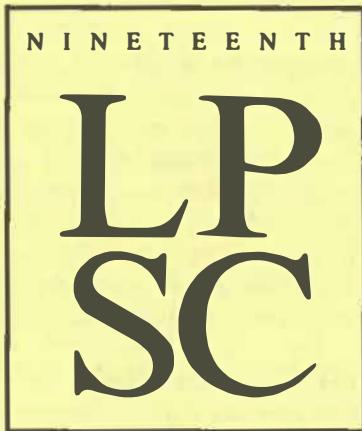


# lunar & planetary information bulletin

Number 49

February 1988

## LUNAR AND PLANETARY SCIENCE CONFERENCE XIX



14-18 March 1988

The **NINETEENTH LUNAR AND PLANETARY SCIENCE CONFERENCE** will begin Sunday, March 13, at 6:00 p.m. with registration and an open house at the Lunar and Planetary Institute. The registration fee for the conference will be \$40.00; students with student IDs may register for \$20.00. A shuttle bus will run between NASA area hotels and the LPI from 5:45 to 10:00 p.m. Registration will continue throughout the conference on the 2nd floor of the Gilruth Center at the Johnson Space Center. All conference activities, technical sessions, exhibits, poster sessions, etc., unless otherwise listed, will be at the Gilruth Center.

From a record total of 678 abstracts accepted for publication in *Lunar and Planetary Science XIX*, the Program Committee has constructed 29 technical sessions and one special session. The general structure of the program is as follows:

### MONDAY AM, MARCH 14

- Mars: Geology and Remote Sensing
- Cosmic Dust
- HEDs, Irons, Aubrites

### MONDAY PM, MARCH 14

- Mars: Water and Ice
- Orbital Collection of Cosmic Dust and Cosmic-Ray Produced Nuclides
- Regoliths and Mesosiderites
- Exploring Mars and Phobos (Poster & Print Only)

### TUESDAY AM, MARCH 15

- Venus Geophysics
- Carbonaceous Chondrites and Refractory Inclusions I
- Planetary Atmospheres and Related Topics

### TUESDAY PM, MARCH 15

- Geology of Venus
- Planetary Accretion: Fluffy Aggregates to Giant Impactors
- Planetary Physics

### TUESDAY EVENING, MARCH 15, SPECIAL SESSION

- Noble Gases and Solar System History  
(John Reynolds' 65th Birthday Celebration)

### WEDNESDAY AM, MARCH 16

- Impact Flux and Terrestrial Cratering
- Chondrules
- Remote Sensing of Planetary Surfaces

### WEDNESDAY PM, MARCH 16

- Impact Glasses: Formation and Sources
- Non-Carbonate Chondrites and ALH 85085
- Geologic and Remote Sensing Studies of the Moon

### THURSDAY AM, MARCH 17

- Outer Solar System
- Chemical and Isotopic Characteristics of Primitive Materials: Inherited vs. Homegrown
- Lunar Highlands

### THURSDAY PM, MARCH 17

- The K-T and Related Events and Impact: Theory and Experiments
- Ureilites and ADOR and LEW 86010
- Tectonic Features on the Terrestrial Planets

### FRIDAY AM, MARCH 18

- Lunar and Meteorite Basalts
- Refractory Inclusions II
- Asteroids/Comets

The preliminary program included in this issue reflects plans for the conference as they exist early in February. Minor changes may occur before the conference (see Appendix).

## CONFERENCE HIGHLIGHTS

**POSTERS** entered in the Technical Poster Session will be highlighted Monday through Thursday in the Gilruth Center. Approximately 20-30 posters will be displayed each day. Presentors of the day's display will have the opportunity to present and discuss their material during an informal cash bar session from 5:00-6:30 p.m. each evening.

The *LPI Image Processing Facility* will conduct an open house throughout the conference in McGethin Hall at the LPI. Check the registration desk for times. For additional information contact Mr. Kin Leung at 713-486-2165 or Ms. Sharon Allen at 713-486-2181.

The on-line and remote access capabilities of the *LPI Geophysical Data Facility* will be demonstrated at the LPI Exhibit in the coffee area at the Gilruth Center during the regular conference hours.

The *Combined Publishers Exhibit* will be on display in the coffee area of the Gilruth Center from Monday through Friday. Several publishers have already indicated an intent to participate, including Annual Reviews, Inc., Plenum, Springer-Verlag, and University of Arizona Press.

### Tuesday - March 15

Tuesday evening's special session on *Noble Gases and Solar System History* will be in honor of John Reynolds' 65th birthday. It will be held in Room 104 at the Gilruth Center.

### Wednesday - March 16

A JSC Astronomers Brownbag Lunch Club seminar will be held in the Conference Room, Room 193, Building 31 at noon. The topic for discussion will be announced later.

A special session outlining NASA's Program for Future Exploration will be held in the JSC Building 2 Auditorium at 8:00 p.m.

### Thursday - March 17

The Lunar and Planetary Science Conference Forum convened by the Planetary Meetings Steering Committee (PMSC) will be held immediately following the last session in the Gilruth Center Auditorium. The *Forum* provides a session where conference participants can openly express and discuss mutual concerns. Suggestions for issues to be placed before the *Forum* are solicited. Questions, comments, and suggestions should be sent to the LPSC Forum, LPI Projects Office, so that they can be included in the summary and agenda for the *Forum*.

Thursday evening is *Tex-Mex Fiesta* time. Continuing the tradition begun last year, this social event will be held on the grounds of the LPI from 6:30 to 10:00 p.m. Activities will include beer and nacho appetizers, a Tex-Mex fiesta dinner, a Country-Western Band, and other entertainment. Paid

registrants at the conference are welcomed at the Fiesta. Tickets for guests and other nonconference registrants will be available at the registration desk during the conference.

## ABSTRACTS—

### Lunar and Planetary Science XIX

A staple-bound copy of abstracts will be sent before the conference to the correspondence authors of abstracts (including those residing in foreign countries). Due to time constraints in our printing schedule and to budgetary constraints on postage, a limited number of copies to the same institution will be mailed. It is suggested that these copies be shared among the author's colleagues.

Abstract volumes will be distributed to conference attendees who have paid the \$40.00 registration fee. For those who cannot attend the conference but wish to have the abstracts, a supply will be available after the conference at the cost of shipping and handling. **Note:** New prices are in effect for mail orders on the LPSC abstracts. Please be sure to refer to the order form included in this bulletin and mail with payment to the LPI Order Department.

Summaries of the main topics discussed at the conference will be published in the June issue of *Geotimes*.

## ON-LINE 19th LPSC PROGRAM

To access the on-line program, you may use either the NASA SPAN network, NASA NPSS (NASA Packet Switching System) access, or dial in direct (see the November issue of the LPIB for detailed instructions). NASA/SPAN: Node name for the LPI VAX is **LPI::**. Direct dial phone lines are 713-486-8214 or 713-486-9782.

When connection is made, use the following directions:

**USERNAME:** Program

**PASSWORD:** LPI

You will then get the usual "welcome" to the system and a menu of options will be displayed.

### 19TH LPSC PROGRAM ONLINE

(Select the routine you wish to use by entering its letter below)

A. AUTHOR/SPEAKER NAME

B. SESSION

C. TOPIC (TITLE KEYWORDS)

Q. QUIT (EXIT ROUTINE)

A series of menus and prompts will cue you to the appropriate way to access the various aspects of the program. We hope this innovative way of presenting the program to the community almost at the same time it is formed will assist you in planning your travel arrangements, and other appointments that you may wish to make. If you have difficulty in accessing the LPI computer, please call Kinpong Leung, LPI Computer Systems Manager at 713-486-2165 or [KLEUNG/NASA] (on NASAMAIL), or LPI:LEUNG (on SPAN).

## PUBLICATION OF 19TH PROCEEDINGS

The *Proceedings of the Nineteenth LPSC* will be published as a hardcover book as a joint venture between the LPI and a major book publisher. Graham Ryder and Buck Sharpton have agreed to serve as co-editors and will be assisted by a team of distinguished associate editors.

The deadline for submission of manuscripts to the *Nineteenth Proceedings* is **May 31, 1988**. Full information, including detailed instructions for prospective authors, will be available at the registration desk. Please contact LPI Publications at 713-486-2143 for more detailed information if you need it before mid-March.

## 18TH PROCEEDINGS ORDERING INFORMATION

The *Proceedings of the 18th Lunar and Planetary Science Conference 1987* are co-published this year by the Lunar and Planetary Institute and Cambridge University Press. The *Proceedings* comprise some 64 papers that outline current developments in our understanding of planetary geology and petrology, particularly of the Moon and the solid planets in the solar system. The papers range from giving details of lunar samples to proposing theoretical models of processes in the early solar system. A number of papers deal with the important ongoing work to understand the origin and evolution of the Moon. The papers are organized under eight general headings as follows: petrogenesis and chemistry of lunar samples; geology and applications; cratering records and cratering effects; differentiated meteorites and related studies; chondritic meteorites and asteroids; extraterrestrial grains; Venus, Mars, and icy satellites. The book also contains several useful indices, including author, subject, sample, and meteorite. The *Proceedings* should be an indispensable reference for those engaged in research in planetary science, astronomy, geochemistry, petrology, and geology.

The *Proceedings* will be available from Cambridge University Press in March 1988 as a single, hardcover volume. The list price is \$65.00. We suggest that libraries and individuals may wish to place an order immediately to insure the continuity of the series in their collections. To order, write:

Order Department  
Cambridge University Press  
510 North Avenue  
New Rochelle, NY 10801  
or call: 800-431-1580 or 914-235-0300

*Proceedings of the Eighteenth  
Lunar and Planetary Science Conference*  
1988 8 ½ X 11 in. 768 pp.  
485 figures and halftones and 3 color plates  
ISBN 0-521-35090-5

A 20% discount will apply if you return a copy of this page with your order or, if ordering by telephone, you mention this *Bulletin*. Orders must be prepaid (sales tax applicable in New York and California).

## LPI ANNOUNCES TWO CONFERENCES FOR 1988

### *Origin of the Earth*

**November 30–December 3, 1988**

**Napa Valley, CA**

The Lunar and Planetary Institute announces a conference on the origin of the Earth and its differentiation into the physical and chemical reservoirs that are observed today. The focus of the conference will be on outstanding problems that are crucial to our understanding of the formation of the Earth and its earliest history. Conference discussion should range from astrophysics to petrology—from the theoretical aspects of accretion to the constraints placed by the rocks we sample today. Co-conveners of the conference are John J. Jones (NASA-Johnson Space Center) and Horton Newsom (University of New Mexico).

To encourage attendance from both the geological and planetary science communities, the conference is scheduled for the week preceding the 1988 fall AGU meeting in San Francisco. The exact location of the conference has not yet been determined, but will probably be in the Napa Valley.

For further information on the conference, please contact:

Pamela Jones, Conference Coordinator  
Lunar and Planetary Institute  
3303 NASA Road One  
Houston, TX 77058-4399  
713-486-2150

### *Global Catastrophes in Earth History: An Interdisciplinary Conference on Impacts, Volcanism, and Mass Mortality*

**Snowbird, Utah**  
**October 20–23, 1988**

Catastrophic events are now generally recognized as likely to have been involved in the mass mortality at the Cretaceous-Tertiary boundary. A milestone in the recognition of this exciting idea was the 1981 Conference on Large Body Impacts held at Snowbird, Utah, and the subsequent publication of the *Proceedings* as *Geological Society of America Special Paper No. 190*. Since the conference and the publication

of its proceedings, research on global catastrophes (and mass mortalities) has so proliferated that it is time to review progress and take stock of the new data and new ideas. To meet that need, the National Academy of Sciences and the Lunar and Planetary Institute have again joined together to organize a conference.

The purpose of the conference is to review progress and to expand consideration of global catastrophes through interdisciplinary exchanges. To achieve this end, the organizing committee is inviting a series of papers that will summarize major advances since 1981. These papers, and the ample discussion periods that follow them, will provide a starting point for interdisciplinary exchanges. A second and equally important element of the conference will be contributed posters. No simultaneous sessions are planned. The proceedings of the conference will be published; all submitted texts, both invited papers and contributions related to posters, will be considered for inclusion by an editorial board.

The session topics have been identified as follows:

- I. Catastrophic Impacts, Volcanism, and Mass Mortality
- II. Geological Signatures of Impacts
- III. Environmental Effects of Impacts
- IV. Patterns of Mass Mortality
- V. Volcanism and Its Effects
- VI. Case Histories of Mass Mortalities
- VII. Events and Extinctions at the Cretaceous-Tertiary Boundary

The conference is open to researchers, university faculty, and graduate students. To make maximum interaction among participants possible, the organizing committee may need to limit attendance (to about 200). The first circular for this meeting was distributed in December 1987. If you wish to receive information about this conference, please contact LPI Projects Office at 713-486-2150.

## **MORE MEETINGS ON MARS**

### **MARS BOOK AND CONFERENCE PROPOSED**



Dr. Hugh Kieffer is proposing a book and conference on Mars. The book would appear as a volume in the Space Science Series of the University of Arizona Press, and it would be designed as a source book for researchers and a text for advanced graduate students.

Two major Mars conferences have been held since the Viking mission, but the last of these was in 1981. This conference would be held in about one year, before the next flurry of Mars exploration, which starts with the Phobos launch in late 1988 and should continue through 1994.

The proposed conference would include both reviews and new research results. Arrangements will be sought for a special issue of Icarus or JGR (red) for contributed papers. The book would be composed of major review chapters that include summaries of material presented at the conference. Although much of the available telescopic and spacecraft data have been studied intensively, there remain many substantial debates about the history of Mars. Now is an excellent time to attempt to come to grips with alternative hypotheses and to identify the critical observations or interpretations that separate them. To this end, co-authored chapters will be encouraged.

The proposed concept is straightforward: a comprehensive research source book on Mars based on knowledge as of early 1989. Dr. Kieffer has prepared an outline and questionnaire relating to this conference and book. For more information, contact him at the following address:

U.S. Geological Survey  
2255 North Gemini Drive  
Flagstaff, AZ 86001

### **MEVT - LPI WORKSHOP: "EARLY TECTONIC AND VOLCANIC EVOLUTION OF MARS"**

The second "Mars: Evolution of Volcanism, Tectonism and Volatiles" Project workshop is scheduled for Wednesday-Friday, October 5-7, 1988. The workshop will be held near the Washington, DC area.

The subject of this workshop is *The Early Tectonic and Volcanic Evolution of Mars*. Major topics to be discussed will include:

- (1) Origin and nature of the martian crustal dichotomy
- (2) Role of large (and very large) impacts in the evolution of the martian crust
- (3) Early thermal state and dynamics of the martian interior
- (4) State of stress in the early crust
- (5) Conditions leading to the formation of Elysium and Tharsis.

The format of this meeting will differ somewhat from that of the first MEVT workshop. In addition to invited tutorials, time will be allocated for contributed oral presentations and for introductions (with one or two slides) of contributed poster papers. The goals of the workshop are to discuss critically our present understanding (or lack thereof) of the early evolution of Mars and to encourage further data analysis and theoretical work.

The first announcement of this workshop was mailed in December 1987. If you wish to obtain more information, please contact the LPI Projects Office at 713-486-2150.

## **OTHER MEETINGS— HERE AND THERE**

### **Thirteenth Symposium on Antarctic Meteorites**

The Thirteenth Symposium on Antarctic Meteorites will be held at the National Institute of Polar Research (NIPR), Japan, on June 7–9, 1988. The aim of this symposium is to present the recent outcome of research on the Antarctic meteorites, in particular, the Yamato meteorites and others retrieved from Victoria Land. New data from non-Antarctic meteorites and planetary researchers will also be included.

Most of the Japanese participants are the recipients of samples of Yamato meteorites, Belgica meteorites, and Victoria Land meteorites, and participation by recipients from other countries will be a great contribution to this symposium. All presented papers will be published as the Proceedings of this Symposium by the National Institute of Polar Research.

For additional information, please contact:

Tatsuro Matsuda  
Director-General  
National Institute of Polar Research  
9-10, Kaga 1-Chome, Itabashi-Ku  
Tokyo 173, Japan

### **INTERNATIONAL ASTRONOMICAL UNION COLLOQUIUM NO. 110 Library and Information Services in Astronomy (LISA)**

IAU Colloquium No. 110 sponsored by IAU Commission 5 – Documentation and Astronomical Data, is being organized by the U.S. Naval Observatory and will be held at the Dupont Plaza Hotel in Washington, DC, July 28–August 1, 1988.

Topics to be discussed are: publishing of astronomical books and journals; international acquisitions; union lists of astronomy serials; Astronomy and Astrophysics Abstracts; commercial databases available; thesauri and keyword lists; classification schemes; astronomical networks; preprints, nonprint materials, and observatory publications; rare books, conservation and archives; astronomers as library administrators; resource sharing and future cooperative activities; astronomical data centers; and use of computers in libraries. Most of the information will be presented in the form of short papers or panel discussions, with adequate time for questions and comments by participants. It is hoped that much of this Colloquium can be in a workshop format so that attendees can participate and share information.

For more information contact:

Brenda G. Corbin, Librarian  
IAU Colloquium 110  
U.S. Naval Observatory  
Washington, DC 20392-5100

## **TEAM TO STUDY MANSON STRUCTURE**

The Manson impact structure, in northwest-central Iowa, is about 35 km in diameter and the largest such structure known in the United States. Scientific interest in the Manson structure increased sharply last year when preliminary  $^{40}\text{Ar}/^{39}\text{Ar}$  data indicated a time for the impact of less than (but not much less than) 70 m.y. That age is temptingly close to the time established for the Cretaceous/Tertiary (K/T) boundary, about 66 m.y. ago, and allows the possibility of a connection between the Manson impact and mass extinctions produced by the K/T boundary event.

The Manson structure was recognized as an impact site before 1968, but little work has been done on the structure because it lies buried beneath tens of meters of glacial deposits. The unusual occurrence of a granitic central uplift and surrounding disturbed Cretaceous sediments was recognized based on study of water-well cuttings and limited drill core.

At a meeting at the U.S. Geological Survey (USGS) offices in Denver on October 5, 1987, a steering group was formed to organize a Manson Impact Study Team (MIST). The goal of the team is to obtain new information about the Manson impact and to coordinate efforts to recover appropriate samples for new research on the Manson structure. Group members are Eugene Shoemaker (USGS, Flagstaff), chairman; Raymond Anderson (Iowa Department of Natural Resources, Iowa City); Jack Hartung (Lunar and Planetary Institute, Houston); Thomas Hildenbrand (USGS, Denver); Richard Hoppin (State University of Iowa, Iowa City); Glen Izett (USGS, Denver); David Roddy (USGS, Flagstaff).

Drilling projects proposed for the Manson structure include shallow (about 60 m), intermediate (150–600 m), and deep (600–6000 m) drilling for different objectives. Shallow holes spaced at about 1.5-km (1-mile) intervals would provide data for a map of the structure beneath the glacial drift. Options for accomplishing this drilling are under study by Roddy and Buck Sharpton (Lunar and Planetary Institute). Intermediate depth holes would define the shallow structure of the crater and stratigraphic units affected by the impact and would enable recovery of samples of a melt sheet, if one is present. Deep holes would help define the amount of structural uplift at the center of the crater and could penetrate the Proterozoic section in the structural trough underlying the southeast part of the structure.

Another meeting of the Manson Impact Study Team was held on February 2, 1988, in Iowa City.

Those wishing to participate in the study, or learn more about it, should contact Hartung (Lunar and Planetary Institute, Houston, TX 77058, 713-486-2153), or any other group member.

## EARTH SCIENCE AND APPLICATIONS DATA SYSTEMS FY '88 User Benchmark Questionnaire

The Earth Science and Applications Data Systems (ESADS) User Benchmark Questionnaire was developed to be used as a management tool with which to measure the progress of the ESADS Initiative in improving user access to NASA's Earth science data and improving the utility of such data to users.

Earth science data systems user input is *the* critical element in evaluating data handling capabilities that are responsive to the needs of the Earth science research community. Therefore, responses to the Questionnaire will not only guide future ESADS activities, but the responses will also help define near- and long-term data handling goals. To achieve this, we will be making objective analyses of system performance/improvement based on the tabulated results of questionnaire responses.

Earth science data systems users interested in participating in this valuable information survey may contact the ESADS Ombudsman (Carolyn Robinson) at 301-794-5211, or TELEMAIL: OMBUDSMAN. Please respond by February 28, 1988.

Your participation will contribute toward improving the Earth science data system to better serve your needs.



### MIR WATCH HOTLINE

Anyone in the continental U.S. can now call the National Space Society's MIR Watch Hotline at 202-546-6010 between the hours of 9:30 a.m. and 4:30 p.m. EST to find out the best time to see the Soviet space station **MIR** pass over his or her town.

Currently the world's only permanently manned space station, MIR orbits the Earth every 90 minutes carrying two cosmonauts and will accommodate at least two more occasional visits.

The core MIR vehicle has already been expanded with an astrophysics module called *Kvant* (quantum). MIR is scheduled to serve the Soviet Union as a base for Earth observation, scientific research, and industrial manufacturing for the next ten years.

The MIR Watch Hotline is a free public service of the National Space Society, a nonprofit educational organization supported by membership dues.

## NEW PUBLICATIONS

Some of the following publications are available from the Superintendent of Documents, Government Printing Office, Washington, DC 20402. Although this agency requires prepayment on all orders, they will accept Mastercard or VISA. Just include the account number and expiration date on your order to them. Some of the publications may be available from the GPO bookstores in major cities around the U.S. Check your city directory for a local listing. Several of the GPO publications are being offered by other distributors at widely varying prices. It pays to shop and compare.

Some of the NASA documents cited here are only available from the National Technical Information Service, Springfield VA 22161. This agency also requires prepayment. Note also that the paper copy supplied by this agency is often a photocopy produced from a microfilm. Consequently quality is not always consistent.

**PLEASE** do not send orders for these publications to the LPI. We are not a distribution center for SOD or NTIS documents and this will only delay your order. If you are interested in obtaining any of the items in the **New Publications List** do contact the publisher or supplier as given with each item.

### NEW FROM A.S.P.

Several new items have been released by the Astronomical Society of the Pacific. This nonprofit organization is noted for its excellent and informative educational materials in astronomy.

### VIDEO ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE

A new video program on the scientific search for intelligent life beyond the Earth has just been released. Produced for the SETI Institute, the videotape is narrated by Dr. Jill Tarter, an astronomer at NASA's Ames Research Center. The program includes commentary by Carl Sagan, Frank Drake, Philip Morrison, Bernard Oliver, and other scientists who are actively working in this field.

Full of clear explanations and good analogies, the 32-minute color program is ideal for classroom or home viewing. It is produced in VHS format only and comes with a detailed reading list. Copies are available for \$30.50 (including postage and handling). Add \$4.00 for orders outside U.S.

### "MARS KIT"

A kit of slides, background material, captions, activities, and resources about the red planet Mars has been announced. The six slides include the very best color views of Mars from space and from the surface, sent back by the Viking probes.

Several are new composite images, just recently released, in which new computerized processing techniques have produced greater clarity and finer detail.

The slides are accompanied by a 36-page booklet, giving a nontechnical introduction to the planet and its most interesting "tourist attractions." There are also detailed captions for each slide, a set of eight activities for class or home, and a thorough list of readings and audio-visual aids about Mars. These materials will be of special interest as Mars makes one of its closest approaches to Earth in the fall of 1988.

The kit comes in a handy transparent folder and is available for \$11.50 (which includes postage and handling). Add \$2.50 for orders outside U.S.

#### **"WORLDS IN COMPARISON" SLIDE AND ACTIVITY KIT**

A new slide set of 20 "visual analogies" comparing the sizes of worlds and geologic features in the solar system has been designed by former NASA Visual Information Specialist Stephan Meszaros. The slides use the best spacecraft and radar images to give the viewer a sense of the scale of the other planets and moons. They include:

- the Earth projected on (and dwarfed by) Jupiter's red spot and Saturn's rings
- a map of the U.S. superimposed on the "Grand Canyon" of Mars (which would stretch from New York to San Francisco)
- a comparison of volcanoes on Earth, Mars, and Jupiter's bizarre moon, Io
- radar images of mountain ranges and continents on the surfaces of Venus and the Earth.

The slide set comes in a protective display folder with a 20-page guide that features detailed captions, introductory tables giving the main characteristics of all known planets and moons in the solar system, a summary of all U.S. and Soviet planetary missions, several pages of classroom or home activities and projects, and a thorough nontechnical reading list.

