Antarctic Meteorite Newsletter
Volume 39, Number 1 February 2016

Curator's Comments

Kevin Righter, NASA-JSC

This newsletter reports 215 new meteorites from the 2010, 2012, 2013 and 2014 ANSMET seasons from Patuxent Range (PAT10), Gardner Range (GDR12), Graves Nunataks (GRA12), Grosvenor Mountains (GRO12), Larkman Nunatak (LAR12), Scott Icefield (SCO12), Szabo Bluff (SZA12), Miller Range (MIL13), and Dominion Range (DOM14) areas. Meteorites include several L3.X chondrites, three EH3 chondrites, CK5, CM1, CM2, and CO3 (4) chondrites, a highly shocked ureilite, and a howardite.

We frequently get questions about how many samples have been collected and how many announced, etc., from the US collection. So, here is an update on the numbers, with the recent field team collecting 569 specimens, the total collected by ANSMET teams is ~21,788. Why the "~" you ask? In most field seasons there are terrestrial samples amidst the collection and we slowly discover these as we classify all the samples, so we therefore cannot give a specific number until all samples are classified. As of the Fall 2015 newsletter, we have classified and announced 19926 samples (+ those announced in this newsletter bring the total to 20,143). Finally, just for more numbers – we have received 3308 sample requests since 1978.

Reminder to sign and return your annual inventory

US Antarctic meteorite inventories were mailed to all PIs in the Fall of 2015. You received a list of samples with a header at the top for two signatures – one for you (the PI) and one for an institutional official. If you haven't already, please follow these instructions:

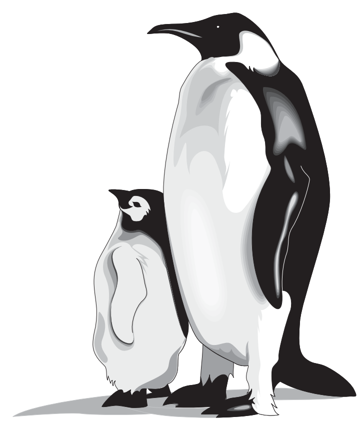
- Print the list
- Compare your sample list to samples in your possession
- Confirm samples are in your possession unless consumed during research (if approval was obtained during original sample request)
- Sign/date top of first inventory page
- Institutional official must sign/date top of first page
- Scan and email it back to us

PIs that do not respond to inventory queries by the NASA Curator will not continue to receive samples from the collection.

A periodical issued by the Meteorite Working Group to inform scientists of the basic characteristics of specimens recovered in the Antarctic.

Edited by Cecilia Satterwhite and Kevin Righter, NASA Johnson Space Center, Houston, Texas 77058

Inside this Issue



Sample Request Deadline
March 4, 2016

MWG Meets
March 20, 2016

Free publication available at: **http://curator.jsc.nasa.gov/antmet/amn/amn.cfm**

Reminder to acknowledge samples received from NASA-JSC

When publishing results of your research, please include the split numbers used in the research.

We also request that scientists use the following acknowledgement statement when reporting the results of their research in peer reviewed journals: "US Antarctic meteorite samples are recovered by the Antarctic Search for Meteorites (ANSMET) program which has been funded by NSF and NASA, and characterized and curated by the Department of Mineral Sciences of the Smithsonian Institution and Astromaterials Curation Office at NASA Johnson Space Center." Such an acknowledgement will broaden the awareness of the funding mechanisms that make this program and these samples possible.

We suggest you find out how to acknowledge samples received from all the collections/museums from which you have received materials so that all the institutions making samples available to you receive proper credit and acknowledgement.

Reclassifications

LAR06877: LAR 06877 was announced as a IIIAB iron in Antarctic Meteorite Newsletter vol. 30, no. 2 (August 2007). Subsequent analysis by John Wasson indicates the need for a reclassification. The INAA analyses of 4.07 mg/g Co, 88.3 mg/g Ni, 2.24 mg/g Ga, 10.5 mg/g As, 0.40 mg/g W, 0.83 mg/g Ir and 1.98 mg/g Au demonstrate that LAR06877 is in fact a IVA iron.

LAR06507: LAR 06507 was classified as an LL impact melt breccia in the Antarctic Meteorite Newsletter vol. 33 No. 1 (February 2010). More detailed information has led to a better understanding of this sample, which we here re-classify to shocked CK6 chondrite, based on a) the abundance of magnetite, the near absence of metal, equilibrated olivine fayalite content of 31+/-3, and Ni-rich olivine. Additional information can be found in meeting abstracts:

K. Righter, R. Harrington, C. Schroeder, and R. V. Morris (2013) Non-Destructive Classification Approaches for Equilibrated Ordinary Chondrites. *76th Annual Meeting of the Meteoritical Society, Abstract #5232.*

M. Schmieder, B. J. Shaulis, and D. A. Kring (2016) Larkman Nunatak 06507 — Insights into the Impact Melting of Carbonaceous Chondrites. *47th Lunar and Planetary Science Conference, Abstract #1646.*

Finally, the following chondrites were mis-classified in last newsletter due to a mix-up in sample numbering. The correct classifications are as follows, with the classification based on fayalite content of olivine determined by electron microscopy:

Sample	AMN 38, no.2	Reclassification	
LAR 12301	L5	LL6	(Fa_{28})
LAR 12302	H5	L6	(Fa_{22})
LAR 12303	LL5	L6	(Fa_{26})
LAR 12304	LL5	L5	(Fa_{22})
LAR 12305	LL5	LL5	(Fa_{28})
LAR 12306	LL5	LL5	(Fa_{29})
LAR 12307	H5	LL5	(Fa_{29})
LAR 12309	LL5	L6	(Fa_{22})
LAR 12310	LL5	not yet classified	

Magnetic susceptibility measurements

We have been measuring magnetic susceptibility values for many of the new meteorites that come through the meteorite processing lab here at JSC. However, none of it has yet been made available. Here we provide these numbers of a large number of samples from various field seasons. The measurements were made using an SM30 magnetic susceptibility meter, following the guidelines discussed by Folco et al. (2006) and Gattacceca et al. (2004). Two measurements are made on different convex surfaces and then averaged. The measurements were made in the center of the lab, several meters away from any metal tables or cabinets. Although we do not use any of the data yet to reclassify samples, we think it is potentially valuable to the community and so decided to publish it here in the newsletter. It is listed after the petrographic descriptions.

Folco, L., Rochette, P., Gattacceca, J., & Perchiazzi, N. (2006). In situ identification, pairing, and classification of meteorites from Antarctica through magnetic susceptibility measurements. *Meteoritics & Planetary Science, 41(3), 343-353.*

Gattacceca, J., Eisenlohr, P., & Rochette, P. (2004). Calibration of in situ magnetic susceptibility measurements. *Geophysical Journal International, 158(1), 42-49*.

ANSMET 2015-2016 Field Season

Jim Karner, Ralph Harvey and John Schutt
Case Western Reserve University

Our 2015-16 field season was a return to the Miller Range icefields, home of the MIL meteorites. These icefields have been visited eight times by ANSMET and are one of our most prolific meteorite recovery sites, yielding over 2500 specimens including just about every kind of meteorite imaginable- lunar, martian, iron, stony-iron, chondrite, etc. This season we aimed to visit icefields in both the northern and southern areas of the Miller Range, spending about two weeks at the north end and four weeks at the south.

The season started with Jim Karner, Brian Rougeux, Nina Lanza, and Morgan Martinez being put-in at the central Iggy Ridge landing site on Dec. 15. The four of us quickly set up camp just as strong katabatic winds from the south started to pick up. The winds continued to blow, and for the next two days it was full-on, whiteout-blizzard conditions as the winds raged at 30-35 mph with gusts up to 50 mph. We ended up stuck in our tents for the first three days of the season. On Dec. 18 the winds started to settle and we finally were able to get out of the tents and dig out camp. The rest of the team- John Schutt, Con Tsang, Cindy Evans, and Ellen Crapster-Pregont arrived at N. MIL later that day and organized searching started up the next morning. The team performed several days worth of recon style searching on skidoos over blue ice areas near and far from camp, finding about two dozen meteorites. We also spent time foot-searching for meteorites in wind-blown rows of rocks on an icefield north of camp along the eastern margin of the Nimrod Glacier. These windrows contain loads of terrestrial rocks but also a significant number of meteorites - we found and collected about 150 meteorites in two days of searching.

After two weeks we moved about 35 km to the south and setup camp at the southern icefields of the Miller Range. Sunny and warm weather allowed us to search for 11 of the next 12 days, and over two hundred more meteorites were collected. Then the winds came again. This time it was a four-day blow and again we waited it out, confined to our tents. After the storm we resumed searching for a few days until pullout operations started on Jan. 19. Overall it was a good, productive season- we covered a lot of previously unsearched areas and finished several icefields left over from previous seasons. In total we recovered 569 meteorites, of which several have the potential to be pretty special. But isn’t that always the case with the Miller Range? After having visited the site every other year for over 10 years, there’s at least one more season to go.

Windrows at an icefield in the north Miller Range with flags marking meteorites.

Report from the Smithsonian – Spring 2016

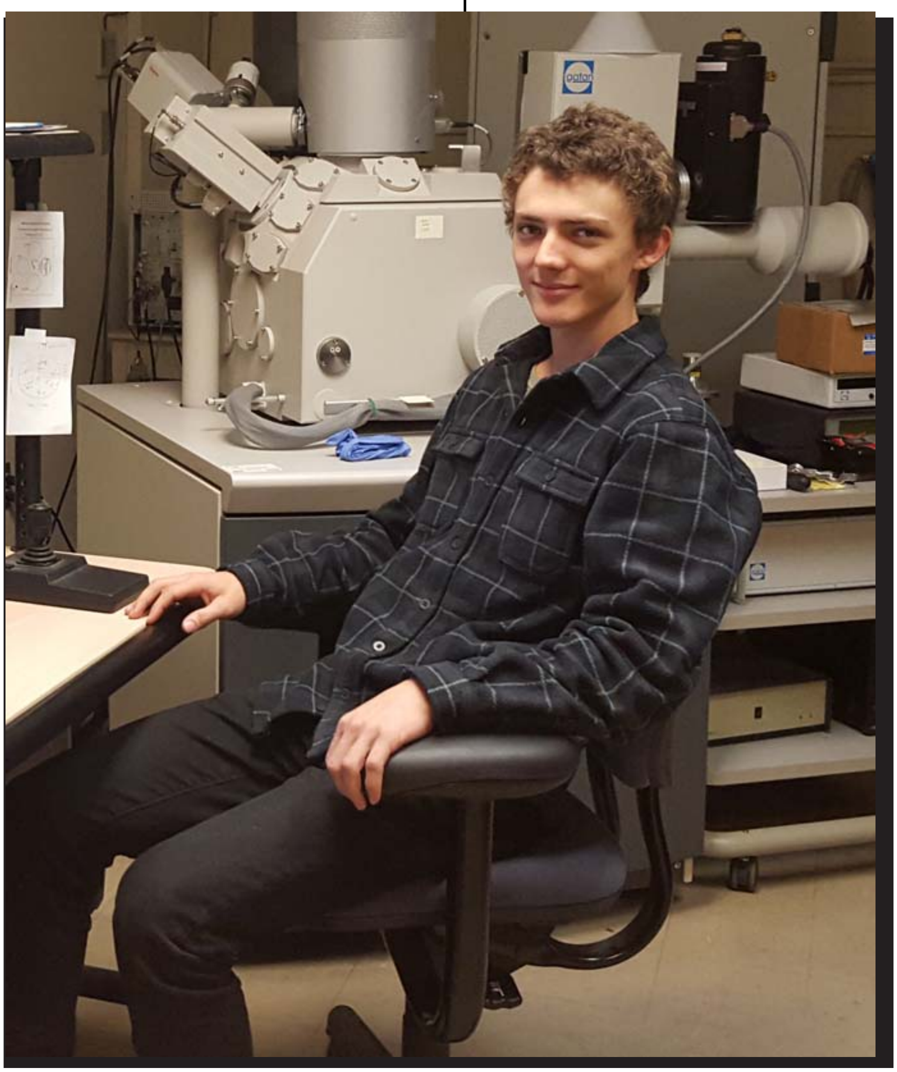
Cari Corrigan

This newsletter announces the classification of 215 meteorites from the 2010 through 2014 ANSMET seasons.

