

LUNAR SCIENCE INFORMATION BULLETIN

NUMBER 2

*The Lunar Science Institute
3303 NASA Road 1
Houston, Texas 77058*

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LUNAR SCIENCE PROPOSALS

The 1974 NASA requests for proposals in the field of lunar science will be handled differently than in previous years. Requests for proposals in the three basic programs in lunar science--lunar sample analysis, lunar data synthesis, and lunar supporting research and technology--will be solicited in a combined announcement. This announcement will be distributed to 1500 to 3000 scientists worldwide in the near future. It is anticipated that the deadline for submission of proposals will be 1 August 1974. Dr. J. Pomeroy (Code SM, NASA Headquarters, Washington, D. C. 20546, 202-755-2867) is project manager of the lunar sample analysis program. Mr. F. Roberson (Code SM, NASA Headquarters, 202-755-1602) is program manager of the data synthesis program and supporting research and technology program. Contact the appropriate program manager for additional information.

LUNAR SAMPLE PROGRAM SUMMARY

The Curator's Office at the Johnson Space Center has instituted a new annual document which summarizes key information on all proposals which were funded (February 1974-February 1975) for analyses of lunar samples. This document, called the *Lunar Sample Program*, contains approved investigators' names and addresses, coI's names, names of scientific collaborators, and an abstract of the proposed research. A very limited supply is available from the Curator's Office (Code TL, NASA Johnson Space Center, Houston, Texas 77058; 713-483-3274). Copies have been distributed to all sample principal investigators.

INTERACTIONS OF THE INTERPLANETARY PLASMA

WITH THE MODERN AND ANCIENT MOON

An interdisciplinary conference is planned for October 1974 devoted to the broader aspects of the interactions of the moon with its environment. General program topics will include: (1) *observations and theories of the large scale plasma (solar wind and magnetospheric) interactions with the moon and non-magnetic planets*; (2) *ancient and present day lunar surface magnetic and electric fields--their production and effects*; (3) *dynamics and evolution of the lunar atmosphere*; (4) *evolution of the solar plasma: astrophysical expectation--astronomical observations*; (5) *lunar record of solar radiations*; (6) *non-meteoritic and meteoritic disturbance and transport of lunar surface materials*; and (7) *future lunar exploration--NASA plans--Conference suggestions*. The Space Physics Department of Rice University and the Lunar Science Institute are cosponsoring the Conference. For additional details contact:

*Dr. David R. Criswell
Interactions Conference
The Lunar Science Institute
3303 NASA Road 1
Houston, Texas 77058*

LUNAR SAMPLE ANALYSIS PLANNING TEAM (LSAPT)

LSAPT advises NASA, through the Director of Science and Applications, on the allocation of lunar samples to investigators previously approved by NASA for sample analysis and on the preservation of the integrity of the samples. The Team provides scientific advice on both general policies for sample allocation as well as recommendations as to the amount and type of each sample to be allocated to specific investigators. The Team also provides recommendations on specific measures to minimize chemical contamination of the samples as well as to insure their physical integrity and security. The Team meets every six weeks for three to seven days depending on the workload.

Members: A. J. Calio, NASA Johnson Space Center (Chairman)
B. R. Doe, U.S. Geological Survey, Denver (Vice Chairman)
J. B. Adams, Fairleigh Dickinson University
S. Chang, NASA Ames Research Center
P. Eberhardt, University of Bern, Switzerland
S. E. Haggerty, University of Massachusetts
J. F. Hays, Harvard University
D. Heymann, Rice University
K. Keil, University of New Mexico
D. A. Papanastassiou, California Institute of Technology
G. W. Reed, Argonne National Laboratory
C. H. Simonds, Lunar Science Institute
S. C. Solomon, Massachusetts Institute of Technology
M. B. Duke, NASA Johnson Space Center (ex officio)

LUNAR SAMPLE STUDIES

NASA is establishing a new series of publications called *Lunar Sample Studies* which will provide a medium for presenting extensive descriptions of the results of lunar sample investigations. While information on new discoveries dealing with samples can be published in existing scientific journals, sample descriptions and data compilations are no longer appropriate for such journals. The new series is intended to fill the need to disseminate such information while maintaining the standards of existing scientific journals. Petrologic descriptions particularly will be considered as well as various types of chemical and physical and surface property data. The publication is not meant to be a "data dump" for large volumes of individual analyses or similar data. Judicious use of figures, averages or ranges of values will suffice in most cases of large volumes of such information. The series will be published three to four times annually in the format of the Apollo mission-Preliminary Science Reports. In addition to the standard distribution to NASA and current PI's, distribution to geoscience libraries and response to special orders are planned.

