

# Antarctic Meteorite



# Newsletter

Volume 44, Number 1 March 2021

## Curator Comments

**Kevin Righter, NASA-JSC**

Characterization of Antarctic meteorites has been slowed by limited access to labs and facilities needed for characterization and classification. Lifting of some restrictions in the Fall of 2020 allowed JSC and Smithsonian Institution to get a small batch of samples included for this newsletter. We are hoping that this trend continues and that we will have even more for the Fall 2021 newsletter in August/September. This newsletter reports 23 new meteorites from the Dominion Range (DOM) 2018 season and the Grosvenor Mountains (GRO), Mount Prestrud (PRE), Mount Wisting (WSG) and Nødvedt Nunataks (NOD) 2017 season.

Several R chondrites from the Mt Prestrud dense collection area may be paired with R chondrites recovered there in 1995. In addition to these R chondrites, an H6 (Anomalous) chondrite was recovered from Mt. Prestrud. CR and CK chondrites (one of each) from the Grosvenor Mountains are also reported in this newsletter. Finally, there are three new low petrologic grade ordinary chondrites from GRO and DOM.

## Loan agreement renewals

Many investigators have had loan agreements expire in 2020 or soon in 2021. We will be reaching out to you to get your agreement renewed and updated so that you remain in good standing. When you receive a loan agreement update message from us, please take action as soon as possible, and contact us if there are any issues. There are several ways to complete the loan agreement forms and we are flexible: a) we will send a PDF that can be filled and printed out for scanning, b) you can print it to a PDF file and then fill in the areas using “fill and sign” option in Adobe Reader, or c) you can print, sign and scan the signature pages and email them to us. Any of these options will work; option (b) has been working well for many.

## 2020 Bibliography additions

Our online bibliography of peer-reviewed papers reporting data on samples from our collection was updated in January 2021 with 55 new papers mostly from 2020, but several others from previous years as well. There are now ~1700 papers compiled in the bibliography. If you notice your paper is missing from our bibliography, please let us know!

A periodical issued to inform scientists of the basic characteristics of specimens recovered in the Antarctic. Edited by Cecilia Satterwhite, Kellye Pando and Kevin Righter, NASA Johnson Space Center, Houston, Texas 77058

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**Sample Request Deadline  
March 29, 2021**

**AMAP Meets  
April 13-14, 2021**

## Field Photos

We have added thousands of field photos to the collection webpage, now including all available field images from 1976–77 to 2016–17 ANSMET field teams. We are currently working on adding the remaining images from the last three field seasons (2017-18, 2018-19, and 2019-20). A full description of the field images is available here:

[https://curator.jsc.nasa.gov/antmet/collection\\_curation.cfm?section=fieldimages](https://curator.jsc.nasa.gov/antmet/collection_curation.cfm?section=fieldimages)

There are more coming so keep checking for updates.

## Imagery updates

We have added new lab and thin section photo imagery to our webpage augmenting what was available. In addition to the new imagery, we have also created three sections for sample imagery pages – field, lab and thin section photos – to better allow a viewer to find imagery of interest. We also added small icons on the sample search pages that summarize what kind of imagery is available for each sample (field = map icon ; lab = camera icon; thin section = microscope icon. These summaries will also allow the viewer to find pertinent information faster than previously.

## Pairing updates

Pairing updates have been made for ureilites from the Elephant Moraine dense collection area. EET 87511, EET 87523, EET 87717, EET 96262, EET 96322, and EET 96328 are all paired together based on field locations, textural similarities, and olivine minor and major element compositions (Goodrich, 2001, LPSC abstract, #1300; Downes et al., 2008, *Geochim. Cosmochim. Acta* 72(19), 4825-4844).

