THE METEORITICAL SOCIETY

COMMITTEE ON METEORITE NOMENCLATURE

GUIDELINES FOR METEORITE NOMENCLATURE

FEBRUARY 1980

Revised October 2000; October 2004; April 2005; October 2006; July 2010; March 2011; December 2011; May 2012; July 2012; August 2012; February 2015; July 2015

Contents

1. INTRODUCTION

1.1 Objectives.

These Guidelines are designed to provide a rational system of nomenclature to be adopted by the discoverers of new meteorites which will avoid confusion and ambiguity in published reports on existing meteorites. The Guidelines should also be acceptable for common-place usage in the field or laboratory and will assist the prompt announcement of new meteorites. In addition, the Guidelines are intended to ensure that type specimens of all new meteorites are preserved in collections that make material available for research

1.2 Scope.

These Guidelines provide a framework for naming objects that are commonly recognized to be meteorites.

a) Meteorites to be named under the Guidelines include objects found on the Earth as well as on other solar system bodies during the course of space exploration.

b) The following types of materials are NOT to be named under these Guidelines: micrometeorites and interplanetary dust particles; xenolithic clasts in other meteorites; artificial meteorites; pseudometeorites; impact craters, tektites, and other impact-produced materials; and, meteoroids or other small bodies in space.

c) Special provisions are made in these Guidelines for highly altered materials that may have a meteoritic origin, designated *relict meteorites*, which are dominantly (>95%) composed of secondary minerals formed on the body on which the object was found. Examples of such material may include some types of "meteorite shale," "fossil meteorites," and fusion crust.

2. APPLICATION AND REQUIREMENTS OF A METEORITE NAME

2.1 Unique names.

A unique name shall apply to:

a) The set of all individual bodies recovered from a single observed meteorite fall or meteorite shower. Each individual shall carry the same name as the set;

b) A meteorite find that cannot be related with certainty to other falls or finds recovered from the same vicinity;

c) Several meteorite finds, or a fall and one or more subsequent finds, whose geographical relationship and inherent characteristics establish, after careful evaluation of all evidence available, that they belong to a single occurrence (with the exception stated in §4.2 for finds in dense collection areas).

2.2 Distinctive names.

A meteorite name must clearly be distinct from all other meteorite names and abbreviations, and should convey the geographical location of the fall or find. Names should be as brief as possible, but abbreviations (e.g., St. and Mt.) should be spelled out unless special circumstances warrant their usage in the name.

2.3 Precedents.

An established meteorite name shall remain unchanged, whether the spelling or name of its locality is subsequently altered or was originally assigned in error, or whether it becomes obsolete with respect to current conventions of transliteration or transcription.

Earlier meteorite names that do not conform to these Guidelines will not be changed unless this is necessary to avoid confusion. Changes to the names of meteorite falls or important meteorite finds (e.g., *Canyon Diablo*; *Leoville*) should be avoided except under extraordinary circumstances (e.g., §3.3a).

2.4 International usage.

Meteorite names should be rendered according to local spelling at the time, but in Roman script, including diacritical marks where appropriate. New Chinese meteorite names will be transcribed according to the Pinyin system.

3. NEW METEORITE NAMES

3.1 Geographic features.

A new meteorite shall be named after a geographical locality near to the location of its initial recovery[†]. Every effort should be made to avoid unnecessary duplication or ambiguity, and to select a permanent feature which appears on widely used maps and is sufficiently close to the recovery site to convey meaningful locality information. Acceptable names include physiographic features such as rivers, mountains, lakes, bays, capes, and islands, political features such as towns, counties, states, and provinces, and sites of human activity such as parks, mines, historical sites[††], and railroad stations. Other sites mainly associated with recent human activity, such as buildings, commercial localities, schools, bridges, roads, and golf courses are not generally acceptable names for meteorites. In sparsely populated areas with few place names, less permanent features such as ranches or stations or, in extreme cases, local unofficial names of distinctive quality may be used, provided the latitude and longitude of the recovery site are well determined. The names of large geographic features such as continents, countries, provinces, states, and large counties should be avoided if names that are more specific are available, except as specified in §3.3 and §3.4. In general, the selected feature should be the closest such feature to the site of the recovery. If, for example, the name of the nearest town is already used, the meteorite should not be named for the next nearest town. In such a case, a different geographic feature (e.g., a stream) should be selected, if available (if not, §3.3 applies).

