

The Meteoritical Bulletin, No. 106

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Abstract—Meteoritical Bulletin 106 contains 1868 meteorites including 10 falls (Aiquile, Broek in Waterland, Degtevo, Dingle Dell, Dishchii'bikoh, Hradec Králové, Kheneg Ljouâd, Oudiyat Sbaa, Serra Pelada, Tres Irmaos), with 1386 ordinary chondrites, 166 carbonaceous chondrites, 119 HED achondrites, 48 Lunar meteorites, 37 iron meteorites, 36 ureilites, 19 Martian meteorites, 13 enstatite chondrites, 12 Rumuruti chondrites, 9 primitive achondrites, 8 mesosiderites, 5 enstatite achondrites, 4 ungrouped achondrites, 4 pallasites, and 1 relict meteorite. A total of 958 meteorites are from Africa, 405 from Antarctica, 245 from Asia, 228 from South America, 12 from North America, 8 from Europe, 5 from Mars, 4 from Oceania, and 1 from an unknown location.

TRENDS AND SPECIFICITIES

Meteoritical Bulletin 106 (MB106) reports the 1868 meteorites approved by the Nomenclature Committee of the Meteoritical Society in 2017. This number is diminishing after a peak in MB102, reflecting mostly a decrease in the number of Antarctic meteorites being declared, and masking an increase in the numbers of meteorites from Northwest Africa (NWA) and from other non-Antarctic areas (Fig. 1). Antarctic and NWA meteorites make up 22% and 33% of the total number of meteorites in MB106, respectively. As for the last few years, Chile (224 meteorites), Oman (129 meteorites), and Iran (98 meteorites) are now the main meteorite providers outside of NWA and Antarctica (Figs. 2a and 2b), whereas meteorite falls continue to come from densely populated areas (Fig. 2c).

The 1868 meteorites in MB106 total over 12 tons, including ~6 tons of iron meteorites (five meteorites) detected at the surface of Mars by the Curiosity rover, and 2.8 tons of the Sericho pallasite (Kenya).

Of particular significance for 2017 is the large number of Lunar meteorites, with 48 meteorites totaling over 60 kg, with 11 stones over 1 kg and a large

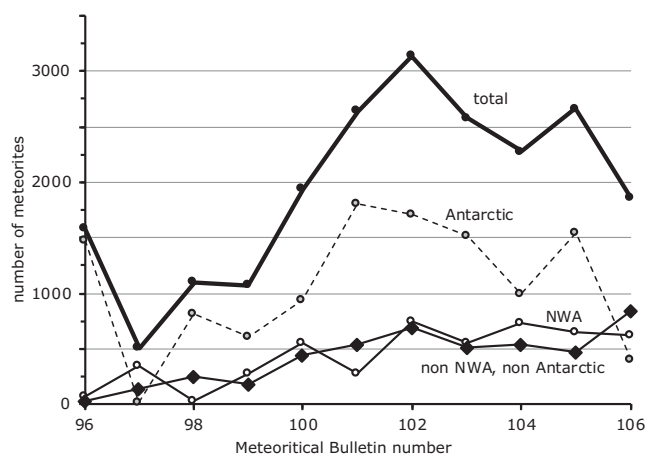


Fig. 1. Number of meteorites from Antarctica, NWA, and other areas reported in the last 10 Meteoritical Bulletins.

15.46 kg stone (Fig. 3). All these lunar meteorites are from NW Africa (Morocco, Western Sahara, Algeria) and coordinates are known for eight of them from the Rabt Sbayta, Talhat Lihoudi, and Tichiya dense collection areas. Many of these stones are likely paired.

