cpx Fs7.7-8.0Wo45.3-44.8
PCA 01008	Antarctica	17 Jan 2002	85°41.116'S	68°46.413'W	25.6	1	H5	S2	W1	18.5-18.6	16.0-16.1	1.0-1.2		25.6	FMNH	FMNH	"	A. Mortvedt	Sparse chondrules; cpx Fs5.5-5.7Wo45.9-45.6
PCA 01009	Antarctica	17 Jan 2002	85°41.046'S	68°48.420'W	10.17	1	H4	S2	W1	18.8-19.1	16.1-16.4	1.5±0.0		10.17	FMNH	FMNH	"	P. Sipiera	Fairly well-formed, small chondrules; cpx Fs5.9-6.3Wo45.0-44.1
PCA 01012	Antarctica	17 Jan 2002	85°41.400'S	68°50.380'W	7.5	1	L5	S2	W1	24.9-25.0	20.5-21.1	1.6-1.7		7.5	FMNH	FMNH	"	E. Tilenius	Sparse chondrules; cpx Fs7.1-8.6Wo45.6-44.0
PCA 01015	Antarctica	18 Jan 2002	85°41.215'S	68°57.090'W	4.4	1	H4	S2	W1	18.6-19.1	16.8-17.5	1.1-1.2		4.4	FMNH	FMNH	"	R. Mier	Fairly well-formed, small chondrules; cpx Fs5.8Wo46.1; Fs7.3Wo35.6
PCA 01016	Antarctica	18 Jan 2002	85°41.511'S	68°57.410'W	2	1	H4	S2	W1	18.8-19.1	16.6-17.6	1.5-1.4		2	FMNH	FMNH	"	E. Butz	Fairly well-formed, small chondrules; cpx Fs6.4-6.8Wo46.2-45.8
PCA 01018	Antarctica	18 Jan 2002	85°41.038'S	68°51.722'W	8.5	1	L6	S2	W1	24.6-25.2	21.5-21.7	1.2-1.0		8.5	FMNH	FMNH	"	R. Mier	Rare relict chondrules; cpx Fs7.3-8.5Wo45.4-45.3
PCA 01019	Antarctica	18 Jan 2002	85°41.133'S	68°47.809'W	0.3	1	H5	S2	W1	19.2-19.4	16.8-17.2	1.4-1.0		0.3	FMNH	FMNH	"	C. Duffy	Sparse chondrules; cpx Fs6.6-6.8Wo45.3-44.8
PCA 01020	Antarctica	18 Jan 2002	85°41.140'S	68°47.440'W	20.9	1	H6	S2	W1	18.9-19.0	17.4-17.5	1.5-1.7		20.9	FMNH	FMNH	"	J. Pritzker	Rare relict chondrules; clinopyroxene Fs6.: 6.7Wo45.8-43.4
PCA 01021	Antarctica	18 Jan 2002	85°40.380'S	68°43.055'W	8.5	1	Euc-mm	low	very low		61.7-62.2; 38.5-44.8	2.5-3.3; 31.1-24.7		8.5	FMNH	FMNH	"	D. Martin	
PCA 01022	Antarctica	18 Jan 2002	85°40.530'S	68°36.110'W	20.7	1	H6	S2	W1	18.4-19.0	15.9-16.2	0.3-1.0		20.7	FMNH	FMNH	"	E. Tilenius	Rare relict chondrules; cpx Fs6.5Wo46.1; Fs8.2Wo39.1
PCA 01023	Antarctica	18 Jan 2002	85°39.190'S	68°36.190'W	20.9	1	EH4	S2	W1	0.05	0.5; 4.5	0.5; 4.7		20.9	FMNH	FMNH	"	"	
PCA 01024	Antarctica	18 Jan 2002	85°39.170'S	68°36.430'W	4.5	1	H5	S2	W1	17.7-17.8	15.4-15.6	0.4±0.0		4.5	FMNH	FMNH	"	"	Sparse chondrules; cpx Fs10.5Wo35.9; Fs11.7Wo25.3
PCA 01025	Antarctica	20 Jan 2002	85°40.172'S	68°30.547'W	5.1	1	H5	S2	W1	19.6-19.7	16.6-17.0	1.5-1.1		5.1	FMNH	FMNH	"	C. Duffy	Sparse chondrules; cpx Fs6.5-7.3Wo44.6-44.7
PCA 01026	Antarctica	20 Jan 2002	85°39.123'S	68°34.160'W	29	1	Acap	low	low	7.4-7.6	8.1-8.4	2.2-2.5		29	FMNH	FMNH	"	R. Garriott	
PCA 01027	Antarctica	20 Jan 2002	85°39.112'S	68°38.510'W	4.5	1	EH4	S2	W1		0.9; 6.2	0.1; 3.7		4.5	FMNH	FMNH	"	"	
PCA 01028	Antarctica	20 Jan 2002	85°39.140'S	68°33.840'W	13.9	1	LL4	S2	W1	27.8-27.9	22.3-22.4	1.3-1.4		13.9	FMNH	FMNH	"	K. Miller	Fairly well-formed, large chondrules; cpx Fs7.7-9.3Wo45.8-44.7
PCA 01029	Antarctica	20 Jan 2002	85°39.377'S	68°38.168'W	7	1	H-melt rock	S5	W1	17.3; 14.3	15.3±0.0	0.7-1.4		7	FMNH	FMNH	"	A. Mortvedt	Mostly intergrowths of lath-shaped olivine pyroxenes and sodic plagioclase with accessory altered kamacite, troilite and chromite, plus sparse clasts of H6 chondrite material.