## Low FeO ordinary chondrites (and associated reclassifications)

We now have over a dozen ordinary chondrites in our collection with olivine and pyroxene that have lower FeO contents than H chondrites, similar to the chondrites Willaroy and Suwahib (Buwah) (Russell et al., 1998 MaPS). These include a handful of H4 (Anomalous) and H5 (Anomalous) samples from EET, MIL, DOM, LAP, and a new H6 (Anomalous) in this newsletter from PRE. Some of these we previously announced as “Chondrite Ungrouped”, but with the similarities in petrologic type, and numbers growing, it became clear that classifications need to be made consistent. Therefore with the announcement of the new PRE H6 (Anomalous) we also reclassify the following “Chondrite Ungrouped” as follows: DOM 14080 to “H4 (Anomalous)”, MIL 15043 to “H5 (Anomalous)”, MIL 15293 to H5 (Anomalous)”, MIL 15362 to “H4 (Anomalous)”, and LAP 04757 and LAP 04773 to “H4 (Anomalous)”. These unusual chondrites may be part of the tail end of the H chondrite group, or they may be a distinct group of chondrites perhaps deserving a new group designation. We’d like to encourage interested parties in undertaking a detailed study of this group to allow better understanding of its relation to the H chondrites.

## Report from the Smithsonian Cari Corrigan, Geologist (Dept. of Mineral Sci.)

The Smithsonian, at the time of this printing, remains closed to the public and has only just re-entered our “Phase 2” for staff, still severely restricting access. Due to COVID closures, only meteorites for which thin sections had been made were classified. Classifications were made primarily from photographs of microscopic images and observations taken on the limited occasions we were able to enter the Museum, coupled with electron microprobe analyses, many of which were conducted remotely. These classifications should be considered slightly more tentative than usual. Our collaborative method of analyzing, describing, and classifying meteorites was seriously restricted due to our inability to enter the Museum, look at the sections, and discuss the features of each meteorite together.

Our collections are still closed to loans and will likely remain so until later in 2021. Once we return to work on a regular basis, we will work diligently to fulfill the recommended requests. We sincerely hope that you and your families are all safe and well.

## **ANSMET 2020-21 Field Season**

### **Jim Karner, University of Utah**

Most of you are fully aware that nearly all US Antarctic fieldwork for the 2020-21 field season was cancelled due to COVID, and that included ANSMET. The entire US Antarctic Program was basically on hold, with only minimal personnel down on the ice to keep the stations running safely, or to tend to scientific equipment/experiments that would not survive the season without some care and feeding. At this time, we can't tell you whether ANSMET will have a field season in 2021-22, but honestly things are pretty grim. Among the things that didn't happen in the austral summer (now ended) was the delivery of fuel and resupply via ship to McMurdo, making it very likely USAP will be forced to accept a continued reduction in science activities for the coming year. We are in constant contact with our program managers and logistical support at NASA and USAP and as of right now we're not getting our hopes up.

If we don't get into the field this year, it would be the first time since its founding that ANSMET has missed two successive field seasons, but we hope to make good use of the downtime. ANSMET leadership has been replacing and updating equipment, training mountaineer Brian Rougeux in GPS technology and GIS methods, and reducing and synthesizing field data for scientific publication. Publications! Something that we've always had a tough time fitting in, but now we've got the time. On a personal note (Jim), I'm missing the meteorite hunting but the cancellation allowed me to spend Christmas with family for the first time in 13 years! We traveled to my hometown of Grand Forks, ND and I was able to take my 6 year old daughter skating at my neighborhood outdoor hockey rink - it was a bitter 15 below (F) and we actually broke a hockey puck. Right in half! Needless to say, we did not skate long. But that bitter cold stinging your face, the bright sunshine reflecting off the ice, and that freshness of the frigid air has me longing to get back to the ice. So, we will continue to plan for the fabled "next" season, whenever that may be, and we will be ready to deploy when we're given the green light.

## **New Meteorites**

### **2017, 2018 Collection**

Pages 4-9 contain preliminary descriptions and classifications of meteorites that were completed since publication of issue 43(1), February, 2020. 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:

Kellye Pando, Curtis Calva, Roger Harrington, Cecilia Satterwhite and Kevin Righter  
Antarctic Meteorite Laboratory,  
NASA Johnson Space Center  
Houston, Texas