The full kit is available for \$22.50 (which includes postage and handling). Add \$4.00 for orders outside U.S.

#### **PACKET DEBUNKING ASTROLOGY**

An information packet that debunks the popular superstition called astrology is being made available to the public. Included are several articles explaining the dozens of careful scientific tests that have now shown that astrology simply does not work.

Designed to provide students, teachers, librarians, and the general public with clear, specific information about this controversial subject, the packet also includes an annotated bibliography of further readings, and an interview with astronomer George Abell, who spent considerable time examining and exposing the tenets of astrology.

Copies of the packet may be obtained by sending a donation of \$3.00 (to cover printing, handling, and mailing).

#### **SLIDE SET ON SUPERNOVA 1987A**

A new slide set and information booklet on Supernova 1987A, the exploding star in a nearby galaxy that created such a shockwave of excitement among astronomers last year, has been prepared by A.S.P.

The six slides include two beautiful color photographs of the supernova and its environment, a photo showing the star before it exploded, a graph showing the dramatic changes in the supernova's light, and a computer display showing the detection of one of the ghostly subatomic particles called neutrinos from the explosion.

A 24-page booklet accompanies the set, giving thorough background information, detailed captions, and a reading list. This material is designed so that the nonspecialist can appreciate why this supernova, and supernovae in general, cause such a stir.

The slides and booklet are packaged in a clear plastic folder for easy storage and display. To obtain a copy send \$10.50, which includes postage and handling. Orders outside U.S. add \$3.00.

Orders for the A.S.P. publications listed here should be sent to:

A.S.P.  
1290 24th Avenue  
San Francisco, CA 94122



#### **NEW NASA PUBLICATION**

##### **GEOMORPHOLOGY FROM SPACE**

This NASA Special Publication 486 is edited by Nicholas M. Short and Robert W. Blair, Jr.

Under the auspices of the National Aeronautics and Space Administration, *Geomorphology from Space* has been prepared by a group of geoscientists to fulfill three purposes: first, to serve as a stimulant in rekindling interest in descriptive geomorphology and in quantitative landform analysis at the regional scale; second, to introduce the community of geologists, geographers, and others to the practical value of space-acquired remotely sensed data in carrying out their research and applications; and third, to foster more scientific collaboration between terrestrial geomorphologists and astrogeologists, thereby strengthening the growing field of comparative planetology. Still another objective emerged as the book evolved during preparation, namely, to use pictures and text to summarize in broad terms continental surface geology over the globe.

*Geomorphology from Space* serves more than the research community. Teachers of Earth science at all levels should find it an exciting adjunct to their customary texts. The lay person, too, can share the wonderment and beauty of the Earth as seen by our space eyes. To do so can but enhance one's sensitivity to the need to nurture our one and only Planet Earth.

This 716-page book contains 1178 photographs, nearly 100 of which are in color. Many appear as individual Plate images acquired by Landsat, Seasat, SIR-A, and the HCMM sensor systems and by the Large Format Camera on the Space Shuttle, together with 2-4 or more ancillary views from space and from aerial or ground positions. As arranged by geomorphic theme in the Gallery section (Chapters 2-10) the 237 Plates encompass examples of geomorphic phenomena observed in 59 countries.

This book is available exclusively from the Government Printing Office at a price of \$41.00 per copy (order number S/N 033-000-00994-1).

## NEW USGS PUBLICATION

### GEOLOGIC HISTORY OF THE MOON

This USGS Professional Paper P1348 is written by D. E. Wilhelms with sections by John F. McCauley and Newell J. Trask. It is a large format, 302-page book that through informative text and the use of many photographs gives a comprehensive review of lunar science and evolution from the viewpoint of historical geology, based on data from both photogeologic observation and lunar sample analysis.

This volume presents a model for the geologic evolution of the Moon that has emerged mainly from this integration of photogeologic stratigraphy and sample analysis. Other aspects of the vast field of lunar science are discussed here only insofar as they pertain to the evolution of visible surface features. Chemical data obtained by remote sensing supplement the photogeologic interpretations of some geologic units (see Chapter 5), and geophysical data obtained both from lunar orbit and on the surface constrain hypotheses of the origin of many internally generated structures and deposits.

This volume is written primarily for geoscientists and other planetologists who have examined some aspect of lunar or planetary science and want a review of lunar science from the viewpoint of historical geology. It should also provide a useful summary for the advanced student who is conversant with common geologic terms. It may, furthermore, interest the geologist who has not studied the Moon, but who wishes to see how his methodology has been applied to another planet.

The volume has an extensive bibliography (p.283-293), an index, and a series of plates that graphically index such items as photographic illustrations, geologic maps of ringed basins, maria, and the present Moon, and paleogeologic maps of different ages of the Moon. The book is available for \$33.00 from:

U.S. Geological Survey, Books and Open-File Reports,  
Federal Center, Box 25425  
Denver, CO 80225

## WORTHY OF NOTE

### CYCLES OF FIRE: STARS, GALAXIES AND THE WONDER OF DEEP SPACE

Text by William K. Hartmann,  
paintings by William K. Hartmann and Ron Miller.

"This is the third in a trilogy of illustrated books about the universe. In the first, *The Grand Tour*, we described the planets, moons and small interplanetary bodies circling our sun. In the second, *Out of the Cradle*, we explored what humanity may be able to do in this planetary system in the next fifty years or so. These two books were limited to the basic geography of the solar system. They covered only the tiniest fraction of the universe.

"The starry universe beyond the solar system gives new opportunities to painters as well as scientists. When we depicted the solar system in our earlier books, we knew a lot of specifics about the individual worlds: colors, types of surface materials, presence of clouds and rings, and so on. To help us, we had photos taken on the surface of the moon, Venus and Mars, as well as 'aerial' photos of seven planets and more than a dozen moons.

"In the case of distant star systems, there are no closeup photos. Astronomical research during the last century told us the colors and sizes of the various types of stars, as well as the colors and shapes of gas clouds and galaxies.

"The plausibility of planets near at least a few other stars is terribly provocative for an astronomical artist! It gives us a place to stand. It gives us a landscape. It gives us . . . endless possibilities. There are only a finite number of sizable worlds in our solar system, but if there are planets around even one-half of one percent of all the stars, then there are a hundred million planets in our galaxy alone. Each offers its own potential for weird skies, sunsets, rock formations, volcanoes, Grand Canyons, Yellowstone Parks, fogs, fjords and fires, as well as for pterodactyls, platypuses, porpoises and people—or what passes for people on, let us say, Epsilon Eridani IV. Regardless of the likelihood of finding alien life, the possibilities for landscapes on far distant planets are enough to excite our imagination. In this book we try to be conservative about lifeforms (it's hard!), because they involve more speculation than planets do.

"Landscapes on Earth have kept artists inspired for 500 years, and known landscapes in the solar system have offered us even further inspiration. But unknown landscapes of other stars and galaxies. . . ? What can we say? Only that we offer you here some realistic possibilities. We have constrained ourselves by known physical principles and have tried to act on known scientific findings. Thus, our book depicts blue and orange and red stars; condensation of dust grains near them; aggregation of planets out of that dust; planetary heating, expansion, fracturing, volcanism, collision, cratering, erosion, cooling, contracting, glaciation, faulting; planets with and without atmospheres, with rings, with moons, with oceans of different condensed liquids (water isn't the only candidate).

The universe contains far more real places than we know...." ("A Word from the Author," p. 10-11.)

Workman Publishing, New York. 189 pp., many color illustrations. \$27.50; paper \$14.95. A local bookstore should be able to supply.

#### **ISAAC ASIMOV'S LIBRARY OF THE UNIVERSE**

Gareth Stevens, Inc. has announced the publication of a 32-volume series, authored by Isaac Asimov. Greg Walz-Chojnacki, Associate Editor of *Odyssey Magazine* is technical editor of the series.

Isaac Asimov's Library of the Universe is written for children in grades 3-4, but should interest children whose ages range from 6-12. Asimov's friendly and insightful text is marvelously clear. Young readers are introduced to a full spectrum of science facts and concepts through simple, thoughtful language.

The series covers a wide spectrum of astronomical time, events, and phenomena ranging from ancient astronomy—to a book for the sun and each planet in our solar system—to quasars, pulsars, black holes—to astronauts—to rockets, probes and satellites—to UFOs—to future homes for human beings in space. These books will prepare children for a future that will include much more interaction with space than that of their parents.

The illustrations for the series are outstanding. Working with the various space organizations throughout the United States and other nations of the world, powerful, instructive, and beautiful imagery have been acquired. In addition, a network of space artists and photographers in the United States and England have been commissioned to create illustrations for each book in the series. Not satisfied to use only standard press releases of NASA and JPL, other planetary data resources have been accessed where pictures not previously seen by the public have been acquired.

Additionally, each book contains Asimov's contribution of "Amazing Facts" and "Unexplained Mysteries," which are both provocative and fun! A "Fact File" is included in the back matter of each book. Also, each book contains a glossary, a guide for further reading, and places to visit and write for children who wish to learn more. An index appears in each book as well, and Volume 33 will be a comprehensive index for the entire series.

The premier volume in the series *Did Comets Kill the Dinosaurs?* is beautifully illustrated and written to stimulate a child's inquiring mind... to examine the possible reasons behind the mass extinction of our prehistoric reptiles.

The volume is available for \$9.95 (reinforced library binding) from the publisher: Garth Stevens, Inc., 7221 West Green Tree Road, Milwaukee, WI 53223. Phone 414-466-7550. Call or write for their catalog describing this series more fully; a series which would be very useful in any elementary school, or public or planetarium library.

#### **LPI ANNOUNCES NEW SLIDE SET**

##### **STONES, WIND, AND ICE**

*Stones, Wind, and Ice: A Guide to Martian Impact Craters* is the title of the second slide set in the Mars series. This set of 30 slides, compiled largely from Viking Orbiter and Lander images, illustrates both the diversity of impact craters on Mars and the significance of these features in understanding the geological evolution of this complex planet. Unlike the other small terrestrial planets, Mars shows abundant evidence of the actions of surface water and wind. Many of the landforms produced by the interaction of the cratering process with the Martian environment are seen virtually nowhere else in the solar system. Impact craters also provide a means of deducing the sequence and timing of events that have shaped the Martian surface.

This set was compiled by Dr. Virgil Sharpton and Dr. Nadine Barlow of the LPI staff and can be ordered from the LPI Order Department for \$13.00 plus shipping and handling (see order form in centerfold of this bulletin).

#### **CORRECTIONS—**

#### **LPI TELEPHONE NUMBERS**

Please make the following corrections to the LPI telephone list that was published in the November issue of the *LUNAR AND PLANETARY INFORMATION BULLETIN*:

#### **SCIENTISTS/VISITING FELLOWS**

de Silva, Shanaka	2114
Williams, Steven	2113

The *LUNAR AND PLANETARY INFORMATION BULLETIN* is published by the Lunar and Planetary Institute. There are usually three issues per year. It is distributed free on request to lunar and planetary scientists, educators, students, and their institutions.

The next issue will be in MAY. Copy deadline is APRIL 22, 1988. If you have any announcements that you would like to have printed in the *BULLETIN*, please send them to the Editor.

We reserve the right to select and edit copy.

Editor: Frances B. Waranus

Lunar and Planetary Institute  
3303 NASA Road One  
Houston, TX 77058-4399  
EMAIL: NASA/SPAN LPI:BULLETIN  
TELEMAIL: [FWARANUS/NASA]  
Phone: 713-486-2135

**NOTE TO OUR READERS:**

**PLEASE** let us know when you move. Each change of address that we get through the postal service costs us \$.30-.80 in return postage costs. Because of the high costs of postage, we will make the address change on our list, but we will no longer mail another copy of the LPIB issue or whatever was contained in the envelope that we get back. Since the same mailing list is used for conference announcements and other LPI mailings, you will miss whatever is mailed from the LPI in the interval that we do not have your address change.

If you want to be sure that you get all of your mailings from the Institute promptly, be sure to send a change of address to: Mailist, Lunar and Planetary Institute, 3303 NASA Road One, Houston, TX 77058-4399. It often takes the postal service 60-90 days to return an item to us with the address correction. We also often receive a notice on the returned envelope that the "forwarding order is expired." Under that circumstance, we have no alternative but to delete the name from the mailing list. Do yourself and us a service. Remember the LPI Mailing List when you move. Thanks.

ye editor

# CALENDAR

## 1988

March 8-11	<b>Asteroids II: Book and Colloquium</b> , Tucson, Arizona.	M. S. Matthews Lunar and Planetary Laboratory Space Sciences Building University of Arizona Tucson, AZ 85721 Phone: 602-621-2902
<b>MARCH 14-18</b>	<b>XIX LUNAR AND PLANETARY SCIENCE CONFERENCE</b> Houston, Texas.	Projects Office Lunar and Planetary Institute 3303 NASA Road One Houston, TX 77058-4399 Phone: 713-486-2150
April 5-7	<b>Lunar Bases and Space Activities II</b> , Houston, Texas.	Barney B. Roberts Mail Code: ED13 NASA Johnson Space Center Houston, TX 77058 Phone: 713-483-6605
April 7-9	<b>Second International Symposium on Experimental Mineralogy, Petrology, and Geochemistry</b> , Bochum, F.R. Germany.	The Bochum Symposium Institut für Mineralogie Ruhr-Universität Postfach 102148 D-4630 Bochum 1, F.R. Germany
April 7-22	<b>NATO Advanced Study Institute on Geomagnetism and Palaeomagnetism</b> , University of Newcastle upon Tyne, England.	Anne Codling Dept. of Geophysics and Planetary Physics School of Physics University Newcastle upon Tyne NE1 7RU England
April 11-14	<b>Fiber Optics in Astronomy</b> , Tucson, Arizona.	Sam Barden NOAO/KPNO P.O. Box 26732 Tucson, AZ 85726-6732 Phone: 602-325-9263

April 23	<b>ASTRONOMY DAY</b>	Gary E. Tomlinson, Coordinator Astronomical League c/o Chaffee Planetarium 54 Jefferson Avenue S.E. Grand Rapids, MI 49503 Phone: 616-456-3985
May 11-12	<b>MECA Workshop: Polar Processes on Mars</b> , Sunnyvale, California.	Dr. Robert M. Haberle Space Sciences Division, 245-3 Ames Research Center Moffett Field, CA 94035 Phone: 415-694-5491
May 11-13	<b>V. M. Goldschmidt Conference for Geochemistry</b> , Baltimore, Maryland.	Goldschmidt Conference Coordinator Pennsylvania State University 410 Keller Building University Park, PA 16802
May 16-20	<b>American Geophysical Union, Spring Meeting</b> , Baltimore, Maryland.	Spring Meeting American Geophysical Union 2000 Florida Avenue NW Washington, DC 20009 Phone: 202-462-6903
May 23-25	<b>Geological Association of Canada/Mineralogical Association of Canada/Canadian Society of Petroleum Geologists — Joint Annual Meeting</b> , St. John's, Newfoundland.	John Fleming, Chairman St. John's '88 P.O. Box 13577, Postal Station 'A' St. John's, Newfoundland Canada A1B 4B8 Phone: 709-576-2768
June 7-9	<b>Thirteenth Symposium on Antarctic Meteorites</b> , Tokyo, Japan.	Tatsuro Matsuda, Director-General National Institute of Polar Research 9-10 Kaga 1-Chome, Itabashi-Ku Tokyo 173, Japan
June 13-Aug. 19	<b>LPI Summer Intern Program</b> , Houston, Texas	Ms. Pamela Jones Summer Intern Program Lunar and Planetary Institute 3303 NASA Road One Houston, TX 77058 Phone: 713-486-2150
June 27-30	<b>GOES I-M Symposium/Workshop</b> , Bethesda, Maryland.	Mr. Wayne D. Lasch Greenhorne & O'Mara, Inc. P.O. Box T College Park, MD 20740 Phone: 301-982-2857

June 28-30	<b>Uranus Colloquium</b> , Pasadena, California.	Jay T. Bergstrahl Jet Propulsion Laboratory MS 183-301 4800 Oak Grove Drive Pasadena, CA 91109 or M. S. Matthews Lunar and Planetary Laboratory University of Arizona Tucson, AZ 85721 Phone: 602-621-2902
June 29-July 2	<b>Universe '88</b> , University of Victoria, Victoria, British Columbia.	Summer Meeting A.S.P. 1290 24th Avenue San Francisco, CA 94122 Phone: 415-661-8660
July 18-22	<b>51st Annual Meeting of the Meteoritical Society</b> , University of Arkansas, Fayetteville, Arkansas.	Derek Sears Cosmochemistry Group Department of Chemistry and Biochemistry University of Arkansas Fayetteville, AR 72701
July 28-Aug. 1	<b>IAU Colloquium 110: Library and Information Services in Astronomy (LISA)</b> , Washington, DC.	Brenda G. Corbin IAU Colloquium 110 U.S. Naval Observatory Washington, DC 20392-5100
August 2-11	<b>XXth General Assembly of the International Astronomical Union</b> , Baltimore, Maryland.	
August 24-Sept. 3	<b>Joint Varenna-Abastumani Workshop on Plasma Astrophysics</b> , Varenna, Italy.	Prof. E. Sindoni International School of Plasma Physics 16, Via Celoria I-20133 Milano, Italy Phone: (2) 2392267-2665005
August 29-31	<b>Space 88 Conference: Engineering, Construction, and Operations in Space</b> , Albuquerque, New Mexico.	R. S. Leonard c/o Ad Astra Ltd. Rt. 1, Box 92LL Santa Fe, NM 87501 Phone: 505-455-3484
September 21-23	<b>MECA LPI Workshop "Dust on Mars III"</b> , Stanley Hotel, Estes Park, Colorado.	Lebecca Turner Lunar and Planetary Institute 3303 NASA Road One Houston, TX 77058-4399 Phone: 713-486-2158
September 25-30	<b>Spectroscopic Methods for Mineral and Mineral Surface Characterization</b> , Los Angeles, California.	Lelia M. Coyne Mail Stop 239-4 NASA Ames Research Center Moffett Field, CA 94035

October 5-7	<b>MEVTV - LPI Workshop: Early Tectonic and Volcanic Evolution of Mars</b> , Washington, DC area.	Projects Office Lunar and Planetary Institute 3303 NASA Road One Houston, TX 77058-4399 Phone: 713-486-2158
October 20-23	<b>Global Catastrophes in Earth History: An Interdisciplinary Conference on Impacts, Volcanism, and Mass Mortality</b> , Snowbird, Utah.	Projects Office Lunar and Planetary Institute 3303 NASA Road One Houston, TX 77058-4399 Phone: 713-486-2158
October 31 - November 3	<b>Geological Society of America Annual Meeting</b> , Denver, Colorado.	Jean Kinney GSA P.O. Box 9140 Boulder, Colorado 80301 Phone: 303-447-2020
November 15-18	<b>Interior and Atmosphere of the Sun</b> , Tucson, Arizona.	M. S. Matthews Lunar and Planetary Laboratory University of Arizona Tucson, AZ 85721 Phone: 602-621-2902
November 30 - December 3	<b>Origin of Earth</b> , Napa Valley, California.	Pamela Jones, Conference Coordinator Lunar and Planetary Institute 3303 NASA Road One Houston, TX 77058-4399 Phone: 713-486-2158





## LUNAR AND PLANETARY BIBLIOGRAPHY

Items selected from materials received at the LPI Library Information Center. Address of first author is included as the last line of the reference when cited. Please contact the author or your library for a reprint or copy of an article. For literature searches on the online Lunar and Planetary Bibliography call the LPI 713-486-2191.

## THE MOON

BALDWIN,R.B.

ON THE RELATIVE AND ABSOLUTE AGES OF SEVEN LUNAR FRONT FACE BASINS. II. FROM CRATER COUNTS  
ICARUS VOL. 71, 19-19 (1987)  
OLIVER MACHINERY COMPANY, GRAND RAPIDS, MI 49503

BALDWIN,R.B.

ON THE RELATIVE AND ABSOLUTE AGES OF SEVEN LUNAR FRONT FACE BASINS. I. FROM VISCOSITY ARGUMENTS  
ICARUS VOL. 71, 1-18 (1987)  
OLIVER MACHINERY COMPANY, GRAND RAPIDS, MI 49503

BELL,J.F. + HAWKE,B.R.

RECENT COMET IMPACTS ON THE MOON: THE EVIDENCE FROM REMOTE-SENSING STUDIES  
ASTRONOMICAL SOCIETY OF THE PACIFIC. PUBLICATIONS VOL. 99, 862-867 (1987)  
PLANETARY GEOSCIENCES DIV., HAWAII INST. OF GEOPHYSICS, UNIV. OF HAWAII,  
HONOLULU, HI 96822

BENZ,W. + SLATTERY,W.L. + CAMERON,A.G.W.

THE ORIGIN OF THE MOON AND THE SINGLE-IMPACT HYPOTHESES, II  
ICARUS VOL. 71, 30-35 (1987)  
THEORETICAL ASTROPHYSICS GROUP, T-6 MS B288, LOS ALAMOS NATIONAL LAB., LOS  
ALAMOS, NM 87545

BRANDLI,H.

EARTH AND MOON TOGETHER  
ASTRONOMY VOL. 15(10) 20-22 (1987)

EVSYUKOV,N.N.

(RS)THE THREE-PARAMETRIC OPTICAL DIVISION OF THE LUNAR SURFACE INTO DISTRICTS  
ASTRONOMICHEKII ZHURNAL VOL. 64, 627-638 (1987)

GRAHAM,F.G.

A SEARCH FOR LUNAR SODIUM  
ASTRONOMISCHE NACHRICHTEN VOL. 308, 227 (1987)  
UNIV. OF PITTSBURGH, DEPT. OF GEOLOGY, 321 OEH, PITTSBURGH, PA 15260

HERMAN,J.K. + BARGER,M.S.

THE MOON ON A SILVER PLATE  
ASTRONOMY VOL. 15(10) 98-103 (1987)

TAYLOR,S.R.

THE ORIGIN OF THE MOON  
AMERICAN SCIENTIST VOL. 75, 468-477 (1987)  
RESEARCH SCHOOL OF EARTH SCIENCES, AUSTRALIAN NATIONAL UNIV., CANBERRA 2601,  
AUSTRALIA

YAKOVLEV,O.I. + MARKOVA,O.M. + MANZON,B.M.  
ROLE OF PROCESSES OF VAPORIZATION AND DISSIPATION IN FORMATION OF THE MOON  
GEOKHIMIYA VOL. 1987(4) 467-482 (1987)

## PLANETS (ARTICLES ABOUT MORE THAN ONE BODY)

ALESHKIN,E.Y. + KRANSINSK,G.A. + PITEVA,E.V. + SVESHNIK,M.L.

(RS)EXPERIMENTAL-VERIFICATION OF RELATIVISTIC EFFECTS AND ESTIMATION OF THE MAGNITUDE OF CHANGE IN THE GRAVITATIONAL CONSTANT ACCORDING TO OBSERVATIONS OF THE INNER PLANETS AND THE MOON  
USPENSKI FIZICHESKIH NAUK VOL. 151, 720-724 (1987)

BATSON,R.M.

DIGITAL CARTOGRAPHY OF THE PLANETS: NEW METHODS, ITS STATUS, AND ITS FUTURE  
PHOTOGRAMMETRIC ENGINEERING AND REMOTE SENSING VOL. 53, 1211-1218 (1987)  
U.S. GEOLOGICAL SURVEY, 2255 NORTH GEMINI DRIVE, FLAGSTAFF, AZ 86001

CLAIREMIDI,S.

PLANETESIMAL ROTATION INDUCED BY COLLISIONS  
EARTH, MOON, AND PLANETS VOL. 39, 21-36 (1987)  
FACULTE DES SCIENCES ET DES TECHNIQUES ET OBSERVATOIRE DE BESANCON, FRANCE

EDWARDS,K.

GEOMETRIC PROCESSING OF DIGITAL IMAGES OF THE PLANETS  
PHOTOGRAMMETRIC ENGINEERING AND REMOTE SENSING VOL. 53, 1219-1222 (1987)  
U.S. GEOLOGICAL SURVEY, BRANCH OF ASTROGEOLOGY, 2255 NORTH GEMINI DRIVE,  
FLAGSTAFF, AZ 86001

HOOD,L.L.

MAGNETOSPHERIC ENVIRONMENTS OF OUTER PLANET RINGS: INFLUENCE OF SATURN'S AXIALLY SYMMETRIC MAGNETIC FIELD  
ICARUS VOL. 71, 115-136 (1987)  
LUNAR AND PLANETARY LAB., UNIV. OF ARIZONA, TUCSON, AZ 85721

IPATOV,S.I.