PCA 01030	Antarctica	20 Jan 2002	85°39.259'S	68°34.323'W	14.2	1	Diog-pm	mod	low	44.5	24.4; 51.2; 20.9-25.3	3.0; 1.6; 43.9-41.3		14.2	FMNH	FMNH	"	"	
PCA 01032	Antarctica	20 Jan 2002	85°39.333'S	68°39.383'W	130.1	1	L5	S2	W1	23.5-23.6	19.8-20.1	1.3±0.0		130.1	FMNH	FMNH	"	"	Sparse chondrules; cpx Fs7.6±0.0Wo44.4-45.1
PCA 01033	Antarctica	20 Jan 2002	85°39.304'S	68°39.932'W	3.6	1	L5	S2	W1	24.6-24.9	20.4-20.6	1.3-1.2		3.6	FMNH	FMNH	"	R. Mier	Sparse chondrules; cpx Fs7.7-8.4Wo44.0-43.6

Pingrup	Western Australia, Australia	2011	33°34'59.38" S	118°39'23.83" E	1213	1	H5-melt brc	S5	W3	19.1	16.8	1.5	1151.18	WAM	WAM	A. W. R. Bevan, WAM	R. McNab	
Pizzetti Well	Western Australia, Australia	circa 1980	26°15'42"S	120°44'E	218.57	4	H5	S2	W3	19.4	17.7	1.0	218.75	WAM	WAM	"	Unknown	
Plainview (e)	Texas, USA	June 2010	34.185131°N	101.705579°W	1250	1	H5	S2	W3	18.7-18.9	15.9-16.0; 6.8	1.2-1.6; 45.9	40	UWS	M. Taylor	A. Irving and S. Kuehner, UWS	Anonymous	
Powell Peak 001	Arizona, USA	25 Feb 2011	34°40'56.01" N	114°19'49.65" W	42.8	1	H6	S2	W3	19.0±0.5 (n=7)	17.4	1.3	8.55	UCLA	with finder	Alan Rubin, UCLA	Todd Parker	
Powell Peak 002	Arizona, USA	25 Nov 2008	34°42'17.65" N	114°20'44.60"W	1062	1	L4	S2	W2	23.4±0.8 (n=10)			24.46	UCLA	with finder	"	"	
Qasr Tarcine	Madaniyin, Tunisia	2 May 2010	33°14.60'N	9°51.983'E	150	1	L6	S3	W3	24.5	20.5		20	IfP	anon	Addi Bischoff, IfP		
Qijiaojing	Xinjiang, China	Nov 2003	43°45'N	92°55'E	160000	1	Iron-ung						63	PMO	finder	Weibiao Hsu, PMO	"	
Ramlat al Wahibah 046	Ash Sharqiyah, Oman	7 Feb 2010	21°20.241'N	58°24.142'E	136.987	1	L6	S4	W3	24.2	20.4	1.3	136.987	NMBE	NMBE	F. Zurfluh (IFGBE) B. Hofmann (NMBE), and E. Gnos (MHNGE)	B. Hofmann, C. Opitz, R. Trappitsch, F. Zurfluh	
RaS 329	Al Wusta, Oman	2009	20°00'4.50"N	56°21'57.10"E	80.45	many	H3	S3	W2/3	18.0 (12.6-19.8)	16.7 (11.0-19.8)		16.6	MNB	anonymous finc	A. Greshake, MNB		
RaS 332	Al Wusta, Oman	10 Jan 2010	20°48.254'N	55°26.933'E	123.742	6	H5	S2	W3	17.7	15.7	1.6	123.742	NMBE	NMBE	F. Zurfluh (IFGBE) B. Hofmann (NMBE), and E. Gnos (MHNGE)	U. Eggenberger, Gnos, N. Greber, F. Zurfluh	
RaS 334	Al Wusta, Oman	10 Jan 2010	20°46.962'N	55°25.601'E	80.478	1	L6	S2	W3	24.2	20.3	1.7	80.478	NMBE	NMBE	"	"	
RaS 336	Al Wusta, Oman	10 Jan 2010	20°48.512'N	55°27.257'E	4.917	1	H6	S3	W3	18.6	16.4	1.5	4.917	NMBE	NMBE	"	"	
RaS 340	Al Wusta, Oman	11 Jan 2010	20°47.589'N	55°27.896'E	414.1	1	L6	S4	W4	24.2	20.5	1.5	414.1	NMBE	NMBE	"	"	
RaS 341	Al Wusta, Oman	11 Jan 2010	20°47.233'N	55°27.285'E	325.37	1	L6	S1	W1	24.0	20.2	1.9	325.37	NMBE	NMBE	"	"	
RaS 342	Al Wusta, Oman	11 Jan 2010	20°45.619'N	55°26.001'E	519.3	1	H4	S1	W4	17.1	15.3	1.2	519.3	NMBE	NMBE	"	"	
RaS 343	Al Wusta, Oman	12 Jan 2010	20°29.710'N	55°31.462'E	1192	7	H5	S2	W3	17.4	15.7	1.4	1192	NMBE	NMBE	"	"	
RaS 344	Al Wusta, Oman	12 Jan 2010	20°28.209'N	55°31.570'E	41.493	1	H5	S1	W4	17.8	15.7	1.3	41.493	NMBE	NMBE	"	"	
RaS 345	Al Wusta, Oman	12 Jan 2010	20°28.433'N	55°31.072'E	226.85	1	H6	S1	W3	20.2			226.85	NMBE	NMBE	"	"	
RaS 346	Al Wusta, Oman	12 Jan 2010	20°29.689'N	55°32.175'E	178.931	64	H4	S2	W3	17.7	16	1.2	178.931	NMBE	NMBE	"	"	
RaS 347	Al Wusta, Oman	12 Jan 2010	20°29.645'N	55°33.541'E	37.667	1	H6	S6	W3	19.9			37.667	NMBE	NMBE	"	"	Shock veins with ringwoodite.