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

**Table 1  
Newly Classified Antarctic Meteorites**

<b>Sample Number</b>	<b>Weight (g)</b>	<b>Classification</b>	<b>Weathering</b>	<b>Fracturing</b>	<b>%Fa</b>	<b>%Fs</b>	<b>Magnetic Susceptibility</b>
GRO 17022	112.390	L3.6 CHONDRITE	A/B	A/B	3-31	7	4.25
GRO 17060	216.096	CR2 CHONDRITE	B	A/B	1	1-14	5.12
GRO 17108	193.510	L5 CHONDRITE	A/B	A	26	22	4.468
GRO 17139	8.430	CK6 CHONDRITE	A/B	A/B	26		4.92
GRO 17142	1300.850	LL3.6 CHONDRITE	A/B	A/B	0-31	3-9	4.1
NOD 17241	8.26	H5 CHONDRITE	B	A	18	17	5.285
PRE 17271	17.48	R3 CHONDRITE	A/Be	B	39-47	2-25	3.22
PRE 17272	15.47	R3 CHONDRITE	A/B	B	12-44	6-13	3.25
PRE 17275	197.48	H6 CHONDRITE(ANOMALOUS)	B	A	16	14	5.23
WSG 17260	244.82	H5 CHONDRITE	A/B	A	19	17	5.34
WSG 17261	184.04	L5 CHONDRITE	A/Be	A/B	24	20	4.71
DOM 18160	25.225	L5 CHONDRITE	B/Ce	B	24	21	4.49
DOM 18161	28.495	L6 CHONDRITE	B	A/B	25	21	4.44
DOM 18162	24.444	L5 CHONDRITE	B	A	25	21	4.69
DOM 18163	20.682	H6 CHONDRITE	B/C	A	19	17	4.77
DOM 18164	11.536	L5 CHONDRITE	B	A	25	21	4.57
DOM 18167	19.343	L6 CHONDRITE	B	A	24	21	4.52
DOM 18168	18.911	H6 CHONDRITE	B	A/B	19	17	5.02
DOM 18860	0.976	H5 CHONDRITE	B	A	19	16	4.56
DOM 18861	1.546	H5 CHONDRITE	B/C	A/B	19	17	4.81
DOM 18862	1.745	L3.6 CHONDRITE	B/C	A/B	8-30	17	4.06
DOM 18864	1.625	H5 CHONDRITE	B/C	A/B	19	17	4.9
DOM 18865	2.79	L5 CHONDRITE	B	A	24	21	4.66

**Table 2**  
**Newly Classified Meteorites Listed by Type**

**Carbonaceous Chondrites**

Sample Number	Weight(g)	Classification	Weathering	Fracturing	%Fa	%Fs
GRO 17060	216.096	CR2 CHONDRITE	B	A/B	1	1-14
GRO 17139	8.43	CK6 CHONDRITE	A/B	A/B	26	

**Chondrites**

Sample Number	Weight(g)	Classification	Weathering	Fracturing	%Fa	%Fs
PRE 17275	197.48	H6 CHONDRITE(ANOMALOUS)	B	A	16	14
DOM 18160	25.225	L5 CHONDRITE	B/Ce	B	24	21
GRO 17022	112.39	L3.6 CHONDRITE	A/B	A/B	3-31	7
DOM 18862	1.745	L3.6 CHONDRITE	B/C	A/B	8-30	17
GRO 17142	1300.85	LL3.6 CHONDRITE	A/B	A/B	0-31	3-9
PRE 17271	17.48	R3 CHONDRITE	A/Be	B	39-47	2-25
PRE 17272	15.47	R3 CHONDRITE	A/B	B	12-44	6-13

### **\*\*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 all meteorites in Table 1 & 2 was done using electron microprobe analysis. Petrologic types are determined by optical microscopy and are assigned based on the distinctiveness of chondrule boundaries in thin section and thin section photographs. Those undertaking detailed study of any of the meteorites classified in this newsletter 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 106, which are available online from the Meteoritical Society webpage:

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

#### **R CHONDRITE**

PRE 17271 and PRE 17272 with PRE 95404

## Petrographic Descriptions

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Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
GRO 17022	Grosvenor Mountains	25582	5.0 x 3.5 x 3.2	112.390	L3.6 Chondrite

### Macroscopic Description: Kellye Pando

About 99% of the exterior is covered with dark grey-brown possible fusion crust that is rough, fractured and pitted. Small exposed areas are a grey-brown matrix with small dark inclusions visible. Fresh interior is dark brown fine-grained matrix with large (up to 2 mm) round, light grey clasts along with orange rust spots in the matrix and clasts.