The Division of Meteorites at the Smithsonian is happy to report that things have been looking up since our last newsletter! Julie Hoskin joined us on August 10th and has come up to speed quickly as our Collections Manager. We also have a new intern, Chris Anders, who has been invaluable in keeping things moving along in our Division. Chris is wiling to do anything and everything asked of him without complaint, and has a keen eye for problem solving. Chris has been instrumental in helping us implement the switch from oil immersion to SEM-EDS analyses for classifying the ordinary chondrite chips, and has had some great ideas about how to make the process (which is still in flux) run smoothly. We have been able to make significant progress toward clearing the backlog of loan requests with Julie and Chris on board. Thanks goes out to both of them!

We look forward to introducing Julie to the Meteoritics community at LPSC in March, and are confident that you will enjoy working with her. Her contact info is hoskinj@si.edu and 202-633-1825.

For those of you waiting for iron meteorite requests, we were able to fill many of the smaller requests, but our iron cutting saw met with a rather large hiccup. The repairs and modifications have been made and we should be getting to the requests we were unable to fill in the next couple of weeks. Our continued apologies and please bear with us as our Museum undergoes major renovations, which required us to move the entire rock-cutting lab.



Chris Anders, Smithsonian Institution

2010-2014 Collection

Pages 6-17 contain preliminary descriptions and classifications of meteorites that were completed since publication of issue 38(2), Aug. 2015. Specimens of special petrologic type (carbonaceous chondrite, unequilibrated ordinary chondrite, achondrite, etc.) are represented by separate descriptions unless they are paired with previously described meteorites. However, some specimens of non-special petrologic type are listed only as single line entries in Table 1. For convenience, new specimens of special petrological type are also recast in Table 2.

Macroscopic descriptions of stony meteorites were performed at NASA/JSC. These descriptions summarize hand-specimen features observed during initial examination. Classification is based on microscopic petrography and reconnaissance-level electron microprobe analyses using polished sections prepared from a small chip of each meteorite. For each stony meteorite the sample number assigned to the preliminary examination section is included. In some cases, however, a single microscopic description was based on thin sections of several specimens believed to be members of a single fall.

Meteorite descriptions contained in this issue were contributed by the following individuals:

Rachel Funk, Mitchell Haller, Roger Harrington and Cecilia Satterwhite
Antarctic Meteorite Laborabory
NASA Johnson Space Center
Houston, Texas

Chris Anders, Cari Corrigan, Julie Hoskins and Tim McCoy
Department of Mineral Sciences
U.S. National Museum of Natural History - Smithsonian Institution
Washington, D.C.

Antarctic Meteorite Locations

ALH	Allan Hills	MBR	Mount Baldr
BEC	Beckett Nunatak	MCY	MacKay Glacier
BOW	Bowden Neve	MET	Meteorite Hills
BTN	Bates Nunataks	MIL	Miller Range
BUC	Buckley Island	ODE	Odell Glacier
CMS	Cumulus Hills	OTT	Outpost Nunatak
CRA	Mt.Cranfield Ice Field	PAT	Patuxent Range
CRE	Mt. Crean	PCA	Pecora Escarpment
DAV	David Glacier	PGP	Purgatory Peak
DEW	Mt. DeWitt	PRA	Mt. Pratt
DNG	D'Angelo Bluff	PRE	Mt. Prestrud
DOM	Dominion Range	QUE	Queen Alexandra Range
DRP	Derrick Peak	RBT	Roberts Massif
EET	Elephant Moraine	RKP	Reckling Peak
FIN	Finger Ridge	SAN	Sandford Cliffs
GDR	Gardner Ridge	SCO	Scott Glacier
GEO	Geologists Range	STE	Stewart Hills
GRA	Graves Nunataks	SZA	Szabo Bluff
GRO	Grosvenor Mountains	TEN	Tentacle Ridge
HOW	Mt. Howe	TIL	Thiel Mountains
ILD	Inland Forts	TYR	Taylor Glacier
KLE	Klein Ice Field	WIS	Wisconsin Range
LAP	LaPaz Ice Field	WSG	Mt. Wisting
LAR	Larkman Nunatak		
LEW	Lewis Cliff		
LON	Lonewolf Nunataks		
MAC	MacAlpine Hills		

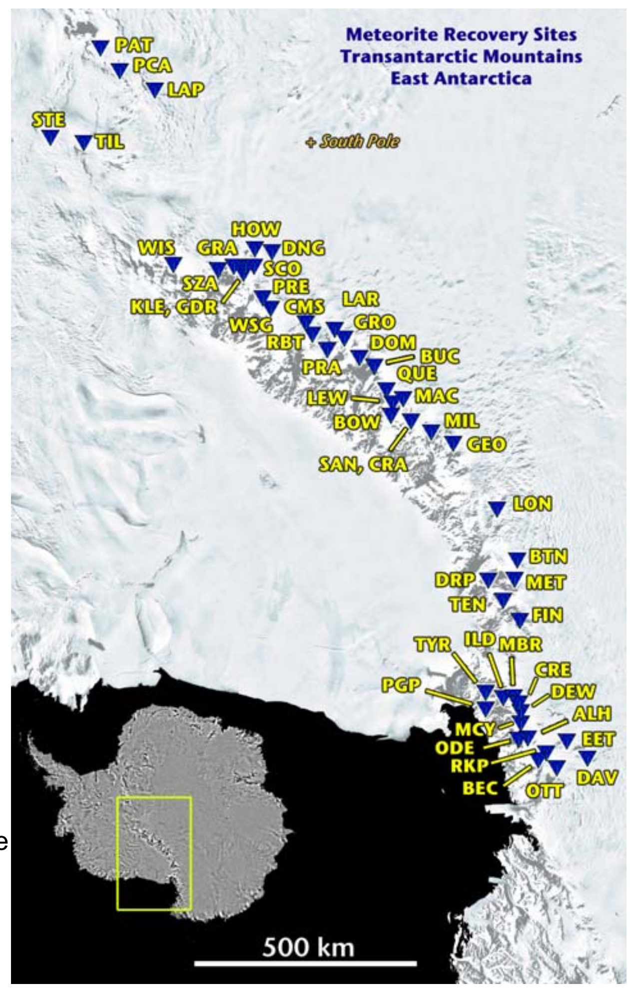


Table 1
Newly Classified Antarctic Meteorites

Sample Number	Weight(g)	Classification	Weathering	Fracturing	%Fa	%Fs
PAT 10203	538.4	L5 CHONDRITE	B/C	B	26	
PAT 10311	7.7	LL6 CHONDRITE	B/C	A/B	30	
GDR 12540	254.9	L5 CHONDRITE	A	A	26	
GDR 12541	97.0	L5 CHONDRITE	A	A	26	
GRA 12502	30.0	H6 CHONDRITE	B	A	18	
GRA 12503	47.9	H6 CHONDRITE	B	A	18	
GRA 12504	80.8	H5 CHONDRITE	B	A	18	
GRA 12505	153.6	H6 CHONDRITE	B/C	A	20	
GRA 12506	36.8	H5 CHONDRITE	B	A	18	
GRA 12507	21.8	H5 CHONDRITE	B/C	A	19	
GRA 12508	25.9	H5 CHONDRITE	B	A	18	
GRA 12509	7.0	H5 CHONDRITE	A/B	A/B	20	
GRO 12520	154.9	H5 CHONDRITE	B	A/B	19	
GRO 12521	8.7	H5 CHONDRITE	A	A	19	
GRO 12522	11.1	H6 CHONDRITE	A/B	A	20	
GRO 12523	23.9	H5 CHONDRITE	A/B	A/B	19	
GRO 12524	11.4	L6 CHONDRITE	A	A	26	
LAR 12001	6328.2	EH3 CHONDRITE	BE	B/C	3	0-2
LAR 12003	2600.1	H6 CHONDRITE	A/B	A/B	19	
LAR 12004	4016.3	L6 CHONDRITE	A/B	A	25	
LAR 12005	1199.5	L6 CHONDRITE	A/BE	A/B	25	
LAR 12006	1532.9	H5 CHONDRITE	B	B	19	
LAR 12007	1618.3	H6 CHONDRITE	BE	A	19	
LAR 12008	1119.5	H6 CHONDRITE	BE	A/B	19	
LAR 12009	1002.9	H6 CHONDRITE	B	A/B	19	
LAR 12013	972.9	H5 CHONDRITE	BE	A/B	20	
LAR 12014	2121.0	H5 CHONDRITE	B/C	A	20	
LAR 12015	1646.9	H6 CHONDRITE	BE	A	19	
LAR 12016	4535.5	H6 CHONDRITE	BE	A/B	20	
LAR 12017	1053.5	L6 CHONDRITE	A/B	A/B	26	
LAR 12018	906.2	H6 CHONDRITE	B	A/B	20	
LAR 12019	2488.9	H6 CHONDRITE	B	A	19	
LAR 12020	984.7	H6 CHONDRITE	BE	B	20	
LAR 12021	926.2	H6 CHONDRITE	B	B	20	
LAR 12022	1710.1	H5 CHONDRITE	B	A	20	
LAR 12023	967.7	H6 CHONDRITE	BE	A		17
LAR 12024	848.7	L5 CHONDRITE	B	A/B	20	
LAR 12025	661.3	H5 CHONDRITE	B	A/B	19	
LAR 12026	930.5	H6 CHONDRITE	B	B	20	
LAR 12027	1139.7	H6 CHONDRITE	A/BE	A/B	19	
LAR 12028	1297.7	H5 CHONDRITE	BE	A/B	19	
LAR 12030	931.8	H6 CHONDRITE	A/B	B	20	
LAR 12031	1807.5	H6 CHONDRITE	B	B	19	
LAR 12032	1068.0	H6 CHONDRITE	B	B	20	
LAR 12033	2585.7	H5 CHONDRITE	B	B	20	
LAR 12035	258.4	L5 CHONDRITE	A/B	A/B	25	
LAR 12036	522.9	LL6 CHONDRITE	A/B	A	26	
LAR 12037	620.9	LL6 CHONDRITE	B/C	B	26	

Sample Number	Weight(g)	Classification	Weathering	Fracturing	%Fa	%Fs
LAR 12038	260.5	H6 CHONDRITE	B	A/B	20	
LAR 12039	270.4	H5 CHONDRITE	B	A/B	20	
LAR 12040	137.4	H6 CHONDRITE	A/BE	A/B	20	
LAR 12041	176.8	H6 CHONDRITE	B	A	20	
LAR 12042	381.1	H6 CHONDRITE	B	A	20	
LAR 12043	524.1	H5 CHONDRITE	BE	A/B	18	16
LAR 12050	27.9	H5 CHONDRITE	A/B	A	19	
LAR 12051	40.8	H5 CHONDRITE	B/C	A	20	
LAR 12052	89.9	L6 CHONDRITE	B	A/B	26	
LAR 12053	100.8	L6 CHONDRITE	B/C	A	23	
LAR 12054	56.4	L6 CHONDRITE	B/C	A/B	26	
LAR 12055	114.4	H6 CHONDRITE	B/C	A	19	
LAR 12057	61.1	H5 CHONDRITE	B/C	A	19	
LAR 12058	77.2	H6 CHONDRITE	B/C	A	19	
LAR 12061	109.7	H6 CHONDRITE	B/C	B/C	19	
LAR 12062	663.8	H5 CHONDRITE	BE	A/B	20	
LAR 12063	109.1	H5 CHONDRITE	B/C	A/B	19	
LAR 12064	70.2	L5 CHONDRITE	A/B	B/C	26	
LAR 12065	24.5	H5 CHONDRITE	B	B	19	
LAR 12066	29.8	L5 CHONDRITE	A	B/C	25	
LAR 12067	51.3	H6 CHONDRITE	B	A/B	19	
LAR 12068	72.7	L5 CHONDRITE	BE	B	25	21
LAR 12069	33.7	H5 CHONDRITE	B/C	B/C	19	
LAR 12070	20.2	H6 CHONDRITE	B	A/B	19	
LAR 12071	34.3	H6 CHONDRITE	B	A/B	19	
LAR 12072	27.8	H6 CHONDRITE	B	A/B	20	
LAR 12073	25.9	H6 CHONDRITE	B	A	20	
LAR 12074	15.6	H6 CHONDRITE	A/B	A	19	
LAR 12076	20.8	H6 CHONDRITE	B	A	19	
LAR 12077	30.7	H5 CHONDRITE	B/C	A/B	19	
LAR 12079	45.8	H6 CHONDRITE	A/B	A	21	
LAR 12080	39.8	H6 CHONDRITE	B	A	20	
LAR 12081	35.4	H5 CHONDRITE	B	A	21	
LAR 12083	8.4	H6 CHONDRITE	B	A	20	
LAR 12084	53.1	H6 CHONDRITE	B	A	21	
LAR 12085	30.2	H6 CHONDRITE	B	A/B	19	
LAR 12086	14.2	H6 CHONDRITE	A/B	A	20	
LAR 12087	22.0	H5 CHONDRITE	A/B	A/B	20	
LAR 12088	21.9	H6 CHONDRITE	A/B	A/B	20	
LAR 12089	6.7	H6 CHONDRITE	A/B	A	19	
LAR 12090	251.9	L3.8 CHONDRITE	B/CE	A/B	20-31	
LAR 12091	543.6	H4 CHONDRITE	B/CE	A	19	17
LAR 12092	171.8	H6 CHONDRITE	B/CE	A/B	19	
LAR 12093	97.1	L5 CHONDRITE	B/CE	B	25	21
LAR 12094	97.3	H6 CHONDRITE	B/CE	A/B	19	
LAR 12096	160.1	L5 CHONDRITE	AE	A/B	26	
LAR 12097	194.7	H5 CHONDRITE	A/B	A	20	
LAR 12098	375.7	L6 CHONDRITE	A/B	A/B	24	20
LAR 12106	41.7	UREILITE	AE	A/B	3-17	6-10
LAR 12111	5.2	L6 CHONDRITE	B	B	26	
LAR 12112	5.2	H6 CHONDRITE	A/B	B	20	
LAR 12113	9.7	L6 CHONDRITE	A/B	A	26	
LAR 12114	8.7	H6 CHONDRITE	B/C	A/B	20	
LAR 12115	11.3	H6 CHONDRITE	B/C	A	20	

