

Michael B. Duke

Lunar Sample Curator

Remote Storage of Lunar Samples

The main activity of the Curatorial Facility for the next few weeks will be the preparation of samples for storage in our remote vault, which is well along in the construction phase. The facility is scheduled for completion on December 20 and samples will be first installed there in January. Sample preparation and packaging is now about 50 per cent complete and is scheduled to be complete before Christmas. At the conclusion of the preparatory work (facility and samples), an Operational Readiness Inspection will be carried out by a special committee which will include representatives from JSC, NASA Headquarters and the scientific community.

Apollo 17 sample work has been delayed because of the remote storage sample preparation. We will be able to resume work on Apollo 17 samples in late December.

Sample Studies by Consortia

The consortium approach to samples studies is coming of age and we are encouraging that approach when the investigators are enthusiastic and are pursuing important and difficult problems. To keep these efforts running in as organized a manner as possible, we have developed a modified, and hopefully modern, version of the consortium guidelines that were in use during the missions. Those guidelines are attached to this newsletter. Our ability to assist consortia with work in the Curatorial Facility is growing and we are anxious to assist the consortia to obtain the best samples for their studies.

New Consortia

Consortium studies of 12054 (Hartung) and 61175 (Nava) have been approved. Brief descriptions of the intended work are given here.

12054 - The consortium proposed to do a detailed study on the exposure history and geometry of the sample by ^{26}Al measurements, bulk chemistry, cosmic ray track, and orbital impact studies. Of primary concern will be microcrater pit sizes, shapes and production rate. In addition, studies are planned for microcrater pit chemistry, petrography, microcrater age determinations and solar wind studies. Consortium members include Haskin, Rhodes, Walker, Zook, Schonfeld, Horz, Morrison, Hartung, Dollfus and Schaeffer.

61175 - The consortium proposes to perform petrography and petrology (Winzer); trace elements (Philpotts); major and minor elements (Nava); volatiles (Anders); Argon ages (Geiss) with Rb/Sr and U, Th, Pb systematics (Tatsumoto) on matrix material and related clasts. The objective is better understanding of the formation processes of breccias and clasts by determining the relationships between the compositions of melt and clasts and whole rock. Winzer, a Co-Investigator of Nava, is coordinating the consortium.

Museum Exhibits

NASA has received requests from the Smithsonian Museum (Natural History Museum and Air and Space Museum) to mount major lunar sample exhibits in Washington, D.C. The Natural History Museum will present lunar samples to help illustrate lunar evolution in the context of planetary evolution. The lunar exhibit will occupy a position between their meteorite exhibit and their displays of the geological evolution of the Earth. The Air & Space Museum will concentrate more on the physical environment of the Moon and the lay will culminate with a touchable piece of the Moon. We are working closely with

the Smithsonian to help develop the displays in the most informative manner, and to display them with minimum possibility of sample degradation. The opening of the new displays will be some of the bicentennial events scheduled next year in Washington, DC which include the dedication of new quarters for the Air and Space Museum.

Lunar Cores

The dissection of the first large diameter drive tube to be opened (60009) has been completed. The effort took about 8 months. Subsequent drive tubes probably will require less time, and when the Apollo 17 drill stems are complete, we will be able to handle two drive tubes at a time; however, it will be several years before all lunar core tubes will have been opened.

Updated sections of the Lunar Core Catalog accompany this newsletter, containing information on 60009 and the Apollo 17 drill stem. Please remove the previous pages and add the new ones as indicated. If you do not now have a complete core catalog, please write to the Curator's Office.

Meteoritic Particle Search

Laurel Wilkening has asked for help in uncovering meteoritic fragments that have been found in lunar samples. She has previously studied meteoritic inclusions in Kapoeta and other meteorites. A short questionnaire is attached. She would appreciate hearing from you if you have found such fragments. Negative responses would also be appreciated especially from those who have studied regolith samples extensively and have found no such meteoritic fragments.

Sample Requests

This newsletter is late getting out. Sample requests are due NOW, if they are to be reviewed in December.

2 Attachments

Guidelines for Consortia

Meteoritic Questionnaire



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
LYNDON B. JOHNSON SPACE CENTER
HOUSTON, TEXAS 77058



NOV 18 1975

REPLY TO
ATTN OF: TL

TO: Lunar Sample Principal Investigators
FROM: TL/Lunar Sample Curator
SUBJECT: Guidelines for Formation and Operation of Consortia

The consortium approach can be a valuable and efficient mode for addressing lunar problems and for studying lunar samples. Scientists who wish to organize and join consortia to tackle new and scientifically interesting problems should be given every encouragement. Historically, consortia conceived or largely appointed by NASA, based on plans derived by the Lunar Sample Analysis Planning Team (LSAPT), have generally failed to fulfill their intended objectives. The keys to a successful consortium have been an enterprising and enthusiastic leader and a membership that can work well together. With these thoughts in mind, the LSAPT has recommended the following guidelines for forming and operating consortia in the future.

A. What is a Consortium?

A consortium is more than a group of PI's who together study a lunar sample. A consortium has a leader, one person who coordinates the scientific investigations, the allocation requests for samples, and the publication of findings. A consortium makes optimum use of a precious sample by judicious sample distribution and full integration of scientific observations and measurements. A consortium focuses its primary attention on problems which are wholly or partially solved by the study of lunar rocks, soils or cores. A consortium operates with a full and frequent exchange of ideas and data between the consortium members and communicates its results rapidly to the rest of the scientific community.