RaS 348	Al Wusta, Oman	13 Jan 2010	20°26.264'N	55°53.021'E	30.995	1	L6	S4	W4	24.1			30.995	NMBE	NMBE	"	"	
RaS 350	Al Wusta, Oman	14 Jan 2010	20°23.058'N	55°42.075'E	47.708	1	H5	S2	W3	17.6	15.7	1.2	47.708	NMBE	NMBE	"	"	
RaS 351	Al Wusta, Oman	14 Jan 2010	20°23.000'N	55°42.216'E	5.18	1	L6	S4	W3	23.7	20.1	1.4	5.18	NMBE	NMBE	"	"	
RaS 352	Al Wusta, Oman	14 Jan 2010	20°23.020'N	55°42.252'E	34.895	1	L6	S2	W3	23.6	20.1	1.4	34.895	NMBE	NMBE	"	"	
RaS 353	Al Wusta, Oman	14 Jan 2010	20°21.656'N	55°40.334'E	143.602	1	H5	S2	W3	17.9			143.602	NMBE	NMBE	"	"	
RaS 354	Al Wusta, Oman	14 Jan 2010	20°19.066'N	55°35.639'E	3873.8	12	H6	S1	W3	17.2	15.4	1.3	3873.8	NMBE	NMBE	"	"	
RaS 355	Al Wusta, Oman	15 Jan 2010	20°20.453'N	55°33.071'E	61.021	1	H5	S3	W2	17.6	15.4	1.3	61.021	NMBE	NMBE	"	"	
RaS 356	Al Wusta, Oman	15 Jan 2010	20°25.287'N	55°33.780'E	39.13	9	L5	S3	W3	24.8			39.13	NMBE	NMBE	"	"	
RaS 358	Al Wusta, Oman	16 Jan 2010	20°26.953'N	55°34.421'E	17.631	1	L6	S3	W3	24.7			17.631	NMBE	NMBE	"	"	
RaS 359	Al Wusta, Oman	16 Jan 2010	20°27.270'N	55°34.939'E	4.913	1	H6	S3	W3	18.6	16.6	1.3	4.913	NMBE	NMBE	"	"	
RaS 360	Al Wusta, Oman	16 Jan 2010	20°28.562'N	55°35.659'E	5.507	1	H4	S1	W4	17.6	15.7	1.2	5.507	NMBE	NMBE	"	"	
RaS 361	Al Wusta, Oman	16 Jan 2010	20°28.883'N	55°35.708'E	229.65	2	L5	S3	W3	24.1	20.4	1.5	229.65	NMBE	NMBE	"	"	
RaS 362	Al Wusta, Oman	16 Jan 2010	20°30.308'N	55°45.682'E	69.762	2	L6	S3	W3	24.5			69.762	NMBE	NMBE	"	"	
RaS 363	Al Wusta, Oman	17 Jan 2010	20°30.349'N	55°49.910'E	611.62	9	H6	S1	W4	19.2			611.62	NMBE	NMBE	"	"	
RaS 364	Al Wusta, Oman	17 Jan 2010	20°30.533'N	55°50.158'E	334.46	2	H6	S1	W4	19.0			334.46	NMBE	NMBE	"	"	
RaS 365	Al Wusta, Oman	17 Jan 2010	20°30.667'N	55°50.275'E	229.46	7	H5	S2	W4	20.0			229.46	NMBE	NMBE	"	"	
RaS 366	Al Wusta, Oman	17 Jan 2010	20°31.267'N	55°51.156'E	15.8	1	L4-5	S3-6	W3	22.9	19.3	1.2	15.8	NMBE	NMBE	"	"	Breccia.
RaS 367	Al Wusta, Oman	17 Jan 2010	20°31.165'N	55°51.172'E	352.78	4	H4-6	S3	W3	18.6	16.3	1.4	352.78	NMBE	NMBE	"	"	Breccia.
RaS 368	Al Wusta, Oman	17 Jan 2010	20°30.610'N	55°50.141'E	172.467	2	H5	S1	W3	18.0			172.467	NMBE	NMBE	"	"	
RaS 369	Al Wusta, Oman	17 Jan 2010	20°30.728'N	55°50.174'E	129.431	2	H5	S2	W4	17.6			129.431	NMBE	NMBE	"	"	
RaS 372	Al Wusta, Oman	17 Jan 2010	20°30.362'N	55°49.707'E	123.772	5	H5	S2	W4	18.5	16.1	1.6	123.772	NMBE	NMBE	"	"	
RaS 373	Al Wusta, Oman	17 Jan 2010	20°30.478'N	55°49.627'E	52.292	2	LL6	S2	W3	26.4	22	1.7	52.292	NMBE	NMBE	"	"	
RaS 376	Al Wusta, Oman	18 Jan 2010	20°31.515'N	55°58.118'E	193.773	3	H6	S1	W2	17.5	15.6	1.5	193.773	NMBE	NMBE	"	"	
RaS 377	Al Wusta, Oman	18 Jan 2010	20°32.777'N	56°0.819'E	416.27	1	H4	S1	W4	16.4	14.5	0.7	416.27	NMBE	NMBE	"	"	
RaS 378	Al Wusta, Oman	18 Jan 2010	20°34.355'N	56°3.299'E	1649.2	3	H5	S2	W3	17.6	15.7	1.2	1649.2	NMBE	NMBE	"	"	
RaS 379	Al Wusta, Oman	18 Jan 2010	20°34.560'N	56°3.028'E	126.733	1	L6	S3	W3	24.3			126.733	NMBE	NMBE	"	"	
RaS 380	Al Wusta, Oman	18 Jan 2010	20°35.278'N	56°7.358'E	457.8	1	H5	S3	W2	19.3			457.8	NMBE	NMBE	"	"	
RaS 381	Al Wusta, Oman	18 Jan 2010	20°34.085'N	56°16.881'E	1628.1	1	L6	S3	W3	23.8	20.2	1.5	1628.1	NMBE	NMBE	"	"	
RaS 382	Al Wusta, Oman	18 Jan 2010	20°7.851'N	56°16.579'E	11.332	1	L6	S5	W4	24.0	20.3	1.5	11.332	NMBE	NMBE	"	"	

RaS 386	Al Wusta, Oman	23 Jan 2010	20°3.522'N	56°27.896'E	254.271	1	H6	S3	W3	18.2				254.271	NMBE	NMBE	"	A. Bretscher, B. Hofmann, C. Opitz, R. Trappitsch, J. Walbrecker, F. Zurfluh	
RaS 387	Al Wusta, Oman	31 Jan 2010	20°0.958'N	55°36.907'E	49.648	14	H4	S1	W4	17.1	15.3	0.7		49.648	NMBE	NMBE	"	A. Bretscher, B. Hofmann, C. Opitz, R. Trappitsch, F. Zurfluh	
RaS 388	Al Wusta, Oman	31 Jan 2010	20°0.789'N	55°37.142'E	3.46	2	L6	S4	W4	23.4	20	1.4		3.46	NMBE	NMBE	"	"	
RaS 389	Al Wusta, Oman	31 Jan 2010	20°3.075'N	55°37.835'E	785.1	1	L4-6	S2-3	W3	22.5	19.45	1.3		785.1	NMBE	NMBE	"	"	Breccia.