Sample Number	Weight(g)	Classification	Weathering	Fracturing	%Fa	%Fs
LAR 12116	5.6	LL6 CHONDRITE	B	A/B	29	
LAR 12118	18.9	H6 CHONDRITE	B	B/C	20	
LAR 12119	15.8	H6 CHONDRITE	B	A/B	20	
LAR 12120	724.4	L6 CHONDRITE	A/B	A	26	
LAR 12121	347.1	H6 CHONDRITE	B/CE	A/B	20	
LAR 12122	428.0	H6 CHONDRITE	B/C	A	20	
LAR 12123	376.6	H5 CHONDRITE	A/BE	A/B	18	
LAR 12124	214.1	LL5 CHONDRITE	BE	A/B	28	25
LAR 12125	578.9	H6 CHONDRITE	B/CE	A	19	
LAR 12126	190.8	H5 CHONDRITE	B/CE	A/B	19	
LAR 12128	222.3	EH3 CHONDRITE	C	B/C	0.4	1
LAR 12129	373.1	L6 CHONDRITE	A/B	A	26	
LAR 12141	57.1	H6 CHONDRITE	A/B	A	20	
LAR 12142	68.4	L3.6 CHONDRITE	AE	A	2-40	26
LAR 12143	51.2	H6 CHONDRITE	A/BE	A/B	20	
LAR 12144	83.0	L6 CHONDRITE	BE	A	26	
LAR 12145	102.1	H6 CHONDRITE	BE	A	20	
LAR 12146	98.4	L6 CHONDRITE	BE	A/B	26	
LAR 12147	103.0	LL6 CHONDRITE	B	A	27	
LAR 12148	80.0	H6 CHONDRITE	BE	A	19	
LAR 12149	89.7	L6 CHONDRITE	A/BE	B	25	
LAR 12160	77.8	H6 CHONDRITE	B/CE	A/B	20	
LAR 12161	43.5	H6 CHONDRITE	B/CE	A/B	20	
LAR 12162	43.6	H6 CHONDRITE	B/CE	A/B	20	
LAR 12165	28.2	H6 CHONDRITE	B/C	A/B	20	
LAR 12166	30.3	H6 CHONDRITE	B/C	A	20	
LAR 12167	18.1	H6 CHONDRITE	B/C	A	20	
LAR 12168	43.8	H5 CHONDRITE	B/C	A	20	
LAR 12170	20.0	H6 CHONDRITE	B	A/B	19	
LAR 12171	16.5	H6 CHONDRITE	B	A/B	20	
LAR 12172	17.6	H6 CHONDRITE	B	A	20	
LAR 12173	24.3	H6 CHONDRITE	B	A	20	
LAR 12174	9.0	H6 CHONDRITE	B	B	18	
LAR 12175	15.0	H6 CHONDRITE	B	A	19	
LAR 12177	9.9	H6 CHONDRITE	A/B	A	20	
LAR 12178	5.7	L6 CHONDRITE	A/B	A	26	
LAR 12179	15.3	L6 CHONDRITE	B/C	A/B	26	
LAR 12181	25.3	H5 CHONDRITE	B/C	A	19	
LAR 12183	6.2	L6 CHONDRITE	B/C	A	26	
LAR 12184	6.5	H6 CHONDRITE	B/C	A	20	
LAR 12185	4.4	H6 CHONDRITE	B/C	A	20	
LAR 12186	11.5	H6 CHONDRITE	B/C	A	20	
LAR 12187	11.9	H6 CHONDRITE	B/C	A	20	
LAR 12188	5.0	H5 CHONDRITE	B/C	A	21	
LAR 12195	16.1	L4 CHONDRITE	A/B	A	23	
LAR 12200	3.5	H6 CHONDRITE	B	A	19	
LAR 12201	12.5	H6 CHONDRITE	B/C	A	21	
LAR 12202	13.3	H5 CHONDRITE	B/C	A/B	19	
LAR 12206	9.2	L6 CHONDRITE	B	A	26	
LAR 12207	8.0	H6 CHONDRITE	B/C	A	19	
LAR 12208	10.3	H6 CHONDRITE	B/C	A	20	
LAR 12209	2.8	LL5 CHONDRITE	B/C	A	27	
LAR 12210	26.4	H5 CHONDRITE	B/C	A/B	16	
LAR 12211	20.6	H5 CHONDRITE	B/C	A/B	20	

Sample Number	Weight(g)	Classification	Weathering	Fracturing	%Fa	%Fs
LAR 12212	27.5	L5 CHONDRITE	B/C	A/B	26	
LAR 12213	39.4	H6 CHONDRITE	B/C	A/B	19	
LAR 12214	8.4	L6 CHONDRITE	C	A	26	
LAR 12216	16.3	L3.5 CHONDRITE	B	A	3-33	13-18
LAR 12217	13.6	H6 CHONDRITE	B	B	20	
LAR 12218	24.6	H6 CHONDRITE	B	A	19	
LAR 12219	17.6	H6 CHONDRITE	B	A	19	
LAR 12220	467.5	H5 CHONDRITE	B	A/B	20	
LAR 12230	40.7	L5 CHONDRITE	A/B	A/B	25	
LAR 12231	21.8	H5 CHONDRITE	A/BE	B	19	
LAR 12232	43.2	H6 CHONDRITE	B	A/B	19	
LAR 12233	60.3	L5 CHONDRITE	B	A	25	
LAR 12234	35.6	L3.6 CHONDRITE	A/B	A/B	1-25	4
LAR 12235	33.9	L6 CHONDRITE	B/C	A	26	
LAR 12236	33.9	H6 CHONDRITE	B	A	19	
LAR 12237	24.2	H6 CHONDRITE	A/B	A	19	
LAR 12239	24.6	L5 CHONDRITE	AE	A/B	25	
LAR 12300	14.0	LL5 CHONDRITE	B/C	A	28	
LAR 12321	39.0	L5 CHONDRITE	A/B	B	26	
LAR 12324	258.3	L5 CHONDRITE	A/B	A	26	
SCO 12531	132.3	L6 CHONDRITE	A/B	A/B	26	
SCO 12532	48.5	H5 CHONDRITE	A	A	20	
SCO 12533	11.1	L5 CHONDRITE	B	B/C	26	
SCO 12534	18.1	L5 CHONDRITE	A/B	A/B	26	
SZA 12405	1181.4	H5 CHONDRITE	A/B	A/B	19	
SZA 12440	33.9	H5 CHONDRITE	B/C	A/B	20	
SZA 12442	3.9	H5 CHONDRITE	B/C	A/B	20	
SZA 12443	22.0	L5 CHONDRITE	B/C	B	26	
MIL 13001	5596.9	L5 CHONDRITE	BE	A	26	
MIL 13003	1038.1	H5 CHONDRITE	B	A/B	20	
MIL 13006	627.4	L6 CHONDRITE	B/C	A/B	26	
MIL 13007	436.1	H4 CHONDRITE	BE	B	18	
MIL 13050	0.4	LL4 CHONDRITE	B	A	28	24
MIL 13051	29.0	H5 CHONDRITE	B/C	A	19	
MIL 13052	2.2	L3.6 CHONDRITE	B	A	1-27	9-15
MIL 13053	0.4	L6 CHONDRITE	B	A	26	
MIL 13054	6.7	H5 CHONDRITE	B/C	A	20	
MIL 13055	0.9	H6 CHONDRITE	B	A	20	
MIL 13057	3.1	LL5 CHONDRITE	B/C	A/B	27	
MIL 13058	1.9	L6 CHONDRITE	B/C	A	26	
MIL 13280	1.8	LL6 CHONDRITE	B/C	A	27	
MIL 13281	0.5	H6 CHONDRITE	B	A	19	
MIL 13282	1.0	LL4 CHONDRITE	A/B	A	28	24
MIL 13283	0.5	H5 CHONDRITE	B	A/B	19	
MIL 13284	1.1	L5 CHONDRITE	B/C	A	26	
MIL 13285	1.0	EH3 CHONDRITE	B/C	B		0-3
MIL 13286	0.2	H6 CHONDRITE	B	A	20	
MIL 13287	0.2	LL5 CHONDRITE	B	A	27	
MIL 13288	2.0	LL5 CHONDRITE	B/C	A	29	

Sample Number	Weight(g)	Classification	Weathering	Fracturing	%Fa	%Fs
MIL 13289	1.2	L5 CHONDRITE	B/C	A	26	
DOM 14003	1261.2	L3.6 CHONDRITE	BE	A/B	9-27	4-14
DOM 14019	158.3	CO3 CHONDRITE	BE	A/B	1-39	2
DOM 14127	103.9	CO3 CHONDRITE	B	B	22-42	1
DOM 14169	20.0	HOWARDITE	AE	B		22-62
DOM 14219	38.1	CM2 CHONDRITE	AE	A/B	1-46	2
DOM 14238	10.5	CK5 CHONDRITE	B	B/C	30	
DOM 14239	9.9	CM1 CHONDRITE	BE	B/C		
DOM 14305	133.1	CO3 CHONDRITE	A/BE	A/B	1-56	51
DOM 14359	393.0	CO3 CHONDRITE	BE	A/B	1-45	1-63

Table 2
Newly Classified Meteorites Listed by Type

Achondrites

Sample Number	Weight(g)	Classification	Weathering	Fracturing	%Fa	%Fs
DOM 14169	20.0	HOWARDITE	AE	B		22-62
LAR 12106	41.7	UREILITE	AE	A/B	3-17	6-10

Carbonaceous Chondrites

Sample Number	Weight(g)	Classification	Weathering	Fracturing	%Fa	%Fs
DOM 14238	10.5	CK5 CHONDRITE	B	B/C	30	
DOM 14239	9.9	CM1 CHONDRITE	BE	B/C		
DOM 14219	38.1	CM2 CHONDRITE	AE	A/B	1-46	2
DOM 14019	158.3	CO3 CHONDRITE	BE	A/B	1-39	2
DOM 14127	103.9	CO3 CHONDRITE	B	B	22-42	1
DOM 14305	133.1	CO3 CHONDRITE	A/BE	A/B	1-56	51
DOM 14359	393.0	CO3 CHONDRITE	BE	A/B	1-45	1-63

Chondrites - Type 3

Sample Number	Weight(g)	Classification	Weathering	Fracturing	%Fa	%Fs
LAR 12142	68.4	L3.6 CHONDRITE	AE	A	2-40	26
LAR 12216	16.3	L3.5 CHONDRITE	B	A	3-33	13-18
LAR 12234	35.6	L3.6 CHONDRITE	A/B	A/B	1-25	4
MIL 13052	2.2	L3.6 CHONDRITE	B	A	1-27	9-15
DOM 14003	1261.2	L3.6 CHONDRITE	BE	A/B	9-27	4-14
LAR 12090	251.9	L3.8 CHONDRITE	B/CE	A/B	20-31	

E Chondrites

Sample Number	Weight(g)	Classification	Weathering	Fracturing	%Fa	%Fs
LAR 12001	6328.2	EH3 CHONDRITE	BE	B/C	3	0-2
LAR 12128	222.3	EH3 CHONDRITE	C	B/C	0.4	1
MIL 13285	1.0	EH3 CHONDRITE	B/C	B		0-3

**Notes to Tables 1 and 2:

"Weathering" Categories:

A: Minor rustiness; rust haloes on metal particles and rust stains along fractures are minor.
B: Moderate rustiness; large rust haloes occur on metal particles and rust stains on internal fractures are extensive.
C: Severe rustiness; metal particles have been mostly stained by rust throughout.
E: Evaporite minerals visible to the naked eye.