ACCUMULATION AND MIGRATION OF THE BODIES FROM THE ZONES OF GIANT PLANETS  
EARTH, MOON, AND PLANETS VOL. 39, 101-128 (1987)  
M.V. KELDYSH INST. OF APPLIED MATHEMATICS, USSR ACADEMY OF SCIENCES, MOSCOW,  
USSR

KRAMER,E.N. + SHESTAKA,I.S.

QUASISTATIONARY PARAMETERS OF THE SMALL BODIES OF THE SOLAR SYSTEM  
SOLAR SYSTEM RESEARCH VOL. 21, 47-53 (1987)  
ODESSA ASTRONOMICAL OBSERVATORY

LITZROTH,E.

THE STRUCTURE OF THE PLANETARY MULTIPLE SYSTEMS  
BEITRAGE ZUR GEOPHYSIK VOL. 96(S) 34-43 (1987)  
JENAER STRASSE 69, ERFURT, DDR-5084

MCCOMAS,D.J. + GOSLING,J.T. + RUSSELL,C.T. + SLAVIN,J.A.

MAGNETOTAILS AT UNMAGNETIZED BODIES: COMPARISON OF COMET GIACOBINI-ZINNER AND VENUS  
JOURNAL OF GEOPHYSICAL RESEARCH VOL. 92, 10,111-10,117 (1987)  
LOS ALAMOS NATIONAL LAB., MS D438, LOS ALAMOS, NM 87545

MICHELANGELI,D.V. + ZUREK,R.W. + ELSON,L.S.  
 BAROTROPIC INSTABILITY OF MIDLATITUDE ZONAL JETS ON MARS, EARTH AND VENUS  
 JOURNAL OF THE ATMOSPHERIC SCIENCES VOL. 44, 2031-2041 (1987)  
 DEPT. OF GEOLOGICAL AND PLANETARY SCIENCES, CALIFORNIA INST. OF TECH., PASADENA  
 CA 91125

MOHLMANN,D. + STILLER,H.  
 PROBLEMS AND RESULTS OF MODERN PLANETOGENIC THEORIES  
 BEITRAGE ZUR GEOPHYSIK VOL. 96(S) 13-20 (1987)  
 INSTITUT FUR KOSMOSFORSCHUNG, RUDOWER CHAUSSEE 5, BERLIN, DDR-1199

PIKE,R.J. + SPUDIS,P.D.  
 BASIN-RING SPACING ON THE MOON, MERCURY, AND MARS  
 EARTH, MOON, AND PLANETS VOL. 39, 129-194 (1987)  
 U.S. GEOLOGICAL SURVEY, MS-46, 345 MIDDLEFIELD ROAD, MENLO PARK, CA 94025

STILLER,H. + FRANCK,S. + ORGZALL,I.  
 HIGH-PRESSURE PHYSICS AND INTERNAL STRUCTURE AND EVOLUTION OF PLANETS  
 BEITRAGE ZUR GEOPHYSIK VOL. 96(S) 56-72 (1987)  
 OTTO-NUSCHKE-STRASSE 22/23, BERLIN, DDR-1086

SURKOV,YU.A. + MANVELYAN,O.S.  
 CALCULATION OF THE FLUX DENSITY OF GAMMA RAYS ABOVE THE SURFACE OF VENUS AND  
 THE EARTH  
 SOLAR SYSTEM RESEARCH VOL. 21, 20-27 (1987)  
 V.I. VERNADSKII INST. OF GEOCHEMISTRY AND ANALYTICAL CHEMISTRY, ACADEMY OF  
 SCIENCES OF THE USSR, MOSCOW, USSR

TREDER,H.-J.  
 (GR)EVOLUTION OF THE SOLAR SYSTEM -- RELATIONS TO PHYSICS AND COSMOLOGY  
 BEITRAGE ZUR GEOPHYSIK VOL. 96(S) 4-12 (1987)  
 EINSTEIN-LABORATORIUM FUR THEORETISCHE PHYSIK, ROSA-LUXEMBURG-STRASSE 17A,  
 POTSDAM-BABELSBERG, DDR-1590

TREGO,K.D.  
 COMPOSITIONAL ANOMALY OF GANYMEDE AND CALLISTO AMONG THE ICE SATELLITES AS  
 INFERRED FROM IMPACT CRATER MORPHOLOGY  
 EARTH, MOON, AND PLANETS VOL. 39, 195-196 (1987)  
 PLANETLOGY RESEARCH INST., 7823 N. 7TH PLACE, PHOENIX, AZ 85020

WEIDENSCHILLING,S.J.  
 ACCUMULATION OF SOLID BODIES IN THE SOLAR NEBULA  
 BETRAGE ZUR GEOPHYSIK VOL. 96(S) 21-33 (1987)  
 PLANETARY SCIENCE INST., 2030 E. SPEEDWAY, SUITE 201, TUCSON, AZ 85719

WETHERILL,G.W.  
 DYNAMICAL RELATIONS BETWEEN ASTEROIDS, METEORITES AND APOLLO-AMOR OBJECTS  
 ROYAL SOCIETY OF LONDON. PHILOSOPHICAL TRANSACTIONS A VOL. 323, 323-337 (1987)  
 DEPT. OF TERRESTRIAL MAGNETISM, CARNEGIE INST. OF WASHINGTON, WASHINGTON,  
 DC 20015

WIESEL,W.  
 INELASTIC COLLISIONS IN NARROW PLANETARY RINGS  
 ICARUS VOL. 71, 78-90 (1987)  
 DEPARTMENT OF AERONAUTICS AND ASTRONAUTICS, AIR FORCE INST. OF TECH., WRIGHT-  
 PATTERSON AFB, OHIO 45433

WOLKOMIR,R.  
 ALIEN WORLDS: THE SEARCH HEATS UP  
 DISCOVER VOL. 8(10) 66-68, 70-72, 74, 76 (1987)

#### JUPITER

BARBOSA,D.D.  
 COMMENT ON "PERIODIC AMPLITUDE VARIATIONS IN JOVIAN CONTINUUM RADIATION" BY  
 W. S. KURTH ET AL.; AND REPLY  
 JOURNAL OF GEOPHYSICAL RESEARCH VOL. 92, 11,269-11,172, 11,273-11,276 (1987)  
 INST. OF GEOPHYSICS AND PLANETARY PHYSICS, UNIV. OF CALIFORNIA AT LOS ANGELES,  
 LOS ANGELES, CA 90024

CARLSON,B.E. + PRATHER,M.J. + ROSSOW,W.B.  
 CLOUD CHEMISTRY ON JUPITER  
 ASTROPHYSICAL JOURNAL VOL. 322, 559-572 (1987)  
 INST. FOR SPACE STUDIES, NASA/GODDARD SPACE FLIGHT CENTER, GREENBELT, MD 20771

CRAVENS,T.E.  
 VIBRATIONALLY EXCITED MOLECULAR HYDROGEN IN THE UPPER ATMOSPHERE OF JUPITER  
 JOURNAL OF GEOPHYSICAL RESEARCH VOL. 92, 11,083-11,100 (1987)  
 SPACE PHYSICS RESEARCH LAB., 2455 HAYWARD, UNIV. OF MICHIGAN, ANN ARBOR,  
 MI 48109

GENOVA,F. + ZARKA,P. + BARROW,C.H.  
 VOYAGER AND NANCY OBSERVATIONS OF THE JOVIAN RADIO-EMISSION AT DIFFERENT  
 FREQUENCIES: SOLAR WIND EFFECT AND SOURCE EXTENT  
 ASTRONOMY AND ASTROPHYSICS VOL. 182, 159-162 (1987)  
 OBSERVATOIRE DE PARIS, SECTION DE MEUDON, DASOP, UA CNRS 324, F-92195,  
 MEUDON PRINCIPAL CEDEX, FRANCE

GRAHAM,D.  
 WHO'S WATCHING JUPITER TONIGHT  
 POPULAR ASTRONOMY VOL. 34(4) 7-9 (1987)

KENNEL,C.F. + CHEN,R.F. + MOSES,S.L. + KURHT,W.S. + CORONITI,F.V. + SCARF,F.L.  
 CHEN,F.F.  
 Z MODE RADIATION IN JUPITER'S MAGNETOSPHERE  
 JOURNAL OF GEOPHYSICAL RESEARCH VOL. 92, 9978-9996 (1987)  
 TRW SPACE AND TECHNOLOGY GROUP, R1/1176, ONE SPACE PARK, REDONDO BEACH, CA 9027

LOKHOV,G.M. + ROZHDESTVENSKIY,M.K.  
 SOLUTION OF THE PLANNED BALLISTIC PROBLEMS FOR THE DESCENT OF A PROBE IN  
 JUPITER'S ATMOSPHERE  
 COSMIC RESEARCH VOL. 25, 41-51 (1987)

MAUK,B.H. + KRIMIGIS,S.M.  
 RADIAL FORCE BALANCE WITHIN JUPITER'S DAYSIDE MAGNETOSPHERE  
 JOURNAL OF GEOPHYSICAL RESEARCH VOL. 92, 9931-9941 (1987)  
 APPLIED PHYSICS LAB., JOHNS HOPKINS UNIV., LAUREL, MD 20707

OLIVAREZ,J.  
 JUPITER'S BEST SHOW IN TWELVE YEARS  
 ASTRONOMY VOL. 15(11) 64-70 (1987)  
 ALPO JUPITER RECORDER, 1469 VALLEYVIEW COURT, WICHITA, KS 67212

PHILLIPS,J.A. + CARR,T.D. + GREENMAN,W.B. + LEVY,J.  
CROSS-POLARIZED INTERFEROMETRY OF A JOVIAN DECAMETRIC RADIO STORM  
JOURNAL OF GEOPHYSICAL RESEARCH VOL. 92, 9971-9977 (1987)  
DEPT. OF ASTRONOMY, CORNELL UNIV., ITHACA, NY 14853

PHILLIPS,L.F.  
ABSORPTION SPECTRA ON NONNH<sub>2</sub> ISOMERS AND NO IN LIQUID AMMONIA SOLUTION:  
POSSIBLE IMPLICATIONS FOR JUPITER  
JOURNAL OF PHOTOCHEMISTRY VOL. 38, 35-41 (1987)  
CHEMISTRY DEPT., UNIV. OF CANTERBURY, CHRISTCHURCH, NEW ZEALAND

SEKIYA,M. + MIYAMA,S.M. + HAYASHI,C.  
GAS FLOW IN THE SOLAR NEBULA LEADING TO THE FORMATION OF JUPITER  
EARTH, MOON, AND PLANETS VOL. 39, 1-15 (1987)  
DEPT. OF PHYSICS, KYOTO UNIV., KYOTO, JAPAN

SITTNER,E.C.JR. + LEPPING,R.P. + MAUK,B.H. + KRIMIGIS,S.M.  
DETECTION OF A HOT PLASMA COMPONENT WITHIN THE CORE REGIONS OF JUPITER'S DISTAN  
MAGNETOTAIL  
JOURNAL OF GEOPHYSICAL RESEARCH VOL. 92, 9943-9948 (1987)  
LAB. FOR EXTRATERRESTRIAL PHYSICS, NASA GODDARD SPACE FLIGHT CENTER, GREENBELT,  
MD 20771

SHYTH,W.H. + COMBI,M.R.  
CORRELATING EAST-WEST ASYMMETRIES IN THE JOVIAN MAGNETOSPHERE AND THE IO  
SODIUM CLOUD  
GEOPHYSICAL RESEARCH LETTERS VOL. 14, 973-976 (1987)  
ATMOSPHERIC AND ENVIRONMENTAL RESEARCH INC., 840 MEMORIAL DR., CAMBRIDGE,  
MA 02139-3794

#### SATELLITES OF JUPITER

BELCHER,J.W.  
THE JUPITER-IO CONNECTION: AN ALFVEN ENGINE IN SPACE  
SCIENCE VOL. 238, 170-176 (1987)  
CENTER FOR SPACE RESEARCH, MIT, CAMBRIDGE, MA 02139

SCHNEIDER,N.M. + HUNTER,D.M. + WELLS,W.K. + TRAFTON,L.M.  
ECLIPSE MEASUREMENTS OF IO'S SODIUM ATMOSPHERE  
SCIENCE VOL. 238, 55-58 (1987)  
LUNAR AND PLANETARY LAB., UNIV. OF ARIZONA, TUCSON, AZ 85721

WOLF-GLADROW,D.A. + NEUBAUER,F.M. + LUSSEM,M.  
IO'S INTERACTION WITH THE PLASMA TORUS: A SELF-CONSISTENT MODEL  
JOURNAL OF GEOPHYSICAL RESEARCH VOL. 92, 9949-9961 (1987)  
INSTITUT FUR GEOPHYSIK UND METEOROLOGIE, UNIVERSITAT ZU KOLN, COLOGNE, FRG

WRIGHT,A.N.  
THE INTERACTION OF IO'S ALFVEN WAVES WITH THE JOVIAN MAGNETOSPHERE  
JOURNAL OF GEOPHYSICAL RESEARCH VOL. 92, 9963-9970 (1987)  
THEORETICAL ASTRONOMY UNIT, SCHOOL OF MATHEMATICAL SCIENCES, QUEEN MARY COLLEGE  
LONDON, UK

#### MARS

BARNES,J.R. + HOLLINGSWORTH,J.L.  
DYNAMICAL MODELING OF A PLANETARY WAVE MECHANISM FOR A MARTIAN POLAR WARMING  
ICARUS VOL. 71, 331-334 (1987)  
DEPT. OF ATMOSPHERIC SCIENCES, OREGON STATE UNIV., CORVALLIS, OR 97331

BLAUMONT,J.  
BALLOONS FOR MARS MISSIONS  
ACTA ASTRONAUTICA VOL. 15, 523-525 (1987)  
SERVICE D'AERONOMIE DU CNRS, B.P. 3, 91370 VERRIERES LE BUISSON, FRANCE

CLARK,B.C.  
COMETS, VOLCANISM, THE SALT-RICH REGOLITH, AND CYCLING OF VOLATILES ON MARS  
ICARUS VOL. 71, 250-256 (1987)  
PLANETARY SCIENCES LAB. (0560), MARTIN MARIETTA DENVER AEROSPACE, DENVER,  
CO 80201

COLE,S.  
SUPERPOWER PACT LINKS INITIAL MARS MISSIONS  
ASTRONOMY VOL. 15(11) 26-28 (1987)

DE HON,R.A.  
RING FURROWS: INVERSION OF TOPOGRAPHY IN MARTIAN HIGHLAND TERRAINS  
ICARUS VOL. 71, 287-297 (1987)  
DEPT. OF GEOSCIENCES, NORTHEAST LOUISIANA UNIV., MONROE, LA 71209

DREIBUS,G. + WANKE,H.  
VOLATILES ON EARTH AND MARS: A COMPARISON  
ICARUS VOL. 71, 225-240 (1987)  
MAX-PLANCK-INSTITUT FUR CHEMIE, SAARSTRASSE 23, D-6500 MAINZ, FRG

GRAF,G.  
PUTTING MARS ON THE MAP  
AIR AND SPACE VOL. 2(4) 56-60 (1987)

GRANT,J.A. + SCHULTZ,P.H.  
POSSIBLE TORNADO-LIKE TRACKS ON MARS  
SCIENCE VOL. 238, 883-885 (1987)  
DEPT. OF GEOLOGICAL SCIENCES, BROWN UNIV., PROVIDENCE, RI 02912

JAMES,P.B. + MALOLEPSZY,K.M. + MARTIN,L.J.  
INTERANNUAL VARIABILITY OF MARS' SOUTH POLAR CAP  
ICARUS VOL. 71, 298-305 (1987)  
PHYSICS DEPT., UNIV. OF MISSOURI AT ST. LOUIS, ST. LOUIS, MO 63121

JAMES,P.B. + PIERCE,M. + MARTIN,L.J.  
MARTIAN NORTH POLAR CAP AND CIRCUMPOLAR CLOUDS: 1975-1980 TELESCOPIC  
OBSERVATIONS  
ICARUS VOL. 71, 306-312 (1987)  
PHYSICS DEPT., UNIV. OF MISSOURI AT ST. LOUIS, ST. LOUIS, MO 63121

MOUGINIS-MARK,P.J.  
WATER OR ICE IN THE MARTIAN REGOLITH?: CLUES FROM RAMPART CRATERS SEEN AT  
VERY HIGH RESOLUTION  
ICARUS VOL. 71, 268-286 (1987)  
HAWAII INST. OF GEOPHYSICS, UNIV. OF HAWAII, HONOLULU, HI 96822

- PHILIP,J.R.  
ATMOSPHERIC PRESSURE AND POLAR CO<sub>2</sub> CAPS ON MARS  
SEARCH VOL. 18, 40-42 (1987)  
CSIRO, DIV. OF ENVIRONMENTAL MECHANICS, GPO BOX 821, CANBERRA, ACT, 2601  
AUSTRALIA
- POLLACK,J.B. + KASTING,J.F. + RICHARDSON,S.M. + POLIAKOFF,K.  
THE CASE FOR A WET, WARM CLIMATE ON EARLY MARS  
ICARUS VOL. 71, 203-224 (1987)  
NASA AMES RESEARCH CENTER, MOFFETT FIELD, CA 94035
- RAVA,B. + HAPKE,B.  
AN ANALYSIS OF THE MARINER 10 COLOR RATIO MAP OF MERCURY  
ICARUS VOL. 71, 397-429 (1987)  
DEPT. OF GEOLOGY AND PLANETARY SCIENCE, UNIV. OF PITTSBURGH, PA 15260
- ROBERTSON,D.F.  
SOVIET PHOBOS MISSION TO PROBE MOONS OF MARS  
ASTRONOMY VOL. 15(11) 29-32 (1987)
- RUDY,D.J. + MUHLEMAN,O.O. + BERGE,G.L. + JAKOSKY,B.M. + CHRISTENSEN,P.R.  
MARS: VLA OBSERVATIONS OF THE NORTHERN HEMISPHERE AND THE NORTH POLAR REGION  
AT WAVELENGTHS OF 2 AND 6 CM  
ICARUS VOL. 71, 159-177 (1987)  
DIV. OF GEOLOGICAL AND PLANETARY SCIENCES, CALIFORNIA INST. OF TECH., PASADENA,  
CA 91125
- NO AUTHOR CITED  
U.S. MARS OBSERVER SEEKS GLOBAL PICTURE  
ASTRONOMY VOL. 15(11) 33-37 (1987)
- ZENT,A.P. + FANALE,F.P. + POSTAWKO,S.E.  
CARBON DIOXIDE: ABSORPTION ON PALAGONITE AND PARTITIONING IN THE MARTIAN  
REGOLITH  
ICARUS VOL. 71, 241-249 (1987)  
PLANETARY GEOSCIENCES DIV., HAWAII INST. OF GEOPHYSICS, UNIV. OF HAWAII,  
HONOLULU, HI 96822
- ZIMBELMAN,J.R.  
SPATIAL RESOLUTION AND THE GEOLOGIC INTERPRETATION OF MARTIAN MORPHOLOGY:  
IMPLICATIONS FOR SUBSURFACE VOLATILES  
ICARUS VOL. 71, 257-267 (1987)  
LUNAR AND PLANETARY INST., 3303 NASA ROAD #1, HOUSTON, TX 77058
- MERCURY
- ANDERSON,J.D. + COLOMBO,G. + ESPSITIO,P.B. + LAU,E.L. + TRAGER,G.B.  
THE MASS, GRAVITY FIELD, AND EPHemeris OF MERCURY  
ICARUS VOL. 71, 337-349 (1987)  
JET PROPULSION LAB. (301-230K), CALIFORNIA INST. OF TECH., PASADENA, CA 91109
- CHENG,A.F. + JOHNSON,R.E. + KRIMIGIS,S.M. + LANZEROTTI,L.J.  
MAGNETOSPHERE, EXOSPHERE, AND SURFACE OF MERCURY  
ICARUS VOL. 71, 430-440 (1987)  
JOHNS HOPKINS UNIV., APPLIED PHYSICS LAB., LAUREL, MD 20707
- CRISTOM,S.P.  
A COMPARISON OF THE MERCURY AND EARTH MAGNETOSPHERES: ELECTRON MEASUREMENTS  
AND SUBSTORM TIME SCALES  
ICARUS VOL. 71, 448-471 (1987)  
JOHNS HOPKINS UNIV., APPLIED PHYSICS LAB., LAUREL, MD 20707
- GEHRELS,T. + LANDAU,R. + COYNE,G.V.  
MERCURY: WAVELENGTH AND LONGITUDE DEPENDENCE OF POLARIZATION  
ICARUS VOL. 71, 386-396 (1987)  
SPACE SCIENCES BUILDING, UNIV. OF ARIZONA, TUCSON, AZ 85721
- IP,W.-H.  
DYNAMICS OF ELECTRONS AND HEAVY IONS IN MERCURY'S MAGNETOSPHERE  
ICARUS VOL. 71, 441-447 (1987)  
MAX-PLANCK-INSTITUT FUR AERONOMIE, D-3411 KATLENBURG-LINDAU, FRG
- LEAKE,M.A. + CHAPMAN,C.R. + WEIDENSCHILLING,S.J. + DAVIS,D.R. + GREENBERG,R.  
THE CHRONOLOGY OF MERCURY'S GEOLOGICAL AND GEOPHYSICAL EVOLUTION: THE  
VULCANOID HYPOTHESIS  
ICARUS VOL. 71, 350-375 (1987)  
PLANETARY SCIENCE INST., 2030 EAST SPEEDWAY, SUITE 201, TUCSON, AZ 85719
- MINK,D.J.  
APPULSES AND OCCULTATIONS OF SAO STARS BY MERCURY: 1987-1995  
ICARUS VOL. 71, 478-481 (1987)  
HARVARD-SMITHSONIAN CENTER FOR ASTROPHYSICS, 60 GARDEN ST., CAMBRIDGE, MA 02138
- POTTER,A.E. + MORGAN,T.H.  
VARIATION OF SODIUM ON MERCURY WITH SOLAR RADIATION PRESSURE  
ICARUS VOL. 71, 472-477 (1987)  
NASA JOHNSON SPACE CENTER, HOUSTON, TX 77058
- WORONOW,A. + LOVE,K.M.  
MERCURIAN CRATER-FILLING CLASSES CONSTRAIN THE EMPLACEMENT PROCESS OF THE  
INTERCRATER PLAINS MATERIAL  
ICARUS VOL. 71, 376-385 (1987)  
GEOSCIENCES DEPT., UNIV. OF HOUSTON, HOUSTON, TX 77004
- SATELLITES OF NEPTUNE
- KOHLHASE,C.E.  
AIMING AT NEPTUNE  
ASTRONOMY VOL. 15(11) 6-15 (1987)  
JET PROPULSION LAB., CALIFORNIA INST. OF TECH., PASADENA, CA 91109
- PLUTO
- AUMANN,H.H. + WALKER,R.G.  
IRAS OBSERVATIONS OF THE PLUTO-CHARON SYSTEM  
ASTRONOMICAL JOURNAL VOL. 94, 1088-1091 (1987)  
JET PROPULSION LAB., CALIFORNIA INST. OF TECH., PASADENA, CA 91109

BEATTY, J.K.  
PLUTO AND CHARON: THE DANCE GOES ON  
SKY AND TELESCOPE VOL. 74, 248-251 (1987)

CROSWELL, K.  
A MISSION TO PLUTO  
SPACE WORLD VOL. X-9-285, 22-24 (1987)

EBERHART, J.  
PLUTO: LIMITS ON ITS ATMOSPHERE, ICE ON ITS MOON  
SCIENCE NEWS VOL. 132, 207 (1987)

LACHIEZE-REY, M.  
(FR)PLUTO AND CHARON, A MYSTERIOUS COUPLE  
LA RECHERCHE VOL. 18(191) 1118-1119 (1987)

NO AUTHOR CITED  
PLUTO HAS ICE CAPS AND THIN AIR  
NEW SCIENTIST VOL. 116(1580) 30 (1987)

#### SATELLITES OF PLUTO

BUIE, M.W. + CRUIKSHANK, D.P. + LEBOFSKY, L.A. + TEDESCO, E.F.  
WATER FROST ON CHARON  
NATURE VOL. 329, 522-523 (1987)  
INST. FOR ASTRONOMY, 2680 WOODLAWN DRIVE, HONOLULU, HI 96822