RaS 391	Al Wusta, Oman	1 Feb 2010	20°5.666'N	55°41.174'E	21.954	1	H6	S1	W4	18.7	16.6	1.4		21.954	NMBE	NMBE	"	"	
RaS 392	Al Wusta, Oman	1 Feb 2010	20°8.701'N	55°42.567'E	0.399	1	H4	S2	W3	17.3	16.2	1.2		0.399	NMBE	NMBE	"	"	
RaS 393	Al Wusta, Oman	1 Feb 2010	20°8.760'N	55°42.565'E	2.243	1	H6	S2	W3	18.5	16.3	1.3		2.243	NMBE	NMBE	"	"	
RaS 394	Al Wusta, Oman	1 Feb 2010	20°8.834'N	55°42.576'E	0.182	1	H4	S3	W3	18.0	16	1.3		0.182	NMBE	NMBE	"	"	
RaS 395	Al Wusta, Oman	1 Feb 2010	20°8.814'N	55°42.553'E	982.5	3	L6	S5	W4	23.4				982.5	NMBE	NMBE	"	"	
RaS 396	Al Wusta, Oman	1 Feb 2010	20°8.814'N	55°42.545'E	30.291	1	H4	S2	W3	17.8	15.9	1.1		30.291	NMBE	NMBE	"	"	
RaS 397	Al Wusta, Oman	1 Feb 2010	20°8.790'N	55°42.548'E	1118.8	273	L6	S5	W4	23.2	20.2	1.9		1118.8	NMBE	NMBE	"	"	Breccia.
RaS 398	Al Wusta, Oman	1 Feb 2010	20°8.804'N	55°42.585'E	289.6	23	L6	S5	W4	23.6	20.1	1.9		289.6	NMBE	NMBE	"	"	
RaS 399	Al Wusta, Oman	1 Feb 2010	20°9.073'N	55°42.555'E	6319	1	L6	S2	W3	24.1	20.5	1.5		6319	NMBE	NMBE	"	"	
RaS 400	Al Wusta, Oman	2 Feb 2010	20°11.514'N	55°40.778'E	11.61	1	H6	S4	W4	18.3	15.8	1.7		11.61	NMBE	NMBE	"	"	
RaS 402	Al Wusta, Oman	2 Feb 2010	20°8.703'N	55°46.077'E	100.936	1	H4	S3	W3	18.1	15.9	1.3		100.936	NMBE	NMBE	"	"	
RaS 403	Al Wusta, Oman	4 Feb 2010	20°13.036'N	56°1.001'E	1.253	1	H4	S3	W3	16.8	14.9	1		1.253	NMBE	NMBE	"	"	
RaS 404	Al Wusta, Oman	4 Feb 2010	20°13.250'N	56°1.208'E	0.609	1	H6	S2	W4	19.0	16.7	1.5		0.609	NMBE	NMBE	"	"	
RaS 405	Al Wusta, Oman	4 Feb 2010	20°13.201'N	56°1.221'E	0.264	1	L6	S5	W3	23.9	20.2	1.3		0.264	NMBE	NMBE	"	"	
RaS 406	Al Wusta, Oman	4 Feb 2010	20°13.143'N	56°1.256'E	0.512	1	H5	S2	W3	16.9	15.2	1.1		0.512	NMBE	NMBE	"	"	
RaS 407	Al Wusta, Oman	4 Feb 2010	20°13.236'N	56°1.243'E	0.684	1	H6	S2	W4	19.0	16.6	1.4		0.684	NMBE	NMBE	"	"	
RaS 408	Al Wusta, Oman	4 Feb 2010	20°13.075'N	56°1.271'E	0.368	1	H6	S2	W4	18.7	16.5	1.3		0.368	NMBE	NMBE	"	"	
RaS 409	Al Wusta, Oman	4 Feb 2010	20°13.055'N	56°1.275'E	0.269	1	H5	S2	W4	19.1	16.8	1.4		0.269	NMBE	NMBE	"	"	
RaS 410	Al Wusta, Oman	4 Feb 2010	20°13.001'N	56°1.302'E	0.281	1	H5	S2	W3	18.0	16	1.3		0.281	NMBE	NMBE	"	"	
RaS 411	Al Wusta, Oman	4 Feb 2010	20°12.144'N	56°1.957'E	1.021	1	H5	S2	W3	19.1				1.021	NMBE	NMBE	"	"	
RaS 412	Al Wusta, Oman	4 Feb 2010	20°12.164'N	56°1.938'E	0.257	1	H5	S2	W3	18.1	15.7	1.1		0.257	NMBE	NMBE	"	"	
RaS 413	Al Wusta, Oman	4 Feb 2010	20°19.869'N	56°11.772'E	149.983	1	L5	S4	W3	24.0	20.3	1.9		149.983	NMBE	NMBE	"	"	
RaS 414	Al Wusta, Oman	4 Feb 2010	20°20.483'N	56°12.349'E	212.821	1	H5	S2	W3	18.4	16.5	1.4		212.821	NMBE	NMBE	"	"	
RaS 415	Al Wusta, Oman	5 Feb 2010	20°20.108'N	56°12.142'E	1.018	1	H4	S2	W3	17.8	15.4	1.5		1.018	NMBE	NMBE	"	"	
RaS 416	Al Wusta, Oman	5 Feb 2010	20°20.119'N	56°12.158'E	385.8	3	H5	S1	W3	18.0	15.9	1.4		385.8	NMBE	NMBE	"	"	
RaS 417	Al Wusta, Oman	5 Feb 2010	20°20.044'N	56°12.222'E	297.9	1	H5	S2	W4	17.0	15.2	1.3		297.9	NMBE	NMBE	"	"	
RaS 418	Al Wusta, Oman	5 Feb 2010	20°23.616'N	56°13.201'E	28791	917	L6	S5	W4	24.0	20.2	1.7		28791	NMBE	NMBE	"	"	
RaS 419	Al Wusta, Oman	5 Feb 2010	20°26.811'N	56°15.293'E	122.209	1	L6	S3	W2	24.1	20.1	1.7		122.209	NMBE	NMBE	"	"	
RaS 421	Al Wusta, Oman	6 Feb 2010	20°25.475'N	56°16.690'E	2841	187	L6	S5	W3	25.5				2841	NMBE	NMBE	"	C. Opitz, R. Trappitsch, F. Zurfluh	Shock veins.