"Fracturing" Categories:

A: Minor cracks; few or no cracks are conspicuous to the naked eye and no cracks penetrate the entire specimen.
B: Moderate cracks; several cracks extend across exterior surfaces and the specimen can be readily broken along the cracks.
C: Severe cracks; specimen readily crumbles along cracks that are both extensive and abundant.

Classification of the ordinary chondrites in Table 1 & 2 was done by Energy Dispersive Spectroscopic (EDS) methods using a Scanning Electron Microscope (SEM). This can include the analysis of several olivine and pyroxene grains to determine the approximate Fayalite and Ferrosilite values of the silicates, grouping them into H, L or LL chondrites. Petrologic types are determined by optical microscopy and are assigned based on the distinctiveness of chondrule boundaries on broken surfaces of a 1-3 g chip. While this technique is suitable for general characterization and delineation of equilibrated ordinary chondrites, those undertaking detailed study of any meteorite classified by optical methods alone should use caution. It is recommended that a polished thin section be requested to accompany any chip and appropriate steps for a more detailed characterization should be undertaken by the user. (Cari Corrigan, Smithsonian Institution)

Table 3

Tentative Pairings for New Meteorites

Table 3 summarizes possible pairings of the new specimens with each other and with previously classified specimens based on descriptive data in this newsletter issue. Readers who desire a more comprehensive review of the meteorite pairings in the U.S. Antarctic collection should refer to the compilation provided by Dr. E.R. D. Scott, as published in the Antarctic Meteorite Newsletter vol. 9 (no. 2) (June 1986). Possible pairings were updated in Meteoritical Bulletins 76, 79, 82 through 102, which are available online from the Meteoritical Society webpage:

http://www.lpi.usra.edu/meteor/metbull.php

CO3 CHONDRITE

DOM 14019, DOM 14127, DOM 14305, and DOM 14359 with DOM 08004

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
LAR 12001	Larkman Nunatak	23134	18.0 x 14.0 x 15.0	6328.2	EH3 Chondrite

Macroscopic Description: Mitchell Haller
Exterior of this heavily fractured meteorite has 75% brown/black fusion crust with evaporites and some orange shiny rusty spots. The interior is a dark gray matrix with shiny metal and weathered orange clasts and chondrules. Areas of the interior are heavily weathered.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy
The section shows an aggregate of chondrules (up to 1.5 mm), chondrule fragments, and pyroxene grains in a matrix of about 30% metal and sulfide. Chondrules contain small abundances of olivine. Weathering is modest, with staining of some enstatite grains and minor alteration of metal and sulfides. Microprobe analyses show the olivine is Fa_3 and pyroxene is Fs_{0-2}. The meteorite is a type 3 enstatite chondrite, probably an EH3.

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
LAR 12090	Larkman Nunatak	22612	7.0 x 6.5 x 3.0	251.89	L3.8 Chondrite

Macroscopic Description: Cecilia Satterwhite
Black/brown fusion crust is present on 75% of the meteorite's exterior. Oxidation haloes and rusty areas are visible with some evaporites. The interior is a dark gray to black matrix with large gray inclusions/chondrules are visible. Oxidation is heavy in some areas with rust; most inclusion/chondrules are weathered.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy
The section exhibits numerous large, well-defined chondrules (up to 1.5 mm) in a dark matrix of fine-grained silicates, metal and troilite. Weak shock effects are present. Polysynthetically twinned pyroxene is present. The meteorite is extensively weathered and stained. Silicates are unequilibrated; olivines range from Fa_{20-31} and pyroxene is Fs_1Wo_1. The meteorite is an L3 chondrite (estimated subtype 3.8).

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
LAR 12106	Larkman Nunatak	22630	4.5 x 3.5 x 1.5	41.7	Ureilite

Macroscopic Description: Rachel Funk
Black fusion crust covers 70% of the fractured exterior. Some of the fusion crust has a vesicular appearance and minor evaporites are visible. The exposed surface is covered in dark reddish brown rust. Interior is a gray matrix with black elongated grains, 1 mm in length with minor amounts of orange rust present.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy
The section consists of an aggregate of large olivine and pyroxene grains up to 3 mm across. Individual grains are rimmed by carbon-rich material containing particles and stringers of metal and rare sulfide. Olivine and pyroxene grains have been extensively mosaicized by shock. Olivine compositions are Fa_{3-17}. Pyroxene compositions are $Fs_{6-10}Wo_{19-34}$. The meteorite is a ureilite.

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
LAR 12128	Larkman Nunatak	23174	10.0 x 6.0 x 4.0	222.330	EH3 Chondrite

Macroscopic Description: Cecilia Satterwhite
60% of the exterior has brown/black fractured fusion crust with rusty brown weathered areas. Exterior is platy and breaks easily. The interior a rusty brown with metal and weathered inclusions/chondrules.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy
The section shows an aggregate of chondrules (up to 1.5 mm), chondrule fragments, and pyroxene grains in a matrix of about 30% metal and sulfide. Chondrules contain modest abundances of olivine. Weathering is modest, with staining of some enstatite grains and minor alteration of metal and sulfides. Microprobe analyses show the olivine is $Fa_{0.4}$ and pyroxene is Fs_1. The meteorite is a type 3 enstatite chondrite, probably an EH3.

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
LAR 12142	**Larkman Nunatak**	**23146**	**4.0 x 3.5 x 3.0**	**68.400**	**L3.6 Chondrite**

Macroscopic Description: Rachel Funk

85% of the exterior has black fusion crust with evaporites. The exposed surface has dark brown and rusty areas with some white inclusions/chondrules visible. The dark matrix with white and gray inclusions/chondrules has some minor amounts of orange rusty shiny metal throughout.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy

The section exhibits numerous large, well-defined chondrules (up to 1.5 mm) in a dark matrix of fine-grained silicates, metal and troilite. Weak shock effects are present. Polysynthetically twinned pyroxene is present. The meteorite is highly weathered. Silicates are unequilibrated; olivines range from Fa_{2-40} and pyroxene is $Fs_{25}Wo_{1}$. The meteorite is an L3 chondrite (estimated subtype 3.6).

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
LAR 12216	**Larkman Nunatak**	**23298**	**3.5 x 2.6 x 1.0**	**16.280**	**L3.5 Chondrite**

Macroscopic Description: Mitchell Haller

Black fusion crust covers 60% of the exterior surface; the other surface is weathered brown with some chondrules visible. The interior is a reddish black matrix with dark gray inclusions/chondrules and some silvery metals.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy

The section exhibits numerous large, well-defined chondrules (up to 2 mm) in a dark matrix of fine-grained silicates, metal and troilite. Weak shock effects are present. Polysynthetically twinned pyroxene is present. The meteorite is moderately weathered. Silicates are unequilibrated; olivines range from Fa_{3-33} and pyroxene is $Fs_{13-18}Wo_{1}$. The meteorite is an L3 chondrite (estimated subtype 3.5).

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
LAR 12234	**Larkman Nunatak**	**23274**	**3.2 x 2.3 x 2.0**	**35.555**	**L3.6 Chondrite**

Macroscopic Description: Mitchell Haller

80% of the exterior has black fusion crust with some weathered areas. The interior is dark gray to black with large gray and weathered inclusions/chondrules (~3mm).

Thin Section (,2) Description: Cari Corrigan, Tim McCoy

The section exhibits numerous large, well-defined chondrules (up to 2 mm) in a dark matrix of fine-grained silicates, metal and troilite. Weak shock effects are present. Polysynthetically twinned pyroxene is present. The meteorite is extensively weathered and stained. Silicates are unequilibrated; olivines range from Fa_{1-25} and pyroxene is $Fs_{3}Wo_{0.4}$. The meteorite is an L3 chondrite (estimated subtype 3.6).

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
MIL 13052	**Miller Range**	**22669**	**1.9 x 0.8 x 0.6**	**2.180**	**L3.6 Chondrite**

Macroscopic Description: Cecilia Satterwhite

Black/brown fusion crust covers 90% of exterior with oxidation and rusty areas. The interior is a dark gray to black with some abundant light colored and weathered inclusions/chondrules. Some areas are very rusty.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy

The section exhibits numerous large, well-defined chondrules (up to 2 mm) in a dark matrix of fine-grained silicates, metal and troilite. Minimal shock effects are present. Polysynthetically twinned pyroxene is present. Silicates are unequilibrated; olivines range from Fa_{1-27} and pyroxene is Fs_{9-15}. The meteorite is an L3 chondrite (estimated subtype 3.6).

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
MIL 13285	**Miller Range**	**21729**	**1.2 x 1.0 x 0.4**	**1.000**	**EH3 Chondrite**

Macroscopic Description: Cecilia Satterwhite

This meteorite has 80% brown/black fusion crust on the exterior with heavily rusted areas. The interior is very rusty with some dark gray to black matrix visible.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy

This very small section shows an aggregate of chondrules (up to 1.5 mm), chondrule fragments, and pyroxene grains in a matrix of abundant metal and sulfide. Weathering is extensive, with staining of enstatite grains and minor alteration of metal and sulfides. Microprobe analyses show the pyroxene is Fs_{0-3}. The meteorite is a type 3 enstatite chondrite, probably an EH3.

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
DOM 14003	**Dominion Range**	**22547**	**12.0 x 9.0 x 7.0**	**1261.200**	**L3.6 Chondrite**

Macroscopic Description: Rachel Funk

Black fusion crust covers 40% of the exterior which is fractured and weathered. Minor amounts of evaporites are present on some areas. The exposed interior is black with some rusty and white, gray and beige inclusions/ chondrules (1-5mm). The interior is black matrix with lighter colored and rusty chondrules/inclusions (1-5 mm).

Thin Section (,2) Description: Cari Corrigan, Tim McCoy

This unweathered and unshocked section exhibits numerous well-defined chondrules (up to 1.5 mm) in a black matrix of fine-grained silicates, metal and troilite. Polysynthetically twinned pyroxene is extremely abundant. Silicates are unequilibrated; olivines range from Fa_{9-27}, and pyroxenes from Fs_{4-14}. The meteorite is an L chondrite (estimated subtype 3.6).

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
DOM 14019	**Dominion Range**	**23580**	**5.6 x 5.0 x 2.7**	**133.132**	**CO3 Chondrite**
DOM 14127	**Dominion Range**	**21625**	**5.0 x 4.0 x 2.3**	**103.86**	
DOM 14305	**Dominion Range**	**21070**	**7.0 x 4.0 x 3.0**	**133.1**	
DOM 14359	**Dominion Range**	**22257**	**10.0 x 6.5 x 5.5**	**392.97**	

Macroscopic Description: Rachel Funk and Cecilia Satterwhite

The exteriors of these paired meteorites have black/brown fractured fusion crust with weathered areas and evaporites. The interiors are a dark gray to black matrix with some white specks, abundant in some areas and some large white inclusions. Some areas are rusty and weathered.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy

These sections consist of abundant small (up to 1 mm) chondrules, chondrule fragments and mineral grains in a dark matrix. Metal and sulfide occur within and rimming the chondrules. Olivine ranges in composition from Fa_{1-56}. Pyroxene analyses range from $Fs_{1-62}Wo_{0-2}$. The meteorites are CO3 chondrites, probably paired with the DOM 08004/DOM 10101 pairing group.

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
DOM 14169	**Dominion Range**	**23536**	**3.5 x 2.5 x 2.0**	**20.046**	**Howardite**

Macroscopic Description: Rachel Funk

65% of the exterior is covered with black fusion crust and some minor evaporites. Fractures penetrate the surface. The exposed interior is gray with white and yellow inclusions (up to 3 mm in size). The interior is a gray matrix with dark gray, white and beige inclusions.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy

The section shows a groundmass of comminuted pyroxene and plagioclase (up to 0.5 mm) with fine- to coarse-grained basaltic clasts ranging up to 3 mm. Most of the pyroxene is orthopyroxene with compositions ranging from $Fs_{22-62}Wo_{1-8}$ (most Fs_{20-30}), with augite of $Fs_{27-31}Wo_{42}$. The meteorite is a howardite.

