



CURATORIAL NEWSLETTER

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Next LAPST Meeting is August 27-29, 1982

The Lunar and Planetary Sample Team (LAPST) met at the Lunar and Planetary Institute May 13-15, 1982. Following review of 14 requests for lunar samples from 12 investigators, LAPST recommended allocation of 72 samples weighing approximately 169 grams and 37 thin sections to 10 investigators. LAPST reviewed six requests for cosmic dust samples and recommended allocation of samples to five of the investigators.

Several lunar sample investigators requested samples from the Apollo 16 site which dominated the request list both because it is a focal point for the Highlands Initiative and because samples from double core 64002/1 became available for allocation.

Two studies of clasts from lunar breccias generated requests for samples from the landing sites of the last four Apollo missions. A continuing study of magnetic properties generated requests for samples from four Apollo missions. Cosmogenic ^{15}N will be determined for a set of six samples with a broad range of well-documented exposure ages to check the empirical value for production rate of ^{15}N on the lunar surface. Vesicular structures in an Apollo 17 impact melt will be compared with similar features observed in impact melt LL chondrites in the Yamato 79 collection.

The next LAPST meeting will be August 27-29, 1982. Please send your sample requests as soon as possible.

LAPST Mail Review of Lunar and Cosmic Dust Requests

The Curator and LAPST have agreed to try a mail review system for sample requests received between regular LAPST meetings. Primarily intended for non-controversial requests, the mail review will allow more timely approval of PI

requests. A request cannot be denied by mail review; the voting options are "approve" or "hold for next LAPST meeting". Thus no request will be denied without full consideration at a regular LAPST meeting.

PI's are encouraged to submit their requests at their convenience throughout the year. We hope the mail review will spread out the work of the curatorial branch in researching sample requests (allowing more iterations with the PI as necessary) and save money by shortening LAPST meetings (i.e., better service at lower cost) without compromising safeguards built into the LAPST review.

Lunar Sample Scientific Study Agreement

The Curatorial Branch and NASA Headquarters have been working to simplify access to lunar samples and cosmic dust. NASA funding through JSC continues to carry with it approval for access to the collections. Investigators funded from other NASA Centers or other funding sources entirely or whose NASA funding has been interrupted can now request and hold lunar samples irrespective of funding.

Proposals for NASA funding in the Planetary Geophysics/Geochemistry and Planetary Materials Programs will be reviewed as outlined in the April 9, Space Sciences Notice. For those U.S. investigators that need lunar samples or cosmic dust, access will be arranged through a NASA-JSC Contract/Grant (for funded PI's) or by NASA-JSC Lunar Sample Scientific Study Loan Agreement (for those who do not receive funding through JSC). Either agreement allows access to the collections within the bounds of the proposed work. The Lunar Sample Scientific Study Loan Agreement can be used to allow U.S. PI's to retain samples for research beyond the end of their contracts and is the basis for providing samples to investigators who need lunar samples but, who are funded from other sources.

The Lunar Sample Scientific Loan Agreement will be reviewed and renewed yearly, probably coincident with the annual LPRP cycle. The Curatorial Branch will be contacting all U.S. investigators presently holding lunar samples but who do not presently hold JSC contracts. Scientific Loan Agreements will be arranged for those who have a continuing need for lunar samples for their research.

The agreement is simple and straight forward and should facilitate providing lunar samples for research needs. A similar agreement will be used for cosmic dust samples.

El Chichon interrupts Cosmic Dust Collection

The following news release was issued from JSC July 9, 1982.

NASA News

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas 77058
AC 713 483-5111

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Steve Nesbitt
Release No.82-036

For Release
July 9, 1982

VOLCANIC ASH FROM EL CHICHON ERUPTION ANALYZED AT JSC

Tiny particles of volcanic ash in the atmosphere which have contributed to some spectacular sunrises and sunsets over much of the United States in recent months have been collected by NASA aircraft and currently are being studied in laboratories at the Lyndon B. Johnson Space Center in Houston.

The ash particles, about the same size as human red blood cells, resulted from the powerful volcanic eruptions of the El Chichon volcano in Mexico on March 28 and April 4 of this year.

Scientists are interested in studying material such as volcanic ash which reaches altitudes sufficiently high to circulate worldwide and possibly affect the climate.

Samples from the El Chichon volcano were collected by NASA-Department of Energy high altitude aircraft using collectors specially designed to gather cosmic dust from the upper atmosphere. NASA scientists have conducted preliminary examinations on the material and the particles are now housed in the Planetary Materials Curatorial Facility at JSC.

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The samples were examined with both optical and electron microscopes. The ash particles are uniformly sized about two to four ten-thousandths of an inch, or about one-tenth the diameter of a human hair. They are mostly fragments of volcanic glass and crystals and should be of interest both to geologists studying the volcano and scientists studying the possible effects of volcanic clouds on the Earth's weather.