RaS 424	Al Wusta, Oman	27 Nov 2011	20°18.793'N	56°29.000'E	80	1	L6	S2	W2	23.5	19.8			16.2	MNB	Anonymous	A. Greshake, MNB		
RaS 425	Al Wusta, Oman	27 Nov 2011	20°19.947'N	56°28.417'E	263	1	H5	S1	W3	17.7	15.5			23	MNB	Marcin Cimala	"	"	
Sahara 99033	(Sahara)	1999			108	1	H~4	S1	W1				5.13	20.0	IfP, Kiel	R. Bartoschewitz	R. Bartoschewitz	Labenne	Well-defined chondrules to 2 mm and mineral fragments in poorly recrystallized matrix.
Sahara 99041	(Sahara)	1999			194	1	H5	S2		17.9 (17.7-18.2; n=13)	16.2 (15.5-18.8; n=12)		5.11	20.6	IfP, Kiel	Merz	R. Bartoschewitz (Analysts: R. Bartoschewitz, P. Appel, B. Mader, Kiel)	"	
Sahara 99050	(Sahara)	1999			156	1	L~6	S2	W2				4.46	20.0	IfP + Kie	R. Bartoschewitz	R. Bartoschewitz	"	Poorly defined chondrules to 2 mm and mineral fragments in recrystallized matrix.
Sahara 99169	(Sahara)	1999			129	1	L~6		W2				4.45	20.5	IfP and Kiel	R. Bartoschewitz	"	"	Poorly defined chondrules in strongly recrystallized matrix with melt vein.
Salar de Atacama	Antofag., Chile	July 2008	23°49.56'S	68°34.33'W	223	1	L6	S4	W3	24.6± 0.6	20.8±1.0			24.5	MNHNP	Y. Sékula	M. Bourot-Denise	Y. Sékula	Complete stone veined with FeS+metal and melted pockets.
San Bernardino Wash	California, USA	2010	34°0'2"N	115°43'47"W	258	10	L5	S2	W3	24.6±0.6 (n=7)	20.4	1.3 (n=8)		22.1	UCLA	JUtas	A.E. Rubin	Bob Perkins	

San Juan 053	Antofag., Chile	13 Oct 2010	25°26.40'S	69°53.30'W	27	1	H5		W1	18.44±0.17	15.94±0.27	1.37±0.17	5.26	9	CEREGE	Chil	J. Gattacceca, A. Hutzler, CEREGE	N. Laridhi	
San Juan 054	Antofag., Chile	14 Oct 2010	25°26.44'S	69°51.82'W	238	1	L4		W1	25.5±0.87	20.65±0.36	1.46±0.21	4.61	35	CEREGE	Chil	"	M. Valenzuela	
San Juan 055	Antofag., Chile	14 Oct 2010	25°26.36'S	69°51.81'W	168	1	H3		W2	11.9±8.2	14.88±4.4	1.2±0.4	4.94	27	CEREGE	Chil	"	N. Laridhi	
San Juan 056	Antofag., Chile	14 Oct 2010	25°26.33'S	69°51.53'W	85	1	L5		W1	24.54±0.65	20.06±0.44	1.37±0.26	4.70	18	CEREGE	Chil	"	C. Cournède	
San Juan 057	Antofag., Chile	15 Oct 2010	25°26.94'S	69°52.89'W	263	4	L6		W1	25.08±0.85	20.8±0.45	1.85±0.13	4.71	40	CEREGE	Chil	"	P. Rochette	
San Juan 058	Antofag., Chile	15 Oct 2010	25°26.96'S	69°52.89'W	171	1	LL6		W3	30.39±0.27	25.03±0.25	1.87±0.17	3.25	33	CEREGE	Chil	"	"	
San Juan 059	Antofag., Chile	15 Oct 2010	25°26.94'S	69°52.82'W	168	2	L5		W1	23.94±0.31	19.92±0.32	1.74±0.39	4.72	28	CEREGE	Chil	"	M. Valenzuela	
San Juan 060	Antofag., Chile	15 Oct 2010	25°26.79'S	69°53.15'W	74	4	H5		W1	18.38±0.36	16.44±0.16	1.55±0.15	5.27	20	CEREGE	Chil	"	M. Gounelle	
San Juan 061	Antofag., Chile	14 Oct 2010	25°26.44'S	69°51.65'W	1.3	1	L5		W2	24.0±0.1	20.0±0.1	1.6±0.0	4.64	0.5	CEREGE	Chil	"	Pierre Rochette	
San Juan 062	Antofag., Chile	20 Oct 2010	25°25.51'S	69°41.41'W	1125	15	H5		W3	18.2±0.3	16.1±0.1	1.3±0.0	4.64	150	CEREGE	Chil	"	"	
Sawyer	Kansas, USA	28 Sep 2006	37°31.435'N	98°37.796'W	8100	1	H4	S2	W3	19.1-19.3	16.1-17.2; 5.8	1.1-1.7; 43.6		20	UWS	M. McFall	A. Irving and S. Kuehner	M. McFall	
SaU 503	Al Wusta, Oman	03 Mar 2010	20°37'N	57°02'E	815	1	CV3	S2	W2	1.1-47.7	1.7; 1.2; 0.8	2.3; 7.4; 36.0		21.2	UWS	R. Ward	"	R. Ward	Contains CAIs. Field name: R04.