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
DOM 14219	Dominion Range	22529	4.5 x 3.0 x 2.0	38.100	CM2 Chondrite

Macroscopic Description: Rachel Funk

65% of the exterior is a black fusion crust with minor evaporites and fractures. The interior is a black matrix with evaporites around the outer edge and gray chondrules visible

Thin Section (,2) Description: Cari Corrigan, Tim McCoy

The sections consist of a few small chondrules (up to 0.5 mm), mineral grains and CAIs set in a black matrix; rare metal and sulfide grains are present. Olivine compositions are Fa_{1-46}, orthopyroxene is Fs_1Wo_1. Aqueous alteration of the matrix is substantial, but the chondrules are only modestly altered. The meteorite is a CM2 chondrite.

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
DOM 14238	Dominion Range	23540	2.0 x 2.0 x 1.7	10.510	CK5 Chondrite

Macroscopic Description: Cecilia Satterwhite

Exterior is gray in color with black patches of fractured fusion crust. The meteorite has a pebbly texture with abundant fractures that penetrate the surface. The interior has a black matrix in middle of sample with gray weathered matrix surrounding it. Chondrules are visible and brown rusty oxidation is present

Thin Section (,2) Description: Cari Corrigan, Tim McCoy

The section consists of large (up to 2 mm), well-defined chondrules in a matrix of finer-grained silicates, sulfides and abundant magnetite. The meteorite is little weathered, but extensively shock blackened. Silicates are homogeneous. Olivine is Fa_{30}. The meteorite is a CK5 chondrite.

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
DOM 14239	Dominion Range	23835	2.5 x 2.4 x 1.2	9.850	CM1 Chondrite

Macroscopic Description: Cecilia Satterwhite

The exterior is gray with patches of black fractured fusion crust. It is frothy in areas with evaporites and fractures that penetrate the surface. The black matrix has white specks/inclusions and some oxidation is visible. Some evaporites are visible on interior.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy

The section consists of small (up to 0.5 mm) completely altered and elongate chondrules set in an altered matrix that is highly fractured. Fractures are aligned in the direction of chondrule elongation. Rare sulfide grains are present. No unaltered mafic silicates remain. A few rare calcite grains were encountered. The meteorite is a CM1 chondrite.

Magnetic Susceptibility Measurements

Sample	AMN Classification	M_0 (10^{-3})	Mass (g)	Log χ (10^{-9} m^3/kg)
DOM 10030	L5	109	67.75	**5.09**
DOM 10031	L6	46.5	80.41	**4.68**
DOM 10032	LL6	36.7	56.31	**4.66**
DOM 10033	LL6	95.3	124.11	**4.88**
DOM 10034	H6	46.8	79.84	**4.68**
DOM 10035	LL6	66	87.78	**4.81**
DOM 10036	LL6	47.5	81.3	**4.68**
DOM 10037	LL6	40.5	48.46	**4.74**
DOM 10038	LL6	57.5	79.29	**4.77**
DOM 10039	L5	189	95.23	**5.25**
DOM 10050	H5	232	259.79	**5.20**
DOM 10051	L5	225	197	**5.22**
DOM 10052	L5	189	147.72	**5.14**
DOM 10053	LL6	48.9	93.24	**4.66**
DOM 10054	LL6	48.2	77.71	**4.70**
DOM 10055	L5	115	67.84	**5.11**
DOM 10056	L5	62.7	43.15	**4.96**
DOM 10057	LL6	42	67.03	**4.68**
DOM 10058	LL6	62.3	67.88	**4.84**
DOM 10059	L6	21.6	33.65	**4.55**
DOM 10060	LL6	26.9	42.31	**4.59**
DOM 10061	LL6	21.4	40.63	**4.50**
DOM 10062	LL6	22	21.37	**4.71**
DOM 10063	LL6	22.9	20.48	**4.74**
DOM 10064	L5	24.5	32.82	**4.61**
DOM 10065	LL6	28.3	26.98	**4.73**
DOM 10066	LL6	29.3	28	**4.73**
DOM 10067	LL6	14.4	19.62	**4.56**
DOM 10068	LL6	17.8	23.95	**4.57**
DOM 10069	H5	33.6	19.62	**4.93**
DOM 10070	LL6	8.6	12.63	**4.50**
DOM 10071	H6	29.9	14.17	**5.00**
DOM 10072	L6	39.8	17.86	**5.04**
DOM 10073	LL6	8.88	8.88	**4.65**
DOM 10074	L6	43.2	14.37	**5.15**
DOM 10075	LL6	15	22.046	**4.53**
DOM 10076	L6	41.6	18.5	**5.04**
DOM 10077	CR2	4.7	8.56	**4.39**
DOM 10078	L5	39.2	14.13	**5.12**
DOM 10079	LL6	16.7	23.25	**4.56**
DOM 10080	L5	28.2	15.11	**4.95**
DOM 10081	LL6	36.2	36.26	**4.76**
DOM 10082	LL6	32.7	33.95	**4.73**
DOM 10083	LL6	26	28.31	**4.68**
DOM 10084	LL5	14.6	17.16	**4.62**
DOM 10085	CR2	5.67	18.15	**4.18**
DOM 10086	L6	46.2	23.61	**4.99**
DOM 10087	LL6	30	45.15	**4.62**
DOM 10088	EL6	128	33.97	**5.32**
DOM 10089	LL5	84.5	21.95	**5.28**

Sample	AMN Classification	M_0 (10^{-3})	Mass (g)	Log χ (10^{-9} m^3/kg)
DOM 10132	H4	85.75	46.3	**5.08**
DOM 10140	LL5	55.3	223.77	**4.60**
DOM 10143	LL6	58.3	124.56	**4.67**
DOM 10144	LL6	45.4	80.66	**4.67**
DOM 10145	LL6	33.5	71.35	**4.56**
DOM 10146	LL6	27.9	42.44	**4.61**
DOM 10147	H5	59.65	26.3	**5.06**
DOM 10148	LL6	39.4	54.51	**4.70**
DOM 10149	L5	110	61.01	**5.12**
DOM 10150	LL6	24.2	23	**4.72**
DOM 10151	LL6	34.4	31.93	**4.77**
DOM 10152	LL6	27.6	34.26	**4.65**
DOM 10153	LL6	20.2	35.55	**4.51**
DOM 10154	LL5	27.1	27.33	**4.71**
DOM 10155	LL5	34.5	52.95	**4.65**
DOM 10156	LL6	32.5	36.2	**4.71**
DOM 10157	LL5	32.7	23.93	**4.84**
DOM 10158	H6	20.4	11.97	**4.90**
DOM 10159	H6	28.9	14.45	**4.98**
DOM 10160	L6	16.3	5.94	**5.07**
DOM 10161	H5	42.1	10.09	**5.28**
DOM 10162	LL6	12.8	14.7	**4.62**
DOM 10163	LL6	9.64	10.38	**4.63**
DOM 10164	L6	27.6	11.31	**5.05**
DOM 10166	LL6	11.8	11.3	**4.68**
DOM 10167	L6	5.6	2.49	**4.94**
DOM 10168	LL6	11.4	14	**4.59**
DOM 10169	LL6	12.2	15	**4.59**
DOM 10180	L5	16.7	19.58	**4.62**
DOM 10181	LL6	8.76	8.73	**4.65**
DOM 10182	LL5	11.6	10.03	**4.72**
DOM 10183	L6	17.9	18.67	**4.67**
DOM 10184	LL6	20.3	30.03	**4.55**
DOM 10185	LL6	16.9	21.06	**4.60**
DOM 10186	H6	24.2	34.12	**4.60**
DOM 10187	L6	19.4	14.15	**4.81**
DOM 10188	H5	40.6	21.61	**4.97**
DOM 10189	L6	13.5	18.31	**4.56**
DOM 10210	LL5	29.9	36	**4.68**
DOM 10211	L6	20	24.22	**4.62**
DOM 10212	LL5	25.9	25.39	**4.72**
DOM 10213	H6	35.8	22.9	**4.90**
DOM 10214	LL5	17	21.42	**4.60**
DOM 10215	L5	12.9	18.9	**4.53**
DOM 10216	LL5	33.3	33.67	**4.74**
DOM 10217	L5	35.7	18.61	**4.97**
DOM 10218	LL5	24.1	33.8	**4.60**
DOM 10219	LL5	9.92	11.2	**4.61**
DOM 10220	LL6	47	78.87	**4.69**
DOM 10221	LL6	35.3	52.2	**4.66**
DOM 10222	LL6	28.1	46.76	**4.59**
DOM 10223	LL6	33.6	49.76	**4.65**

Sample	AMN Classification	M_0 (10^{-3})	Mass (g)	Log χ (10^{-9} m^3/kg)
DOM 10224	LL6	43.5	49.55	**4.76**
DOM 10225	LL6	34	60.04	**4.61**
DOM 10226	LL6	27.8	32.7	**4.67**
DOM 10227	LL6	24.8	44.43	**4.55**
DOM 10228	L6	71.5	59.28	**4.94**
DOM 10229	LL6	46.1	56.34	**4.76**
DOM 10230	LL6	13.1	17.83	**4.55**
DOM 10231	L6	13.8	7.71	**4.90**
DOM 10232	L6	13.5	10.5	**4.77**
DOM 10233	LL6	8.58	11.34	**4.54**
DOM 10234	L6	28	13.72	**4.98**
DOM 10235	L6	19.4	9.07	**4.98**
DOM 10236	LL6	16.3	19.23	**4.62**
DOM 10237	L6	22.4	10.18	**5.00**
DOM 10238	LL6	8.94	9.23	**4.64**
DOM 10239	LL6	14.7	18.83	**4.58**
DOM 10240	LL6	56.1	110.53	**4.68**
DOM 10241	LL6	51.6	102.54	**4.66**
DOM 10242	LL6	43.5	72.7	**4.67**
DOM 10243	LL6	34.8	52.38	**4.65**
DOM 10244	LL6	56.8	103.15	**4.70**
DOM 10245	LL6	35.3	45.95	**4.69**
DOM 10246	LL6	143	79.4	**5.17**
DOM 10247	L6	75.9	43.8	**5.04**
DOM 10248	L6	39.1	49.39	**4.72**
DOM 10249	LL6	46.5	64.14	**4.73**
DOM 10260	LL5	63.5	34.82	**5.01**
DOM 10261	LL6	36.3	36.29	**4.76**
DOM 10262	L6	48.0	31.86	**4.91**
DOM 10263	LL6	21.7	30.78	**4.57**
DOM 10264	LL6	27.1	21.31	**4.80**
DOM 10265	LL6	17	16.88	**4.69**
DOM 10266	LL6	30.9	28.35	**4.75**
DOM 10267	LL6	26.2	33.53	**4.64**
DOM 10268	LL5	22.6	36.51	**4.55**
DOM 10269	LL6	36.9	36.62	**4.77**
DOM 10270	L6	4.85	2.06	**4.95**
DOM 10271	L6	2.32	2.53	**4.55**
DOM 10272	LL5	5.08	5.64	**4.58**
DOM 10273	L6	2.36	2.69	**4.53**
DOM 10274	LL5	8.35	7.94	**4.67**
DOM 10275	LL5	1.61	9.16	**3.90**
DOM 10276	LL5	9.41	9.36	**4.66**
DOM 10277	LL5	12.8	12.42	**4.68**
DOM 10278	H6	30.4	9.47	**5.16**
DOM 10279	LL5	5.61	4.67	**4.70**
DOM 10290	LL6	36.4	48.31	**4.69**
DOM 10291	LL6	33.7	39.56	**4.71**
DOM 10292	LL6	44.2	44.86	**4.79**
DOM 10293	L6	69.2	41.23	**5.01**
DOM 10294	LL6	47.2	45.44	**4.82**
DOM 10295	L5	73.2	42.19	**5.03**