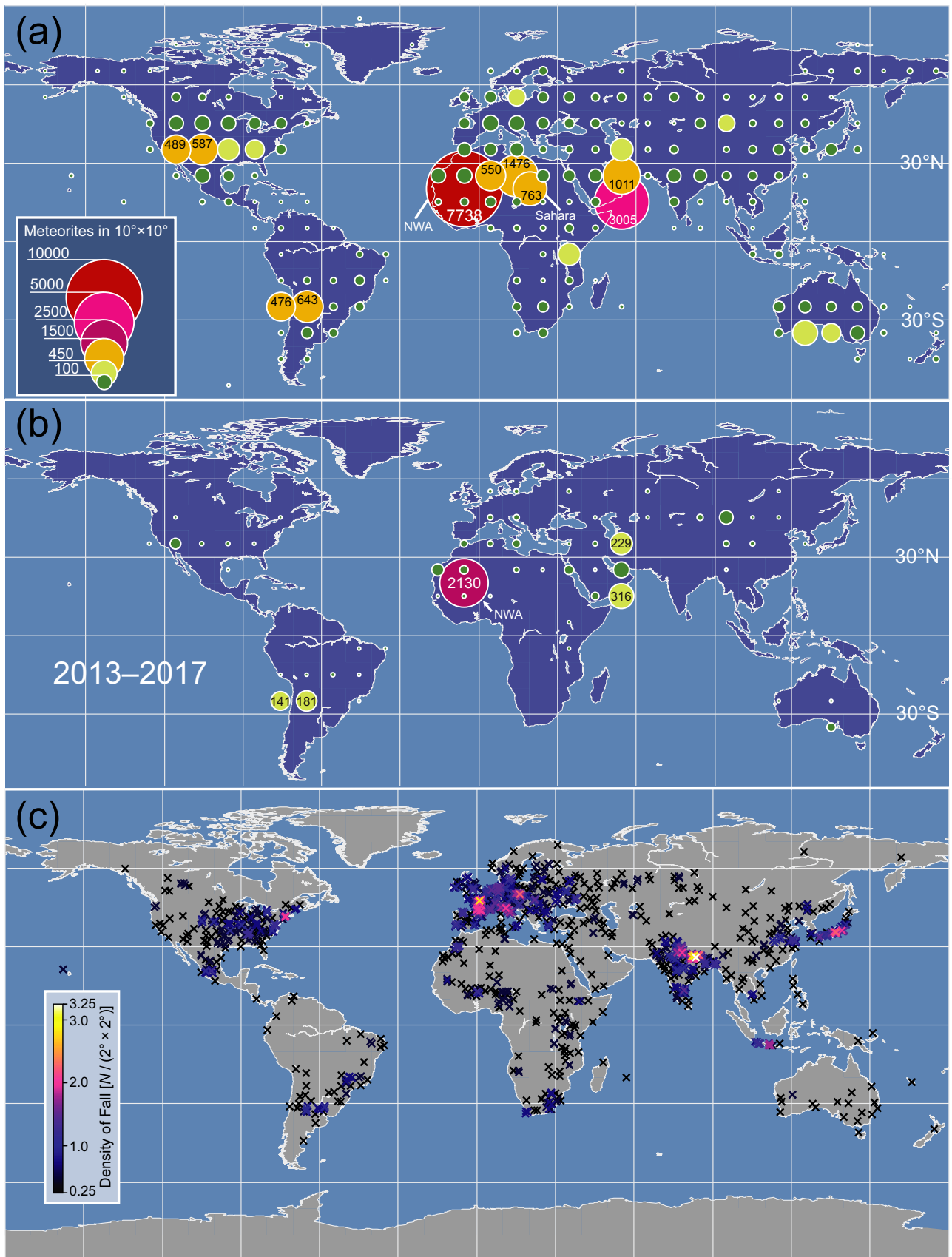


Fig. 2. Distribution maps of meteorites based on the Meteoritical Bulletin Database as of 13 March, 2018, excluding the meteorites found or fallen in 2018 and meteorites found on the other planets (Mars and Moon; 8 meteorites). a) Distribution of all meteorites (finds and falls; total 20910, Antarctic meteorites, amounting to 36887 not shown) shown as the number of meteorites in $10^\circ \times 10^\circ$ meshes, mainly based on the geographical coordinates in the database. The coordinates of the capitals are used when the country name is solely known. Due to the lack of information, 26 meteorites are not plotted. The Northwest Africa (NWA) and Sahara meteorites are plotted separately. b) Distribution of meteorites approved by the Nomenclature Committee of the Meteoritical Society the last 5 years (2013–2017). c) Distribution of the falls, including “Fall,” “Confirmed fall,” and “Probable fall” (1162 meteorites). The density of the falls, color scale, is calculated as the number of the falls N in the $2^\circ \times 2^\circ$ mesh nearby the plotted fall divided by the area of the mesh (4 square degrees).

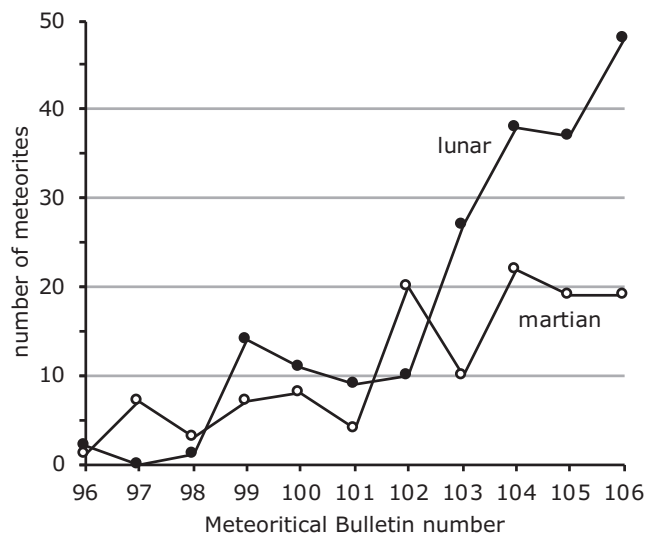


Fig. 3. Number of Lunar and Martian meteorites reported in the last 10 Meteoritical Bulletins.

A similar surge in Martian meteorites is observed with 19 meteorites totaling over 10 kg, including two meteorites over 2 kg (Fig. 3). Again all these meteorites are from NW Africa. Sixteen are shergottites, and the remaining three (including Rabt Sbayta 003 for which coordinates are available) are basaltic breccias paired with NWA 7034.

SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article.

Online supplement 1: Table of data including Antarctic meteorites.

Online supplement 2: Table of corrections.

NOTABLE METEORITES

Two non-ordinary chondrite falls are reported: Oudiyat Sbaa (EH5) and Serra Pelada (Eucrite). Other notable meteorites include Sericho (pallasite from Kenya with total mass over 2.8 tons), Los Vientos 200 (a fresh CH3), iron meteorites from Mars (Aeolis Mons 001 and 002 and Aeolis Palus 001 to 003), Los Vientos 189 (a 70 kg anomalous IID iron), and Rabt Sbayta 004 and Tichiya (lunar feldspathic breccias of 15 kg and 9 kg, respectively).

ALPHABETICAL TEXT ENTRIES FOR NON-ANTARCTIC METEORITES

See online version of this article.

NEW DENSE COLLECTION AREAS

See online version of this article.

LISTING OF INSTITUTES AND COLLECTIONS

See online version of this article.

REFERENCES

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Data S1: A complete copy of entire Meteoritical Society Bulletin can be found in the supplementary information of this article as well as on the Meteoritical Bulletin Archive page at http://meteoriticalsociety.org/?page_id=57. Information about the approved meteorites can be obtained from the Meteoritical Bulletin Database (MBD) available online at <https://www.lpi.usra.edu/meteor/>.