Three copies of manuscripts should be submitted to any member of the Editorial Board: Donald S. Burnett, California Institute of Technology; Michael B. Duke, NASA JSC; Larry A. Haskin, NASA JSC; David N. Holman, Publications Branch, NASA JSC; Klaus Keil, University of New Mexico; James J. Papike, State University of New York, Stony Brook; or William C. Phinney, NASA JSC. All papers will be reviewed by at least two referees. The JSC Publication Branch will perform final format and style editing. Preparation of final figures will be done by the NASA graphics group from accurate drawings provided by the author. The new series will have no page charges, and 100 reprints will be provided for each paper. The anticipated publication time is six to eight months from receipt of the manuscript.

LUNAR SCIENCE V

Additional copies of the two volume set of abstracts for the Fifth Lunar Science Conference are available from the Lunar Science Institute for a domestic (book rate) mailing cost of \$1 and for a foreign (air mail) mailing cost of \$6. Contact Carolyn Watkins, The Lunar Science Institute, 3303 NASA Road 1, Houston, Texas, 77058, for copies of this publication.

FIFTH LUNAR SCIENCE CONFERENCE

The week of March 18 the NASA Johnson Space Center was host to the Fifth Lunar Science Conference which was jointly sponsored by NASA and the Lunar Science Institute. The Conference was attended by 565 scientists from 16 countries. It was dedicated to the late Dr. Paul W. Gast for his contributions to lunar science and the space program. For the first time the sessions were arranged into six general problem-oriented groups rather than by discipline or experimental technique. This stimulated discussions and provided good opportunity to obtain a broader picture of lunar science. In a special night session astronauts Dr. Garriot and Dr. Lenoir presented some fascinating results from the Skylab missions convincing the audience of the enormous potential of orbital missions. The meeting concluded with a summary session on Friday morning. This session proved to be very interesting and instructive. During the Conference the LSI hosted the following small discussion groups:

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|--|--|
| "Meteoritics Meeting" | * Dr. Robin Brett, NASA JSC |
| "Consortium Indomitabile" | * Dr. John Wood, Smithsonian Astrophysical Observatory |
| "Lunar Rock Nomenclature" | * Dr. Arch Reid, NASA JSC |
| Planning Committee for "Interaction of Interplanetary Plasma with Modern and Ancient Moon" | * Dr. David Criswell, Lunar Science Institute Dr. J. W. Freeman and Dr. R. Vondrak, Rice University |
| "Lunar Transient Events" | * Dr. S. K. Runcorn, The University, Newcastle upon Tyne |
| "Origin of the Cayley Formation" | * Dr. W. R. Muehlberger, USGS |
| "Magnetic Measurements--Principal Investigators Meeting" | * Dr. Wulf Gose, Lunar Science Institute |
| "7325 Breccia Consortium" | * Dr. Odette James, USGS |
| "Apollo Astronomical Observational Conference" | * Dr. Jacob Trombka, NASA Goddard Space-flight Center |

*Contacts for the respective meetings.

VISITING SCIENTISTS WHO WILL BE AT THE LSI

DURING ALL OR PART OF 4/15-5/20

Dr. Raymond E. Arvidson (Washington University)
 Dr. N. Bhandari (Physical Research Laboratory, India)
 Dr. Donald Brownlee (University of Washington)
 Mr. Colin Donaldson, Visiting Graduate Fellow (University of St. Andrews)
 Dr. Roald Fryxell (Washington State University)
 Dr. A. G. Herrmann (Geochemisches Institut der Universität, Göttingen)
 Dr. Charles Hohenberg (Washington University)
 Dr. John F. Lindsay (Marine Biomedical Institute, University of Texas)
 Dr. Russell B. Merrill, Visiting Post-Doctoral Fellow (University of Chicago)
 Miss Barbara Middlehurst (Encyclopedia Britannica, Chicago)
 Dr. F. Podosek (Washington University)
 Dr. Joseph Smyth, Visiting Post-Doctoral Fellow (University of Chicago)
 Dr. G. Taylor (Washington University)

LUNAR SCIENCE CALENDAR - 1974

APRIL

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|-------------------------|---|-----------------------------|-----------------|--|----------------------------------|-------------------------|
| 14 <i>EASTER</i> | 15 USSR-USA Conf Papers Due | 16 | 17 | 18 | 19 5th PROC. MS DUE | 20 |
| 21 | 22 ← | 23 LUNAR SAMPLE ANALYSIS | 24 (Houston) | 25 PLANNING TEAM MEETING (Texas) | 26 ← LUNAR PLANNING COMMITTEE | 27 → (West Coast) |
| 28 | 29 → | 30 | | | | |