Sample	AMN Classification	M_0 (10^{-3})	Mass (g)	Log χ (10^{-9} m^3/kg)
DOM 10296	LL6	38.9	48.63	**4.72**
DOM 10297	LL6	24.1	28.88	**4.64**
DOM 10298	L6	99.5	46.17	**5.14**
DOM 10302	L imp	65.65	143.9	**4.69**
DOM 10370	L6	68.1	18.33	**5.26**
DOM 10371	L6	77.1	24.64	**5.20**
DOM 10372	LL6	16.1	19.45	**4.61**
DOM 10373	LL6	20.2	30.39	**4.54**
DOM 10374	LL6	32.3	57.07	**4.60**
DOM 10375	LL5	52.6	73.07	**4.75**
DOM 10376	LL5	56.2	50.6	**4.87**
DOM 10377	LL6	44.6	41.88	**4.82**
DOM 10378	L6	30.6	33.21	**4.71**
DOM 10379	LL6	46.3	91.47	**4.64**
DOM 10404	H5	35.05	20.9	**4.92**
DOM 10405	H5-6	39	18.4	**5.02**
DOM 10430	LL6	3.53	5.62	**4.42**
DOM 10431	L6	2.45	10.85	**4.02**
DOM 10432	LL6	4.66	8.75	**4.38**
DOM 10434	H6	14.2	8.01	**4.89**
DOM 10435	H4	7.45	9.32	**4.56**
DOM 10436	LL5	8.4	14	**4.45**
DOM 10437	LL5	9.62	15.9	**4.46**
DOM 10438	LL5	14	23.38	**4.48**
DOM 10440	L imp	13.5	22.61	**4.48**
DOM 10441	H5	51.9	17.8	**5.15**
DOM 10442	LL5	14.6	38.09	**4.35**
DOM 10443	LL5	26.7	46.1	**4.57**
DOM 10444	LL6	26.7	42.29	**4.59**
DOM 10445	L5	27.8	41.98	**4.61**
DOM 10446	LL5	21.1	35.38	**4.53**
DOM 10447	LL5	37.8	78.54	**4.59**
DOM 10448	LL6	22.3	55.71	**4.45**
DOM 10449	LL5	57.7	89.64	**4.74**
DOM 10455	L5	17.7	45.94	**4.39**
DOM 10456	L5	27.2	59.8	**4.52**
DOM 10457	LL5	31	62.33	**4.56**
DOM 10458	L5	72.9	84.58	**4.86**
DOM 10459	H5	22.1	42.39	**4.51**
DOM 10460	LL6	37.8	44.38	**4.73**
DOM 10461	LL6	34.9	80.48	**4.55**
DOM 10462	LL6	22.3	49.46	**4.47**
DOM 10463	LL6	44.1	60.77	**4.72**
DOM 10464	LL6	51	41.19	**4.88**
DOM 10465	LL6	37	40.21	**4.74**
DOM 10466	LL6	20.7	15.5	**4.81**
DOM 10467	CR2	7.87	28.26	**4.16**
DOM 10468	LL6	19.5	24.08	**4.61**
DOM 10469	L5	22.4	23.44	**4.68**
DOM 10490	LL3.2	4.28	11.7	**4.23**
DOM 10545	LL6	19.95	14.2	**4.82**
DOM 10556	L3.6	27.25	81.2	**4.44**

Sample	AMN Classification	M_0 (10^{-3})	Mass (g)	Log χ (10^{-9} m^3/kg)
DOM 10566	L5	10.95	8.1	**4.78**
DOM 10621	LL3.6	4.17	23.2	**3.96**
DOM 10680	LL6	25.7	59.58	**4.49**
DOM 10681	LL6	43.8	71.09	**4.68**
DOM 10682	L6	84.2	40.44	**5.10**
DOM 10683	LL6	37.1	50.69	**4.69**
DOM 10684	LL6	40.9	57.79	**4.70**
DOM 10685	LL6	48.4	57.44	**4.78**
DOM 10686	L6	209	181.6	**5.13**
DOM 10687	LL6	48.7	73.92	**4.72**
DOM 10688	LL6	79.6	156.11	**4.75**
DOM 10689	LL6	89.9	210.59	**4.81**
DOM 14003	L3.6	37.25	1261.2	**4.27**
DOM 14359	CO3	153.5	392.97	**4.98**
DOM 14019	CO3	31.8	133.132	**4.39**
DOM 14127	CO3	33.6	103.86	**4.47**
DOM 14238	CK5	8.64	10.51	**4.57**
DOM 14239	CM1	0.96	9.85	**3.65**
DOM 14169	Howardite	0.661	20.046	**3.21**
DOM 14305	CO3	63.45	133.1	**4.69**
DOM 14219	CM2	4.97	38.1	**3.88**
GDR 12540	L5	125.5	254.9	**4.94**
GDR 12541	H5	50.4	97	**4.67**
GRA 12501	H5	201.5	60.2	**5.38**
GRO 12520	H5	198.5	154.9	**5.15**
GRO 12521	H5	30.6	8.7	**5.20**
GRO 12522	H6	36.4	11.1	**5.18**
GRO 12523	H5	64.75	23.9	**5.14**
GRO 12524	L6	16.15	11.4	**4.82**
LAR 06470	LL5	7.055	5.23	**4.75**
LAR 06471	L6	2.79	7.06	**4.24**
LAR 06472	H6	65.15	37.06	**5.01**
LAR 06473	H6	13.7	7.52	**4.90**
LAR 06474	L6	16.6	7.47	**4.99**
LAR 06475	L6	9.29	8.73	**4.68**
LAR 06476	H5	17.9	11.23	**4.87**
LAR 06477	H5	32.15	22.94	**4.85**
LAR 06478	H5	3.355	2.09	**4.78**
LAR 06479	L6	0.96625	13.072	**3.54**
LAR 06500	H5	7.2825	12.99	**4.42**
LAR 06501	H6	16.1	6.75	**5.01**
LAR 06502	H5	11.55	6.75	**4.87**
LAR 06503	H6	9.9	6.35	**4.83**
LAR 06504	H6	18.35	9.03	**4.96**
LAR 06505	L5	0.911	6.73	**3.77**
LAR 06506	H6	7.85	4.65	**4.84**
LAR 06507	CK6 shocked	3.37	4.88	**4.46**

Sample	AMN Classification	M_0 (10^{-3})	Mass (g)	Log χ (10^{-9} m^3/kg)
LAR 06508	L6	7.465	20.73	**4.25**
LAR 06509	L5	62.65	37.43	**4.99**
LAR 06570	H5	105.76667	32.16	**5.25**
LAR 06571	H5	45.25	24.03	**4.98**
LAR 06572	L5	33.6	40.77	**4.70**
LAR 06573	L5	1.215	10.28	**3.73**
LAR 06574	L5	85.7	46.95	**5.07**
LAR 06575	L5	12.6	15.15	**4.60**
LAR 06576	L5	38.2	19.42	**4.99**
LAR 06577	LL5	4.085	14.6	**4.12**
LAR 06578	H6	52.05	23.13	**5.05**
LAR 06579	L5	1.86	16.01	**3.75**
LAR 06820	L5	6.695	53.39	**3.93**
LAR 06821	H5	94.2	53.33	**5.08**
LAR 06822	H6	80.45	31.67	**5.14**
LAR 06823	LL6	19.15	32.42	**4.51**
LAR 06824	L5	62.55	33.09	**5.02**
LAR 06825	H6	40.1	15.26	**5.10**
LAR 06826	H6	21.85	19.08	**4.75**
LAR 06827	H6	13.85	15.36	**4.64**
LAR 06828	LL6	0.3755	5.17	**3.48**
LAR 06829	L5	1.965	15.88	**3.77**
LAR 12001	EH3	301	6328.2	**5.10**
LAR 12003	H6	536.5	2600.1	**5.36**
LAR 12004	L6	98.25	4016.3	**4.61**
LAR 12005	L6	125.5	1199.5	**4.80**
LAR 12006	H5	333.5	1532.9	**5.20**
LAR 12007	H6	413	1618.3	**5.29**
LAR 12008	H6	458.5	1119.5	**5.37**
LAR 12009	H6	434.5	1002.9	**5.35**
LAR 12010	Diogenite	0.739	409.63	**2.66**
LAR 12011	Shergottite	3.85	701.17	**3.33**
LAR 12013	H5 breccia	257	972.9	**5.13**
LAR 12014	H5	378	2121	**5.23**
LAR 12015	H6	330.5	1646.9	**5.19**
LAR 12016	H6	378	4535.5	**5.19**
LAR 12017	L6 breccia	136	1053.3	**4.85**
LAR 12018	H6	342	906.2	**5.26**
LAR 12019	H6	431	2488.9	**5.27**
LAR 12020	H6	273	984.7	**5.15**
LAR 12021	H6	439.5	926.2	**5.37**
LAR 12022	H5	346	1710.1	**5.21**
LAR 12023	H6	351.5	967.7	**5.26**
LAR 12024	L5	284	848.7	**5.18**
LAR 12025	H5	320.5	661.3	**5.26**
LAR 12026	H6	324.5	930.5	**5.23**
LAR 12027	H6	211	1139.7	**5.03**
LAR 12028	H5	268	1297.7	**5.12**
LAR 12030	H6	336.5	931.8	**5.25**
LAR 12031	H6	341	1807.5	**5.20**
LAR 12032	H6	266.5	1068	**5.14**

Sample	AMN Classification	M_0 (10^{-3})	Mass (g)	Log χ (10^{-9} m^3/kg)
LAR 12033	H5	400.5	2585.7	**5.24**
LAR 12034	LL3.8	23.6	930.6	**4.10**
LAR 12035	L5 breccia	135.5	258.4	**4.97**
LAR 12036	LL6	128	522.9	**4.88**
LAR 12037	LL6	127	620.9	**4.86**
LAR 12038	H6	352	260.5	**5.38**
LAR 12039	H5	183.5	270.4	**5.10**
LAR 12040	H6	164	137.4	**5.10**
LAR 12041	H6	185	176.8	**5.09**
LAR 12042	H6	200	381.1	**5.10**
LAR 12043	H5	277	524.1	**5.21**
LAR 12060	Eucrite	0.174	17.87	**2.68**
LAR 12062	H5	252.5	663.8	**5.15**
LAR 12063	H5	156	109.125	**5.13**
LAR 12064	L5	43.55	70.172	**4.68**
LAR 12065	H5	48.3	24.545	**5.00**
LAR 12066	L5	23.25	29.757	**4.61**
LAR 12067	H6	75.25	51.251	**4.99**
LAR 12068	L5	67.65	72.746	**4.86**
LAR 12069	H5	64.55	33.696	**5.03**
LAR 12070	H6	45.05	20.209	**5.04**
LAR 12071	H6	69.95	34.266	**5.06**
LAR 12072	H6	45.15	27.846	**4.92**
LAR 12073	H6	69.6	25.939	**5.14**
LAR 12074	H6	48.3	15.627	**5.17**
LAR 12075	LL3.8	4.34	20.961	**4.01**
LAR 12076	H6	43.05	20.781	**5.01**
LAR 12077	H5	70.6	30.666	**5.08**
LAR 12078	LL3.8	4.290	30.2	**3.87**
LAR 12079	H6	81.15	45.777	**5.05**
LAR 12080	H6	84.8	39.838	**5.11**
LAR 12081	H5	66.8	35.438	**5.03**
LAR 12082	H4	32.25	13.381	**5.05**
LAR 12083	H6	17.2	8.445	**4.96**
LAR 12084	H6	83.85	53.148	**5.03**
LAR 12085	H6	54.7	30.17	**4.97**
LAR 12086	H6	25.2	14.195	**4.93**
LAR 12087	H5	34.35	21.954	**4.89**
LAR 12088	H6	48	21.923	**5.04**
LAR 12089	H6	17.35	6.688	**5.05**
LAR 12090	L3.8	12.95	251.89	**3.95**
LAR 12091	H4	235.5	543.59	**5.14**
LAR 12092	H6	165.5	177.83	**5.04**
LAR 12093	L5	14.6	97.05	**4.13**
LAR 12094	H6	53.25	97.28	**4.69**
LAR 12096	L5	51.85	160.1	**4.56**
LAR 12097	H5	284	194.7	**5.32**
LAR 12098	L6	58.65	375.7	**4.57**
LAR 12101	L6	120.5	65.494	**5.14**
LAR 12102	LL6	83.25	115.703	**4.84**
LAR 12103	L5	140.5	69.094	**5.19**
LAR 12104	LL6	4.74	66.222	**3.73**