MARCIALIS, R.L. + RIEKE, G.H. + LEBOFSKY, L.A.  
THE SURFACE COMPOSITION OF CHARON: TENTATIVE IDENTIFICATION OF WATER ICE  
SCIENCE VOL. 237, 1349-1351 (1987)  
LUNAR AND PLANETARY LAB., UNIV. OF ARIZONA, TUCSON, AZ 85721

#### SATURN

RICHARDSON, J.D. + EVIATAR, A.  
LIMITS ON THE EXTENT OF SATURN'S HYDROGEN CLOUD  
GEOPHYSICAL RESEARCH LETTERS VOL. 14, 999-1002 (1987)  
CENTER FOR SPACE RESEARCH, 37-655, MIT, CAMBRIDGE, MA 02139

VASUNDHARA, R. + BHATTACHARYYA, J.C.  
A POSSIBLE EXPLANATION OF THE ASYMMETRY IN THE IMMERSION AND EMERSION LIGHT  
CURVES AT 12.5 SATURN RADII  
BEITRAGE ZUR GEOPHYSIK VOL. 96(S) 52-55 (1987)  
INDIAN INST. OF ASTROPHYSICS, BANGALORE 560034, INDIA

#### SATELLITES OF SATURN

SPAHN, F.  
SCATTERING PROPERTIES OF A MOONLET (SATELLITE) EMBEDDED IN A PARTICLE RING:  
APPLICATION TO THE RINGS OF SATURN  
ICARUS VOL. 71, 69-77 (1987)  
INSTITUT FUR KOSMOSFORSCHUNG, RUDOWER CHAUSSEE 5, 1199 BERLIN, GDR

#### URANUS

CARLSON, B.E. + PRATHER, M.J. + ROSSOW, W.B.  
THE ROLE OF AQUEOUS CHEMISTRY IN DETERMINING THE COMPOSITION AND CLOUD STRUCTURE  
OF THE UPPER TROPOSPHERE ON URANUS  
ASTROPHYSICAL JOURNAL VOL. 321, L97-L101 (1987)  
NASA/GODDARD INST. FOR SPACE STUDIES, 2880 BROADWAY, NEW YORK, NY 10025

ELLIOT, J.L. + GLASS, I.S. + FRENCH, R.G. + KANGAS, J.A.  
THE OCCULTATION OF KME 17 BY URANUS AND ITS RINGS  
ICARUS VOL. 71, 91-102 (1987)  
DEPT. OF EARTH, ATMOSPHERIC, AND PLANETARY SCIENCES, MIT, CAMBRIDGE, MA 02139

HERBST, T.M. + SKRUTSKIE, M.F. + NICHOLSON, P.D.  
THE NEAR-INFRARED PHASE CURVE OF THE URANIAN RINGS  
ICARUS VOL. 71, 103-114 (1987)  
DEPT. OF ASTRONOMY, CORNELL UNIV., ITHACA, NY 14853

#### SATELLITES OF URANUS

DAVIES, M.E. + COLVIN, T.R. + KATAYAMA, F.Y.  
THE CONTROL NETWORKS OF THE SATELLITES OF URANUS  
ICARUS VOL. 71, 137-147 (1987)  
THE RAND CORP., 1700 MAIN ST., P.O. BOX 2138, SANTA MONICA, CA 90406-2138

LAZZARO, D. + FERRAZ-MELLO, S. + MARTINS, R.V.  
A SEMI-ANALYTICAL SOLUTION FOR THE ECCENTRICITIES AND LONGITUDES OF THE  
PERICENTER OF THE URANIAN SATELLITES  
ASTRONOMY AND ASTROPHYSICS VOL. 182, 150-158 (1987)  
CNPQ-OBSERVATORIO NACIONAL, RUA GENERAL BRUCE, 586, 20921, RIO DE JANEIRO,  
BRAZIL

VEIGA, C.H. + MARTINS, R.V. + VEILLET, C. + LAZZARO, D.  
POSITION OBSERVATIONS OF THE FIVE GREATEST URANIAN SATELLITES AND COMPARISON  
WITH THEORY  
ASTRONOMY AND ASTROPHYSICS. SUPPLEMENT SERIES VOL. 70, 325-334 (1987)  
CNPQ-OBSERVATORIO NACIONAL--DEA, RUA GENERAL BRUCE 586, 20921 RIO DE JANEIRO,  
BRAZIL

#### VENUS

ALLEN, D.A.  
LAYING BARE VENUS' DARK SECRETS  
SKY AND TELESCOPE VOL. 74, 350-353 (1987)

BILLS, B.G. + KIEFER, W.S. + JONES, R.L.  
VENUS GRAVITY: A HARMONIC ANALYSIS  
JOURNAL OF GEOPHYSICAL RESEARCH VOL. 92, 10,335-10,351 (1987)  
LUNAR AND PLANETARY INST., 3303 NASA ROAD #1, HOUSTON, TX 77058

BREUS, T.K. + KRYMSKII, A.M. + MITNITSKII, V.Y.A.  
EFFECT OF AN EXTENDED NEUTRAL ATMOSPHERE ON THE INTERACTION OF THE SOLAR  
WIND AND THE NONMAGNETIC BODIES OF THE SOLAR SYSTEM. I. VENUS  
COSMIC RESEARCH VOL. 25, 107-114 (1987)

CHERNAYA, I.M. + KRYUCHKOV, V.P. + BAZILEVSKII, A.T. + BURBA, G.A. + RZHIGA, O.N. + PETROV, G.M. + SIDORENKO, A.I. + ALEKSANDROV, YU.N.  
CATALOG OF CRATERS IN THE NORTHERN HEMISPHERE OF VENUS WITH SIGNS OF IMPACT ORIGIN  
SOLAR SYSTEM RESEARCH VOL. 21, 15-20 (1987)

LEU, M.-T. + YUNG, Y.L.  
DETERMINATION OF O<sub>2</sub> (A<sub>1</sub>(DELTA)G) AND O<sub>2</sub> (B<sub>1</sub>(SIGMA)+G) YIELDS IN THE REACTION O + C<sub>10</sub> -> CL + O<sub>2</sub>: IMPLICATIONS FOR PHOTOCHEMISTRY IN THE ATMOSPHERE OF VENUS

GEOPHYSICAL RESEARCH LETTERS VOL. 14, 949-952 (1987)  
EARTH AND SPACE SCIENCE DIV., CALIFORNIA INST. OF TECH., PASADENA, CA 91109

MARKOV, M.S. + TYUFLIN, YU.S. + KADNICHANSKII, S.A. + KOTEL'NIKOV, V.A. + RZHIGA, O.N. + PETROV, G.M. + SIDORENKO, A.I. + ALEKSANDROV, YU.N. + RODIONOVA, N.V. + DUBROVIN, V.M. + BURBA, G.A. + SHASHKINA, V.P.  
A GEOLOGIC AND MORPHOLOGICAL DESCRIPTION. STRUCTURE OF THE BELL REGION (A PHOTOGRAPHIC MAP OF THE SURFACE OF VENUS, PLATE V-23)  
SOLAR SYSTEM RESEARCH VOL. 21, 8-14 (1987)  
GEOLOGICAL INST., ACADEMY OF SCIENCES OF THE USSR, MOSCOW, USSR

PHILLIPS, J.L. + LUHMANN, J.G. + RUSSELL, C.T. + MOORE, K.R.  
FINITE LARMOR RADIUS EFFECT ON ION PICKUP AT VENUS  
JOURNAL OF GEOPHYSICAL RESEARCH VOL. 92, 9920-9930 (1987)  
INST. OF GEOPHYSICS AND PLANETARY PHYSICS, UNIV. OF CALIFORNIA, LOS ANGELES, CA 90024

SOLOMATOV, V.S. + LEONTJEV, V.V. + ZHARKOV, V.N.  
MODELS OF THERMAL EVOLUTION OF VENUS IN THE APPROXIMATION OF PARAMETERIZED CONVECTION  
BEITRAGE ZUR GEOPHYSIK VOL. 96(S) 73-96 (1987)  
DEPT. OF THEORETICAL PHYSICS, INST. OF PHYSICS OF THE EARTH, ACADEMY OF SCIENCE OF THE USSR, B. GRUZINSKAYA 10, MOSCOW 123810, USSR

SUKHANOV, A.L. + BURBA, G.A. + SHASHKINA, V.P. + TYUFLIN, YU.S. + OSTROVSKII, M.V. + KOTEL'NIKOV, V.A. + RZHIGA, O.N. + PETROV, G.M. + SIDORENKO, A.I. + ALEKSANDROV, YU.N. + KRYMOV, A.A. + ZAKHAROV, A.I.  
A GEOLOGIC AND MORPHOLOGICAL DESCRIPTION OF THE REGION OF SUCLI TOMEM AND SULCI HERAE (A PHOTOGRAPHIC MAP OF THE SURFACE OF VENUS, PLATE V-22)  
SOLAR SYSTEM RESEARCH VOL. 21, 1-7 (1987)  
GEOLOGICAL INST., ACADEMY OF SCIENCES OF THE USSR, MOSCOW, USSR

TAYLOR, H.A.JR. + CLOUTIER, P.A. + ZHENG, Z.  
VENUS "LIGHTNING" SIGNALS REINTERPRETED AS IN SITU PLASMA NOISE  
JOURNAL OF GEOPHYSICAL RESEARCH VOL. 92, 9907-9919 (1987)  
LAB. FOR ATMOSPHERES, GODDARD SPACE FLIGHT CENTER, GREENBELT, MD 20771

#### SPACE UTILIZATION (COLONIZATION, ETC.)

MCLAUGHLIN, W.  
TO THE MOON ON THE CHEAP  
SPACEFLIGHT VOL. 29, 301-302 (1987)  
JET PROPULSION LAB., 4800 OAK GROVE DRIVE, PASADENA, CA. 91109

NO AUTHOR CITED  
SUPPORT FOR LUNAR BASE GROWS AMONG NON-AEROSPACE FIRMS  
AVIATION WEEK AND SPACE TECHNOLOGY VOL. 127(15) 109-110 (1987)

NOCK, K.T. + FRIEDLANDER, A.L.  
ELEMENTS OF A MARS TRANSPORTATION SYSTEM  
ACTA ASTRONAUTICA VOL. 15, 505-522 (1987)  
JET PROPULSION LAB., CALIFORNIA INST. OF TECH., 4800 OAK GROVE DRIVE, PASADENA, CA 91109

SEMKOW, K.W. + SAMMELLS, A.F.  
THE INDIRECT ELECTROCHEMICAL REFINING OF LUNAR ORES  
JOURNAL OF THE ELECTROCHEMICAL SOCIETY VOL. 134, 2088-2089 (1987)  
ELTRON RESEARCH, INC., AURORA, IL 60504

WILCOX, B.H. + GENNERY, D.B.  
A MARS ROVER FOR THE 1990'S  
JOURNAL OF THE BRITISH INTERPLANETARY SOCIETY VOL. 40, 484-488 (1987)  
ROBOTICS AND TELEOPERATORS RESEARCH GROUP, JET PROPULSION LAB., CALIFORNIA INST. OF TECH., 4800 OAK GROVE DRIVE, PASADENA, CA 91109

#### ASTEROIDS

BINZEL, R.P. + COCHRAN, A.L. + BARKER, E.S. + THOLEN, O.J. + BARUCCI, A. + DI MARTINO, M. + GREENBERG, R. + WEIDENSCHILLING, S.J. + CHAPMAN, C.R. + DAVIS, D.R.  
COORDINATED OBSERVATIONS OF ASTEROIDS 1219 BRITTA AND 1972 YI XING  
ICARUS VOL. 71, 148-158 (1987)  
DEPT. OF ASTRONOMY, UNIV. OF TEXAS AT AUSTIN, AUSTIN, TX 78712

CRIUKSHANK, D.P. + BROWN, R.H.  
ORGANIC MATTER ON ASTEROID 130 ELEKTRA  
SCIENCE VOL. 238, 183-184 (1987)  
INST. FOR ASTRONOMY, HONOLULU, HI 96822

HARTMANN, W.K.  
A SATELLITE-ASTEROID MYSTERY AND A POSSIBLE EARLY FLUX OF SCATTERED C-CLASS ASTEROIDS  
ICARUS VOL. 71, 57-68 (1987)  
PLANETARY SCIENCE INST., 2030 EAST SPEEDWAY, SUITE 201, TUCSON, AZ 85719

IP, W.-H.  
GRAVITATIONAL STIRRING OF THE ASTEROID BELT BY JUPITER ZONE BODIES  
BEITRAGE ZUR GEOPHYSIK VOL. 96(S) 44-51 (1987)  
MAX-PLANCK-INSTITUT FUR AERONOMIE, 0-3411 KATLENBURG-LINDAU, FRG

LAGERKVIST, C.-I. + HAHN, G. + MAGNUSSON, P. + RICKMAN, H.  
PHYSICAL STUDIES OF ASTEROIDS XVI: PHOTOELECTRIC PHOTOMETRY OF 17 ASTEROIDS  
ASTRONOMY AND ASTROPHYSICS. SUPPLEMENT SERIES VOL. 70, 21-32 (1987)  
ASTRONOMiska OBSERVATORIET, BOX 515, 751 20 UPPSALA, SWEDEN

SCHOBER, H.J.  
ROTATION AND VARIABILITY OF THE LARGE C-TYPE ASTEROID 375 URSLA  
ASTRONOMY AND ASTROPHYSICS VOL. 183, 151-155 (1987)  
INSTITUT FUR ASTRONOMIE, UNIVERSITATSPLATZ 5, A-8010 GRAZ, AUSTRIA

WEBSTER,W.J.JR.  
ON THE SIMPLE MODELS FOR THE INTERPRETATION OF CENTIMETER-WAVELENGTH RADIO  
OBSERVATIONS OF ASTEROIDS  
ASTRONOMICAL SOCIETY OF THE PACIFIC. PUBLICATIONS VOL. 99, 1009-1013 (1987)  
GEOPHYSICS BRANCH, NASA-GODDARD SPACE FLIGHT CENTER, GREENBELT, MD 20771

## COMETS

ALLEN,D.A. + WICKRAMASINGHE,D.T.  
DISCOVERY OF ORGANIC GRAINS IN COMET WILSON  
NATURE VOL. 329, 615-616 (1987)  
ANGLO-AUSTRALIAN OBSERVATORY, EPPING, NSW 2121, AUSTRALIA

BAILEY,M.E. + WILKINSON,D.A. + WOLFENDALE,A.W.  
CAN EPISODIC COMET SHOWERS EXPLAIN THE 30-MYR CYCLICITY IN THE TERRESTRIAL  
RECORD?

ROYAL ASTRONOMICAL SOCIETY. MONTHLY NOTICES VOL. 227, 863-885 (1987)  
DEPT. OF ASTRONOMY, UNIV. OF MANCHESTER, M13 9PL, MANCHESTER, UK

BAJAJA,E. + MORRAS,R. + POPPEL,W.G.L. + CERSOSIMO,J.C. + MARTIN,M.C. +  
MAZZARO,J. + OLALDE,J.C. + SILVA,A. + ARNAL,M.E. + COLOMB,F.R.  
OBSERVATION OF THE OH 1667 MHZ LINE TOWARD COMET HALLEY FROM THE SOUTHERN  
HEMISPHERE

ASTROPHYSICAL JOURNAL VOL. 322, 549-558 (1987)  
INSTITUTO ARGENTINO DE RADIOASTRONOMIA, C.C.5, 1984 VILLA ELISA, BUENOS AIRES,  
ARGENTINA

BRANDT,J.C.  
THE NATURE OF COMETS  
ROYAL SOCIETY OF LONDON. PHILOSOPHICAL TRANSACTIONS A VOL. 323, 437-446 (1987)  
LAB. FOR ASTRONOMY AND SOLAR PHYSICS, NASA-GODDARD SPACE FLIGHT CENTER,  
GREENBELT, MD 20771

CHEN,D. + ZHENG,X.  
FOUNTAIN MODEL AND THE ROTATION OF COMETARY NUCLEI  
SCIENTIA SINICA A VOL. 30, 860-867 (1987)  
PURPLE MOUNTAIN OBSERVATORY, ACADEMIA SINICA, NANJING, CHINA

CHYBA,C. + SAGAN,C.  
COMETARY ORGANICS BUT NO EVIDENCE FOR BACTERIA  
NATURE VOL. 329, 208 (1987)  
LAB. FOR PLANETARY STUDIES, CORNELL UNIV., ITHACA, NY 14853

COMBI,M.R.  
SOURCES OF COMETARY RADICALS AND THEIR JETS: GASES OR GRAINS  
ICARUS VOL. 71, 178-191 (1987)  
ATMOSPHERIC AND ENVIRONMENTAL RESEARCH INC., 840 MEMORIAL DRIVE, CAMBRIDGE,  
MA 02319

COWLEY,S.W.H.  
ICE OBSERVATIONS OF COMET GIACOBINI-ZINNER  
ROYAL SOCIETY OF LONDON. PHILOSOPHICAL TRANSACTIONS A VOL. 323, 405-420 (1987)  
BLACKETT LAB., IMPERIAL COLLEGE, LONDON SW7 2BZ, UK

CRAVENS,T.E.  
ION ENERGETICS IN THE INNER COMA OF COMET HALLEY  
GEOPHYSICAL RESEARCH LETTERS VOL. 14, 983-986 (1987)  
SPACE PHYSICS RESEARCH LAB., UNIV. OF MICHIGAN, ANN ARBOR, MI 48109

EBERHART,J.  
A BUNCH OF LITTLE COMETS -- BUT JUST A LITTLE BUNCH  
SCIENCE NEWS VOL. 132, 132 (1987)

EBERHART,J.  
HALLEY'S WHISKERS: FIRST SPACE POLYMER DETECTED  
SCIENCE NEWS VOL. 132, 100 (1987)

ENCRENAZ,T.  
COMET HALLEY: THE GAS COMPOSITION DERIVED FROM SPACE MISSIONS  
ROYAL SOCIETY OF LONDON. PHILOSOPHICAL TRANSACTIONS A VOL. 323, 397-404 (1987)  
OBSERVATOIRE DE PARIS-MEUDON, SECTION D'ASTROPHYSIQUE, 92190, MEUDON, FRANCE

FERNANDEZ,J.A. + IP,W.-H.  
TIME-DEPENDENT INJECTION OF DUST CLOUD COMETS INTO EARTH-CROSSING ORBITS  
ICARUS VOL. 71, 46-56 (1987)  
DEPARTAMENTO DE ASTROFISICA, FACULTAD DE HUMANIDADES Y CIENCIAS, TRISTAN NARVAJA  
1674, MONTEVIDEO, URUGUAY

FULLE,M.  
METEOROIDS FROM COMET BENNETT 1970II  
ASTRONOMY AND ASTROPHYSICS VOL. 183, 392-396 (1987)  
INTERNATIONAL SCHOOL FOR ADVANCED STUDIES, STRADA COSTIERA, 11, I-34014 TRIESTE  
ITALY

GALEEV,A.A. + POLYUDOV,A.N. + SAGDEEV,R.Z. + SZEGO,K. + SHAPIRO,V.D. +  
SHEVCHEN,V.I.  
(RS)MAGNETOHYDRODYNAMIC TURBULENCE IN SOLAR-WIND INTERACTING WITH A COMET  
ZHURNAL EKSPERIMENTALNOI I TEORETICHESKOI FIZIKI VOL. 92, 2090-2105 (1987)  
INST. OF SPACE RESEARCH, ACADEMY OF SCIENCES OF THE USSR, MOSCOW V-71, USSR

GEBALLE,T.R.  
ORGANIC CHEMICALS IN COMETS  
NATURE VOL. 329, 583 (1987)  
UNITED KINGDOM INFRARED TELESCOPE, 665 KOMOHANA STREET, HILO, HI 96720

HANNER,M.S. + NEWBURN,R.L. + SPINRAD,H. + VEEDER,G.J.  
COMET SUGANO-SAIKUSA-FUJIKAWA (1983V) -- A SMALL, PUZZLING COMET  
ASTRONOMICAL JOURNAL VOL. 94, 1081-1087 (1987)  
JET PROPULSION LAB., CALIFORNIA INST. OF TECH., PASADENA, CA 91109

HECHT,J.  
COMETS MAKE A SMALLER IMPACT  
NEW SCIENTIST VOL. 115(1573) 29 (1987)

HERMAN,G. + SALO,H.  
LIGHT SCATTERING IN COMETARY DUST COMAE  
EARTH, MOON, AND PLANETS VOL. 39, 51-74 (1987)  
EARTH AND SPACE SCIENCES DIV., JET PROPULSION LAB., PASADENA, CA 91109

- HUEBNER,W.F. + BOICE,D.C. + SHARP,C.M.  
POLYOXYMETHYLENE IN COMET HALLEY  
ASTROPHYSICAL JOURNAL VOL. 320, L149-L152 (1987)  
SOUTHWEST RESEARCH INST., P.O. DRAWER 28510, 6220 CULEBRA ROAD, SAN ANTONIO,  
TX 78284
- HUGHES,D.W.  
THE HISTORY OF HALLEY'S COMET  
ROYAL SOCIETY OF LONDON. PHILOSOPHICAL TRANSACTIONS A VOL. 323, 349-367 (1987)  
DEPT. OF PHYSICS, UNIV. OF SHEFFIELD, SHEFFIELD S3 7RH, UK
- HUT,P. + ALVAREZ,W. + ELDER,W.P. + HANSEN,T. + KAUFFMAN,E.G. + KELLER,G. +  
SHOEMAKER,E.M. + WEISSMAN,P.R.  
COMET SHOWERS AS A CAUSE OF MASS EXTINCTIONS  
NATURE VOL. 329, 118-126 (1987)  
INST. FOR ADVANCED STUDY, PRINCETON, NJ 08540
- IOFFE,Z.M.  
(RS)INSTABILITY OF THE COMETARY IONOPAUSE AND POSSIBLE MECHANISM OF FORMATION  
OF STRUCTURE IN IONIZED COMETARY TAILS  
ASTRONOMICHESKII ZHURNAL VOL. 64, 145-150 (1987)
- KRUEGER,F.R. + KISSEL,J.  
THE CHEMICAL COMPOSITION OF THE DUST OF COMET P/HALLEY AS MEASURED BY "PUMA"  
ON BOARD VEGA-1  
NATURWISSENSCHAFTEN VOL. 74, 312-316 (1987)  
ARHEILGER APOTHEKE, D-6100 DARMSTADT, FRG
- MAROV,M.YA. + KOLESNICHENKO,A.V. + SKOROV,YU.V.  
A THERMAL AND PHOTOMETRIC MODEL OF A COMETARY NUCLEUS  
SOLAR SYSTEM RESEARCH VOL. 21, 28-38 (1987)  
M.V. KELDYSH INST. OF APPLIED MATHEMATICS, ACADEMY OF SCIENCES OF THE USSR,  
MOSCOW, USSR
- MCDONNELL,J.A.M. + ZARNECKI,J.C. + OLEARCZYK,R.E. + CHAKAVEH,S.C. +  
PANKIEWICZ,G.S.A. + EVANS,S.T.  
GIOTTO OBSERVATIONS OF COMET HALLEY DUST  
ROYAL SOCIETY OF LONDON. PHILOSOPHICAL TRANSACTIONS A VOL. 323, 381-395 (1987)  
UNIT FOR SPACE SCIENCES, UNIV. OF KENT AT CANTERBURY, CANTERBURY, KENT  
CT2 7NR, UK
- MEADOWS,A.J.  
EARTH-BASED OBSERVATIONS OF COMET HALLEY DUST AND GAS  
ROYAL SOCIETY OF LONDON. PHILOSOPHICAL TRANSACTIONS A VOL. 323, 369-379 (1987)  
DEPT. OF ASTRONOMY, UNIV. OF LEICESTER, UNIVERSITY ROAD, LEICESTER LE1 7RH, UK
- MENDIS,D.A.  
A COMETARY AURORA  
EARTH, MOON, AND PLANETS VOL. 39, 17-20 (1987)  
CENTER FOR ASTROPHYSICS AND SPACE SCIENCE, UNIV. OF CALIFORNIA AT SAN DIEGO,  
LA JOLLA, CA 92093
- MIHALOV,J.D. + COLLARD,H.R. + INTRILIGATOR,D.S. + BARNES,A.  
OBSERVATION BY PIONEER 7 OF HE+ IN THE DISTANT COMA OF HALLEY'S COMET  
ICARUS VOL. 71, 192-197 (1987)  
SPACE SCIENCE DIV., NASA-AMES RESEARCH CENTER, MOFFETT FIELD, CA 94035
- NEUGEBAUER,M. + NEUBAUER,F.M. + BALSIGER,H. + FUSELIER,S.A. + GOLDSTEIN,B.E. +  
GOLDSTEIN,R. + MARIANI,F. + ROSENBAUER,H. + SCHWENN,R. + SHELLEY,E.G.  
THE VARIATIONS OF PROTONS, ALPHA PARTICLES, AND THE MAGNETIC FIELD ACROSS THE  
BOW SHOCK OF COMET HALLEY  
GEOPHYSICAL RESEARCH LETTERS VOL. 14, 995-998 (1987)  
JET PROPULSION LAB., CALIFORNIA INST. OF TECH., PASADENA, CA 91109
- OLSSON-STEEL,D.  
COMET NISHIKAWA-TAKAMIZAWA-TAGO (1987C) AND THE EPSILON GEMINID METEOR SHOWER  
ROYAL ASTRONOMICAL SOCIETY. MONTHLY NOTICES VOL. 228, 23P-28P (1987)  
LUND OBSERVATORY, BOX 43, S-22100 LUND SWEDEN
- PADEVET,V.  
END HEIGHTS OF FIREBALLS AND PLANETARY ORIGIN OF COMETS  
ASTRONOMICAL INSTITUTE OF CZECHOSLOVAKIA BULLETIN VOL. 38, 156-163 (1987)  
ASTRONOMICAL INST., CZECHOSLOVAK ACADEMY OF SCIENCES, 251 65 ONDREJOV,  
CZECHOSLOVAKIA
- RADZIEVSKII,V.V.  
ORIGIN OF SHORT-PERIOD COMETS  
SOLAR SYSTEM RESEARCH VOL. 21, 53-59 (1987)  
STATE PEDAGOGICAL INST., GORKI, USSR
- RIDPATH,I.  
NEW VIEW OF COMET HALLEY NUCLEUS  
SPACEFLIGHT VOL. 29, 274 (1987)
- RUSSELL,C.T. + LUHMANN,J.G.  
AN EXAMINATION OF POSSIBLE SOLAR WIND SOURCES FOR A SUDDEN BRIGHTENING OF COMET  
IRAS-ARAKI-ALCOCK  
GEOPHYSICAL RESEARCH LETTERS VOL. 14, 991-994 (1987)  
INST. OF GEOPHYSICS AND PLANETARY PHYSICS, UNIV. OF CALIFORNIA AT LOS ANGELES,  
LOS ANGELES, CA 90024
- RUSSELL,C.T. + PHILLIPS,J.L. + FEDDER,J.A. + ALLEN,J.H. + MORRIS,L. + CRAIG,R.A.  
EFFECT OF POSSIBLE PASSAGE THROUGH HALLEY'S MAGNETIC TAIL ON GEOMAGNETIC  
ACTIVITY  
JOURNAL OF GEOPHYSICAL RESEARCH VOL. 92, 11,195-11,200 (1987)  
INST. OF GEOPHYSICS AND PLANETARY PHYSICS, UNIV. OF CALIFORNIA AT LOS ANGELES,  
LOS ANGELES, 90024
- SAGDEEV,R.Z. + KSANFOMALITY,L.V.  
HALF AN HOUR IN THE COMET'S COMA  
PLANETARY REPORT VOL. 7(5) 4-7 (1987)  
INST. FOR SPACE RESEARCH, ACADEMY OF SCIENCES OF THE USSR, MOSCOW, USSR
- SAVCHENKO,V.V.  
REFINEMENT OF THE COORDINATES OF HALLEY'S COMET WITH CONSIDERATION OF  
DISPLACEMENT OF THE OPTICAL CENTER RELATIVE TO THE CENTER OF MASS  
SOLAR SYSTEM RESEARCH VOL. 21, 38-40 (1987)  
M.V. KELDYSH INST. OF APPLIED MATHEMATICS, ACADEMY OF SCIENCES OF THE USSR,  
MOSCOW, USSR

