

A Review of the Antarctic Collection of Meteorites

Antarctic meteorites provide a continuous and readily available supply of extraterrestrial materials, stimulating new research and ideas in cosmochemistry, planetary geology, astronomy, and astrobiology. A new publication in the *Annual Review of Earth and Planetary Sciences* written by Meenakshi Wadhwa (Arizona State University), Tim McCoy (National Museum of Natural History, Smithsonian Institution), and Devin Schrader (ASU) highlights the advances in cosmochemistry that are enabled by these samples.



Katie Joy, ANSMET 2012-2013

Image courtesy of the 2012-2013 ANSMET team. [Click for more information.](#)

Every meteorite studied has the potential to bring about new understanding of the cosmos; Wadhwa and coauthors draw particular attention to the importance of the Antarctic collection of:

- meteorites from Mars,
- meteorites from the Moon,
- chemically **primitive chondritic meteorites** that reveal details of the **solar nebula** in which they formed and the evolution of our Solar System,
- primitive **achondrite** meteorites that tell stories of planetary melting and **differentiation**,
- highly aqueously altered **carbonaceous chondrites** and what their studies tell about conditions on the parent asteroids.

Wadhwa, McCoy, and Schrader review the extensive analyses identifying the effects of weathering in the Antarctic environment on the compositions of the meteorites. They also provide an overview of upcoming asteroid missions and how the current meteorite collections can benefit from, and provide benefits to, the new data being collected in our quest to better understand the origin and evolution of materials in our Solar System.

See Reference:

· Wadhwa, M., McCoy, T. J., and Schrader, D. L. (2020) Advances in Cosmochemistry Enabled by Antarctic Meteorites, *Annual Review of Earth and Planetary Sciences*, v. 48, p. 233-258, doi: 10.1146/annurev-earth-082719-055815. [[article](#)]

See also:

- [Antarctic Meteorites](#), at the Astromaterials Acquisition and Curation Office, NASA Johnson Space Center.
- Martel, L. M. V. (Nov. 2001) Meteorites on Ice, *PSRD*, <http://www.psrд.hawaii.edu/Nov01/metsOnIce.html>.
- Martel, L. M. V. (Feb. 2002) Searching Antarctic Ice for Meteorites, *PSRD*, <http://www.psrд.hawaii.edu/Feb02/meteoriteSearch.html>
- PSRD has reported on the annual Antarctic Search for Meteorites ([ANSMET](#)) expedition since 2011; see the latest report: [ANSMET 2019-2020 Field Season at Davis-Ward, Antarctica](#).

Written by Linda Martel, Hawai'i Institute of Geophysics and Planetology, for [PSRD](#).



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June 2020

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psrd@higp.hawaii.edu