Sample	AMN Classification	M_0 (10^{-3})	Mass (g)	Log χ (10^{-9} m^3/kg)
LAR 12106	Ureilite	47.75	41.7	**4.85**
LAR 12111	L6	5.91	5.234	**4.68**
LAR 12112	H6 breccia	17.7	5.206	**5.15**
LAR 12113	L6 breccia	7.95	9.664	**4.57**
LAR 12114	H6	16.35	8.665	**4.93**
LAR 12115	H6	30.05	11.313	**5.09**
LAR 12116	LL6	3.395	5.56	**4.41**
LAR 12118	H6	47.65	18.906	**5.09**
LAR 12119	H6	39.75	15.827	**5.08**
LAR 12120	L6	59.4	724.43	**4.52**
LAR 12121	H6	114	347.05	**4.87**
LAR 12122	H6	103.85	427.97	**4.81**
LAR 12123	H5 breccia	158.5	376.62	**5.00**
LAR 12124	LL5	3.215	214.1	**3.36**
LAR 12125	H6	104.65	578.91	**4.78**
LAR 12126	H5	104.45	190.77	**4.89**
LAR 12128	EH3	52.25	222.33	**4.57**
LAR 12129	L6	48.45	373.12	**4.49**
LAR 12139	Howardite	0.128	11.46	**2.71**
LAR 12141	H6	65.1	57.1	**4.91**
LAR 12142	L3.6	9.44	68.4	**4.02**
LAR 12143	H6	44.05	51.2	**4.76**
LAR 12144	L6	45.6	83	**4.66**
LAR 12145	H6	120	102.1	**5.03**
LAR 12146	L6 breccia	52.3	98.4	**4.68**
LAR 12147	LL6 breccia	58.75	103	**4.72**
LAR 12148	H6	134	80	**5.14**
LAR 12149	L6	11.6	89.7	**4.05**
LAR 12163	H4	26.5	12.4	**5.00**
LAR 12164	H4	21.6	23	**4.67**
LAR 12169	H6	69.15	26.9	**5.12**
LAR 12170	H6	45.15	19.958	**5.05**
LAR 12171	H6	47.4	16.519	**5.14**
LAR 12172	H6	51	17.598	**5.15**
LAR 12173	H6	60.85	24.319	**5.10**
LAR 12174	H6	16.05	9.012	**4.90**
LAR 12175	H6	37.25	15.009	**5.07**
LAR 12176	H4	16	5.702	**5.08**
LAR 12177	H6	25.2	9.905	**5.06**
LAR 12178	L6	3.385	5.654	**4.40**
LAR 12179	L6 breccia	14.7	15.326	**4.66**
LAR 12195	L4	14.85	16.1	**4.65**
LAR 12203	LL3.8	3.35	17.1	**3.98**
LAR 12210	H5	38	26.428	**4.87**
LAR 12211	H5	47.15	20.647	**5.05**
LAR 12212	L5	32.35	27.541	**4.78**
LAR 12213	H6	96.65	39.376	**5.17**
LAR 12214	L6	10.7	8.366	**4.75**
LAR 12216	L3.6	6.545	16.28	**4.29**
LAR 12217	H6	33.65	13.622	**5.07**
LAR 12218	H6	65.35	24.571	**5.13**
LAR 12219	H6	40.85	17.588	**5.05**

Sample	AMN Classification	M_0 (10^{-3})	Mass (g)	Log χ (10^{-9} m^3/kg)
LAR 12220	H5	326	467.5	**5.29**
LAR 12230	L5 breccia	34.40	40.712	**4.71**
LAR 12231	H5	27.05	21.816	**4.79**
LAR 12232	H6	64	43.19	**4.96**
LAR 12233	L5	20.05	60.254	**4.38**
LAR 12234	L3.6	4.315	35.555	**3.84**
LAR 12235	L6	17.8	33.939	**4.47**
LAR 12236	H6	71.85	33.946	**5.07**
LAR 12237	H6	56.9	24.18	**5.08**
LAR 12239	L5	12.6	25.586	**4.40**
LAR 12260	L6	58.2	24.032	**5.09**
LAR 12261	L6	28.7	17.492	**4.90**
LAR 12263	LL5	10.55	10.916	**4.65**
LAR 12264	L6	30.15	17.158	**4.93**
LAR 12265	CK5	8.83	14.261	**4.47**
LAR 12266	L6	20.6	12.47	**4.89**
LAR 12267	L4	11.65	20.679	**4.45**
LAR 12268	L6	50.85	33.153	**4.93**
LAR 12269	H5	108	58.31	**5.12**
LAR 12269	H5	58.2	53.7	**4.87**
LAR 12301	LL6	14.95	13.9	**4.71**
LAR 12302	L6	4.465	1.6	**5.01**
LAR 12303	L6	3.005	1.9	**4.77**
LAR 12304	L5	16.15	3.9	**5.22**
LAR 12305	LL5	2.02	5.7	**4.18**
LAR 12306	LL5	1.885	1.5	**4.66**
LAR 12307	LL5	0.7685	1.8	**4.20**
LAR 12308	LL5	7.235	10.7	**4.49**
LAR 12309	L6	2.06	1.2	**4.78**
LAR 12320	Diogenite	1.41	120.05	**3.06**
LAR 12321	L5	22.5	39	**4.54**
LAR 12324	L5	81.5	258.3	**4.75**
LAR 12326	Howardite	0.736	10445	**2.48**
MIL 11002	H5	199.5	288.7	**5.13**
MIL 11003	L5	175.5	405.7	**5.04**
MIL 11004	L6	44.6	192.9	**4.52**
MIL 11005	L6	37	224.8	**4.42**
MIL 11006	L6	49.3	295.6	**4.52**
MIL 11007	LL5	98.85	97.45	**4.96**
MIL 11008	L6	73.1	102.045	**4.82**
MIL 11009	L6	181.5	111.02	**5.19**
MIL 11010	LL5	4.355	4.855	**4.57**
MIL 11011	LL5	10.04	4.922	**4.93**
MIL 11012	H6	7.58	2.578	**5.05**
MIL 11013	LL6	5.935	5.188	**4.68**
MIL 11014	EL5	4.27	3.779	**4.66**
MIL 11015	LL5	2.91	2.513	**4.65**
MIL 11016	LL5	11.55	6.173	**4.90**
MIL 11017	H5	2.135	9.821	**3.99**
MIL 11018	L6	5.62	9.607	**4.42**
MIL 11020	L6	19.5	20.973	**4.67**

Sample	AMN Classification	M_0 (10^{-3})	Mass (g)	Log χ (10^{-9} m^3/kg)
MIL 11021	LL6	20.3	52.87	**4.42**
MIL 11023	L6	11.65	18.975	**4.48**
MIL 11024	L6	71.05	24.609	**5.17**
MIL 11025	CM2	0.806	6.635	**3.72**
MIL 11026	LL5	7.15	6.759	**4.66**
MIL 11027	LL5	4.46	21.965	**4.01**
MIL 11028	LL5	22.65	46.033	**4.50**
MIL 11029	L5	71.7	32.387	**5.08**
MIL 11030	LL6	28.2	11.688	**5.05**
MIL 11031	H6	10	3.952	**5.01**
MIL 11032	L6	33	11.873	**5.11**
MIL 11033	LL3.2	0.336	8.962	**3.23**
MIL 11034	LL6	5.165	12.408	**4.29**
MIL 11035	LL5	4.965	6.141	**4.54**
MIL 11036	LL5	12	12.437	**4.65**
MIL 11037	L6	13.45	7.089	**4.92**
MIL 11038	H5	3.775	4.782	**4.52**
MIL 11039	H5	5.58	2.799	**4.89**
MIL 11042	H6	347.5	503.1	**5.32**
MIL 11043	LL5	121.5	164.073	**4.92**
MIL 11044	L5	203.5	245.1	**5.15**
MIL 11045	LL6	85.45	135.588	**4.82**
MIL 11046	L5	135	422.800	**4.92**
MIL 11047	LL6	87.15	309.7	**4.76**
MIL 11048	L5	48.55	99.487	**4.64**
MIL 11049	LL5	104.1	82.957	**5.02**
MIL 11053	L6	8.05	9.6	**4.58**
MIL 11080	L5	49.2	19.732	**5.09**
MIL 11081	L6	40.55	24.866	**4.92**
MIL 11082	L5	61.65	19.587	**5.19**
MIL 11083	L5	89.75	34.3	**5.17**
MIL 11084	L6	67.55	32.748	**5.05**
MIL 11085	L5	44.6	21.576	**5.01**
MIL 11086	H6	81.55	52.561	**5.02**
MIL 11087	L6	49.9	52.461	**4.81**
MIL 11088	LL6	79.85	100.656	**4.86**
MIL 11089	LL6	57.6	139.953	**4.64**
MIL 11090	LL6	73.6	547	**4.63**
MIL 11091	L5	239.5	400.1	**5.18**
MIL 11092	H5	253	191.699	**5.27**
MIL 11093	L5	169.5	153.45	**5.08**
MIL 11094	LL6	28.95	120.017	**4.38**
MIL 11095	L6	123.5	167.839	**4.93**
MIL 11096	L6	210	198.92	**5.19**
MIL 11102	L6	14.2	6.653	**4.97**
MIL 11103	H6	22.6	5.609	**5.23**
MIL 11104	L5	19.65	13.978	**4.82**
MIL 11105	L5	25.7	9.247	**5.10**
MIL 11106	L6	21.1	6.389	**5.15**
MIL 11107	LL6	0.466	0.698	**4.34**
MIL 11108	LL6	0.2985	0.153	**4.73**
MIL 11110	CO3	46.75	178.68	**4.49**

Sample	AMN Classification	M_0 (10^{-3})	Mass (g)	Log χ (10^{-9} m^3/kg)
MIL 11112	H6	161.5	151.702	**5.07**
MIL 11113	LL6	45.45	152.363	**4.51**
MIL 11114	L5	167.33333	124.522	**5.13**
MIL 11115	L5	219.5	129.78	**5.24**
MIL 11116	CO3	42.25	119.444	**4.54**
MIL 11117	L5	67	78.954	**4.84**
MIL 11118	CO3	17.85	39.498	**4.43**
MIL 11119	CO3	19.25	29.887	**4.52**
MIL 11130	CO3	12.25	12.57	**4.66**
MIL 11131	L5	18.8	7.901	**5.02**
MIL 11132	CO3	11.3	10.606	**4.69**
MIL 11133	L6	13	19.371	**4.52**
MIL 11134	H6	21.8	7.754	**5.09**
MIL 11135	H5	12.3	6.764	**4.90**
MIL 11136	LL5	14.8	12.102	**4.75**
MIL 11137	L6	43.8	13.618	**5.18**
MIL 11138	L6	19.45	12.409	**4.86**
MIL 11139	CO3	13.95	16.252	**4.62**
MIL 11140	CO3	11.5	14.857	**4.57**
MIL 11142	L5	47.1	10.058	**5.33**
MIL 11143	L5	13.15	11.341	**4.73**
MIL 11145	LL5	25.8	5.266	**5.31**
MIL 11146	LL5	6.74	8.36	**4.55**
MIL 11147	CO3	10.195	11.921	**4.60**
MIL 11148	L5	15.85	6.952	**5.00**
MIL 11149	L6	27.8	5.487	**5.33**
MIL 11150	CO3	1.91	1.909	**4.57**
MIL 11151	LL6	0.2175	0.267	**4.38**
MIL 11152	CO3	1.23	0.893	**4.67**
MIL 11153	L5	7.67	2.481	**5.07**
MIL 11154	CO3	5.15	4.576	**4.67**
MIL 11155	L5	0.5385	0.565	**4.48**
MIL 11156	H5	3.285	1.76	**4.84**
MIL 11157	CO3	1.585	1.63	**4.55**
MIL 11158	L6	30.05	9.341	**5.16**
MIL 11159	L6	11.4	4.163	**5.05**
MIL 11160	L6	41.4	31.8	**4.85**
MIL 11161	LL5	26.5	62.313	**4.49**
MIL 11162	H6	35.3	24.965	**4.86**
MIL 11163	LL6	16.25	36.733	**4.41**
MIL 11164	LL6	43.35	78.914	**4.65**
MIL 11165	L6	116	85.837	**5.06**
MIL 11166	L6	34.45	35.638	**4.74**
MIL 11167	L6	57.5	27.377	**5.03**
MIL 11168	L6	25.6	24.656	**4.72**
MIL 11169	H5	57.65	25.598	**5.06**
MIL 11170	L6	24.65	25.661	**4.69**
MIL 11171	L6	5.82	23.36	**4.10**
MIL 11172	L6	21.55	24.283	**4.65**
MIL 11173	L6	95.75	69.871	**5.02**
MIL 11174	L6	8.625	13.442	**4.48**
MIL 11175	L6	3.86	15.268	**4.08**