B. Advantages of a Consortium

1. A consortium study offers the opportunity to answer important questions about the Moon and lunar samples, questions that require a multidisciplinary approach to their solution. The consortium team will have the first opportunity to synthesize their interrelated studies. Allocations of samples from approved consortium materials to non-consortium PI's will be made only when NASA has determined that the non-consortium allocation will not conflict with or jeopardize the scientific plan of the consortium.

2. Because the consortium mode optimizes the efficient scientific utilization both of a sample and of curatorial effort, consortia may be given access to rare or unique samples that might not otherwise be allocated.

3. LSAPT regards consortia operations with high priority because of the integrated involvement of many PI's.

C. Operation of a Consortium

1. The initiative for a consortium must come from the consortium leader. The leader is then responsible for acquainting himself and proposed consortium members with all previous published work done on the sample(s), the past allocations from the sample(s) proposed for study by the consortium, and the previous curatorial processing of the sample(s). He or she should submit to the Curator a proposal for establishing a consortium, including scientific objectives, the rationale for the specific sample(s) to be included in the study, the complete membership of the consortium team, and the measurements to be made by each member.

2. The Curator, with the advice of LSAPT, must approve the samples to be studied and the list of any consortium members who will receive lunar samples.

3. In cases where the new consortium is proposing to study a sample already under investigation by another active consortium, approval of the new consortium will depend on the particular circumstances involved. Two overriding concerns in such cases will be the long-term preservation of samples and the scientific objectives and the level of activity and interest shown by the existing consortium. It is possible that two consortia with different objectives could simultaneously study a single sample. Alternatively, if acceptable to the leader of the existing consortium, the two consortia could merge operations.

4. The Curator and LSAPT will act as arbiters to coordinate with the consortium any allocations to outside PI's working on independent problems.

5. All major processing shall be completed in the Curatorial Facility. (This is a significant departure from the practice in Apollo 12-16 and is instituted because of the successful results of Apollo 17 consortia, which were processed entirely at JSC).

D. Communication on Consortia Matters

1. When a new consortium is approved, the Curator will provide to all lunar sample PI's and all consortium members a list of the sample(s) to be studied and of the consortium membership, and a brief statement of the research objectives.

2. The Curator maintains a) a current list of all approved consortia and b) for each consortium, a brief statement of the research objectives, a list

of samples and members, and the name of the leader. This list will be provided to all PI's at the beginning of the proposal year and is available on request.

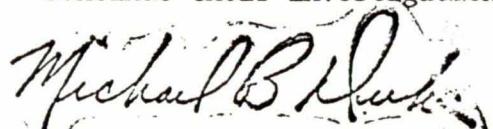
E. Responsibilities of a Consortium Leader

1. The consortium leader is responsible for organizing the consortium team.
2. The consortium leader must provide the Curator with an overall strategy for sampling and analysis.
3. For consortium rocks, the leader is expected to provide a surface map of all major lithologies, including maps of cut surfaces and smaller pieces.
4. The consortium leader shall submit an allocation plan to the Curator for review by LSAPT. He will be asked to defend proposed allocations with respect to his overall scientific plan.
5. For consortium rocks, the leader shall submit a detailed cutting plan to the Curator for approval. The Curator will seek the advice of the Cutting Plan Subcommittee of LSAPT.
6. The consortium leader shall be responsible for coordinating all scientific studies of the sample(s) and for minimizing the amount of sample destroyed or degraded. An important aspect of this coordination is scientific communication among consortium members.
7. The consortium leader shall maintain a complete record of all consortium operations made outside the Curatorial Facility. This record should include full documentation of any additionally subdivided samples and the distribution of these samples to approved consortium members.
8. The consortium is encouraged to publish their scientific findings in one central location.
9. On an annual basis, every leader shall provide the Curator with a progress report and/or a list of consortium publications. Continued approval of consortium allocations will be contingent on this annual report. The due date for this report is 31 August for all consortia (2 weeks after lunar sample proposals are due). The Curator will send a reminder letter to all consortium leaders, and a copy to all members, to this effect in July.

F. Completing a Consortium Study

1. When a consortium terminates, member PI's shall return all samples at the request of the Curator. The consortium leader shall provide the Curator with a final report of consortium operations and scientific conclusions. Complete sample history and accountability with sufficient description of subsamples to be useful to subsequent investigators is required.

2. A consortium may be terminated by the consortium leader, subject to the responsibilities given above. The Curator may terminate consortium status if it is felt that the consortium is not serving its intended purpose. Leadership of a consortium may be transferred within the consortium membership with the concurrence of the Curator. Member PI's of a terminated consortium may continue their investigations with the approval of the Curator.



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SURVEY OF NON-METALLIC METEORITIC
FRAGMENTS IN LUNAR REGOLITH

Please fill out one form for each non-metallic fragment which you have found.

1. Lunar Sample No. _____ Weight of Sample _____
2. Sample Type (fines, breccias, etc.) _____
3. Description of Fragment (mineralogy, composition, classification) _____

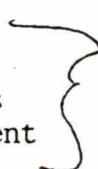
4. Size of Fragment (weight and/or dimensions) _____

5. Briefly describe how sample was defined and characterized _____

6. Is this information published? _____
7. If yes, where? _____

8. If no, may we cite your discovery, evidence and your name in our survey results? _____
9. If so, please indicate how you would like the reference to appear

Typed Name
and Address
of Respondent



Please mail all responses to: Dr. Laurel L. Wilkening, University of Arizona,
Department of Planetary Sciences, Tucson, Arizona 85721.