The El Chichon eruption provided NASA with the first opportunity to use its cosmic dust collecting equipment for other purposes. Since May, 1981, JSC scientists have conducted a program in which jet aircraft flying through the stratosphere deploy specially designed collectors to sample extraterrestrial dust as it settles from space toward the Earth's surface.

The collection and study of cosmic dust is an important part of scientific efforts to understand the materials and events which formed the planets and other solid objects in our solar system.

Because the Earth's troposphere, the weather zone below about 7 miles (12 kilometers), typically contains so many particles of man made origin, sampling cosmic dust is performed in the relatively clean stratosphere at altitudes of about 11 to 12 miles (18-20 kilometers).

Most volcanic eruptions eject material only into the troposphere, but especially powerful ones like the El Chichon

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event can send plumes of ash well into the stratosphere. NASA flight crews estimated that the material from El Chichon reached as far up as 13 miles (21 kilometers) and extended as far north as the U.S.-Canadian border.

Studies on the dust are being conducted by JSC scientists Drs. Uel Clanton and Jim Gooding, both associate curators of cosmic dust, and Dr. David McKay, geologist.

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The bad news is that the collection surfaces are so littered with volcanic dust that if cosmic dust is there it is unrecognizable and not recoverable. The settling rate of the volcanic dust seems to be much slower than predictions thus the collection of cosmic dust is on hold and may be so for sometime. An experiment has just been flown that sequentially collected dust from equatorial latitudes to Alaska using one collector at a time. Analyses of the results should allow us to estimate the distribution of the dust as a function of latitude and perhaps to estimate when we might expect to again collect cosmic dust free from volcanic contamination.

Meanwhile work is progressing steadily on the preliminary examination and allocation of pre-El Chichon cosmic dust. A third catalog is in preparation describing dust collected by the Ames U-2 aircraft. We expect to distribute the new catalog in early October.

Cosmic Dust Allocation Guidelines

LAPST is using the following general guidelines in allocating cosmic dust.

1. Samples that have been through preliminary examination and described in a catalog should be requested individually.
2. Particles larger than 30 nanograms should be requested individually. (These are publicized in the Cosmic Dust Courier newsletter and in Cosmic Dust catalogs.)
3. No more than 25% of one year's estimated supply of any type of particle can be allocated to one investigator during that year.
4. Within these guidelines "standing orders" are permissible (i.e., orders that request certain types of material as we find them).

Workshop on Pristine Highlands Rocks and the Early History of the Moon

A Workshop on "Pristine Highlands Rocks and the Early History of the Moon" will be held in New Orleans on October 15, 16, and 17, 1982, under the sponsorship of the Lunar and Planetary Institute. The Convenors are John Longhi (Yale University) and Graham Ryder (Northrop Services, Inc.). The dates have been chosen such that the Workshop will immediately precede the Annual Meeting of the Geological Society of America in New Orleans. The Workshop will be held at the Travelodge, at which a block of rooms has been reserved. Attendance will be by invitation and will be limited in number to about 60 persons.

Slabbing Apollo 14 and Apollo 17 Breccias

Several investigators have been extracting new types of pristine nonmare rocks from Apollo 14 breccias. It was shown during the lunar missions that the Apollo 14 breccias contain an interesting assortment of mare-like basalts. Recent work has revealed that the collection also contains granites, troctolites and alkali-rich anorthosites.

To encourage this interest in Apollo 14 samples, LAPST has recommended that some Apollo 14 breccias be slabbed to reveal more surface area for investigators to examine. This is essential because almost all available rock surfaces have been scrutinized during searches for additional pristine rocks. The first group of Apollo 14 breccias to be sawn are, in order of decreasing priority: 14321, 14305, 14303, 14304.

Although Apollo 17 breccias have been searched more thoroughly for pristine clasts than have Apollo 14 samples, LAPST believes that further slabbing would be profitable. The first two Apollo 17 samples that will be sawn are 73215 and 73255.

Suggestions for additional slabbing are welcomed. Send your suggestions to the Curator. Please include the rationale for choosing a specific sample.

New Regolith Initiative Organized

The Lunar and Planetary Sample Team (LAPST) has initiated a project to coordinate research on lunar regolith samples, with the focus on the regolith breccias and their record of the ancient lunar environment. LAPST plans to establish this Regolith Initiative in a manner similar to the Highlands Initiative. A periodic newsletter will report new developments, summarize existing data, and announce the availability of specific samples identified as prime candidates for coordinated study. One or more special sessions at the Fourteenth Lunar and Planetary Science Conference in March, 1983, will provide a timely forum for first results of coordinated Regolith Initiative research.

The new initiative is being headed by the Regolith Subcommittee of LAPST, Doug Leich chair. Ruth Fruland is the curatorial branch contact for this new effort.

NASA

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