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

The section exhibits numerous well-defined chondrules (up to 1 mm) in a black matrix of fine-grained silicates, metal and troilite. Weak shock effects are present. Polysynthetically twinned pyroxene is common. The meteorite is modestly weathered. Silicates are unequibrated; olivines range from  $Fa_{3-31}$ , and pyroxene is  $Fs_7$ . The meteorite is an L3 chondrite (estimated subtype 3.6).

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
GRO 17060	Grosvenor Mountains	25638	6.6 x 5.0 x 4.5	216.096	CR2 Chondrite

### Macroscopic Description: Cecilia Satterwhite

The exterior has 85% black/brown fusion crust with fractures and oxidation haloes. Some areas are rusty. The interior is a black matrix with white and weathered specks, minor oxidation throughout.

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

The section exhibits mm-sized, well-defined, metal rich chondrules and CAI's in a dark matrix of phyllosilicate. Weathering is locally extensive. Silicates are unequibrated; one olivine analysis was  $Fa_1$ , and pyroxenes formed two groupings at averages of  $Fs_1Wo_{0.2}$  and  $Fs_{12}Wo_1$ . The meteorite is a CR2 chondrite.

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
GRO 17139	Grosvenor Mountains	25573	2.5 x 1.8 x 1.7	8.43	CK6 Chondrite

### Macroscopic Description: Kellye Pando

85% of exterior is covered with rough, fractured, black frothy fusion crust. Exposed area is very dark grey-black. Fresh interior is dark grey-black matrix with some like orange-yellow weathering concentrated near exterior edges.

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

The section consists of a few (up to 1 mm), poorly-defined chondrules in a matrix of finer-grained silicates, sulfides and magnetite. The meteorite displays moderate weathering and is very extensively shock blackened. Silicates are homogeneous. Olivine is  $Fa_{26}$ . No pyroxene analyses were obtained. The meteorite appears to be a CK6 chondrite.

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
GRO 17142	Grosvenor Mountains	25756	14.7 x 11.5 x 5.1	1300.85	LL3.6 Chondrite

### Macroscopic Description: Kellye Pando

Exterior is black with possible fusion crust covering about 30%. Large light grey to light brown round clasts/chondrules up to 5 mm are present. One large (1 cm) black reflective clast is exposed. There are a few areas of dark red rust. Fresh interior is very dark brown-black matrix with numerous round clasts that range in color from light grey to brown to black up to 4 mm. Orange rust can be seen throughout.

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

The section shows a close-packed aggregate of chondrules and chondrule fragments up to 2 mm across in a dark matrix containing a small amount of nickel-iron and troilite. Weathering is modest. Microprobe analyses show olivine and pyroxene of variable composition; olivine  $Fa_{0-31}$  and  $Fs_{3-9}$ . The meteorite is an LL3 chondrite, (estimated subtype 3.6).

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
PRE 17271	Mt. Prestrud	24723	2.1 x 2.3 x 2.0	17.48	R3 Chondrite
PRE 17272	Mt. Prestrud	24725	2.1 x 2.4 x 2.1	15.47	R3 Chondrite

**Macroscopic Description: Kellye Pando**

Patchy black fusion crust covers about 60-70% of exterior of this meteorite. It is rough, fractured and pitted with some larger areas of iridescent weathering. Exposed areas are dark grey-brown matrix with numerous round inclusions that range in size up to 1 mm. Fresh interior is also grey-brown matrix with inclusions that range in color from light to dark grey and some orange rust near exterior edges.

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

These sections are similar enough that one description suffices. The sections consist of ~50% distinct chondrules (up to 1 mm) and chondrule fragments set in a slightly recrystallized matrix of silicates, sulfides and chromite. Olivine compositions are  $Fa_{12-47}$  with most at  $Fa_{39}$ , while pyroxenes range from  $Fs_{2-25}$ . The meteorites are heavily shocked. The meteorites are R chondrites and may be associated with the PRE 95404 pairing group.