Sample	AMN Classification	M_0 (10^{-3})	Mass (g)	Log χ (10^{-9} m^3/kg)
MIL 11176	L6	19.6	27.824	**4.56**
MIL 11177	L6	25.15	14.943	**4.90**
MIL 11178	CO3	8.875	9.331	**4.63**
MIL 11179	LL6	7.13	9.195	**4.54**
MIL 11180	H5	9.24	5.541	**4.85**
MIL 11181	H6	7.97	4.671	**4.85**
MIL 11182	L6	20.8	9.214	**5.01**
MIL 11183	L6	3.515	3.394	**4.62**
MIL 11184	L6	3.395	6.629	**4.34**
MIL 11185	H6	33.05	12.984	**5.08**
MIL 11186	L6	28.85	10.364	**5.10**
MIL 11187	CO3	6.545	10.148	**4.47**
MIL 11188	H4	7.255	7.423	**4.63**
MIL 11189	H6	21.9	14.162	**4.87**
MIL 11190	L6	16.25	9.21	**4.90**
MIL 11191	L6	12.6	7.054	**4.89**
MIL 11192	L6	8.03	7.433	**4.68**
MIL 11193	CO3	6.225	5.756	**4.66**
MIL 11194	L6	6.97	5.867	**4.70**
MIL 11195	H5	109	10.65	**5.67**
MIL 11196	H6	10.49	5.749	**4.89**
MIL 11209	LL6	111.5	561.9	**4.81**
MIL 11213	CO3	46.1	102.746	**4.61**
MIL 11214	L5	115.5	93.788	**5.04**
MIL 11215	H5	136.5	110.971	**5.07**
MIL 11216	L6	47.5	137.615	**4.56**
MIL 11217	L6	178	81.995	**5.26**
MIL 11218	L5	170	74.202	**5.26**
MIL 11219	L6	120	85.88	**5.07**
MIL 11220	LL6	1.0055	13.55	**3.54**
MIL 11221	L6	24.35	12.12	**4.97**
MIL 11222	L6	44.85	16.079	**5.13**
MIL 11223	H5	18.2	18.4	**4.69**
MIL 11224	L5	31.3	13.123	**5.05**
MIL 11225	L5	11.05	3.014	**5.16**
MIL 11226	LL5	8.445	10.292	**4.57**
MIL 11227	LL6	7.46	6.147	**4.72**
MIL 11228	LL5	13.95	4.491	**5.11**
MIL 11229	LL5	16.45	19.6	**4.62**
MIL 11240	L5	209.5	399.5	**5.12**
MIL 11241	LL6	84.5	262.6	**4.76**
MIL 11242	H4	182	183.3	**5.07**
MIL 11243	L6	106.6	88.339	**5.01**
MIL 11244	LL6	6.905	80.242	**3.85**
MIL 11245	L6	70	76.226	**4.87**
MIL 11246	LL6	60.25	62.65	**4.85**
MIL 11247	L5	77.15	51.753	**5.00**
MIL 11248	L6	81.95	74.18	**4.94**
MIL 11249	L6	72.55	65.17	**4.92**
MIL 11250	H6	53.25	22.004	**5.08**
MIL 11251	H6	19.7	25.097	**4.60**
MIL 11252	CO3	13.95	26.719	**4.43**

Sample	AMN Classification	M_0 (10^{-3})	Mass (g)	Log χ (10^{-9} m^3/kg)
MIL 11253	H6	26.65	14.93	**4.93**
MIL 11254	L6	25.4	14.048	**4.93**
MIL 11256	L5	39.45	26.357	**4.88**
MIL 11257	LL6	25.25	28.423	**4.66**
MIL 11258	L6	30.2	30.014	**4.72**
MIL 11259	L6	47.6	20.8	**5.06**
MIL 11260	LL6	19.3	34.912	**4.50**
MIL 11261	CO3	17.45	30.833	**4.47**
MIL 11262	L6	75.1	46.371	**5.02**
MIL 11263	LL5	50.75	24.957	**5.01**
MIL 11264	LL6	23.3	26.438	**4.65**
MIL 11265	L5	44.5	38.855	**4.83**
MIL 11266	L6	47.9	33.971	**4.90**
MIL 11267	LL5	27.5	38.491	**4.63**
MIL 11268	LL5	46.25	20.194	**5.05**
MIL 11269	L6	42.25	18.587	**5.05**
MIL 11290	Eucrite	2.155	327.1	**3.15**
MIL 11293	CO3	30.650	49.532	**4.61**
MIL 11295	LL6	45.75	147.7	**4.52**
MIL 11297	LL6	93.9	390.9	**4.77**
MIL 11298	LL5	18.75	623.1	**4.03**
MIL 11302	L5	174.5	191.915	**5.11**
MIL 13001	L5	239	5596.9	**4.99**
MIL 13003	H5	333.5	1038.1	**5.24**
MIL 13004	Aubrite	11.6	1804.3	**3.73**
MIL 13005	CM1/2	22.2	192.736	**4.21**
MIL 13019	Eucrite	0.2745	67.514	**2.49**
MIL 13062	CK	1.065	15.514	**3.52**
MIL 13116	LL6	2.62	33.492	**3.64**
MIL 13116	LL6	2.125	20.5	**3.71**
MIL 13119	CM2	0.346	2.581	**3.71**
MIL 13139	CM2	0.094	2.94	**3.10**
MIL 13317	Lunar	0.657	32.247	**3.05**
MIL 13318	LL4	5.625	13.206	**4.30**
MIL 13319	LL4	2.42	10.553	**4.02**
MIL 13328	CV3	23.15	69.008	**4.41**
MIL 13329	CM2	0.093	2.851	**3.10**
MIL 13330	CM2	2.12	11.135	**3.94**
MIL 13331	Ck5	1.825	2.436	**4.46**
MIL 13332	H5	70.5	36.186	**5.05**
PAT 10203	L5	59.1	538.4	**4.54**
PAT 10311	H6	11.9	7.7	**4.83**
SCO 12530	H5	197	113.695	**5.22**
SCO 12531	L6 breccia	56.45	132.287	**4.64**
SCO 12532	H5	120.5	48.462	**5.21**
SCO 12533	L5	7.64	11.079	**4.50**
SCO 12534	L5	16.05	18.073	**4.64**
SZA 12405	H5	520.5	1181.4	**5.42**

Sample	AMN Classification	M_0 (10^{-3})	Mass (g)	Log χ (10^{-9} m^3/kg)
SZA 12430	CK4	70	412.12	**4.64**
SZA 12431	CO3	1.1	443.13	**2.83**
SZA 12432	CO3	16.8	163.31	**4.07**
SZA 12433	L5	7.475	12.047	**4.46**
SZA 12434	LL5	12.6	18.896	**4.52**
SZA 12435	LL6	13.4	16.629	**4.59**
SZA 12436	LL6	11.4	15.958	**4.54**
SZA 12437	L4	14.45	14.19	**4.68**
SZA 12438	LL6	17.5	23.245	**4.58**
SZA 12439	LL5	28.7	20.169	**4.85**
SZA 12441	L5	1.905	2.9	**4.41**

Sample Request Guidelines

The Meteorite Working Group (MWG), is a peer-review committee which meets twice a year to guide the collection, curation, allocation, and distribution of the U.S. collection of Antarctic meteorites. The deadline for submitting a request is 2 weeks prior to the scheduled meeting.

Requests that are received by the MWG secretary by **March 4, 2016 deadline** will be reviewed at the MWG meeting on **March 20, 2016 in Houston, TX.** Requests that are received after the deadline may be delayed for review until MWG meets again in the Fall of 2016. Please submit your requests on time. Questions pertaining to sample requests can be directed to the MWG secretary by e-mail, fax or phone.

Requests for samples are welcomed from research scientists of all countries, regardless of their current state of funding for meteorite studies. Graduate student requests should have a supervising scientist listed to confirm access to facilities for analysis. All sample requests will be reviewed in a timely manner. Sample requests that do not meet the curatorial allocation guidelines will be reviewed by the Meteorite Working Group (MWG). Issuance of samples does not imply a commitment by any agency to fund the proposed research. Requests for financial support must be submitted separately to an appropriate funding agency. As a matter of policy, U.S. Antarctic meteorites are the property of the National Science Foundation, and all allocations are subject to recall.

Samples can be requested from any meteorite that has been made available through announcement in any issue of the ***Antarctic Meteorite Newsletter*** (beginning with 1(1) in June, 1978). Many of the meteorites have also been described in five *Smithsonian Contributions to the Earth Sciences*: Nos. 23, 24, 26, 28, and 30. Tables containing all classified meteorites as of August 2006 have been published in the Meteoritical Bulletins and *Meteoritics* and *Meteoritics and Planetary Science.*

They are also available online at:

http://www.meteoriticalsociety.org/simple_template.cfm?code=pub_bulletin

The most current listing is found online at:

http://curator.jsc.nasa.gov/antmet/us_clctn.cfm

All sample requests should be made electronically using the form at:

http://curator.jsc.nasa.gov/antmet/requests.cfm

The purpose of the sample request form is to obtain all information MWG needs prior to their deliberations to make an informed decision on the request. Please use this form if possible.

The preferred method of request transmittal is via e-mail. Please send requests and attachments to:

JSC-ARES-MeteoriteRequest@nasa.gov

Type **MWG Request** in the e-mail subject line. Please note that the form has signature blocks. The signature blocks should only be used if the form is sent via Fax or mail.

Each request should accurately refer to meteorite samples by their respective identification numbers and should provide detailed scientific justification for proposed research. Specific requirements for samples, such as sizes or weights, particular locations (if applicable) within individual specimens, or special handling or shipping procedures should be explained in each request. Some meteorites are small, of rare type, or are considered special because of unusual properties. Therefore, it is very important that all requests specify both the optimum amount of material needed for the study and the minimum amount of material that can be used. Requests for thin sections that will be used in destructive procedures such as ion probe, laser ablation, etch, or repolishing must be stated explicitly.

Consortium requests should list the members in the consortium. All necessary information should be typed on the electronic form, although informative attachments (reprints of publication that explain rationale, flow diagrams for analyses, etc.) are welcome.

Antarctic Meteorite Laboratory Contact Numbers

Please submit request to: **JSC-ARES-MeteoriteRequest@nasa.gov**

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Meteorites On-Line

Several meteorite web sites are available to provide information on meteorites from Antarctica and elsewhere in the world. Some specialize in information on martian meteorites and on possible life on Mars. Here is a general listing of ones we have found. We have not included sites focused on selling meteorites even though some of them have general information. Please contribute information on other sites so we can update the list.

JSC Curator, Antarctic meteorites	http://curator.jsc.nasa.gov/antmet/
JSC Curator, HED Compendium	http://curator.jsc.nasa.gov/antmet/hed/
JSC Curator, Lunar Meteorite Compendium	http://curator.jsc.nasa.gov/antmet/lmc/
JSC Curator, Mars Meteorite Compendium	http://curator.jsc.nasa.gov/antmet/mmc/
ANSMET	http://caslabs.case.edu/ansmet/
Smithsonian Institution	http://mineralsciences.si.edu/
Lunar Planetary Institute	http://www.lpi.usra.edu
NIPR Antarctic meteorites	http://www.nipr.ac.jp/
Meteoritical Bulletin online Database	http://www.lpi.usra.edu/meteor/metbull.php
Museo Nazionale dell'Antartide	http://www.mna.it/collezioni/catalogo-meteoriti-sede-di-siena
BMNH general meteorites	http://www.nhm.ac.uk/our-science/departments-and-staff/earth-sciences/mineral-and-planetary-sciences.html
Chinese Antarctic meteorite collection	http://birds.chinare.org.cn/en/resourceList/
UHI planetary science discoveries	http://www.psrd.hawaii.edu/index.html
Meteoritical Society	http://www.meteoriticalsociety.org/
Meteoritics and Planetary Science	http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1945-5100
Meteorite! Magazine	http://www.meteoritemag.org/
Geochemical Society	http://www.geochemsoc.org
Washington Univ. Lunar Meteorite	http://meteorites.wustl.edu/lunar/moon_meteorites.htm
Washington Univ. "meteor-wrong"	http://meteorites.wustl.edu/meteorwrongs/meteorwrongs.htm
Portland State Univ. Meteorite Lab	http://meteorites.pdx.edu/
Northern Arizona University	http://www4.nau.edu/meteorite/
Martian Meteorites	http://www.imca.cc/mars/martian-meteorites.htm

Other Websites of Interest

OSIRIS-REx	http://osiris-rex.lpl.arizona.edu/
Mars Exploration	http://mars.jpl.nasa.gov
Rovers	http://marsrovers.jpl.nasa.gov/home/
Near Earth Asteroid Rendezvous	http://near.jhuapl.edu/
Stardust Mission	http://stardust.jpl.nasa.gov
Genesis Mission	http://genesismission.jpl.nasa.gov
ARES	http://ares.jsc.nasa.gov/
Astromaterials Curation	http://curator.jsc.nasa.gov/