SaU 504	Al Wusta, Oman	12 Mar 2010	20°23'N	56°46'E	20000	1	L5/6	S2	W3	25.0-25.2	15.7	4.3		55.7	UWS	R. Ward	"	"	Field name: R34. Ca-pyroxene, Fs6.7, Wo43.6
SaU 525	Al Wusta, Oman	24 Nov 2006	20°57.87'N	56°43.22'E	212	1	Ureil			18				32.15	Vernad	Vernad	C. A. Lorenz, Vernad		
SaU 531	Al Wusta, Oman	17 Nov 2002	21°00.38'N	57°19.31'E	2339	1	H5	S1	W3	18	16.2	1.5		274	Vernad	anonymous	"	"	
SaU 532	Al Wusta, Oman	20 Jan 2010	20°8.071'N	56°35.386'E	99.668	9	L6	S4	W4	24.0	20.1	1.5		99.668	NMBE	NMBE	F. Zurfluh (IFGBE) B. Hofmann (NMBE), and E. Gnos (MHNGE)	F. Zurfluh	
SaU 533	Al Wusta, Oman	20 Jan 2010	20°15.992'N	56°30.992'E	146.352	1	L6	S3	W4	23.8	20.2	1.7		146.352	NMBE	NMBE	"	"	Breccia.
SaU 534	Al Wusta, Oman	20 Jan 2010	20°22.836'N	56°35.605'E	49.658	1	L6	S5	W3	23.6	20.1	1.3		49.658	NMBE	NMBE	"	"	
SaU 535	Al Wusta, Oman	20 Jan 2010	20°24.083'N	56°38.295'E	318.21	1	H5-6	S2	W3	18.1				318.21	NMBE	NMBE	"	"	
SaU 536	Al Wusta, Oman	6 Feb 2010	20°32.243'N	56°59.350'E	412.8	3	H5	S2	W3	18.0	16	1.6		412.8	NMBE	NMBE	"	B. Hofmann, C. Opitz, R. Trappitsch, F. Zurfluh	
SaU 537	Al Wusta, Oman	19 Mar 2011	20°23'44.2"N	56°38'9.2"E	32.4	1	Euc-pm	mod	low		35.2, 14.3	2.4, 44.1		6.5	MNB	Anonymous finder	A. Greshake, MNB		
SaU 538	Al Wusta, Oman	23 Nov 2011	21°06.424'N	57°02.618'E	154	1	L6	S6	W3	22.6	20.1			20.1	MNB	Anonymous	"	"	
SaU 539	Al Wusta, Oman	24 Nov 2011	21°03.582'N	57°16.579'E	34	1	L6	S2	W2	23.9	20.1			8.4	MNB	Marcin Cimala	"	"	
SaU 540	Al Wusta, Oman	24 Nov 2011	21°03.551'N	57°16.572'E	120	4	L6	S2	W2	24	20.3			20.2	MNB	anonymous	"	"	
SaU 541	Al Wusta, Oman	24 Nov 2011	20°45.947'N	57°16.999'E	3298	1	H6	S1	W2/3	18.2	16.2			24	MNB	anonymous	"	"	
SaU 542	Al Wusta, Oman	25 Nov 2011	20°30.737'N	57°16.996'E	2850	1	H6	S1	W3/4	18.2	16.1			27.8	MNB	anonymous	"	"	
SaU 543	Al Wusta, Oman	25 Nov 2011	20°30.709'N	57°17.216'E	3404	3	L5/6	S2	W1	23.4	19.2			22.2	MNB	anonymous	"	"	
SaU 544	Al Wusta, Oman	25 Nov 2011	20°23.309'N	57°00.179'E	670	1	H5	S2	W4	16.9	15.1			37.2	MNB	anonymous	"	"	
Seminole (f)	Texas, USA	P Apr 2008	32°42.023'N	102°40.361'W	5421.0	1	H5	S2/3	W2	19.5 (18.5-21.0)	16.7 (16.6-16.8)	0.8		38.1	UWS	PMani	A. Irving and S. Kuehner, UWS	"	
Seminole (g)	Texas, USA	1999	32°43'N	102°39'W	640.4	1	H5	S2-3	W2	19.0 (18.6-19.3)	16.7 (16.7-16.8)	0.9		28.2	UWS	D. Edwards	"	"	
Shisr 158	Zufar, Oman	5 Feb 2007	18°15.557'N	53°59.549'E	61.40	1	H~5		W3				4.90	12.4	Kiel	Barto	R. Bartoschewitz	R. Bartoschewitz	Chondrules up to 2 mm in recrystallized matrix with melt pools. Metal:sulfide ~ 1.