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
PRE 17275	Mt. Prestrud	24747	6.8 x 5.7 x 3.5	197.48	H6 Chondrite (Anomalous)

**Macroscopic Description: Kellye Pando**

45% of the exterior is covered with possible fusion crust that looks like brown varnish with orange rust spots, fractures and some pitting. Exposed surfaces are coated with a splotchy red-orange varnish that is pitted. Fresh interior is made up of areas of differing matrix colors, very dark brown, black and dark orange with metal inclusions throughout.

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

The section exhibits a few poorly defined chondrules (up to 1 mm) in a matrix of coarse metal and sulfide. Olivine is  $Fa_{16}$  and pyroxenes are  $Fs_{44}$ . The meteorite is moderately weathered. The meteorite is a low FeO chondrite of type 6 (Russell et al. MAPS 1998). The meteorite is similar in mineral composition to Willaroy and Suwahib (Buwah) and may be represent either the tail end of the H chondrites or a lower FeO parent body.

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
DOM 18160	Dominion Range	25709	3.0 x 2.8 x 2.1	25.225	L5 Chondrite

**Macroscopic Description: Curtis Calva**

Exterior of this meteorite has a smooth, rusty brown fusion crust with iridescent weathering spots. The exposed interior is light gray and rusty. The interior has smooth fractures with evaporites along the fractures. The matrix is heavily rusted with metallic inclusions under 1 mm.

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

This meteorite is an L chondrite. The section is evenly split with one half being an unremarkable L5 chondrite and the other half being heavily shock blackened. Olivine compositions are  $Fa_{24}$ , pyroxenes are  $Fs_{21}$ .

Sample No.	Location	Field No.	Dimensions (cm)	Weight (g)	Classification
DOM 18862	Dominion Range	25054	0.9 x 1.6 x 0.6	1.745	L3.6 Chondrite

**Macroscopic Description: Curtis Calva**

The meteorite's exterior is a rusty brown fusion crust with orange rust and a fracture. The interior is a black matrix with areas of brown rust and metallic inclusions.

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

The section exhibits numerous large, well-defined chondrules (up to 2 mm) in a black matrix of fine-grained silicates, metal and troilite. Weak shock effects are present. Polysynthetically twinned pyroxene is common. The meteorite is moderately weathered. Silicates are unequilibrated; olivines range in composition from  $Fa_{8-30}$ , and pyroxene is  $Fs_{17}$ . The meteorite is an L3 chondrite (estimated subtype 3.6).

## Sample Request Guidelines:

Requests for Antarctic Meteorites are reviewed twice per year, the deadline is posted on-line:  
<https://curator.jsc.nasa.gov/bboard.cfm>

Information about requesting samples can be found on-line at:  
<https://curator.jsc.nasa.gov/antmet/requests.cfm?section=general>

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 since August 2006 have been published in the Meteoritical Bulletins and Meteoritics and Meteoritics and Planetary Science.

They are also available on-line at:  
<https://meteoritical.org/publications/the-meteoritical-bulletin>

The most current listing is found on-line at:  
[http://curator.jsc.nasa.gov/antmet/us\\_clctn.cfm](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 needed prior to deliberations to make an informed decision on the request.

The preferred method of request transmittal is via e-mail. Please send requests and attachments to:  
[JSC-ARES-MeteoriteRequest@nasa.gov](mailto:JSC-ARES-MeteoriteRequest@nasa.gov)

Type Request in the e-mail subject line.

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, 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](mailto:JSC-ARES-MeteoriteRequest@nasa.gov)

Kevin Righter  
Curator  
Mail code X12  
NASA Johnson Space Center  
Houston, Texas 77058  
(281) 483-5125  
[kevin.righter-1@nasa.gov](mailto:kevin.righter-1@nasa.gov)

Cecilia Satterwhite  
Lab Manager/MWG Secretary  
Mail code X12  
NASA Johnson Space Center  
Houston, Texas 77058  
(281) 483-6776  
[cecilia.e.satterwhite@nasa.gov](mailto:cecilia.e.satterwhite@nasa.gov)

