Meteorites in Antarctica

Meteorites seem to like to fall in remote places around the globe. One such place is Antarctica.

In the following list, known meteorites (22,507 in total) have been arranged according to country of fall or find. An asterisk (*) after the name indicates that the meteorite is represented in the collection of the Natural History Museum, London and an obelisk (†) indicates that it is an observed fall. This list is taken from the National History Museum in UK (www.nhm.ac.uk).

List of falls in Antarctica:

Adelie Land
Lazarev
Neptune Mountains
Thiel Mountains
Allan Hills (ALH) (1775)
Asuka Station (A) (2524)
Bates Nunataks (BTN) (4)
Beckett Nunatak (BEC) (2)
Belgica Mountains (B) (5)
Bowden Névé (BOW) (1)
David Glacier (DAV) (9)
Derrick Peak (DRP) (25)
Dominion Range (DOM) (11)
Elephant Moraine (EET) (2127)
Frontier Mountains (FRO) (431)
Geologists Range (GEO) (2)
Graves Nunataks (GRA) (38)
Grosvenor Mountains (GRO) (185)
Inland Forts (ILD) (1)
LaPaz Icefield (LAP) (3)
Lewis Cliff (LEW) (1841)
Lonewolf Nunataks (LON) (10)
Macalpine Hills (MAC) (126)
MacKay Glacier (MCY) (4)
Meteorite Hills (MET) (66)
Miller Range (MIL) (1)
Mount Baldr (MBR) (2)
Mount De Witt (DEW) (2)
Mount Howe (HOW) (4)
Mount Prestrud (PRE) (17)
Mount Wegener (WEG) (1)
Mount Wisting (WSG) (9)
Outpost Nunatak (OTT) (1)

Patuxent Range (PAT) (52)
Pecora Escarpment (PCA) (519)
Purgatory Peak (PGP) (1)
Queen Alexandra Range (QUE) (1821)
Reckling Peak (RKP) (135)
Stewart Hills (STE) (1)
Taylor Glacier (TYR) (1)
Thiel Mountains (41)
Wisconsin Range (WIS) (33)
Yamato Mountains (Y) (5973)

The following description of Meteorites in Antarctica is given on the Johnson Space Center/NASA web site:

> "Meteorites from Antarctica are a relatively recent resource for study of the material formed early in the solar system; most are thought to come from asteroids but some may have originated on larger planets. In 1969, the Japanese discovered concentrations of meteorites in Antarctica. Most of these meteorites have fallen onto the ice sheet in the last one million years. They seem to be concentrated in places where the flowing ice, acting as a conveyor belt, runs into an obstacle and is worn away, leaving behind the meteorites. Compared with meteorites collected in more temperate regions on Earth, the Antarctic meteorites are relatively well preserved. The collection and curation of Antarctic meteorites is a cooperative effort among NASA, the National Science Foundation and the Smithsonian Institution."

In addition the following table and information published by the Meteoritical Bulletin No. 76 and by the United States Geological Survey (USGS) – Dr. Jeffrey Grossman gives the Locations, abbreviations and numbers of Antarctic meteorites collected (see this web site link for additional information).

Table 1

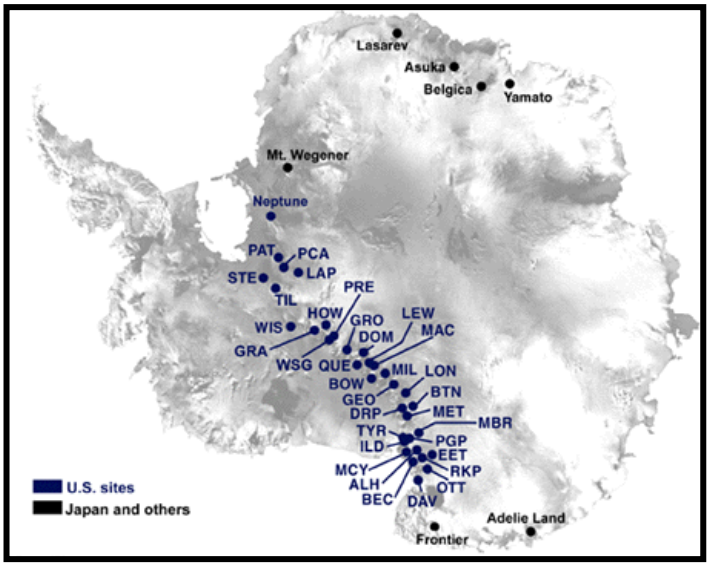
Locations, abbreviations and numbers of Antarctic meteorites collected, and countries sending expeditions.