SINGH,M. + CHATURVEDI,J.P.  
ENERGY DISTRIBUTION FOR COMET HALLEY  
EARTH, MOON, AND PLANETS VOL. 39, 197-201 (1987)  
DEPT. OF PHYSICS, UNIV. OF GORAKHPUR, U.P., INDIA

SPINRAD,H.  
COMETS AND THEIR COMPOSITION  
ANNUAL REVIEW OF ASTRONOMY AND ASTROPHYSICS VOL. 25, 231-269 (1987)  
ASTRONOMY DEPT., UNIV. OF CALIFORNIA AT BERKELEY, BERKELEY, CA 94720

STECKLUM,B. + PFAU,W. + HEESSE,M.  
PHOTOELECTRIC PHOTOMETRY OF COMETS IN THE SYSTEM OF STANDARD IHW FILTERS AND THE  
SPECIAL CASE OF COMET P/HALLEY  
ASTRONOMICHE NACHRICHTEN VOL. 308, 239-246 (1987)  
INIVERSITATS-STERNWARTE JENA, SCHILLERGASCHEN 2, DDR-6900, JENA, GDR

SWENSON,B.L. + SQUYRES,S.W. + KNIGHT,T.C.D.  
A PROPOSED COMET NUCLEUS PENETRATOR FOR THE COMET RENDEZVOUS ASTEROID FLYBY  
MISSION  
ACTA ASTRONAUTICA VOL. 15, 471-479 (1987)  
NASA AMES RESEARCH CENTER, MOFFETT FIELD, CA 94035

TSURUTANI,B.T. + THORNE,R.M. + SMITH,E.J. + GOSLING,J.T. + MATSUMOTO,H.  
STEEPENED MAGNETOSONIC WAVES AT COMET GIACOBINI-ZINNER  
JOURNAL OF GEOPHYSICAL RESEARCH VOL. 92, 11,074-11,082 (1987)  
JET PROPULSION LAB., MS 169-506, CALIFORNIA INST. OF TECH., PASADENA, CA 91109

VERIGIN,M.I. + AXFORD,W.I. + GRINGAUZ,K.I. + RICHTER,A.K.  
ACCELERATION OF COMETARY PLASMA IN THE VICINITY OF COMET HALLEY ASSOCIATED WITH  
AN INTERPLANETARY MAGNETIC FIELD POLARITY CHANGE  
GEOPHYSICAL RESEARCH LETTERS VOL. 14, 987-990 (1987)  
SPACE RESEARCH INST., USSR ACADEMY OF SCIENCES, MOSCOW, USSR

WAGNER,R.M. + LUTZ,B.L. + WYCKOFF,S.  
GROUND-BASED CONSTRAINTS ON THE H<sub>2</sub>O+/CO+ ABUNDANCE RATIO AND DUST IMPACT RATE  
IN COMET P/GIACOBINI-ZINNER: COMPARISON WITH THE ICE SPACECRAFT RESULTS  
ASTROPHYSICAL JOURNAL VOL. 322, 544-548 (1987)  
LOWELL OBSERVATORY, 1400 W. MARS HILL ROAD, FLAGSTAFF, AZ 86001

WATANABE,J.-I.  
THE ROTATION OF COMET 1983 VII IRAS-ARAKI-ALCOCK  
ASTRONOMICAL SOCIETY OF JAPAN. PUBLICATIONS VOL. 39, 485-503 (1987)  
DEPT. OF ASTRONOMY, UNIV. OF TOKYO, BUNKYO-KU, TOKYO 113, JAPAN

WHIPPLE,F.L.  
A REVIEW OF COMETARY SCIENCES  
ROYAL SOCIETY OF LONDON. PHILOSOPHICAL TRANSACTIONS A VOL. 323, 339-347 (1987)  
SMITHSONIAN ASTROPHYSICAL OBSERVATORY, 60 GARDEN STREET, CAMBRIDGE, MA 02138

WOLF,M. + VANYSEK,V.  
THE IHW NARROW-BAND PHOTOMETRY OF COMETS GIACOBINI-ZINNER AND HALLEY  
ASTRONOMICAL INSTITUTE OF CZECHOSLOVAKIA BULLETIN VOL. 38, 136-142 (1987)  
DEPT. OF ASTRONOMY AND ASTROPHYSICS, CHARLES UNIV., SVEDSKA 8, 150 00 PRAHA 5,  
CZECHOSLOVAKIA

## METEORITES

ANDERS,E.  
LOCAL AND EXOTIC COMPONENTS OF PRIMITIVE METEORITES, AND THEIR ORIGIN  
ROYAL SOCIETY OF LONDON. PHILOSOPHICAL TRANSACTIONS A VOL. 323, 287-304 (1987) 49  
ENRICO FERMI INST., UNIV. OF CHICAGO, CHICAGO, IL 60637

AYLMER,D. + BEGEMANN,F. + CLOTH,P. + DRAGOVITSCH,P. + ENGLERT,P. + FILGES,D. +  
HERPERS,U. + HERZOG,G.F. + JERMAIKAN,A. + KLEIN,J. + KRUSE,T.H. + MICHEL,R. +  
MONIOT,R.K. + MIDDLETON,R. + PEIFFER,F. + SIGNER,P. + STUCK,R. + THEIS,S. +  
TUNIZ,C. + VADJA,S. + WEBER,H. + WIELER,R.  
MONTE CARLO MODELLING AND COMPARISON WITH EXPERIMENT OF THE NUCLIDE PRODUCTION  
IN THICK STONY TARGETS ISOTROPICALLY IRRADIATED WITH 600 MEV PROTONS:  
COLOGNE COLLABORATION OF THE EXPERIMENT CERN SC96  
BERICHTE DER KERNFORSCHUNGSSANLAGE JULICH - NR. 2130, INSTITUT FÜR  
REAKTORENTWICKLUNG JUL-2130, MAY 1987 (1987)  
ZENTRALEINRICHTUNG FÜR STRAHLENSCHUTZ, UNIVERSITÄT HANNOVER, HANNOVER, FRG

COLLINSON,D.W.  
MAGNETIC PROPERTIES OF THE OLIVENZA METEORITE--POSSIBLE IMPLICATIONS FOR ITS  
EVOLUTION AND AN EARLY SOLAR SYSTEM MAGNETIC FIELD  
EARTH AND PLANETARY SCIENCE LETTERS VOL. 84, 369-380 (1987)  
INST. OF LUNAR AND PLANETARY SCIENCE, UNIV. OF NEWCASTLE UPON TYNE, NE1 7RU, UK

EASTON,A.J. + CLAUGHER,D. + BUCHWALD,V.F.  
PLESSES AND ASSOCIATED STRUCTURES IN THE CAPE YORK IRON METEORITE REVEALED  
BY CHLORINE CORROSION  
MICRON AND MICROSCOPICA ACTA VOL. 18, 101-105 (1987)  
DEPT. OF MINERALOGY, BRITISH MUSEUM(NATURAL HISTORY), CROMWELL ROAD, LONDON, UK

EBIHARA,M.  
DETERMINATION OF TEN LANTHANOIDS IN CHONDRTIC METEORITES BY RADIOCHEMICAL  
NEUTRON ACTIVATION ANALYSIS USING COAXIAL AND PLANAR TYPE PURE GE DETECTORS  
JOURNAL OF RADIOANALYTICAL AND NUCLEAR CHEMISTRY VOL. 111, 385-397 (1987)  
DEPT. OF CHEMISTRY, GUNMA UNIV., 4-2 ARAMAKI, MAEBASHI, GUNMA 371, JAPAN

GOODRICH,C.A. + JONES,J.H.  
ORIGIN AND EVOLUTION OF THE UREILITE PARENT MAGMAS: MULTI-STAGE IGNEOUS  
ACTIVITY ON A LARGE PARENT BODY  
GEOCHIMICA ET COSMOCHIMICA ACTA VOL. 51, 2255-2273 (1987)  
LUNAR AND PLANETARY LAB., UNIV. OF ARIZONA, TUCSON, AZ 85721

HEUMANN,K.G. + GALL,M. + WEISS,H.  
GEOCHEMICAL INVESTIGATIONS TO EXPLAIN IODINE-OVERABUNDANCES IN ANTARCTIC  
METEORITES  
GEOCHIMICA ET COSMOCHIMICA ACTA VOL. 51, 2541-2547 (1987)  
INSTITUT FÜR ANORGANISCHE CHEMIE DER UNIVERSITÄT, UNIVERSITÄTSSTRASSE 31, 8400  
REGENSBURG, FRG

JANSSENS,M.-J. + HERTOGEN,J. + WOLF,R. + EBIHARA,M. + ANDERS,E.  
UREILITES: TRACE ELEMENT CLUES TO THEIR ORIGIN  
GEOCHIMICA ET COSMOCHIMICA ACTA VOL. 51, 2275-2283 (1987)  
ENRICO FERMI INST. UNIV. OF CHICAGO, CHICAGO, IL 60637

KERR,R.A.  
MARTIAN METEORITES ARE ARRIVING  
SCIENCE VOL. 237, 721-723 (1987)

KERR,R.A.  
IF METEORITES COME FROM MARS ...  
SCIENCE VOL. 237, 722 (1987)

KERRIDGE,J.F. + CHANG,S. + SHIPP,R.  
ISOTOPIC CHARACTERISATION OF KEROGEN-LIKE MATERIAL IN THE MURCHISON  
CARBONACEOUS CHONDRITE  
GEOCHIMICA ET COSMOCHIMICA ACTA VOL. 51, 2527-2540 (1987)  
INST. OF GEOPHYSICS, UNIV. OF CALIFORNIA, LOS ANGELES, CA 90024

LEBEDINETS,V.N.  
DECELERATION OF FAINT PHOTOGRAPHIC METEORS AND THE DENSITY OF METEOROIDS  
SOLAR SYSTEM RESEARCH VOL. 21, 41-47 (1987)  
INST. OF EXPERIMENTAL METEOROLOGY, GOSKOMGIDROMETA, USSR

MCSWEEN,H.Y.JR.  
AQUEOUS ALTERATION IN CARBONACEOUS CHONDRITES: MASS BALANCE CONSTRAINTS ON  
MATRIX MINERALOGY  
GEOCHIMICA ET COSMOCHIMICA ACTA VOL. 51, 2469-2477 (1987)  
DEPT. OF GEOLOGICAL SCIENCES, UNIV. OF TENNESSEE, KNOXVILLE, TN 37996

NAGAHARA,H. + KUSHIRO,I.  
ORIGIN OF IRON-RICH OLIVINE IN THE MATRICES OF TYPE 3 ORDINARY CHONDRITES:  
AN EXPERIMENTAL STUDY  
EARTH AND PLANETARY SCIENCE LETTERS VOL. 85, 537-547 (1987)  
GEOLOGICAL INST., UNIV. OF TOKYO, HONGO, TOKYO 133, JAPAN

NAGAI,H. + MOMOSE,K.-I. + FUNAKI,M.  
MAGNETIC PROPERTIES AND REMANENT MAGNETIZATION OF A MIXTURE OF FE-NI ALLOYS  
SIMULATED TO THE YAMATO 74646 (LL6) CHONDRITE  
JOURNAL OF GEOMAGNETISM AND GEOELECTRICITY VOL. 39, 431-436 (1987)  
DEPT. OF PHYSICS, SHINSHU UNIV., MATSUMOTO, JAPAN

OUYANG,Z. + FAN,C. + YI,W. + WANG,X. + BEGEMANN,F. + KERSTEN,T. + HEUSSER,G. +  
PERNICKA,E.  
DEPTH DISTRIBUTION OF COSMOGENIC NUCLIDES IN BORING CORE SAMPLES OF JILIN  
METEORITE AND ITS COSMIC RAY IRRADIATION HISTORY  
SCIENTIA SINICA A VOL. 30, 885-896 (1987)  
INST. OF GEOCHEMISTRY, ACADEMIA SINICA, GUIYANG, CHINA

PETAYEV,M.I. + LAVRUKHINA,A.K. + KHODAKOVSKIY,I.L.  
THE ORIGINS OF MINERALS IN ENSTATITE METEORITES  
GEOCHEMISTRY INTERNATIONAL VOL. 24, 1-12 (1987)  
VERNADSKIY INST. OF GEOCHEMISTRY AND ANALYTICAL CHEMISTRY, ACADEMY OF SCIENCES  
OF THE USSR, MOSCOW, USSR

SCORZELLI,R.B. + AZEVEDO,I.S. + DANON,J. + MEYERS,M.A.  
MOSSBAUER STUDY OF SHOCK-INDUCED EFFECTS IN THE ORDERED ALLOY FESON150 IN  
METEORITES  
JOURNAL OF PHYSICS F-METAL PHYSICS VOL. 17, 1993-1997 (1987)  
CENTRO BRASILEIRO DE PESQUISAS FISICAS, RUA DR XAVIER SIGAUD, 150, 22290  
RIO DE JANEIRO

TRIVEDI,B.M.P.  
CHEMICAL CONDENSATION IN THE OUTFLOWING MATTER FROM THE PROTO-SUN AND ITS  
APPLICATIONS TO METEORITES  
ASTROPHYSICAL JOURNAL VOL. 320, 430-436 (1987)  
DEPT. OF GEOLOGY, ARIZONA STATE UNIV., TEMPE, AZ 85287

TSVETKOV,V.I.  
(RS)ORBITS OF METEORITES OF VARIOUS PETROCHEMICAL TYPES  
GEOKHIMIYA VOL. 1987(8) 1198-1200 (1987)  
V.I. VERNADSKII GEOCHEMISTRY AND ANALYTICAL CHEMISTRY INST., MOSCOW, USSR

VICKERY,A.M. + MELOSH,H.J.  
THE LARGE CRATER ORIGIN OF SNC METEORITES VOL. 237, 738-743 (1987)  
LUNAR AND PLANETARY LAB., UNIV. OF ARIZONA, TUCSON, AZ 85721

ZINNER,E. + EPSTEIN,S.  
HEAVY CARBON IN INDIVIDUAL OXIDE GRAINS FROM THE MURCHISON METEORITE  
EARTH AND PLANETARY SCIENCE LETTERS VOL. 84, 359-368 (1987)  
MCDONNELL CENTER FOR THE SPACE SCIENCES, WASHINGTON UNIV., ST. LOUIS, MO 63130

MISCELLANEOUS (INTERPLANETARY DUST, TEKTITES, CRETACEOUS-TERTIARY EVENTS, ETC.)

ARNOULD,M.  
NUCLEOSYNTHESIS CONTRIBUTIONS TO THE SOLAR NEBULA  
ROYAL SOCIETY OF LONDON. PHILOSOPHICAL TRANSACTIONS A VOL. 323, 251-267 (1987)  
INSTITUT D'ASTRONOMIE, D'ASTROPHYSIQUE ET DE GEOPHYSIQUE, CP 165, UNIVERSITE  
LIBRE DE BRUXELLES, AVENUE F.D. ROOSEVELT 50, B-1050, BRUXELLES, BELGIUM

BROWNLEE,D.E.  
MORPHOLOGICAL, CHEMICAL AND MINERALOGICAL STUDIES OF COSMIC DUST  
ROYAL SOCIETY OF LONDON. PHILOSOPHICAL TRANSACTIONS A VOL. 323, 305-311 (1987)  
DEPT. OF ASTRONOMY, UNIV. OF WASHINGTON, SEATTLE, WA 98195

CLUBE,S.V.M.  
THE ORIGIN OF DUST IN THE SOLAR SYSTEM  
ROYAL SOCIETY OF LONDON. PHILOSOPHICAL TRANSACTIONS A VOL. 323, 421-436 (1987)  
DEPT. OF ASTROPHYSICS, SOUTH PARKS ROAD, OXFORD OX1 3RQ, UK

HENBEST,N.  
ASTRONOMERS CATCH THE DIAMONDS IN STARDUST  
NEW SCIENTIST VOL. 116(1580) 30 (1987)

MACKINNON,I.D.R.  
SECRETS OF BLACK DUST REVEALED  
NATURE VOL. 328, 670-671 (1987)  
DEPT. OF GEOLGY, NORTHROP HALL, UNIV. OF NEW MEXICO, ALBUQUERQUE, NM 87131

MACKINNON,I.D.R. + RIETMEIJER,F.J.M.  
MINERALOGY OF CHONDRTIC INTERPLANETARY DUST PARTICLES  
REVIEWS OF GEOPHYSICS VOL. 25, 1527-1553 (1987)  
DEPT. OF GEOLOGY, UNIV. OF NEW MEXICO, ALBUQUERQUE, NM 87131

MAURETTE,M. + JEHANNO,C. + ROBIN,E. + HAMMER,C.  
CHARACTERISTICS AND MASS DISTRIBUTION OF EXTRATERRESTRIAL DUST FROM THE  
GREENLAND ICE CAP  
NATURE VOL. 328, 699-702 (1987)  
LABORATOIRE RENE BERNAS, 91406 ORSAY, FRANCE

MCKEEGAN,K.D.  
OXYGEN ISOTOPES IN REFRACATORY STRATOSPHERIC DUST PARTICLES: PROOF OF  
EXTRATERRESTRIAL ORIGIN  
SCIENCE VOL. 237, 1468-1471 (1987)  
MAIL STOP L-396, LAWRENCE LIVERMORE NATIONAL LAB., LIVERMORE, CA 94550

MONASTERSKY,R.  
TAKING A VACUUM TO EXTRATERRESTRIAL DUST  
SCIENCE NEWS VOL. 132, 133 (1987)

NO AUTHOR CITED  
SPARKLERS FROM OUTER SPACE  
NEW SCIENTIST VOL. 115(1577) 36 (1987)

OMAR,G. + JOHNSON,K.R. + HICKEY,L.J. + ROBERTSON,P.B. + DAWSON,M.R. +  
BARNOSKY,C.W.  
FISSION-TRACK DATING OF HAUGHTON ASTROBLEME AND INCLUDED BIOTA, DEVON ISLAND,  
CANADA  
SCIENCE VOL. 237, 1603-1605 (1987)  
DEPT. OF GEOLOGY, UNIV. OF PENNSYLVANIA, PHILIDELPHIA, PA 19104

PILLINGER,C.T.  
STABLE ISOTOPE MEASUREMENTS OF METEORITES AND COSMIC DUST GRAINS  
ROYAL SOCIETY OF LONDON. PHILOSOPHICAL TRANSACTIONS A VOL. 323, 313-322 (1987)  
PLANETARY SCIENCES UNIT, DEPT. OF EARTH SCIENCES, THE OPEN UNIV., MILTON KEYNES  
MK7 6AA, UK

SMITH,D.  
INTERSTELLAR MOLECULES  
ROYAL SOCIETY OF LONDON. PHILOSOPHICAL TRANSACTIONS A VOL. 323, 269-286 (1987)  
DEPT. OF SPACE RESEARCH, UNIV. OF BIRMINGHAM, P.O. BOX 363, BIRMINGHAM  
B15 2TT, UK

ZOLENSKY,M.E.  
REFRACTORY INTERPLANETARY DUST PARTICLES  
SCIENCE VOL. 237, 1466-1468 (1987)  
SOLAR SYSTEM EXPLORATION DIV., SN2/NASA, JOHNSON SPACE CENTER, HOUSTON, TX 77058



TECHNICAL REPORTS

# BOOKS SLIDE SETS POSTER

## Books

### ORIGIN OF THE MOON

**W.K. Hartmann, R.J. Phillips, G.J. Taylor, eds.**

*Origin of the Moon* provides a synthesis of models and theories about the formation of the Moon. In this collection of 33 original research and review papers are the findings and contributions of both data analysts and planetary theorists. There are historical reviews covering the early history of scientific thinking as well as scenarios based on the post-Apollo views.

The book includes papers discussing the traditional scenarios of capture, fission, and coaccretion. Two additional ideas—the impact-trigger model and a coaccretional "composition filter" model—are also presented. Dynamic, geochemical, and geophysical constraints are explored in detail  
**800 pp., 187 figures, glossary, subject and author indexes**

**Hardcover \$25.00**

### LUNAR BASES AND SPACE ACTIVITIES OF THE 21ST CENTURY\*

**Edited by W.W. Mendell**

This book contains 90 individual articles which address the various problems and opportunities associated with development of a manned base on the Moon. Also included are ideas for missions to Mars and other proposed space activities of the twenty-first century. It is an informative, referenceable text for research scientists and college students as well as interested laymen and is heavily illustrated with diagrams, photos, and artists' conceptions. As applicable to lunar occupation, the technology discussed encompasses agriculture, architecture, astronomy, engineering, economics, geology, hydrology, medicine and health, mining, manufacturing, physics, and space research.