A meteorite shall be given the full name of the geographical locality for which it is named. However, parts of the name such as directional terms (e.g., “North”) or generic physiographic terms (e.g., “Mountains” or “Lake”) may be omitted for brevity, at the discretion of the Committee.

[†]Two common misconceptions about meteorite names are widespread: that meteorites should be named for the nearest post office; and, that meteorites should be named for populated places such as towns. Neither of these is correct.

[††]A historical site is defined as a locality that is well-known for its historical significance, and for which the dominant modern function is the depiction of this history.

3.2 Duplicate place names.

Duplication of a place name previously used for a meteorite from another country, state or province should be avoided. If it cannot be avoided, both names may be amplified as in *Edmonton (Kentucky)* and *Edmonton (Canada)*.

3.3 Sparse place names.

The following rules apply to cases involving insufficient numbers of unique place-names:

(a) Coincidental falls.
In the event that a meteorite falls near the same locality as an existing named meteorite, the new fall should not be assigned a letter designation as in §3.3b, or a numeric designation as in §3.3c. If an appropriate, unique name cannot be found for the new fall, then it should receive the suffix *(year)*, as was done for *Wethersfield (1982)* and *Monahans (1998)*. If there is only one pre-existing meteorite from this location, then the older one should also be given a *(year)* suffix, e.g., *Wethersfield (1971)* and *Monahans (1938)*. This is one of the rare situations wherein an existing meteorite fall or an important find may be renamed. If there are multiple existing meteorites with the same name followed by numeric or lettered suffixes, then the fall should still get the year suffix, but the older meteorites do not need to be renamed.

(b) Coincidental finds.
Where several meteorites are found near the same locality and alternative place names are not available, each separate meteorite shall bear the name of the locality followed by a parenthesized lower-case letter, e.g. *Kress (a)* and *Kress (b)*.

(c) Dense collection areas.
If particularly numerous recoveries are made in one region, or are considered to be likely, as for instance in Antarctica and the Sahara, a generic prefix (conveying geographic information) and a suitable series of numeric suffixes should be applied. New meteorites found within the designated region will be named by combining the prefix with the next available suffix

3.4 Meteorites of unknown or poorly known provenance.

(a) Regional meteorite names.
If the provenance of a new meteorite cannot be accurately determined, the name may be chosen to reflect the smallest geographic feature identifying the collection location with certainty. Multiple meteorites of this type, which come from the same general location,

should receive sequential numbers as in §3.3c (e.g., *Northwest Africa 3200* or *Arabian Peninsula 006*).

(b) "Nova" meteorites.
If the provenance of a new meteorite is unknown, highly uncertain or disputed, the name *Nova* followed by the next available three-digit number should be adopted as the permanent name.

(c) Precedents.
Names given under this section are subject to the provisions of §2.3, and should not be changed, even given the eventual resolution of the true provenance.

Note: the earlier practice of naming transported meteorites for the locality or institution where they were first recognized has been abolished.

3.5 Prohibited terms.

Neither a person's name, the classification, nor a directional term (for example *North Haig*) should be used in a meteorite name unless they are part of the name of the geographic feature, published on widely used maps. Geographic names that may be considered offensive, or that bear the name of a living person, should be avoided.

4. PAIRED AND SEPARATED METEORITES

4.1 Sparse collection areas:

(a) Level of scrutiny.
A reasonable effort should be made to ensure that a new recovery does not belong to a previously named meteorite (see also §2.1).

(b) Paired meteorites.
If two meteorites previously thought to be separate are subsequently found to be paired after comprehensive studies (preferably of the main masses), one name should be abolished and one retained.

(c) Separation of meteorites.
If several individuals previously regarded as a single meteorite prove to be distinct, with no reasonable expectation of genetic affinity, then one or all should be renamed in accordance with the provisions of §3. If the original name designates a fall, then every attempt should be made to preserve that name without change.

4.2 Dense collection areas.

In areas of dense meteorite concentrations such as those covered under §3.3c, the following guidelines apply:

(a) Level of scrutiny.
Sequential names comprising a prefix and numeric suffix will be given to new meteorites without checking for possible pairings, although a single (collective) name may be given in cases where fragments fit together or similar-looking fragments are found within a few meters of each other.