Geographic Name	Abbr.	No.	Country	Latitude	Longitude
Adelie Land	(1912)	1	Australia	67°11'S	142°23'E
Lazarev	(1961)	2	Russia	71°57'S	11°30'E
Neptune Mountains	(1964)	1	USA	83°15'S	55°00'W
Thiel Mts.	(1962)	2	USA	85°15'S	91°00'W

Allan Hills	ALH	1753	USA	76°43'S	159°40'E
Asuka Station	A	2479	Japan	72°50'S	24°30'E
Bates Nunataks	BTN	6	USA	80°15'S	153°30'E
Beckett Nunatak	BEC	2	USA	76°02'S	160°11'E
Belgica Mountains	B	5	Japan	72°35'S	31°15'E
Bowden Nunatak	BOW	1	USA	83°30'S	165°00'E
David Glacier	DAV	9	USA	75°19'S	162°00'E
Derrick Peak	DRP	25	NZ,USA	80°04'S	156°23'E
Dominion Range	DOM	11	USA	85°20'S	166°30'E
Elephant Moraine	EET	1793	USA	76°11'S	157°10'E
Frontier Mountains	FRO	284	EUR	72°59'S	160°20'E
Geologists Range	GEO	2	USA	82°30'S	155°30'E
Graves Nunataks	GRA	33	USA	86°43'S	141°30'W
Grosvenor Mountains	GRO	188	USA	85°40'S	175°00'E
Inland Forts	ILD	1	USA	77°38'S	161°00'E
LaPaz Icefield	LAP	3	USA	86°22'S	70°00'W
Lewis Cliff	LEW	1936	USA	84°17'S	161°05'E
MacAlpine Hills	MAC	126	USA	84°13'S	160°30'E
MacKay Glacier	MCY	4	USA	76°58'S	162°00'E
Meteorite Hills	MET	28	USA	79°41'S	155°45'E

Mount Baldr	MBR	2	USA	77°35'S	160°34'E
Mount DeWitt	DEW	2	USA	77°12'S	159°50'E
Mount Howe	HOW	4	USA	87°22'S	149°30'W
Mount Prestrud	PRE	17	USA	86°34'S	165°07'W
Mount Wegener	WEG	1	EUR	80°42'S	23°35'W
Mount Wisting	WSG	9	USA	86°27'S	165°26'W
Miller Range	MIL	1	USA	83°15'S	157°00'E
Outpost Nunatak	OTT	1	USA	75°50'S	158°12'E
Patuxent Range	PAT	53	USA	84°43'S	64°30'W
Pecora Escarpment	PCA	519	USA	85°38'S	68°42'W
Purgatory Peak	PGP	1	USA	77°20'S	162°18'E
Queen Alexandra Range	QUE	1429	USA	84°00'S	168°00'E
Reckling Peak	RKP	142	USA	76°16'S	159°15'E
Stewart Hills	STE	1	USA	84°12'S	86°00'W
Taylor Glacier	TYR	1	USA	77°44'S	162°10'E
Thiel Mountains	TIL	41	USA	85°15'S	91°00'W
Wisconsin Range	WIS	33	USA	84°45'S	125°00'W
Yamato Mountains	Y	5940	Japan	71°30'S	35°40'E

The same website includes the following map of the finds:



Searching for meteorites is not necessarily as simple as one might imagine. Teams of four to eight scientists work to gather meteorites during the Antarctic summer (Nov-Jan).

According to the Johnson Space Center – NASA website:

> "The team leader and ice expert plan the expedition and are responsible for safety. Transportation to field sites is by helicopter or cargo airplane. On the ground the team travels by snowmobiles and lives in special polar tents. Teams use the buddy system for safety and are never alone. Cooking and heating are done with gas stoves; food is frozen, canned or freeze-dried; water is made by melting ice. Imagine not having to (or being able to) take a shower for over a month!"

Meteorite searches can be made using skidoos, team searches or searches of glacial moraines. Skidoo searches are typically made by forming a line of machines about 30 to 40 yards apart and slowly traversing the terrain. Team searches generally become very systematic as the team works together. The teams get to view some of the most spectacular scenery in the world while looking for "out of this world" rocks. Sometimes meteorites are found while driving around on snowmobiles; other times they are identified while walking or crawling on a rock-covered icefield.

The meteorites may be mixed with earth rocks in glacial moraines. It tends to get very tedious to sort through these moraines to find the meteorites.

When a meteorite is found, the members of the team gather around. The meteorite is photographed, located by GPS and put into a sterile plastic bag, along with an identification tag. The bag is then sealed for transport to the laboratory. Notes about the color, size, fusion crust, rock type and other distinguishing features are noted.

Team members often develop a systematic approach to "bagging a meteorite." Because one or two members of the team need to remove their gloves to perform some of the tasks, the other members try to block the wind. This is essential in temperatures of minus 40 degrees F.

After collection, the meteorites are shipped frozen to the Antarctic Meteorite Processing Laboratory at NASA Johnson Space Center. It is a special clean lab similar to that which houses the Apollo Moon rocks. The meteorites are thawed in stainless steel glove cabinets containing nitrogen gas.

Curation of meteorites involves storing, describing, classifying, and announcing new meteorites for study, and later splitting them for distribution to investigators around the world. Most meteorites are described and split into smaller chips on flow benches using clean tools.

Antarctica is a rich area for finding meteorites. It is a remote environment that may yield clues to both our past and future.

For more information about meteorites, asteroids and “out of this world” objects, visit our Falling from the Sky, A Meteorite Resource website.

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H. Court Young
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http://www.tmcco.com