Shisr 167	Zufar, Oman	2009	18°19'24.00" I	53°23'15.60" E	17.65	1	L6	S2	W2	24.8	21.4			3.8	MNB	Anonymous finder	A. Greshake, MNB		
Shisr 170	Zufar, Oman	2009	18°21'51.90"N	53°35'48.70"E	173.2	1	LL5	S3	W2	27.9	23.5	1.7		20.01	PSF	F. Kuntz	T. Bunch and J. Wittke, NAU	F. Kuntz	
Shisr 171	Zufar, Oman	2009	18°38'8.80"N	53°54'16.80"E	74.6	1	LL4	S2	W2	27.4	23.3	1.6		15.39	PSF	F. Kuntz	"	"	
Shisr 174	Zufar, Oman	16 Oct 2010	18°32.617'N	53°59.475'E	120	1	LL6	S2	W3	29.8	24			25.8	MNB	Mr. Tomasz Jakubowski	A. Greshake, MNB	Mr. Tomasz Jakubowski	
Silistra	Razgrad, Bulgaria	19 July 1917	44°7'N	27°16'E	0.15	1	Ach-ung	prob	W0				2.56	0.125 USof	USof	USof	J. Gattacceca and P. Rochette, CEREGE		
Sleeper Camp 025	Western Australia	Austral 2005	30°10'45"S	126°24'02"E	192	1	H5	S3/4	W2	19.9	17.3	1.3		192	WAM	WAM	A. W. R. Bevan & P. Downes (WAM)	K. Hicks	
Sleeper Camp 026	Western Australia	Austral 2005	30°10'25"S	126°26'04"E	150	1	L6	S4/5	W2	25.7	21.9	1.5		107.1	WAM	WAM	"	"	
Sleeper Camp 027	Western Australia	Austral 2005	30°09'37"S	126°20'54"E	10.85	1	H5	S3	W2	19.8	17.5	1.3		10.85	WAM	WAM	"	"	
Soltmany	Suwalki, Poland	30 Apr 2011	54°00.53'N	22°00.30'E	1066	many	L6	S2	W0	25.6	21.9	44.6	4.71±0.04	65	USil	Finder	Karwowski, USil	A. Lewandowska	

Stewart Valley 001	California, USA	17 Feb 2001	36°12.348'N	116°10.225'W	75.6	>1000	H6	S2	W2	19.4±0.2% n=3			53.15	UCLA	Verish	A. Rubin, UCLA	R. Verish	Field name RSV004a
Stewart Valley 002	California, USA	17 Feb 2001	36°12.455'N	116°10.151'W	28.9	1	L6	S3	W4	25.1±0.3% n=3			6.4	UCLA	Verish	"	"	Field name RSV022a
Stewart Valley 003	California, USA	17 Feb 2001	36°12.692'N	116°10.071'W	6.8	1	H4	S2	W4	18.6±0.2% n=3			4.3	UCLA	Verish	"	"	Field name RSV030a
Stewart Valley 004	Nevada, USA	04 May 2001	36°15.328'N	116°11.131'W	58.9	1	L6	S4	W3	24.4±0.1% n=3			53.0	UCLA	Verish	"	"	Field name apple.
Stewart Valley 005	Nevada, USA	04 May 2001	36°13.744'N	116°10.761'W	62.0	1	L6	S4	W2	26.0±0.7% n=3			44.6	UCLA	Verish	"	"	Field name echo.
Stewart Valley 006	Nevada, USA	29 June 2001	36°14.237'N	116°10.332'W	20.1	1	H4	S1	W4	19.1±0.2% n=5			15.7	UCLA	Verish	"	G. LaBarbera	Field name fox.
Stewart Valley 007	Nevada, USA	29 June 2001	36°14.233'N	116°10.345'W	8.7	1	H4	S2	W3	18.6±0.3% n=5			7.4	UCLA	Verish	"	R. Verish	Field name golf.
Stewart Valley 008	Nevada, USA	14 July 2001	36°14.246'N	116°10.334'W	4.2	1	H6	S3	W4	19.5±1.1% n=3			4.2	UCLA	Verish	"	G. LaBarbera	Field name JLB-260.
Stewart Valley 009	California, USA	5 Apr 2003	36°10.534'N	116°09.540'W	375	1	LL5	S3	W2	26.5±1.2% n=5			20	UCLA	Verish	"	R. Verish	Field name S345-1.
Stewart Valley 010	California, USA	25 Apr 2003	36°11.083'N	116°08.605'W	41.7	1	H5	S2	W5	18.8±0.2% n=3	16.4	1.2	8.4	UCLA	Verish	"	M.E. Waiblinger	Field name S34MEW.
Stewart Valley 011	California, USA	12 Oct 2003	36°12.610'N	116°10.095'W	49.6	1	H6	S2	W5	19.0±0.2% n=3			48.4	UCLA	Verish	"	R. Verish	Field name N31012.
Stewart Valley 012	Nevada, USA	26 Feb 2012	36°14.100'N	116°11.015'W	130	>12	H6		W1	19.1±0.2	17.3±0.3	1.0±0.2	60.3	UNM	Jason Snyder	C. Agee, UNM	Jason Snyder	
Stockyard Creek	Western Australia	Austral 2008	23°15'20"S	116°54'3"E	2700	1	H5	S2	W1	19.3	17.1	1.1	2700	WAM	WAM	A. W. R. Bevan, WAM	B. Crawford	
Sutter's Mill	California, USA	22 Apr 2012	38°48'14"N	120°54'29"W	992.5	90	C		W0	4 (1-29)	4 (2-7)	2 (1-4)	28.9	ASU and FMNH		M. Zolensky, JSC		
Thika	Central, Kenya	16 July 2011	1°0.167'S	37°9.017'E	14200	14	L6	S1	W0	24.5	20.5	1.5	406.82	ASU	Michael Farmer	Laurence Garvie, ASU	"	
Thumb Butte	Arizona, USA	1 Mar 2008	35°10.196'N	114°27.351'W	105	1	H3.8	S2	W1	17.3-24	15.7-19.1	1.5-2.3	20	NAU	with finder	Ted Bunch, NAU	Todd Parker	
Thumrayt 002	Zufar, Oman	9 Mar 2007	17°58.17'N	54°03.98'E	3072	1	L3.5	S2	W3	11.4-37.0	3.1-20.6; 8.5-12.1	0.2-2.0; 43.7-41.7	154	UWS	Farmer	A. Irving, S. Kuehner	M. Farmer	Cr2O3 in Fe olivine 0.01-0.08 wt.%. Field name: MF07-1
Tissint	South, Morocco	18 July 2011	29°28.917'N	7°36.674'W	>7000	many	Sherg	mod	very low	19.4-60.4	24.0-51.6; 21. 23.3	4.1-16.9; 25.0-24.2	30.3	UWS	Anonymous	A. Irving, S. Kuehn H. Chennaoui Aoudjehane		
Tule Valley Hardpan 001	Utah, USA	20 June 2009	38°56'35"N	113°22'42"W	5.1	1	L5		W2	25	22	2	1.2	AMNH	BYU	Joseph Boesenberg, AMNH	Jani Radebaugh, BYU	Found during a BYU geology/astronomy club activity.