MAY Friday, May 3, 4:00 p.m., LSI Seminar, D. Blanchard
Monday, May 27, Memorial Day

JUNE

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|--------|---|-----------|----------|--------|------------------------------------|
| | | | | | | 1 |
| 2 | 3 | 4 ← Soviet-American Conference on Cosmochemistry of the Moon and Planets (Moscow, USSR) | 5 | 6 | 7 | 8 → |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 GSA Abstracts Deadline |

COMING EVENTS: June 24-July 1 17th Plenary Meeting - COSPAR, Brazil
June 28 Meteoritical Society abstracts due
July 1-July 5 Gordon Conference, Chemistry & Physics of
Space (*SCIENCE* 183, 1000, March 8, 1974 issue)
July 8-July 12 Gordon Conference on Crystal Growth (*SCIENCE*
183, 984, March 8, 1974 issue)
August 7-9 Meteoritical Society, annual meeting, Los Angeles
October 10-11 8th GEOP Conference: Lunar Dynamics and
Selenodesy, Columbus, Ohio. Sponsor: AGU.
Program Chairman: Prof. William Kaula, UCLA.
For additional information contact: Mrs. Joan Shack, The Lunar Science
Institute, 713/488-5200 x30

CURRENT LUNAR ARTICLES

JOURNALS RECEIVED IN LSI LIBRARY

2/25-3/1/74

- Cloud, P.
Rubey Conference on crustal evolution; conference summary
SCIENCE 183, 878-880, 1974
- Fleischer, R. L., Hart, H. R., Jr.
Particle track record of Apollo 16 rocks from Plum Crater
JOURNAL OF GEOPHYSICAL RESEARCH 79, 766-768, 1974
- Fuller, M.
Lunar magnetism
REVIEWS OF GEOPHYSICS AND SPACE PHYSICS 12, 23-70, 1974
- Grossman, L., Larimer, J. W.
Early chemical history of the solar system
REVIEWS OF GEOPHYSICS AND SPACE PHYSICS 12, 71-102, 1974
- Lammlein, D. R., Latham, G. V., Dorman, J., Nakamura, Y., Ewing, M.
Lunar seismicity, structure and tectonics
REVIEWS OF GEOPHYSICS AND SPACE PHYSICS 12, 1-22, 1974
- Muehlberger, W. R.
Symposium: Geology and geochemistry of the Moon (Conference summary from GSA, Dallas, November 1973)
GEOLOGY 2, 136-137, 1974
- Reed, G., Howell, F. J., Clark, T. A.
Extended glow preceding reappearance of Saturn during a lunar occultation
NATURE 247, 447-448, 1974
- Lovering, J. F., Wark, D. W., Gleadow, A. J. W., Britton, R.
Lunar monazite: a late-stage (mesostasis) phase in mare basalt
EARTH & PLANETARY SCIENCE LETTERS 21, 164-168, 1974
- Michelson, I.
Tides' tortured theory (Moon's tidal effect)
SCIENCE & PUBLIC AFFAIRS 30 (3) 31-34, March 1974
- No author cited
New names on the Moon (Report from 1973 IAU meeting)
SKY AND TELESCOPE 47, 170-171, 1974
- Saxena, S. K., Ghose, S., Turnock, A. C.
Cation distribution in low-calcium pyroxenes: dependence on temperature and calcium content and the thermal history of lunar and terrestrial pigeonites
EARTH & PLANETARY SCIENCE LETTERS 21, 194-200, 1974
- Volborth, A.
Oxygen in the Moon's crust
SCIENCE & PUBLIC AFFAIRS 30, (3) 35-41, March 1974
- Woolum, D. S., Burnett, D. S.
In-situ measurement of the rate of ^{235}U fission induced by lunar neutrons
EARTH & PLANETARY SCIENCE LETTERS 21, 153-163, 1974

