

Antarctic Meteorite Classification and Petrographic Database Enhancements

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Introduction: The Antarctic Meteorite collection, which is comprised of over 18,700 meteorites, is one of the largest collections of meteorites in the world. These meteorites have been collected since the late 1970's as part of a three-agency agreement between NASA, the National Science Foundation, and the Smithsonian Institution [1].

Samples collected each season are analyzed at NASA's Meteorite Lab and the Smithsonian Institution and results are published twice a year in the Antarctic Meteorite Newsletter, which has been in publication since 1978. Each newsletter lists the samples collected and processed and provides more in-depth details on selected samples of importance to the scientific community. Data about these meteorites is also published on the NASA Curation website [2] and made available through the Meteorite Classification Database allowing scientists to search by a variety of parameters.

This paper describes enhancements that have been made to the database and to the data and photo acquisition process to provide the meteorite community with faster access to meteorite data concurrent with the publication of the Antarctic Meteorite Newsletter twice a year.

Database Enhancements: For the past 4 years there have been significant enhancements made to the Meteorite database that have allowed Curation to offer more comprehensive access to data and photographic documentation of the samples in the collection. To make the published newsletter descriptions and classifications easier to access, the petrographic descriptions for all newsletters since the September 1984 issue have been collected into a database, along with many representative photographs of each meteorite in the lab, as well as photos of thin sections taken by the Smithsonian for classification. This data was then made available through the search capability of the Meteorite Classification Database. Since the start of this project, data has been added for 1,468 samples and around 7,500 photographs have been added to the sample documentation.

Data and Photo Process Enhancements: The data acquisition process was improved to allow for faster processing of meteorite classification data produced during the creation of the Antarctic Meteorite Newsletter twice a year. Most of the data and photo processing

has been automated, allowing for the simultaneous publication of the newsletter and the updated petrographic database and reducing the amount of data processing time to just two days.

To achieve this productivity, custom code was developed that allows the use of standard Adobe products to process hundreds of photos, automatically inserting the sample name and scale bars into each photo and resizing as necessary. Another custom program was developed to allow for the addition of photo and sample metadata to each photo before publication.

Availability: Meteorite petrographic data and photos are available through an advanced search interface via the Antarctic Meteorite Classification Database, at: <http://curator.jsc.nasa.gov/antmet/classdb.cfm>.

Future work includes the addition of petrographic data from newsletters prior to 1984 and additional photographic documentation.

References: [1] McBride, K. M. et al. 2010. Abstract #5380. 73rd Annual Meteoritical Society Meeting. [2] Antarctic Meteorite Curation Website. <http://curator.jsc.nasa.gov/antmet/>