## 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	<a href="http://curator.jsc.nasa.gov/antmet/">http://curator.jsc.nasa.gov/antmet/</a>
JSC Curator, HED Compendium	<a href="http://curator.jsc.nasa.gov/antmet/hed/">http://curator.jsc.nasa.gov/antmet/hed/</a>
JSC Curator, Lunar Meteorite Compendium	<a href="http://curator.jsc.nasa.gov/antmet/lmc/">http://curator.jsc.nasa.gov/antmet/lmc/</a>
JSC Curator, Martian Meteorite Compendium	<a href="http://curator.jsc.nasa.gov/antmet/mmc/">http://curator.jsc.nasa.gov/antmet/mmc/</a>
ANSMET	<a href="http://caslabs.case.edu/ansmet/">http://caslabs.case.edu/ansmet/</a>
Smithsonian Institution	<a href="http://mineralsciences.si.edu/">http://mineralsciences.si.edu/</a>
Lunar Planetary Institute	<a href="http://www.lpi.usra.edu">http://www.lpi.usra.edu</a>
NIPR Antarctic meteorites	<a href="http://www.nipr.ac.jp/">http://www.nipr.ac.jp/</a>
Meteoritical Bulletin online Database	<a href="http://www.lpi.usra.edu/meteor/metbull.php">http://www.lpi.usra.edu/meteor/metbull.php</a>
Museo Nazionale dell'Antartide	<a href="http://www.mna.it/collezioni/catalogo-meteoriti-sede-di-siena">http://www.mna.it/collezioni/catalogo-meteoriti-sede-di-siena</a>
BMNH general meteorites	<a href="https://www.nhm.ac.uk/our-science/collections/mineralogy-collections.html">https://www.nhm.ac.uk/our-science/collections/mineralogy-collections.html</a>
UHI planetary science discoveries	<a href="http://www.psrh.hawaii.edu/index.html">http://www.psrh.hawaii.edu/index.html</a>
Meteoritical Society	<a href="http://www.meteoriticalsociety.org/">http://www.meteoriticalsociety.org/</a>
Meteoritics and Planetary Science	<a href="https://onlinelibrary.wiley.com/journal/19455100">https://onlinelibrary.wiley.com/journal/19455100</a>
Meteorite Times Magazine	<a href="https://www.meteorite-times.com/">https://www.meteorite-times.com/</a>
Geochemical Society	<a href="http://www.geochemsoc.org">http://www.geochemsoc.org</a>
Washington Univ. Lunar Meteorite	<a href="http://meteorites.wustl.edu/lunar/moon_meteorites.htm">http://meteorites.wustl.edu/lunar/moon_meteorites.htm</a>
Washington Univ. "meteor-wrong"	<a href="http://meteorites.wustl.edu/meteorwrongs/meteorwrongs.htm">http://meteorites.wustl.edu/meteorwrongs/meteorwrongs.htm</a>
Portland State Univ. Meteorite Lab	<a href="http://meteorites.pdx.edu/">http://meteorites.pdx.edu/</a>
Northern Arizona University	<a href="https://www.cefns.nau.edu/geology/naml/">https://www.cefns.nau.edu/geology/naml/</a>
Martian Meteorites	<a href="http://www.imca.cc/mars/martian-meteorites.htm">http://www.imca.cc/mars/martian-meteorites.htm</a>

### Other Websites of Interest

OSIRIS-REx	<a href="http://osiris-rex.lpl.arizona.edu/">http://osiris-rex.lpl.arizona.edu/</a>
Mars Exploration	<a href="http://mars.jpl.nasa.gov">http://mars.jpl.nasa.gov</a>
Rovers	<a href="http://marsrovers.jpl.nasa.gov/home/">http://marsrovers.jpl.nasa.gov/home/</a>
Near Earth Asteroid Rendezvous	<a href="http://near.jhuapl.edu/">http://near.jhuapl.edu/</a>
Stardust Mission	<a href="http://stardust.jpl.nasa.gov">http://stardust.jpl.nasa.gov</a>
Genesis Mission	<a href="http://genesismission.jpl.nasa.gov">http://genesismission.jpl.nasa.gov</a>
ARES	<a href="http://ares.jsc.nasa.gov/">http://ares.jsc.nasa.gov/</a>
Astromaterials Curation	<a href="http://curator.jsc.nasa.gov/">http://curator.jsc.nasa.gov/</a>
Hayabusa2	<a href="http://www.hayabusa2.jaxa.jp/en/">http://www.hayabusa2.jaxa.jp/en/</a>