3/18-22/74

- Anderson, D. D.
Interior of the Moon
PHYSICS TODAY 27 (3) 44-49, March 1974
- Dowty, E., Prinz, M., Keil, K.
"Very high alumina basalt": a mixture and not a magma type
SCIENCE 183, 1214-1215, 1974
- Friedman, I., Hardcastle, K. G., Gleason, J. D.
Isotopic composition of carbon and hydrogen in some Apollo 14 and 15 lunar samples
JOURNAL OF RESEARCH USGS 2, 7-12, 1974
- Gavrilov, I. V., Yanovitskaya, G. T.
Comparison of dynamical and geometrical shape of the Moon
PHYSICS OF THE EARTH & PLANETARY INTERIORS 6, 102-104, 1974
- Jessberger, E. K., Huneke, J. C., Wasserburg, G. J.
Evidence for a 4.5 ason age of plagioclase clasts in a lunar highland breccia
NATURE 248, 199-202, 1974
- Nefedov, V. I., Urusov, V. S., Zhavoronkov, N. M.
Difference in concentration of principal elements between the lunar surface layer and the main mass of the lunar regolith
DOKLADY OF THE ACADEMY OF SCIENCES USSR: EARTH SCIENCES SECTION 207, 205-207, 1974 (Translated from Akad. Nauk SSSR Doklady, 207, 698-701, 1972)
- O'Hara, M. J., Biggar, G. M., Hill, P. G., Jefferies, B., Humphries, D. J.
Plagioclase saturation in lunar high-titanium basalt
EARTH & PLANETARY SCIENCE LETTERS 21, 253-268, 1974
- Pieters, C., McCord, T. B., Charette, M. P.
Lunar surface: identification of the dark mantling material in the Apollo 17 soil samples
SCIENCE 183, 1191-1193, 1974
- Schubert, G., Smith, B. F., Sonett, C. P., Colburn, D. S., Schwartz, K.
Polarized magnetic field fluctuations at the Apollo 15 site: possible regional influence on lunar induction
SCIENCE 183, 1194-1197, 1974
- Sowers, J. L.
Lunar occultation light curves perturbed by random limb irregularities
ASTRONOMICAL JOURNAL 79, 321-323, 1974
- Vinogradov, A. P., Nefedov, V. I., Urusov, V. S., Zhavoronkov, N. M.
X-ray emission spectroscopy of metallic iron in lunar regolith
DOKLADY OF THE ACADEMY OF SCIENCES USSR: EARTH SCIENCES SECTION 207, 199-201, 1974 (Translated from Akad. Nauk Doklady SSSR 207, 433-436, 1972)
- Wilshire, H. G., Wilhelms, D. E., Howard, K. A.
Lunar highlands volcanism--implications from Luna 20 and Apollo 16
JOURNAL OF RESEARCH USGS 2, 1-6, 1974
- Wood, C. A.
Moon: central peak heights and crater origins
ICARUS 20, 503-506, 1973

CONSORTIUM INDOMITABILE

The first of a planned three-volume work, *"Interdisciplinary Studies of Samples from Boulder 1, Station 2, Apollo 17,"* has been published. Initial distribution was made at the Fifth Lunar Science Conference. Copies are available on a first-come basis as their supply is limited. Contact Ms. Karen Motylewski, Smithsonian Astrophysical Observatory, 60 Garden Street, Cambridge, Massachusetts 02138.

LUNAR SCIENCE LIBRARY

The Library is one segment of the Lunar Science Data Center at the Institute. The collection consists of monographs and reference works in the fields of astronomy, chemistry, geosciences, mathematics, and physics, with special emphasis given to the areas of these disciplines which are particularly pertinent to lunar science.

Currently the Library subscribes to about 125 journals with a back run collection of about 4,000 volumes. Union lists at the LSI Library show the journal holdings of the Johnson Space Center, other Texas libraries, and libraries throughout the United States and Canada. Photoduplication requests to these other libraries are processed regularly.

In addition to the book and journal collection, the LSI Library has a growing collection of documents and reports affectionately known as ephemera or "grey" literature. This consists of mission documents, which describe pre-mission planning and online mission notes as well as postmission analyses, and government documents particularly those of the National Aeronautics & Space Administration and U.S. Geological Survey, which are particularly lunar related.

Access to the literature is available through a number of indexing and abstracting sources. Reference aids include: (1) *Bibliography and Index of Geology* (Geological Society of America); (2) *International Aerospace Abstracts* (American Institute of Aeronautics and Astronautics); (3) *Meteorological and Geoastrophysical Abstracts* (American Meteorological Society); (4) *Physics Abstracts* (Institution of Electrical Engineers and American Institute of Physics; Section A of Science Abstracts); and (5) *Scientific and Technical Aerospace Reports* (STAR) (National Aeronautics and Space Administration). The NASA Recon system is also available at the JSC Library.

In addition to these commercial sources a Bibliography of Lunar Literature is being compiled in cooperation with the Lunar Sample Data System which is under the auspices of the Curator's Office, Johnson Space Center. This bibliography contains about 90% of the literature since 1969 and is accessible through an author index. Plans for subject access and capturing the literature through 1950 are underway.

The library staff assists scientists in utilizing the LSI Library collection and the information resources in other libraries. Any requests for information such as citation verification, references, inquiries for loan of documents or books should be directed to:

Lunar Science Institute Library
Mrs. Frances B. Waranius
3303 NASA Road 1
Houston, Texas 77058