**865 pp., 211 figures and illustrations, indexes, references**

**Softcover \$20.00**

\*Beautiful full-color poster of cover painting also available!

### PLANETARY SCIENCE: A LUNAR PERSPECTIVE

**S. Ross Taylor**

This publication is an excellent synthesis of information on our understanding of the nature, origin, and evolution of the solar system. It addresses such topics as: planetary geology and stratigraphy; meteorite impacts, craters and multi-ring basins; planetary surfaces and crusts; basaltic volcanism and planetary interiors; and the chemical composition of the planets. In addition to the text, this book offers 24 pages of appended material. It has become a definitive reference work for the planetologist as well as the astronomer.

**481 pp., 176 illustrations, glossary, index**

**Hardcover \$30.00**

### CHONDRULES AND THEIR ORIGIN

**Edited by E.A. King, Jr.**

*Chondrules and their Origin* contains 25 review papers and original research contributions designed to provide the reader with a broad knowledge of the most recent data regarding the origin and history of chondrules. As a resource text, it also provides an extended bibliography of 467 related papers.

**375 pp., 129 figures and tables, subject index**

**Hardcover \$25.00**

QTY.	TITLE	PRICE	TOTAL
_____	Origin of the Moon	\$25.00	_____
_____	Lunar Bases and Space Activities of the 21st Century	\$20.00	_____
_____	Planetary Science: A Lunar Perspective	\$30.00	_____
_____	Chondrules and their Origins	\$25.00	_____
_____	Lunar Bases and Space Activities Poster (from cover art for book)	\$7.00	_____

Total for items \$ \_\_\_\_\_

Shipping & handling  
(see chart at left) \$ \_\_\_\_\_

Total order this page \$ \_\_\_\_\_

Shipping & handling charges		
	US/Canada or Surface rate, foreign	Foreign airmail
per book	\$3.00	\$25.00
per poster	\$3.00	\$ 7.00

(Transfer this total to the Order Summary page)

## ABSTRACT VOLUMES

## BOOKS SLIDE

## Slide Sets

SETS POSTER

**Each set includes an explanatory booklet.**

**STONES, WIND, AND ICE: A GUIDE TO MARTIAN IMPACT CRATERS** This set of 30 slides, compiled largely from Viking Orbiter and Lander images, illustrates both the diversity of impact craters on Mars and the significance of these features in understanding the geological evolution of this complex planet. Many of the landforms produced by the interaction of the cratering process with the Martian environment are seen virtually nowhere else in the solar system. Impact craters also provide a means of deducing the sequence and timing of events that have shaped the Martian surface. (30 slides) \$13.00

**VOLCANOES ON MARS** This slide set illustrates various geologic features on Mars. The set includes some of the best examples of Viking Orbiter images that include constructional volcanic landforms. Approximately half of the slides deal with the large shield flows on the flanks of the volcanoes. The remainder of the slides shows various constructs (classified as Mons, Patera, or Tholus) from the Tharsis, Elysium, and Hellas regions as well as the km-sized mounds that are interpreted to be of volcanic origin. (20 slides) \$10.00

**APOLLO LANDING SITES** This set of 40 slides provides photographic coverage of the regional setting for the six Apollo landing sites. This collection shows the sites at a variety of scales ranging from Earth-based telescopic views spanning hundreds of kilometers to high-resolution photographs taken from lunar orbit. Descriptions giving geological details for each area are included in the accompanying booklet. Useful for educators and researchers who wish to show the regional setting of samples and photographs returned by the Apollo missions. (40 slides) \$15.00

**SHUTTLE VIEWS THE EARTH: THE OCEANS FROM SPACE** This slide set offers a selection of the most fascinating and informative Shuttle photographs of the oceans and features images taken with a variety of equipment. Naturally-occurring sea surface features have been photographically recorded, as well as the meteorological and oceanic influences on land masses. (40 slides) \$15.00

**SHUTTLE VIEWS THE EARTH: CLOUDS FROM SPACE** This slide collection includes some of the most informative and visually impressive cloud photographs taken in twenty-four Shuttle missions. The accompanying booklet has a foreword by astronaut Robert Crippen. The unique perspective of Shuttle photography helps us to understand weather patterns and the development of weather systems worldwide. (40 slides) \$15.00

**SHUTTLE VIEWS THE EARTH: GEOLOGY FROM SPACE** Photographs of stunning geological features on the Earth have captured the attention of Shuttle astronauts mission after mission. Shuttle photographs enable us to trace fault margins in the Earth's crust and observe large structures, such as meteor impact craters, in their entirety and in the context of their surroundings. The images reveal how much of the Earth's surface is covered by vast deserts and also provide comparisons of old volcanic structures with young erupting volcanoes at various locations around the world. (40 slides) \$15.00

QTY.	TITLE	PRICE	TOTAL
_____	Stones, Wind and Ice: A Guide to Martian Impact Craters	\$13.00	_____
_____	Volcanoes on Mars	\$10.00	_____
_____	Apollo Landing Sites	\$15.00	_____
_____	Shuttle Views the Earth: Oceans from Space	\$15.00	_____
_____	Shuttle Views the Earth: Clouds from Space	\$15.00	_____
_____	Shuttle Views the Earth: Geology from Space	\$15.00	_____

Shipping & handling per set	
US/Canada or Surface rate, foreign	\$ 3.00
Foreign airmail	\$ 7.00

Total for slide sets \$ \_\_\_\_\_

Shipping & handling  
(see chart at left) \$ \_\_\_\_\_

Total order  
this page \$ \_\_\_\_\_

(Transfer this total to the Order Summary page)

ABSTRACT VOLUMES

# BOOKS SLIDE

SETS POSTER

## Technical Reports

- 85-02 WORKSHOP ON DUST ON MARS. S. Lee
- 86-02 WORKSHOP ON PAST AND PRESENT SOLAR RADIATION: THE RECORD IN METEORITIC AND LUNAR REGOLITH MATERIAL. R. Pepin, D. S. McKay
- 86-03 WORKSHOP ON THE GEOLOGY AND PETROLOGY OF THE APOLLO 15 LANDING SITE. P. Spudis, G. Ryder
- 86-04 WORKSHOP ON EARLY CRUSTAL GENESIS: THE WORLD'S OLDEST ROCKS. L. D. Ashwal
- 86-05 TRAJECTORY DETERMINATION AND COLLECTION OF MICROMETEOROIDS ON THE SPACE STATION. F. Horz
- 86-06 WORKSHOP ON COSMOGENIC NUCLIDES. R. C. Reedy, P. Inglert
- 86-07 MECA WORKSHOP ON THE EVOLUTION OF THE MARTIAN ATMOSPHERE. M. Carr, P. James, C. Leovy, R. Pepin, J. Pollack
- 86-09 MECA WORKSHOP ON DUST ON MARS II. S. Lee
- 87-01 MECA SYMPOSIUM ON MARS: EVOLUTION OF ITS CLIMATE AND ATMOSPHERE. V. Baker, M. Carr, F. Fanale, R. Greeley, R. Haberle, C. Leovy, T. Maxwell
- 87-02 MARTIAN GEOMORPHOLOGY AND ITS RELATION TO SUBSURFACE VOLATILES (MECA Special Session at LPSC XVIII). S. Clifford, L. Rossbacher, J. Zimbleman
- 87-03 MARTIAN CLOUDS DATA WORKSHOP. S. Lee
- 88-01 PROGRESS TOWARD A COSMIC DUST COLLECTION FACILITY ON SPACE STATION. I. D. R. Mackinnon

Total number of reports × 

Shipping & handling per report	
US/Canada or Surface rate, foreign	\$ 5.00
Foreign airmail	\$10.00

 = \$ \_\_\_\_\_  
Total amount  
for technical reports

## LPSC Abstracts

Abstract volumes from the following Lunar and Planetary Science Conferences are available:

- IV 1973
- VI 1975
- VII 1976
- VIII 1977
- XI 1980
- XII 1981
- XIV 1983
- XV 1984
- XVI 1985
- XVII 1986
- XVIII 1987
- XIX 1988

Total number of volumes × 

Shipping & handling per volume	
US/Canada or Surface rate, foreign	\$ 7.00
Air book rates vary with destination See p. li in this issue of LPIB for current rates.	

 = \$ \_\_\_\_\_  
Total amount  
for LPSC abstracts

(Transfer this total to Order Summary page)

TECHNICAL REPORTS ABSTRACT VOLUMES

# BOOKS SLIDE

SETS

POSTER

## Order Summary

To order any of these titles, send (in \$US only) check, money order, or completed purchase order to:

Order Department  
Lunar and Planetary Institute  
3303 NASA Road One  
Houston, TX 77058-4399

If you have any questions, please call ORDER DEPARTMENT at (713) 486-2172

Total for books or poster	\$ _____
Total for slide sets	\$ _____
Total for technical reports	\$ _____
Total for abstract volumes	\$ _____
TOTAL AMOUNT ENCLOSED	\$ _____

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Phone No. \_\_\_\_\_

All prices subject to change. These prices effective 1/88.

TECHNICAL REPORTS ABSTRACT VOLUMES



PRELIMINARY PROGRAM  
19th Lunar and Planetary Science Conference

Monday, March 14, 1988  
MARS GEOLOGY AND REMOTE SENSING  
8:30 a.m. Gilruth 104

Frey H.\* Semeniuk J.  
Extent of Buried Cratered Terrain Underlying the Highland/Lowland  
Transition Zone in Eastern Mars

Grant T. D.\* Frey H. Semeniuk J. A.  
Resurfacing Events in the Tempe Terra Region of Mars

Crown D. A.\* Greeley R. Sheridan M. F.  
Consideration of Hydromagnetic Origins for Hadriaca  
Patera and Tyrrhena Patera

Edgett K. S.\* Greeley R. Christensen P. R.  
Herschel Basin Ejecta and Some Implications for Deciphering the  
Geologic History of the Martian Cratered Highlands

Pieri D.\* Schneeberger D.  
Morphology of Lava Flows at Alba Patera

Swann G. A.\*  
Geology of North-Central Tempe Terra, Mars

Sullivan R.\* Greeley R.  
Comparison of Aeolian Surface Roughness Measured in a Field  
Experiment and in a Wind Tunnel Simulation

Guinness E. A.\* Arvidson R. E.  
Aeolian Control of Materials Exposed in the Equatorial Region of Mars

Fink J. H.\* Zimbelman J. R.  
A Comparison of Lava Flow Rheology Calculations for High-Resolution  
Data Sets from Hawaii and Mars

Regner P.\* Kamp L. Neukum G.  
Multispectral Photometric Classification and Mapping of the  
Martian Surface in the Oxia Palus Region

Morris R. V.\* Agresti D. G. Shafter T. D. Adams J. B.  
Mossbeuer Mineralogy of a Martian Spectral Analogue (Hawaii 34):  
Implications for the Iron Oxide Pigment of Mars

Ming D. W.\* Morris R. V. Bernhard R. P. Adams J. B.  
Mineralogy of a Suite of Martian Analog Soils from Hawaii

Blaney D.\* McCord T. B.  
Constraints on the Origin of the 3.8 Micron Mars Absorption Feature

Strickland E. L.\*  
Thermal Properties of Martian Surface Material Analogs: Another Look

Strickland E. L.\*  
Non-Ideal Thermal Behavior of Mars: Observations, Models,  
and Interpretations

POSTER PRESENTATIONS

Chapman M. G. Scott D. H.  
North Kasei Valles - Geology and Hydrology

Dale-Bannister M. A. Arvidson R. E. Moore H. J.  
On the Presence of Unweathered Lithic Fragments in Viking  
Lander 1 Soil

Parker T. Saunders R. S.  
Origin of Martian Plains

Zimbelman J. R.  
Preliminary Photogeologic Mapping in the Memnonia Region of Mars

Zimbelman J. R.  
High Resolution Viking Orbiter Images of Mars: Location  
and Distribution

Banin A. Margulies L. Ben-Shlomo T. Carle G. C. Coyne L. M.  
Orenberg J. B. Scattergood T. W.  
Constraining Mars Soil Mineralogical Composition: Palagonite  
Vs. Iron Enriched Smectite Clays

Wu S. S. C. Garcia P. A. Howington-Kraus A. Kelly C. T.  
Quantitative Analysis of the Tharsis Dome of Mars

Williams S. H.  
Tharsis Aureole Deposits: An Alternative Origin

Thompson T. W. Moore H. J.  
Model for Mars Depolarized Radar Echoes

Barlow N. G.  
The Martian Cratering Record and its Implications for  
the Early History of the Planet

PRESENTED BY TITLE ONLY

Heslop S. E. Wilson L.  
Pyroclast Sizes in Terrestrial and Martian Ignimbrites

Parfitt E. A. Wilson L.  
Episodic Magma Motion in Shield Volcano Rift Zones

Raitala J. Kauhanen K.  
Volcanic Vents of Alba Patera on Mars

Raitala J. Kauhanen K.  
The Double Caldera of Alba Patera on Mars

Pinkerton H. Wilson L.  
The Lengths of Lava Flows

Boslough M. B.  
Evidence for Meteoritic Enrichment of the Martian Regolith

Head J. W. Wilson L.  
Lateral Migration and Eruption of Magma in Volcanic Edifice  
Rift Zones: The Pu'u 'O'o Eruptions of the East Rift Zone  
of Kilauea Volcano, Hawaii

Lopes R. Kilburn C.  
Widening of Lava Flow-Fields

D'Aria D. Garvin J. B.  
Thermal Infrared Reflectance Spectroscopy of Impact-related  
Rocks: Implications for Geologic Remote Sensing of Mars and Earth

Grant T. Frey J.  
Resurfacing Events in the Lunae Planum-Xanthe Region of Mars

Morris R. V. Lauer H. V. Jr.  
Effect of Aluminum Substitution on Visible and Near-IR  
Optical Properties of Hematite with Implications for  
Martian Spectral Data

Monday, March 14, 1987  
COSMIC DUST  
8:30 a.m. Gilruth Gym

Nier A.\* Schlutter D. Brownlee D. E.  
Helium and Neon in Individual Extraterrestrial Particles

Blanford G. E.\* Thomas K. L. McKay D. S.  
Microbeam Analysis of Chondritic Interplanetary Dust Particles  
for Carbon, Oxygen, and Major Elements

Schramm L. S.\* Brownlee D. E. Wheelock M. M.  
The Elemental Composition of Interplanetary Dust

Rietmeijer F. J. M.\*  
A Quantitative Comparison of Fine-Grained Chondritic Interplanetary  
Dust and Comet Halley Dust

Germani M. S.\* Bradley J. P.  
Automated Point Count Analysis of Interplanetary Dust Particle  
Thin-sections

Bradley J.\* Germani M. S. Brownlee D. E.  
A Comparison of Pyroxene Versus Olivine Rich Interplanetary  
Dust Particles (IDPs) in Thin-section

Klock W.\* McKay D. Thomas K.  
Unusual Mineral Chemistry of Extra-Terrestrial Dust Particles

Blake D.\* Bunch T. E. Reilly T. Fleming R.  
Characterization of Interplanetary Dust by Low Voltage  
Scanning Electron Microscopy

Maurette M. Hammer C. Bourchet M. Brownlee D. E.\*  
The "Blue Lake II" Expedition of July-August 1987 in Greenland  
and the Search for Millimeter-Size Unmelted Extraterrestrial  
Particles

Pun A.\* Zolensky M. E. Thomas K.  
Titanium Carbide and Titania Phases in Particles of Probable  
Extraterrestrial Origin, Found Within Old Antarctic Ice

Eberhardt A. Eberhardt P.\*  
Extraterrestrial Dust in Antarctic Firn

Koeberl C.\* Hagen E. Faure G.  
Chemical Composition and Morphology of Meteorite Ablation Spherules  
in Neogene Till in the Dominion Range, Transantarctic Mountains

Sutton S. R.\* Flynn G. J.  
Micrometeorite Component of Halogens and Sulfur in the  
Lower Stratosphere

Fu C. Wang H.\* Liu X.  
The Discovery and Study of Cosmic Dust in Granites

POSTER PRESENTATIONS

Witkowski R. E. Cassidy W. A. Penney G. W.  
Sampling the South Pole Atmosphere for Cosmic Dust by  
Electrostatic Precipitation

Flynn G. J.  
Atmospheric Heating of Cosmic Dust

Blanford G. E. Gibson E. K., Jr.  
Laser Extracted Volatiles from Chondritic Interplanetary  
Dust Particles

PRESENTED BY TITLE ONLY

de Angelis M. Pourchet M. Maurette M.  
Assessment of Biases in Collections of Greenland Micrometeorites:  
The "Blue Ice I" Project of January 1988 in Antarctica

Bonny P. Balageas D. Devezeaux D. Maurette M.  
Atmospheric Entry of Micrometeorites Containing Organic Materials

Monday, March 14, 1988  
HED's, IRONS, AUBRITES  
8:30 a.m. Gilruth 206

Kozul J.\* Hewins R. H.  
Lew 85300,02,03 Polymict Eucrite Consortium -I.: Petrology of  
Igneous Clasts

Kozul J.\* Hewins R. H.  
Lew 85300,02,03 Polymict Eucrites Consortium -II: Breccia  
Clasts, CM Inclusion, Glassy Matrix and Assembly History

Mittlefehldt D. W.\* Lindstrom M. M.  
Geochemistry of Diverse Lithologies in Antarctic Eucrites

Warren P. H.\* Jerde E. A.  
Pomozdino: An Anomalous, Magnesian yet REE-rich, Eucrite

Carlson R. W.\* Tera F. Boctor N.  
Radiometric Geochronology of the Eucrites Nuevo Laredo and Bereba

Delaney J. S.\* Sutton S. R.  
Trace Element Content of Feldspar from Achondrites and Lunar Breccias

Hewins R. H.\*  
Equilibration of Foreign Clasts in the Peckelsheim Diogenite

Berkley J. L.\*  
LEW85313 Howardite: Clues to the Diogenite-Cumulate Eucrite  
Connection?

Olsen E. J.\* Fredriksson K. Rajan R. S.  
Investigating the C.I.A.

Paul R. L. Sack R. D. Kruse H. Lipschutz M. E.\*  
Simple and Not-So-Simple Mixing in the Howardite-Eucrite-Diogenite  
(HED) Parent Body (4 Vesta)

Makjanic J.\* Van der Stap C. C. A. H. Vis R. N.  
Verheul H. Heymann D.  
Carbon Contents of High-Nickel Areas of the Toluca and  
Algarrobo Iron Meteorites

Chen J. H.\* Wasserburg G. J. Wang D. W.  
Ningbo: A New Iron Meteorite with Isotopically Anomalous Ag

Taylor G. J.\* Keil, K. Newsom H. Okada A.  
Magmatism and Impact on the Aubrite Parent Body:  
Evidence from the Norton County Enstatite Achondrite

Steele I. M.\*  
Minor Elements and Cathodoluminescence of Enstatite in  
Cumberland Falla Enstatite Achondrite

## POSTER PRESENTATIONS

Cisowski S. M.

Paleomagnetism of Unbrecciated Eucrites

Mittlefehldt D. W.

Petrology of an OPX-OLIV Porphyritic Mg-Basalt Clast  
in Kapoeta

Teng R. T. D. Fehn U. Elmore D. Kubik P. W.

Herrick T. Gove H. E.

Determination of Osmium Isotopes and Re/Os Ratios in Iron  
Meteorites Using Accelerator Mass Spectrometry

## PRESENTED BY TITLE ONLY

Migdisova L. F. Kononkova N. N. Zaslavskaya N. I.  
Eucrite Pomozdino: Mineral ChemistryYaroshevsky A. A. Migdisova L. F. Kononkova N. N.  
Eucrite Pomozdino: Chemical and Mineral Composition of Clasts  
and MatrixPetaev M. I. Ustinov V. I. Zaslavskaya N. I.  
Gavrilov E. Ya. Shukolyukov Yu. A.  
Oxygen Isotopes in Pomozdino MeteoriteHewins R. H.  
Process Identification for EucritesMalvin D.  
Assimilation-Fractional Crystallization Modeling of  
Magmatic Iron MeteoritesMoroz L. V. Ustinov V. I. Kononkova N. N.  
Zaslavskaya N. I. Shukolyukov Yu. A.  
Oxygen Isotopes of Chromite and Chemical Composition of the  
Minerals from Polymimetal Nodules in Sikhote-Alin MeteoriteSteele I. M.  
Minor Elements in Forsterite of Cumberland Falls Enstatite  
AchondriteNtaiflos T. Keil K. Newsom H. E.  
Khor Temiki: An Enstatite Achondrite with Evidence of  
Mixing of Metal and Sulfides from Separate SourcesFogel R. A. Hess P. C. Rutherford M. J.  
The Enstatite Chondrite-Achondrite Link

Monday, March 14, 1988

MARS WATER AND ICE

1:30 p.m. Gilruth 104

Schultz P. H.\*

Impact Vaporization of Volatile-rich Targets; Experimental  
Results and Implications

Bradley T. L.\* Barlow N.G.

Martian Crater Interiors: Relationships with Ejecta,  
Diameter, Latitude, and Terrain

Barlow N. G.\*

Parameters Affecting Formation of Martian Impact Crater  
Ejecta Morphology

Clifford S. M.\* Zimbelman J. R.

Softened Terrain on Mars: The Ground Ice Interpretation  
Reconsidered

Zimbelman J. R.\* Clifford S. M. Williams S. H.

Terrain Softening Revisited: Photogeological Considerations

Williams S. H.\* Zimbelman J. R.

Aeolian Gradation on Mars: Widespread and Ancient

Postawko S. E.\* Fanale F. P. Zent A. P.

Effects of Epochal Vs. Episodic Release of SO<sub>2</sub> by  
Volcanoes on Mars

Zent A. P.\* Fanale F. P. Roth L. E.

The Goldstone Mars Data: Is There Really Evidence for Melting?

Jakosky B. M.\* Haberle R. M.

Stability and Instability of the South Polar Caps on Mars

Jakosky B. M.\*

Mars Atmospheric D/H: Consistent with Polar Volatile Theory?

MacKinnon D. J.\* Tanaka K. L.

A Two-Layer Hydrologic Model for the Impacted Martian Crust

Grant J. A.\* Schultz P. H.

The Degradational History of Etched/Channeled Terrains  
West and Northwest of Isidis

DeHon R.\*

Ephemeral Martian Lakes: Temporary Ponding and Local Sedimentation

Tanaka K. L.\*

Chaotic Material and Debris Flows in the Simud-Tiu Valles  
Outflow System of Mars

Costard F. M.\*

Thickness of Sedimentary Deposits at the Mouth of Outflow Channels

Lucchitta B. K.\*

Kasei Valles, Mars: Formed by Flood or Ice?

Jons H.-P.\*

Festoon-like Migration Fronts of Mud and Debris in the Vicinity of Olympus Mons, Mars

#### POSTER PRESENTATIONS

Kochel R. C. Phillips M. A.

Preliminary Investigation of Geological Controls on Valleys Influenced by Groundwater Sapping, Southern Colorado Plateau, Arizona and Utah

Henry L. Y. Zimbelman J. R.

Physical Properties of Channels and Aeolian Features in the Oxia Palus and Margaritifer Sinus Quadrangles of Mars

Craddock R. A. Greeley R. Christensen P. R. Aldrich F. T.

Martian Channel Materials and the Formation of Channel Winds

Gulick V. Baker V. Harley M.

Hydrothermally Supplied Ground Water: A Mechanism for the Formation of Small Martian Valleys

Davis P. A. Tanaka K. L.

Morphometric Analysis of Some Canyons in Noctis Labyrinthus, Mars: Comparison with Hawaiian Runoff and Sapping Channels

Scott D. H.

An Unusual Martian Channel

#### PRESENTED BY TITLE ONLY

Kuzmin R. O. Bobina N. N. Zabalueva E. V. Shashkina V. P.

Mars: Estimation of the Relative Ice Content in Upper Layers of the Permafrost

Kuzmin R. O. Bobina N. N. Zabalueva E. V. Shashkina V. P.

Inhomogeneities in the Upper Levels of the Martian Cryolithosphere

Horner V. M. Barlow N. G.

Martian Craters: Changes in the Diameter Range for Ejecta Fluidization with Latitude

Rice J. W. Archibald S. M. De Hon R. A.

Lower Maja Vallis

DeHon R.

Valley Terminal Deposits: The Martian Sedimentary Record

Matsui T. Tajika E. Abe Y.

Climate and Impact: Climatic Change in Mars Caused by Impact Basin Formation

Jons H.-P.