(b) Pairing groups.
Two or more newly discovered meteorites in dense collection areas may be considered paired with each other or with another formally named meteorite if there is **overwhelming** evidence, including geographic data that are consistent with the meteorites being part of a single fall. The evidence must be evaluated by the Committee. All approved members of a pairing group will be named with a geographic prefix plus a number in the same way as are unpaired meteorites; special type-specimen requirements will apply to newly paired meteorites (§7.1g). If two or more numbered meteorites with formal names are subsequently determined to be paired, their names should not be changed.

(c) Separation of meteorites.
If several individuals previously regarded as a single meteorite prove to be distinct, with no reasonable expectation of genetic affinity, then lettered suffixes in parentheses may be applied, as in §3.3b (e.g., *Place 95035 (b)*).

5. SYNONYMS AND DISCREDITED METEORITE NAMES

5.1 Synonyms.

Synonyms are **unofficial** names of meteorites. They may be created when:

a) Popular usage or existing publications have caused confusion through the introduction of alternate names or alternate spellings of the names of approved meteorites.

b) A meteorite name is abolished after a determination of pairing with a second meteorite, or a meteorite name is modified through the addition of a suffix.

c) A lettered sequence is created under §3.3b, but a meteorite already exists from the same locality. The existing meteorite automatically takes on the synonym "(a)" (e.g. *Lake Los Angeles* took on the synonym *Lake Los Angeles (a)* when *Lake Los Angeles (b)* was named), but the name of the original meteorite remains unchanged.

d) A dense collection area is created under §3.3c or §3.4a, but a meteorite already exists with the name of the collection area. Such a meteorite automatically takes on the synonym corresponding to the lowest value in the numerical sequence, but the name of the original meteorite remains unchanged (e.g., the *Diamond Valley* meteorite took on the synonym "*Diamond Valley 001*, when the Diamond Valley dense collection area was created, and new meteorites were numbered starting with 002).

5.2 Discredited names.

Meteorite names that are abolished or discredited, or that have been modified through the later addition of a suffix shall not be reused for the naming of subsequent falls or finds.

6. METEORITE ABBREVIATIONS

Abbreviations for meteorite names with numeric suffixes (i.e., those named under §3.3c; e.g., *ALH = Allan Hills*) should be unique and different from all unabbreviated meteorite names (disregarding case and diacritical marks). Such abbreviations should be used with a space separating the abbreviated prefix and the numeric suffix (e.g., *ALH 84001*); the exception to this is certain Antarctic meteorites with names approved prior to 1981, which may be abbreviated with an optional "A" in place of the space (*ALHA*, *BTNA*, *DRPA*, *EETA*, *MBRA*, *META*, *OTTA*, *PGPA*, and *RKPA*; e.g., *ALHA77005*).

7. APPROVAL, REVISION, AND ANNOUNCEMENT OF METEORITE NAMES

7.1 New meteorites.

All new meteorite names must be approved by the Committee for Meteorite Nomenclature (hereafter called NomCom). The minimum information required to name a meteorite, which NomCom should only modify under special circumstances, is:

a) The location, preferably as geographic coordinates, of the fall or find;
b) The circumstances of the fall or find (narrative);
c) The total known mass and number of pieces recovered;
d) An authoritative classification;
e) The location of the main mass;
f) The location of a type specimen. Type specimens must be deposited in approved institutions that have well-curated meteorite collections and long-standing commitments to such curation‡. At the time of submission of the meteorite to NomCom, the type specimen must be in the permanent custody of the institution that is the type specimen repository;
g) The type specimen mass. The minimum mass of a type specimen should be 20% of the total mass or 20 g, whichever is the lesser amount. For newly paired meteorites from dense collection areas (§4.2b), the minimum required mass shall be whatever is needed to bring the aggregate mass of existing type specimens (if any) to 20% of the aggregate mass of the entire pairing group or 20 g, whichever is less.

Larger type specimens are recommended (but not required) for meteorites larger than 400 g:

Mass	Recommended type specimen
0.4 to 10 kg	at least 5% of total mass
> 10 kg	at least 500 g

‡Information about the approval of type specimen repositories is given in the operating procedures of NomCom. A list of all registered collections is found at http://www.lpi.usra.edu/meteor/MetBullAddresses.php?grp=country, with those approved as type specimen repositories marked with a green check.