Tule Valley Hardpan 002	Utah, USA	20 June 2009	38°56'42"N	113°22'56"W	1.32	1	H5		W2	19	17	1	0.3	AMNH	BYU	"	"	Found during a BYU geology/astronomy club activity.
Tungsten Mountain 573	Nevada, USA	30 June 2010	39°41.384'N	117°37.093'W	68	1	H4	S2	W3	18.8	16.5	1.6	14	UCLA	with finder	Alan Rubin, UCLA	Scott Johnson	
Uasara	Antofag., Chile	unknown			3140	1	IIAB		mod				97.9	UCLA	T. Heitz	J.T. Wasson, UCLA	unknown	
Umm as Samim 015	Az Zah., Oman	6 Jan 2010	21°20.720'N	55°27.780'E	395.66	2	L6	S1	W4	24.2	20.3	1.7	395.66	NMBE	NMBE	F. Zurfluh (IFGBE) B. Hofmann (NMBE), and E. Gnos (MHNGE)	U. Eggenberger, Gnos, N. Greber, F. Zurfluh	
Umm as Samim 016	Az Zah., Oman	6 Jan 2010	21°20.632'N	55°27.427'E	3.856	1	H5	S2	W4	19.9			3.856	NMBE	NMBE	"	"	
Umm as Samim 018	Al Wusta, Oman	7 Jan 2010	21°13.763'N	55°31.015'E	97.48	2	H5	S2	W4	16.2			97.48	NMBE	NMBE	"	"	
Umm as Samim 019	Al Wusta, Oman	7 Jan 2010	21°13.769'N	55°31.252'E	3.157	1	L6	S4	W3	24.9			3.157	NMBE	NMBE	"	"	
Umm as Samim 020	Al Wusta, Oman	7 Jan 2010	21°13.897'N	55°31.267'E	1.362	1	L6	S4	W4	23.7	20	1.8	1.362	NMBE	NMBE	"	"	
Umm as Samim 021	Al Wusta, Oman	7 Jan 2010	21°14.108'N	55°32.090'E	101.979	10	H5	S2	W4	19.6			101.979	NMBE	NMBE	"	"	
Umm as Samim 023	Al Wusta, Oman	8 Jan 2010	21°8.562'N	55°32.347'E	144.383	1	L6	S4	W2	23.4	20.1	1.4	144.383	NMBE	NMBE	"	"	
Umm as Samim 025	Al Wusta, Oman	8 Jan 2010	21°7.523'N	55°31.618'E	305.98	1	L6	S4	W2	25.0			305.98	NMBE	NMBE	"	"	
Umm as Samim 026	Al Wusta, Oman	8 Jan 2010	21°7.583'N	55°32.222'E	255.83	1	L6	S5	W2	25.0			255.83	NMBE	NMBE	"	"	Shock veins with ringwoodite.
Umm as Samim 027	Al Wusta, Oman	8 Jan 2010	21°6.782'N	55°32.450'E	2907	1	L6	S4	W3	24.7			2907	NMBE	NMBE	"	"	
Umm as Samim 029	Al Wusta, Oman	8 Jan 2010	21°6.644'N	55°31.888'E	24.706	1	L6	S4	W2	23.7	20	1.4	24.706	NMBE	NMBE	"	"	
Umm as Samim 031	Al Wusta, Oman	9 Jan 2010	21°1.415'N	55°33.778'E	212.69	11	H6	S2	W3	17.7	15.2	1.4	212.69	NMBE	NMBE	"	"	
Umm as Samim 032	Al Wusta, Oman	9 Jan 2010	21°2.899'N	55°34.423'E	4335.1	8	H4	S2	W1	17.0	15.3	1.1	4335.1	NMBE	NMBE	"	"	
Villa Regina	Rio Negro, Argentina	before 2005	39°6'S	67°4'W	5030	1	IIIAB		minor				44	UCLA	John Birdsell	J.T. Wasson,UCLA	not known	
Windimurra	Western Australia, Australia	2004	28°5'49.1"S	118°27'20.2"E	>30 kg	many	H4/5	S2	W1	19.7	17.8	0.36-1.3	141.5	WAM	WAM	A. W. R. Bevan, WAM	B. Wasse	

Xifu	Shandong, China	18 May 2004	36°18'N	120°29'E	3000000	1	IAB						40	PMO	Local government	Weibiao Hsu, PMO	
Yelland 001	Nevada, USA	29 Aug 2011	39°33'28.83" N	114°25'37.74" W	4.5	1	L6	S2	W1/2	25.3-25.5	20.5-20.9	1.9-1.7	1.5	UWS	J. Harrison	A. Irving and S. Kuehner, UWS	J. Harrison
Zhaoping	Guangxi, China	June 1983	24°14'N	111°11'E	2000000	1	IAB						160 g	PMO	Huangyao Village	Weibiao Hsu, PMO	