Surface and Near-Surface Thawing of Permafrost and/or Ground Ice on Mars

Monday, March 14, 1988  
 ORBITAL COLLECTION OF COSMIC DUST  
 1:30 p.m. Gilruth Gym

Bibring J-P\* Borg J. Katchanov A. Langevin Y.  
 Salvatet P. Surkhov Y. A. Vassent B.  
 The Comet Experiment: First Results

Barrett R. A.\* Bernhard R. P. McKay D. S.  
 Impact Holes and Impact Flux on Returned Solar Max Louver Material

Bernhard R. P.\* McKay D. S.  
 Micrometer-sized Impact Craters on the Solar Maximum  
 Satellite: The Hazards of Secondary Ejecta

Warren J. Zook H. Allton J.\*  
 Optical Observations of Impact Features on Solar Max  
 Thermal Blankets and Louvers

Tsou P.\* Brownlee D. E. Laurence M. R. Hrubesh L.  
 Albee A. L.  
 Intact Capture of Hypervelocity Micrometeoroid Analogs

Flynn G. J.\*  
 Is the Stratospheric Cosmic Dust an Unbiased Sample of the  
 Interplanetary Dust Clouds at 1 AU?

Jackson A. A.\* Zook H. A.  
 A Solar System Dust Ring: The Earth as Its Shepherd

## POSTER PRESENTATION

Laurence M. R.  
 Experimentally Produced Hypervelocity Impact Craters in  
 Gold: Some Preliminary Results

## PRESENTED BY TITLE ONLY

Rietmeijer F. J. M.  
 Preliminary Analytical Electron Microscope (AEM) Results of  
 Natural "Graphite" Shocked at 20.7, 31.4, 40.4 and 59.1 GPa

COSMIC-RAY-PRODUCED NUCLIDES  
 3:15 p.m. Gilruth Gym

Aylmer D. Tuniz C.\* Guyton M. Herzog G. F. Maras A.  
 Middleton R. Klein J.  
 Beryllium-10 and Aluminum-26 Contents of Bur Gheluai

Klein J.\* Middleton R. Fink D. Dietrich J. W. Aylmer D.  
 Herzog G. F.  
 Beryllium-10 and Aluminum-26 Contents of Lunar Rock 74275

Nishiizumi K.\* Kubik P. W. Elmore D. Reedy R. C.  
 Arnold J. R.  
 Cosmogenic  $^{36}\text{Cl}$  Production Rates in Meteorites and the Lunar  
 Surface

Eugster O.\*  
 Cosmic-Ray Production Rates for  $^3\text{He}$ ,  $^{21}\text{Ne}$ ,  $^{38}\text{Ar}$ ,  $^{83}\text{Kr}$ , and  $^{126}\text{Xe}$   
 in Chondrites Based on  $^{81}\text{Kr}$ -Kr Exposure Ages

Begemann F. Schultz L.\*  
 The Influence of Bulk Chemical Composition on the Production Rate  
 of Cosmogenic Nuclides in Meteorites

Englert P.\* Tull A. Donahue D. Reedy R.  
 Cosmogenic Nuclide Production Rates: Depth Dependence of  $^{14}\text{C}$  Production

Klein J.\* Nishiizumi K. Reedy R. C.\* Englert P.  
 Middleton R.  
 Simulation of Cosmic-ray Production of  $^{26}\text{Al}$  and  $^{10}\text{Be}$

Finney S. A.\* Sonett C. P.  
 High Resolution Spectral Analysis of Irish Oak Radiocarbon Record

## POSTER PRESENTATION

Angelo J.\* Madonna R. Quam W.  
 Radiation Protection Issues and Techniques in Support of Lunar  
 Base Operations

## PRESENTED BY TITLE ONLY

Reedy R. C.  
 Neutron Production by Cosmic Rays: Dependence on Proton Energy  
 and Spectra

Alexeev V. A.  
 Cosmogenic Radionuclides in Antarctic and Non-Antarctic  
 Meteorites. II. Manganese-53

Alexeev V. A.  
 Cosmogenic Radionuclides in Antarctica and Non-Antarctic  
 Meteorites. I. Aluminum-26

Monday, March 14, 1988  
REGOLITHS AND MESOSIDERITES  
1:30 p.m. Gilruth 206

Pedroni A. Baur H. Wieler R. Signer P.\*  
T-Tauri Irradiation of Kappa Grains?

Wieler R. Pedroni A. Signer P.\*  
Excess of GCR-He in the Solar-Gas-rich Matrix of the  
Chondrite Fayetteville

Lavielle B.\* Marti K.  
Trapped Xe in the Chondrite Forest Vale (H4)

Rajan R. S.\* Lugmair G. W.  
Solar Flare Tracks and Neutron Capture Effects in Gas-Rich  
Meteorites

Rubin A. E.\* Jerde E. A.  
Bassaltic and Gabbroic Clasts in Mesosiderites: Implications  
for Pervasive Impact-Melting on the Mesosiderite Parent Body

Bogard D.\* Mittlefehldt D. Jordan J.  
39Ar-40Ar Dating of Mesosiderites: A Case for Major Parent  
Body Disruption Less Than 4.0 Gy Ago?

Mittlefehldt D. W.\*  
Petrogenesis of the Mesosiderite Regolith

Pavri B. Greenberg R. Broadhurst C. Drake M.  
Formation of Stony-Iron Meteorites: Laboratory Simulations

Cintala M. J.\* Horz F.  
Regolith Evolution in the Laboratory: Scaling  
Dissimilar Experiments

Veniamin D. T.\* Heiken G. Warren P. H. Jerde E.  
Glasses and a "HASPI"-Mimicking Mineral or Mineral  
Intergrowth in Apollo 14 Regolith Breccias

Basu A.\* Bangs C.  
Estimation of Recycled Proportion of Monomineralic and  
Crystalline Lithic Particles in Lunar Soils

McKay D. S.\* Wentworth S. J. Basu A.  
Core 79001/2: An Example of Extreme Mixing in  
the Lunar Regolith

Stone J.\* Clayton R. N.  
Nitrogen Isotopes in the Lunar Regolith: Results  
from Double Drive Tube 79002/79001

Gibson E. K. Jr. Bustin R. Mennion P.\*  
Hydrogen Abundances in Apollo 16 and 17 Deep Drill  
Core and 79001/2 Core Samples

#### POSTER PRESENTATIONS

Schwarz C.  
Preliminary Description of Drive Tube 15009

Sadow J. C.  
A Quantitative Petrographic View of Lunar Chondrules and  
Chondrule-Like Objects

Basu A.  
Is Bedding and/or Size-Grading Present in Lunar  
Regolith Breccias?

#### PRESENTED BY TITLE ONLY

Benkert J.-P. Baur H. Pedroni A. Wieler A. Signer P.  
Solar He, Ne and Ar in Regolith Minerals: All Are Mixtures of  
Two Components

Korotev R. L.  
Geochemical Stratigraphy of the 79001/2 Core, Van Serg Crater,  
Apollo 17

Korotev R. L.  
New Compositional Data for Regolith Samples from the South  
Massif and Light Mantle at Apollo 17

Simon S. B. Papike J. J. Hughes S. S. Schmitt R. A.  
Laul J. C.  
Apollo 14 Regolith Breccias and Soils: Comparative Petrology  
and Chemistry

Wentworth S. J. McKay D. S.  
The Significance of Glass Fragments in Feldspathic  
Fragmental Breccia 67016

Monday, March 14, 1988  
 EXPLORING MARS AND PHOBOS  
 5:00 - 6:30 p.m. Gilruth 205

## POSTER PRESENTATIONS

Moore H. J. Jakosky B. M.  
 Viking Landers and Remote Sensing

Francis P. W.  
 Preparing for Mars: Loess, and Why We Should Study It

Burt D. M.  
 Iron-Rich Clay Minerals on Mars: Potential Sources or Sinks  
 for Hydrogen and Indicators of Hydrogen Loss Over Time

Clark B. C.  
 Exploration on the Surface of Mars

Neukum G. Greeley R.  
 Mars Sample Return and Cratering Chronology Models: Consequences  
 for the Martian History and Site Selection

Scott D. H.  
 Mars Sample Return: A General Philosophy for Site Selection

Masursky H. Dial A. L. Jr. Strobell M. E. Applebee D. J.  
 Recent Progress in the Study of MRSR (Mars Rover Sample Return)  
 Candidate Landing Sites

Wu S. S. C.\* Schafer F. J. Garcia P. A.  
 Howington-Kraus A. Jordan R.  
 The Size, Shape, and Topography of Phobos

Williams B. G. Duxbury T. C. Hildebrand C. E.  
 Improved Determination of Phobos and Demos Masses from Viking Fly-bys

Duxbury T.  
 Harmonic Expansion Model for the Phobos Figure

Hovestadt D. Andreichikov B. Bruckner J.  
 Economou T. Klecker B. Kenneth E. Laeverenz P.  
 Mukhin L. Prilutskii A. Radchenko V. Reppin C.  
 Rieder R. Sagdeev R. Sastri C.S. Turkevich A.  
 Vasiliev V. Wanke H.  
 In-situ Measurement of the Surface Composition of the Mars Moon  
 Phobos: The ALPHA-X Experiment on the Phobos Mission

Surkov Yu. A.\* Moskaleva L. P. Manvelyan O. S.  
 Kharyukova V. P.  
 Remote Gamma-Spectrometry of Mars and Phobos

Kemurdzhian A. L.\* Gromov V. V. Sologub P. S.  
 Surkov Yu. A. Kirnozov F. F.  
 Studies of the Surface of Phobos from a Rover

Bibring J-P\* Cazes S. Combes M. Guyot G. Gondet B.  
 Langevin Y. Puget P. Rocard F. Soufflot A.  
 The Infrared Observation of Mars and Phobos

## PRESENTED BY TITLE ONLY

Ciesla T. M.  
 Field Research in the Extraterrestrial Environment: Implications  
 for Planetary Scientists

Tuesday, March 15, 1988  
VENUS GEOPHYSICS  
8:30 a.m. Gilruth 104

Kaula W. M.\*  
Thermal Effects on the Tectonics of Venus

Turcotte D. L.\*  
A Heat-Pipe Mechanism for Volcanism and Tectonics on Venus

Sjogren W. L.\*  
Correlation of Pioneer Venus Orbiter Gravity Data with Venera 15 and 16 SAR Imaging

Banerdt W. B.\*  
Global Dynamic Stress Modelling on Venus

Smrekar S.\* Phillips R. J.  
Thin-Skinned Gravity-Driven Deformation on Venus

Williams D. R.\*  
Regional Models of Topographic Support on Venus from Admittance Analysis of Topography and Calculated Vertical Gravity

Grimm R. E.\* Solomon S. C.  
Generation and Evolution of Crust on Venus: Implications of Viscous Relaxation Models

Kiefer W. S.\* Hager B. H.  
Mantle Plumes on Venus: A Model for the Equatorial Highlands and a Possible Connection with the Ovoids

Parmentier E. M.\*  
Buoyancy and Extension in Rifting: Implications for the Along-Axis Distribution of Volcanism

Sotin C.\* Head J. W. Parmentier E. M.  
Terrestrial Spreading Centers under Venus Conditions: Effects on Thermal Structure and Crustal Thickness

Bindschadler D. L.\* Head J. W.  
Models for the Origin of Tessera Terrain on Venus

Ashwal L. D. Burke K.\* Sharpton V. L.  
Lithospheric Delamination on Earth and Venus

Schaber G. G.\*  
Elevations of Venusian Shields as Indicators of Lithospheric Thickness

#### POSTER PRESENTATIONS

Herrick R. R.\* Bills B. G.  
Analysis of Gravity Data over Aphrodite Terra, Venus

Slade M. A.\* Zohar S. Jurgens R. F.  
Venus Spin Vector: 1980-82 Goldstone Radar Additions

Campbell B. A. Kozak R. C.  
Gravity Analysis of Bell Regio, Venus, from Pioneer-Venus and Venera Data

#### PRESENTED BY TITLE ONLY

Vorder Bruegge R. W. Head J. W.  
Topography of Geomorphic-tectonic Units in Fortuna Tessera, Venus: Evidence of Crustal Thickening and Deformation

Ivanov B. A.  
Simple Hydrodynamic Model of Atmospheric Breakup of Hypervelocity Projectiles

Ivanov B. A.  
On the Breakup Diameter of Meteoroids in the Venusian Atmosphere

Grimm R. E. Solomon S. C. Crumpler L. S. Head J. W.  
Tests of Crustal Divergence Models for Venus

Nikishin A. M. Crumpler L. S.  
Tectonic and Magmatic Models for the Origin of Cleopatra Patera, Maxwell Montes, Venus

Tuesday, March 15, 1988  
 CARBONACEOUS CHONDRITES  
 8:30 a.m. Gilruth Gym

Mackinnon I. D. R.\* Kaser S. A.  
 The Clay-Size Fraction of CI Chondrites Alais and Orgueil: An  
 AEM Study

Tomeoka K.\* Buseck P. R.  
 Transmission Electron Microscopy of the Orgueil CI  
 Carbonaceous Chondrite

Grimm R. E.\* McSween H. Y., Jr.  
 Water and the Thermal History of the CM Carbonaceous  
 Chondrite Parent Body

Keller L. P.\* Buseck P. R.  
 HRTEM Study of the Matrix Mineralogy of the Lance CO(3)  
 Chondrite

Morgan J. W.\* Walker R. J.  
 Rhenium and Osmium Isotope Systematics in Carbonaceous Chondrites

Bunch T. E.\* Chang S. Blake D. Cassen P. Reynolds R.  
 Podolak M. Erlichman J.  
 Thermal Processing of Allende Components in a Transient Parent  
 Body Atmosphere

Palme H.\* Wark D. A.  
 CV-chondrites: High Temperature Gas-Solid Equilibrium vs. Parent  
 Body Metamorphism

Eugster O.\* Michel T. Niedermann S. Burger M.  
 Krahenbuhl U.  
 Guangnan (L6) and Ningquiang (CV3): Exposure Ages, Radiogenic  
 Ages and Chemical Abundances

#### POSTER PRESENTATION

Blanford G. E.\* Gibson E. K., Jr.  
 Laser Extracted Volatiles from Carbonaceous Chondrites

#### PRESENTED BY TITLE ONLY

Ivanov A. V. Khisina N. V. Kononkova N. N.  
 Petushkova L. V.  
 Iron Crystals in the Kaidun Meteorite: Process of New Type?

Weinbruch S. Palme H. Muller W. F. El Goresy A.  
 Fayalitic Rims and Halos in Forsterites in Allende: New  
 Evidence Against a Metamorphic Origin

Liu Y.-G. Schmitt R. A.  
 The Relative Nebular Locations for the Formation of Parental  
 Components in the CV3 Chondrites KABA, Mokoia and Allende

Metzler K. Bischoff A. Stöffler D.  
 Characteristics of Accretionary Dark Rims in Carbonaceous Chondrites

Heymann D.\* Makjanić J. Van der Stap C. C. A. H.  
 Vis R. D. Verheul H.  
 Carbon, Oxygen, Silicon, Sulphur, Calcium and Iron in Twenty-Four  
 Clasts and One Dark Inclusion of the Allende Meteorite

Bischoff A. Palme H. Spettel B. Clayton R. N. Mayeda T. K.  
 The Chemical Composition of Dark Inclusions from the  
 Allende Meteorite

Kashkarov L. L. Fisenko A. V. Lavrukhina A. K.  
 Pu/U-Ratio on Fission Track Studies of Efremovka  
 CV Chondrite CAIs

Fisenko A. V. Deviřts A. L. Lagutina E. P.  
 Semjonova L. F. Lavrukhina A. K. Shukolyukov Yu. A.  
 The Isotopic Composition of Hydrogen in Acid-Insoluble Residues  
 of Efremovka CV Chondrite

REFRACTORY INCLUSIONS I  
 10:30 a.m. Gilruth Gym

McGuire A. V.\* Hashimoto A.  
 Origin of Zoned Allende Fine-Grained Inclusions

Boctor N. Hutcheon I. D. Wasserburg G.  
 Petrology of a Plagioclase-Rich Forsterite-Bearing Allende  
 Inclusion

Woolum D. S.\* Johnson M. L. Burnett D. S. Sutton S. R.  
 Refractory Lithophile Partitioning in Type B CAI Materials

Beckett J. R.\* Spivack A. J. Hutchison I. D.  
 Wasserburg G. J. Stolper E. M.  
 The Partitioning of Trace Elements Between Melilite and Liquid: An  
 Experimental Study with Applications to Type B CAIs









Tuesday, March 15, 1988  
PLANETARY PHYSICS  
1:30 p.m. Gilruth 206

Durham W. B.\* Kirby S. H. Stern L. A.  
Rheology of Water-Ammonia Ice: First Results

Eluszkiewicz J.\*  
Compaction of Icy Satellites

Nellis W. J. Hamilton D. C.\* Holmes N. C. Radousky H. B.  
Ree F. H. Mitchell A. C. Nicol M.  
Planetary Ices at High Dynamic Pressures and Temperatures and the  
Magnetic Field of Uranus

Geissler P.\* Croft S.  
Dispersion Hardening of Ice: Implications for Topographic  
Relaxation on the Icy Satellites

Kargel J. S.\*  
Liquidus Phase Relations and Liquid Properties in the System  
H<sub>2</sub>O-NH<sub>3</sub>-CO<sub>2</sub>-H<sub>2</sub>CO

Mao H. K.\* Wu Y. Jephcott A. P. Hemley R. J.  
Bell P. M. Bassett W. A.  
Crystal Structure and Density of Helium up to 232 Kbar

Matson D. L.\* Brown R. H.  
Solid State Greenhouses: Approaches for Temperature Measurement

Brown R. H.\* Matson D. L.  
Solid-state Greenhouses and Their Role on Icy Satellites

Matsui T.\* Ishiwatari M. Abe Y.  
A Possible Scenario for Atmospheric Evolution: Steam Atmosphere  
to Present One

Malcuit R. J.\* Mehringer D. M. Winters R. R.  
Computer Simulation of "Intact" Gravitational Capture of a Lunar-Like  
Body by an Earth-Like Body

Radler K.-H.\* Ness N. F.  
Comments on the Symmetry Properties of Planetary  
Magnetic Fields

Kirk R. L.\* Stevenson D. J.  
The Role of Differentiation in the Stress Histories of  
the Terrestrial Planets: Implications for the Moon and Mars

Ross M. N.\* Schubert G.  
Coupled Thermal-Dynamic Evolution of the Earth-Moon System

Cisowski S. M.\* Fuller M.  
Rock Magnetic Criteria for Distinguishing Lunar  
Samples as Suitable Paleomagnetic Recorders

PRESENTED BY TITLE ONLY

Solomon S. C. Meinke L.  
Longevity of Impact-Induced Faults as Preferred Sites  
for Later Tectonic Activity: A Further Terrestrial Test

Kochemasov G. G.  
What in Common Between Grimaldi Crater (Moon), Cleopatra Crater  
(Venus) and St. Helena Island or Afar (Earth)?

Kochemasov G. G.  
Relationship of Congo and Indian Cratons to  
Anomalies of Geoid

Wilson L.\* Head J. W., III  
The Influence of Gravity on Planetary Volcanic Eruption Rates

Tuesday, March 15, 1988  
**NOBLE GASES AND SOLAR SYSTEM HISTORY**  
 (John Reynold's 65th Birthday Celebration)  
 7:30 p.m. Gilruth 104

Lewis R. S.\* Anders E.  
 Xenon-HL in Diamonds from the Allende Meteorite - Composite Nature

Ott U.\* Begemann F. Yang J. Epstein S.  
 S-Process KR and 22NE in Murchison: A Correlation

Olinger C. T.\* Garrison D. H. Hohenberg C. H.  
 Laser Extraction of Cosmogenic Neon from Microgram Size Grains

Posodek F. A.\* Brannon J. C.  
 Ca Isotopic Anomalies in Murchison Hibonites Observed by Thermal Emission Spectrometry

Phinney D.\*  
 Lithium Abundances in Natural Diamonds: An Exploratory Ion-Microprobe Study

Garrison D. H.\* Olinger C. T. Hohenberg C. M. Caffee M. W.  
 Noble Gases in Grain-size Separates from Pesyanoc:  
 A Study in Anomalous Acquisition of Terrestrial Xenon

Broadhurst C. L.\* Drake M. J. Hagee B. E. Bernatowicz T. J.  
 Solubilities and Partitioning of Noble Gases in Mineral-Melt Systems -II. Synthesis Experiments for Ne, Ar, Kr and Xe in Anorthite, Diopside, Fosterite, and Coexisting Melts

Ferreira M. P.\* Macedo C. R. Ferreira J. F.  
 K-Ar Geochronology in the Selvagens, Porto Santo and Madeira Islands (Eastern Central Atlantic): A 30 M.Y. Spectrum of Submarine and Subaerial Volcanism

Barracough B. L.\* Marti K.  
 Noble Gas Components In The Mantle: Which Reservoirs Do MORBs Actually Sample?

Caffee M. Hudson G. Velski C. Alexander E., Jr.\*  
 Huss G. Chivas A.  
 Non-Atmospheric Noble Gases from CO<sub>2</sub> Well Gases

PRESENTED BY TITLE ONLY

Broadhurst C. Drake M. Hagee B. Bernatowicz T.  
 Solubilities and Partitioning of Noble Gases in Mineral-Melt Systems-I. Synthesis and Reversal Experiments for Ar in Anorthite and Coexisting Melt

Wednesday, March 16, 1988  
**IMPACT FLUX AND TERRESTRIAL CRATERING**  
 8:30 a.m. Gilruth 104

Wells G. L.\* Zolensky M. E.  
 A New Estimate of the Global Frequency of Meteorite Falls

Neukum G.\*  
 The Cratering Rate in the Earth-Moon System Over the Past ~3.10<sup>9</sup> Years and in Recent Time

Strom R. G.\*  
 Implications for the Origin of the Objects Responsible for the Period of Late Heavy Bombardment from the Terrestrial Planet Cratering Record

Lowe D. R.\* Asaro F. Byerly G. R.  
 Iridium Anomalies Associated with Early Archean Spherule Layers, South Africa and Western Australia

Lowe D. R.\* Byerly G. R.  
 Identification and Effects of Large, Early Archean, Terrestrial Meteorite Impacts: A Geological Perspective on Late Accretion

Byerly G. R.\* Lowe D. R. Asaro F.  
 Chemistry and Mineralogy of Early Archean Impact Deposits, Fig Tree Group, Barberton Greenstone Belt, South Africa

French B. M.\*  
 Iridium in the Vredefort Bronzite granophyre: Impact Melting and Limits on a Possible Extraterrestrial Component

French B. M.\*  
 Vredefort Bronzite Granophyre: Chemical Evidence for Origin as an Impact Melt

Deutsch A.\* Buhl D. Lakomy R.  
 A Small Scale Sr-Nd Study of the Footwall Breccia (Sudbury, Canada) - A Case Study for Isotope Systematics of Polymict "Granulitic" Breccias

Ekelund A.\* Engstrom E. U.  
 Detection of Cm-Sized Spheroidal Fe-Mn Bodies in Rhyolite from Lake Mien, an Impact Site in Southern Sweden: A Preliminary Report.

Sharpton V. L.\* Nielsen D. C.  
 Is the Bee Bluff Structure in S. Texas an Impact Crater?