7.2 Numbering systems.

NomCom must review and approve all new prefixes, abbreviations, and numbering schemes for meteorites in dense collection areas. Proposals to create new nomenclatural regions must be accompanied by maps, aerial photographs, satellite imagery and/or written descriptions that explain the geographic extent of the region. NomCom may later vote to change the boundaries of an approved region.

7.3 Pairing issues.

Proposals to pair or separate meteorites that would result in the abolition or creation of meteorite names under §4.1 must be reviewed and approved by NomCom. In addition, proposals to designate pairing groups under section §4.2b must be reviewed and approved by NomCom.

7.4 Name changes.

Proposals to change meteorite names (e.g., §2.3, §3.3) must be reviewed and approved by NomCom

7.5 Synonyms.

NomCom is responsible for keeping a list of synonyms for meteorites with official names. These may be proposed at any time. Synonyms will be published in the Meteoritical Bulletin Database. Synonyms that are offensive or otherwise deemed inappropriate by NomCom will not be published except in extraordinary circumstances.

7.6 Provisional names.

New numbers may be assigned to meteorites in dense collection areas with approved numbering systems prior to analysis and classification. Allocation of numbers will be coordinated by the Editor of the Meteoritical Bulletin. Names assigned in this way will be considered provisional until NomCom grants formal approval.

Assignment of provisional names requires the following minimum information:

a) The mass of the specimen;
b) A physical description (e.g., crusted stone, broken fragment, etc.);
c) An approximate (visual) classification (e.g., stone, iron, chondrite, achondrite, etc.);

d) An account of how the specimen was obtained (e.g., place and date of find and/or purchase);
e) The coordinates where the specimen was found, or in the case of a meteorite with unknown find location, a description of where it may have been found.

A list of provisional names will be maintained by the Database Editor of the Meteoritical Bulletin. The names of meteorites on this list remain provisional until such time that the name is formally approved, discredited, or abolished by NomCom.

Meteorites with provisional names may be later submitted for approval under §7.1. Such requests must be made using the assigned provisional names and these will become the formal names upon approval. If it can be demonstrated that the provisional name was incorrectly or inappropriately assigned, or if locality information becomes available that would no longer require a generic name under §3.4, the provisional name may be designated as a synonym, and an appropriate formal name applied; requests to do this must be directed to the Chair of NomCom and reviewed and approved by the full committee.

7.7 Relict meteorite names.

A special type of name should be assigned to relict meteorites (see §1.2c for definition). The documentation required for these names must include a description of the material, the location and date of the find, the approximate mass or size, the location of the main mass, and the type of meteoritic material it is suspected to represent. The name must conform to all applicable parts of §2-§6 above, and must be approved by NomCom prior to publication. Relict meteorite names may be converted to formal meteorite names by a second vote of the committee, subject to the requirements of §7.1.

7.8 Announcements.

Information about all new meteorites, paired and separated meteorites, name changes to existing meteorites, synonyms, and abbreviations will be published at least once per year in the Meteoritical Bulletin in *Meteoritics and Planetary Science*.

8. METEORITES FOUND ON CELESTIAL BODIES OTHER THAN EARTH

8.1 Definition.

"Meteorite" shall be defined according to Rubin and Grossman (2009) [MAPS 45, 114-122].

8.2 Sample returns.

When a meteorite is collected on another celestial body and returned to Earth, it is subject to all of the same nomenclatural rules as meteorites collected on Earth (§1-7).

8.3 Remote observations.

Meteorites may be observed in situ on other celestial bodies by manned or robotic missions. In these cases, a special set of nomenclatural guidelines should be applied:

a) Such objects should be named according to the same principles as meteorites collected on Earth (§1-7).

b) The criteria for acceptance of a new meteorite listed in section §7.1 shall be replaced as follows:

i. The location of the meteorite, preferably using an appropriate coordinate scheme;
ii. The circumstances of the find;
iii. The estimated mass and number of pieces observed;
iv. Evidence that establishes the likelihood that the object is a meteorite;
v. A visual (or better) classification.

9. AUTHORITATIVE INFORMATION.

The authority for existing meteorite names shall be the Meteoritical Bulletin Database.