Garvin J. B.\* Grieve R. A. F. Schnetzler C. Honey F.  
 Geologic Remote Sensing of Terrestrial Impact Craters

McCormick K.\* Taylor G. J. Keil K. Spudis P. D.  
 Grieve R. A. F. Ryder G.  
 Sources of Clasts in Impact Melts

Gratz A.\* Tyburczy J. A. Christie J. Ahrens T. J. Pongratz P.  
Shock of Deformed Quartz

Heymann D.\*  
Luminescence of Experimentally Shocked Plagioclase Feldspar

Castano J. R.\*  
Drilling for Abiogenic Gas in the Siljan Impact Structure,  
Sweden: A Progress Report

#### POSTER PRESENTATIONS

Wood C. A. Grieve R. A. F.  
Surface Morphology of Terrestrial Impact Craters as Viewed from Orbit

Hartung J. B. Anderson R. R.  
A Summary of Data on the Manson Impact Structure

Seeger C. R. Asaro F. Michel H. Noland A. V.  
The Search for Jeptha Knob Iridium, Continued

Roddy D. J. Shoemaker E. M. Shoemaker C. S. Roddy J. K.  
Aerial Photography and Geologic Studies of Impact Structures in Australia

Roddy D. J. Shoemaker C. S. Roddy J. K.  
The Boxhole Meteorite Crater, Northern Territory, Australia

McHone J. F. Knauth L. P.  
Barringer Crater Stishovite: Oxygen-18 Rich Relative to Bulk Target Rock

Ferguson H. M. Lucchitta B. K.  
Ganymede: "Moat" Craters Compared with Palimpsests and Basins

Schenk P. M.  
Crater Depth/Diameters on Uranian and Saturnian Satellites: The  
Frictional Strength of Ice

Matsui T. Namiki N.  
Numerical Simulation of Planetary Ring Formation

O'Keefe J. D. Ahrens T. J.  
Large Scale Impact on the Earth with an Atmosphere

#### PRESENTED BY TITLE ONLY

Milstein R. L.  
Impact Origin of the Calvin 28 Cryptoexplosive Disturbance, Cass  
County, Michigan

Shoemaker E. M. Shoemaker C. S.  
Impact Structures of Australia (1987)

Reimold W. U. Miller R. Grieve R. A. F. Koeberl C.  
The Roter Kamm Crater Structure in SWA/Namibia

Campbell K. E. Grieve R. A. F. Pacheco J. Garvin J. B.  
A Possible Impact Structure in Amazonian Bolivia

Wu S.  
The Shanghewan Impact Crater, China

Sengupta D. Bhandari N.  
Formation Age of the Lonar Crater

Vrana S.  
The Bohemian Moldavite Strewnfield: Accumulation and Conservation  
of the Ries-related Tektites in the Erosional Cavity of the Sevetic  
Impact Structure

Feldman V. I. Sazonova L. V. Kononkova N. N.  
Chemism of Diaplectic Transformation in Garnet, Biotite and Staurolite

Sazonova L. V. Feldman V. I.  
Diaplectic Transformation of Dark-Colored Minerals

Reshetnyak N. B. Raikhlin A. I.  
Raman Spectra of Impact Glasses and Tektites

Kashkarov L. L. Genaeva L. I. Kashkarova V. G. Isokh E. P.  
Track and Thermoluminescence Dating of the Impact Glasses from Meteoritic  
Crater Zhamanshine

Nyquist L. Bansal B. Wiesmann H. Shih C.-Y. Horz F.  
Isotopic Studies of Shock Metamorphism: II. Sm-Nd

Matsuda J. Nagao K.  
Noble Gas Enrichment in the Shock-produced Diamond

Mironov Y. V. Ladyguin V. M.  
Weak Shock Metamorphism in Basalts of the Logancha Astrobleme

Reimold W. U.  
Shock Experiments with Preheated Witwatersrand Quartzite and the  
Vredefort Microdeformation Controversy

Feldman V. I. Rjachovsky V. M.  
Compositional Relationships of Target and Melt on Zhamanshin Astrobleme

Kapustkina I. G. Feldman V. I.  
Some Geochemical Aspects of Projectile Reconstruction

Pierazzo E. Sartori S. M. Vanzani V.  
Terrestrial Impact Cratering Record Revisited by Vector Fourier Analysis

Hartmann W. K.  
Crater Saturation Equilibrium in the Solar System: New Evidence

Sazonova L. V.  
Shock Metamorphism of Ilmenite in Janisjarvi Astrobleme (Karelia, USSR)

Wednesday, March 16, 1988  
**CHONDRULES**  
 8:30 a.m. Gilruth Gym

Huss G. R.\*  
 Chondrule Sizes and Chemical Fractionations Among Chondrites  
 may have both Resulted from Protosolar Eruptions

Jones R. H.\* Scott E. R. D.  
 The Mineralogy of Type IA Chondrules in Semarkona (LL3.0): Disentangling  
 the Igneous and Metamorphic Histories of Type 3 Ordinary Chondrites

Swindle T. Grossman J. Garrison D. Olinger C.  
 Iodine-Xenon and Petrographic Studies of Semarkona Chondrules

Hutcheon I. D.\* Hutchison R. Wasserburg G. J.  
 Evidence of the In-situ Decay of 26Al in a Semarkona Chondrule

Sears D. W.\* Morse A. D. Hutchison R. Guimon R. K.  
 Alexander C. O. Wright I. P. Pillinger C. T.  
 Alteration History of Chondrules in the Semarkona Ordinary Chondrite

Rubin A. E.\* Pernicka E.  
 Chondrules and Matrix in the Sharp H3.4 Chondrite

Buchanan P. C.\*  
 Grain Size and Texture of Chondrule Populations in Mezo-Madaras

DeHart J. M.\* Lofgren G. E. Sears D. W.  
 Electron-microprobe and Cathodoluminescent Studies of Unequilibrated  
 Ordinary Chondrites, II. Chondrule Mesostases in ALHA77214 and DHAJALA.

Bischoff A.\*  
 Metamorphism of Ordinary Chondrites--Information from a Study of  
 Al-rich Chondrules

Zolensky M.\* Barrett R. Gooding J.  
 Bulk Composition of Matrix and Chondrule Rims for Four Carbonaceous  
 Chondrites

Lofgren G. E.\* Reid A. M.  
 Dynamic Crystallization Experiments on Chondrule Melts of  
 Porphyritic Olivine Composition: Comparison of Olivine Compositions  
 from Natural and Experimentally Produced Chondrules

Conolly H. C., Jr.\* Redomsky P. M. Hewins R. H.  
 Chondrule Texture: The Influence of Bulk Composition and Heating  
 Time for Uniform Thermal Conditions

Fredriksson K.\*  
 Composition of Chondrules and Parent Materials

#### PRESENTED BY TITLE ONLY

Misawa K. Nakamura N.  
 Rare Earth Elements in Chondrules and CAI from the Felix  
 (CO3) Chondrite

Noda S. Nagamoto H. Nishikawa Y. Misawa K. Nakamura N.  
 Chondrule Cores and Rims from the Tieschitz (H3.6) Chondrite

Skripnik A. Y.  
 Accretion Structures-I. Their Relicts in Chondrites and Chondrule  
 Formation Model

Skripnik A. Y.  
 Accretion Structures-II. Constitution of Different Types of Meteorites  
 and Implications for Their Origins

Makjanic J. Vis R. D.\* Touret J. L. R. Verheul H.  
 Raman Spectroscopy of Some Glass Inclusion in Chondrules of Allende

Bischoff A. Palme H.  
 Formation of Al-rich Chondrules by Chondrule Collision and Splashing

Kashkarov L. L. Korotkova N. N. Kashkarova V. G.  
 Thermoluminescence of the Allende Chondrule Olivines with the Different  
 Irradiation History

Kashkarov L. L. Kalinina G. V. Kashkarova V. G.  
 Baryshnikova G. V. Lavrukhina A. K.  
 Track and Thermoluminescence Studies of the Radiation and Thermal  
 Histories for the Ordinary Chondrite Elenovka L5 Chondrules

Lavrukhina A. K.  
 Origin of Chondrules

Lavrukhina A. K. Stakheeva S. A. Lavrentjeva Z. A. Ignatenko K. I.  
 Specifics of the Composition of the Fe, Ni-phase in the Chondrules  
 of Chondrites of Different Chemical Groups

Lang B. Franaszczuk K.  
 Chondrules: Are They Fractals?

Wednesday, March 16, 1988  
REMOTE SENSING OF PLANETARY SURFACES  
8:30 a.m. Gilruth 206

Williams A.\* Hapke B.  
Light Scattering by Single Particles

Nelson M. L.\* Clark R. N.  
Application of Radiative Transfer Theory to the Spectra of  
Mineral Mixtures

Efford N. D.\* Wilson L.  
Photometric Characterisation of the Lunar Surface Using  
Hapke's Equation

Hapke B.\*  
Thermal Emission and Reflectance Spectroscopy

Salisbury J. W.\* Walter L. S.  
Thermal Infrared (8- to 14- $\mu\text{m}$ ) Spectroscopic Remote Sensing of  
Rock Type on Particulate Planetary Surfaces

Vogler K. J.\* Johnson P. E. Shorthill R. W.  
Improved Thermal Models for Solid Planetary Bodies

Mustard J. F.\* Pieters C. M.  
Predicting Mineral Abundances from Reflectance Spectra:  
Laboratory Tests

Rivard B.\* Arvidson R. E. Sultan M.  
Mapping of Ophiolitic Melanges of the Wadi Ghadir Area, Nubian  
Shield of Egypt Using a Linear Mixing Model Applied to Landsat  
Thematic Mapper Data

Christensen P. R.\* Malin M. C.  
High Resolution Thermal Imaging of Mars

Bell J. F., III\* McCord T. B.  
Mars: Near-Infrared Comparative Spectroscopy During the  
1986 Opposition

Greeley R.\* Lancaster N. Sullivan R. S.  
Theilig E. Wall S. Dobrovolskis A. White B. R. Iversen J. D.  
Correlation of Radar Backscatter and Aeolian Roughness:  
Implications for Venus

Gaddis L.\*  
Geologic Analysis of SIR-B Data for Kilauea Volcano,  
HI: Implications for Interpretation of Venera  
15/16 and Magellan Data of Volcanic Centers on Venus

Garvin J. B.\* Williams R. S., Jr.  
Remote Sensing of Planetary Analogue Landforms in SW Iceland

#### POSTER PRESENTATION

Mardon A. A.  
Low Level Remote Sensing to Directly Detect Antarctic  
Surficial Blue Ice Meteorites

Pieters C. M. Taylor G. J.  
Millimeter Petrology and Kilometer Mineralogical Exploration

Sunshine J. M. Pieters C. M. Pratt S. F.  
Gaussian Analysis of Pyroxene Reflectance Spectra

Singer R. Geissler P.  
An Independent Assessment of Derivative Analysis of  
Reflectance Spectra

Lucey P. G.  
Ground-based Imaging Spectroscopy of the Moon: On the  
Threshold

Tellez J. R. Whitford-Stark J. L.  
SMIRR Data Analysis of West Texas: Enhancement of Lithologic  
Signatures

Melendrez D. E. Zimbelman J. R. Francis P. W.  
Digital Photomosaic of Viking Images 14A29-14A35: A Preliminary  
Look at Gangis Chasma, Mars

Blount G. Greeley R. Christensen P. R. Lancaster N.  
Interpreting the Geologic History of Aeolian Sand Bodies from  
Remote Sensing Data

PRESENTED BY TITLE ONLY  
Garvin J. B. Ulaby F. T. Webster W.  
Dielectric Properties of Meteorites: Implications for Radar  
Observations of Phobos

Smith M. O. Adams J. B.  
Telescopic Spectra of Mars Linked to Viking Lander Multispectral  
Images and Laboratory Analogs

Hurtak J.  
The Use of Remote Sensing and Electromagnetic Sound Penetration  
in the Study of Fault Zones

Miyamoto M.  
Infrared Diffuse Reflectances of Some Hydrous Minerals:  
Absorption Bands Near 3  $\mu\text{m}$

Wednesday, March 16, 1988

IMPACT GLASSES: FORMATION AND SOURCES  
1:30 p.m. Gilruth 104

Murali A. V.\* Zolensky M. E. Underwood J. R.  
Giegengack R. F.  
Formation of Libyan Desert Glass

See T. H. Horz F.\* Murali A. V.  
Two Types of Impact Melt from the Wabar Crater, Saudi Arabia

Murali A. V. See T. H. Blanchard D. P.  
Precursor of the Wabar Crater Glasses?

Johnson P. H.\* Bogard D. D. Horz F.  
Shock-Implanted Noble Gases in Samples from the Wabar Impact  
Crater: Implications for Other Terrestrial Craters and the  
Surface of Mars

Ahrens T. J.\*  
A New Theory for the Shock Production of Glasses and  
High Pressure Phases in Planetary Silicates

Jansa L. F.\* Pe-Piper G. Robertson B. Friedenreich O.  
Meteorite Impact Crater on the North Atlantic Shelf

Glass B. P.\*  
Montagnais Impact Crater: Possible Source of the North American  
Tektite Strewn Field

Bohor B. F.\* Betterton W. J. Foord E. E.  
Coesite, Glass, and Shocked Quartz at DSDP Site 612: Evidence for  
Nearby Impact in the Late Eocene

Koeberl C.\*  
Extension of the North American Tektite Strewn Field

Stecher O.\* Ngo H. H. Papenastassiou D. A. Wasserburg G. J.  
Rb-Sr and Sm-Nd Evidence for the Origin of the Late Eocene  
Microtectites

Hildebrand A.\*  
Oblique Impact as the Source of the Australasian Tektites

Futrell D.\*  
The Importance of Closed Folds in Muong Nong-Type Tektites

O'Keefe J. D.\* Ahrens T. J.  
Impact Produced Condensate and Droplet Size Distributions

PRESENTED BY TITLE ONLY

Miura Y.  
Amorphous Impact Materials in the Planetary Surfaces

Feldman V. I. Fedosova S. P. Kirillova O. P. Kopylova M. G.  
Refractive Index of Natural Glasses as a Criterion for Distinction  
of Vulcanites and Impactites

Feldman V. I. Bindeman I. N. Sazonova L. V.  
Rate of Impact Melts Cooling and Mineral Compositions

Masaitis V. L. Ivanov M. A. Ezersky V. A. Kozlov V. S.  
Reshetnyak N. B.  
Finds of Tektite Glasses in West Siberia

Yan Z. Zhang Q.-W. Ye L.-F. Xu D.-Y.\* Sun Y.-Y.  
Fission Track Ages and Stable Oxygen Isotope Composition of the  
Tektites (Leigongmo) from Hainan Island, China

Wednesday, March 16, 1988  
NON-CARBONACEOUS CHONDRITES  
1:30 p.m. Gilruth Gym

Wasson J. T.\* Kallenbach G. W. Rubin A. E. Wang D.  
The Continuous Redox Fractionation Sequence Among Ordinary  
Chondrites

Brearley A. J.\*  
Nature and Origin of Matrix in the Unique Chondrite Kakangari: A  
TEM Investigation

Gooding J. L. Jull A. J. T.\* Cheng S. Velbel M. A.  
Mg-Carbonate Weathering Products in Antarctic Meteorites  
Isotopic Composition and Origin of Nesquehonite from LEW85320

Pellas P.\* Fieni C.  
Thermal Histories of Ordinary Chondrite Parent Asteroids

Cashore J.\* McKinney M. L. McSween H. Y.  
No Evidence for Different Parent Bodies of Antarctic and Non-Antarctic  
H Chondrites: A Multivariate Study

Hasan F. A.\* Sears D. W.  
Thermoluminescence Evidence for a Terrestrial Age Difference Between  
Allan Hills and Lewis Cliff Meteorites

Takagi Y.\* Mizutani H.  
Ablation Rates of Falling Meteorites in the Terrestrial Atmosphere

Shaw D. M.\* Higgins M. D. Truscott M. G. Middleton T. A.  
Hinton R. W.  
Boron in Chondritic Meteorites

Lavielle B.\* Marti K. Pellas P.  
Evidence for Extinct 248CM in Meteorites?

#### POSTER PRESENTATIONS

Britt D. T. Pieters C. M. Patayev M. I. Zaslavskaya N. I.  
Tsarev: Petrology and Bidirectional Reflectance Characteristics  
of a Black Chondrite

Bhandari N. Sengupta D.  
Terrestrial Ages of Antarctic Meteorites Based on Thermoluminescence  
Levels in Their Fusion Crust

Schutt J. Fessler B. W. Cassidy W. A.  
Thematic Maps of Antarctic Meteorites

#### PRESENTED BY TITLE ONLY

Bonneau P. Shaffer N. Basu A.  
First Report of a New Meteorite Find from Seymour, Indiana

Grady M. M. Gibson E. K. Jr. Wright I. P. Pillinger C. T.  
Alteration Products on the LEW 85320 H5 Chondrite

Solberg T. C. Burns R. G.  
Mossbauer Spectra of Weathered Stony Meteorites Relevant to  
Oxidation on Mars: I. Chondrites

Korotkova N. N. Skripnik A. Ya. Levrukhina A. K.  
Solar Flare Track Records in Nikol'skoe L4-5 Chondrite

Korotkova N. N. Skripnik A. Ya. Levrukhina A. K.  
Track Study of Bjurbbole L4, Ochansk H4 and Nikol'skoe L4-5  
Chondrite Olivines

ALH 85085  
3:45 P.M. Gilruth Gym

Grossman J. N.\* Rubin A. E. MacPherson G. J.  
Allan Hills 85085: An Out-of-the-Ordinary, Enstatite-rich  
Carbonaceous Chondrite

Scott E. R. D.\*  
A New Kind of Primitive Chondrite: Allan Hills 85085

Weisberg M. K.\* Prinz M. Nehru C. E.  
ALH85085: A Unique Unequilibrated Chondrite

Wasson J. T.\*  
A Non-Nebular Origin for the Allan Hills 85085 Subchondritic  
Meteorite

Wednesday, March 16, 1988

GEOLOGIC AND REMOTE SENSING STUDIES OF THE MOON  
1:30 p.m. Gilruth 206

Svitek T.\* Murray B. C.  
Lunar Polar Ice - A Reappraisal

Pieters C. M.\*  
Water on the Moon? Potential Detection of Recent Cometary Impacts in the Earth/Moon Environment Using LGO/VIMS

Hood L. L.\* Williams C. R.  
The Lunar Far Side Swirls: Distribution and Possible Origins

Jaumann R.\* Kamp L. Neukum G.  
Spectrophotometric Analysis of Lunar Surface Materials: A New Technique for the Quantitative Determination of Geochemical Components

Jaumann R.\* Neukum G. Hawke B. R.  
Quantitative Determination of the Geochemical Composition of Lunar Surface Materials from Telescopic Reflectance Data

Metzger A. E.\*  
The Identification of Lunar Rock Types via Orbital Gamma Ray Spectroscopy

O'Keefe J. A.\*  
Lechatelierite in Moldavites

Coombs C. R.\* Hawke B. R. Owensby P. D.  
A Recent Survey of Localized Lunar Dark Mantle Deposits

Swann G. A.\*  
Toward a Classification of Lunar Sinuous Rilles

Zisk S. H.\*  
High-resolution (30 M) Lunar Radar Observations

Campbell B. A.\* Zisk S. H. Mouginis-Mark P. J.  
Lunar Surface Scattering from New 3-cm Polarization and Phase Radar Data

Morgan T. H.\* Zook H. A. Potter A. E.  
Production of Sodium and Potassium Vapor from the Lunar Regolith

Garvin J. B.\* Zuber M. T. Bufton J. L.  
Lunar Observer Laser Altimeter: Geoscience Applications

## POSTER PRESENTATIONS

Hawke B. R. Coombs C. R. Lucey P. G.  
Remote Sensing Studies of the Cruger Region of the Moon

Coombs C. R. Hawke B. R.  
Keahako Crater and Channel, Kalaupapa, Molokai: A Preliminary Look at a Possible Analog to Lunar Sinuous Rilles

Spudis P. D. Davis P. A. Pattanaborwornsak B.  
The Fe-Al Relations of Lunar Soils and Orbital Chemical Data: Implications for Al Abundances Estimated from Apollo Orbital Gamma-Ray Data

## PRESENTED BY TITLE ONLY

Thompson T. W.  
Ultra-high Resolution Radar Mapping of the Moon at 70 CM Wavelength

Rodionova Zh. F. Shevchenko V. V. Karlov A. A. Smolyakova T. P.  
The Creation of Maps of the Density Distribution of Lunar Craters

Thursday, March 17, 1988  
OUTER SOLAR SYSTEM  
8:30 a.m. Gilruth 104

Wood C. A.\*  
Satellite Systematics

Johnson T. V. Veeder, G. H.\* Matson D. L. Brown R. H.  
Nelson R. M. Morrison D.  
Io: Leading Side Volcanism in 1986

Gredie J.\* Mouginis-Mark P. Hayashi J. Flynn L.  
Temperature and Variability of an Active Lava Lake: Lessons to be Applied to Io

Davies A. G.\* Wilson L.  
Silicate-Sulphur Interactions on Io--Implications for Pele Type Plumes

Murchie S. L.\* Heed J. W. Plescia J. B.  
Tectonic and Volcanic Evolution of Dark Terrain and Its Implications for Internal Structure and Evolution of Ganymede

Croft S. K.\*  
Crater Depth/Diameter/Morphology Relationships on the Icy Satellites: Implications for Ice Rheology

Lissauer J. J.\* Squyres S. W. Hartmann W. K.  
Bombardment History of the Saturn System

Thomas P. J.\* Squyres S. W.  
On the Relaxation of Herschel Basin and Mimas' Tidal Bulge

Ross M. N. Schubert G.\*  
Viscoelastic Models of Tidal Heating in Enceladus

Helfenstein P.\* Veverica J.  
Early Resurfacing of Umbriel: Evidence from Voyager II Photometry

Nyffenegger P.\* Consolmagno G. J.  
Tectonic Episodes on Ariel: Evidence for an Ancient Thin Crust

McKinnon W. B.\* Mueller S.  
Pluto Structure and Composition: Evidence for a Solar Nebula Origin

#### POSTER PRESENTATIONS

Golombek M. Banerdt B.  
Constraints on the Subsurface Structure of Europa

Jakosky B. M.  
Observational Constraints on the Efficacy of a Solid-State Greenhouse on the Galilean Satellites

Nicol M. Boone S. Koumvakalis A.  
Ammonia-Water Mixtures at High Pressures: Applications to Icy Satellites

Ruzicka A.  
The Geology of Ariel

Kargel J.  
The Geology of Ariel, I: Trans-Tensional Block Tectonics

Croft S. K.  
Miranda's Inverness Corona Interpreted as a Cryovolcanic Complex

Schaefer M. W. Schaefer B. E.  
Large-amplitude Photometric Variations of Neptunian Satellites

#### PRESENTED BY TITLE ONLY

Philpott R.  
Formation of Sulci, Grooves and Associated Stress Regimes on Ganymede

Philpott R.  
The Tectonic History of Ganymede

Philpott R.  
Geological, Chronological and Structural Mapping of Ganymede

Philpott R. Moore V. Godfrey D. A. Baker N.  
Construction of Digital and Photomosaics of Ganymede

Dalrymple W., III Hogenboom D. L. Consolmagno G. J.  
The Density of Ammonia-Water Solution to 400 MPa (4 Kilobars)

Murchie S. L. Head J. W.  
The Evolution of Volcanism on Ganymede: Possible Importance of a Low Melting-point Volatile

Sotin C. Murchie S. L.  
Internal Dynamics of a Differentiated Ganymede: Constraints from Experimental Data

Croft S. K.  
Crater Ejecta Facies on Ganymede

Croft S. K. Duxbury E. D.  
Crater and Crater Forming Populations on Ganymede and Callisto

Murchie S. L. Head J. W. Plescia J. B.  
Crater-Densities and Crater-Ages of Different Terrain Types on Ganymede

Croft S. K.  
Crater Populations on the Uranian Satellites

Thursday, March 17, 1988  
CHEMICAL AND ISOTOPIC CHARACTERISTICS OF PRIMITIVE MATERIALS:  
INHERITED VS. HOMEGROWN  
8:30 a.m. Gilruth Gym

Nuth J. A.\* Moore M. H.  
Proton Irradiation of SiH<sub>4</sub>-Fe(CO)<sub>5</sub>-H<sub>2</sub>O Ices and the Production  
of Refractory Silicates: Implications for the Solar Nebula

Blake D.\* Freund F. Bunch T. Chang S. Tielens A.  
Greiner N. R.  
A Comparison of Allende Diamond with Diamond from Detonation Soot

Tang M. Anders E. Zinner E.\*  
Noble Gases, C, N and Si Isotopes in Interstellar SiC from the  
Murchison Carbonaceous Chondrite

Clayton D. D.\*  
New Cosmic-Chemical-Memory Mechanism for Isotopic Anomalies

Wood J.\* Hashimoto A.  
The Condensation Sequence Under Non-Classic Conditions (P<10<sup>-3</sup>  
ATM, Non-Cosmic Compositions)

Thiemens M. H.\* Jackson T.  
The Single-Stage, Mass Independent Fractionation Factor in Ozone

Robert F.\* Halbout J.  
A Non Mass Dependent Isotopic Fractionation Effect: A  
Hydrogen-Deuterium Exchange Experiment

Bhattacharya S. Thiemens M.\*  
Oxygen Isotope Studies in O + CO Reaction: Energy Constraints  
in Symmetry Selective Fractionation

Grossman L.\* Geiger C. A. Kleppa O. J. Myssen B. O.  
Lattimer J. M.  
Stability of Hibonite and CaAl<sub>4</sub>O<sub>7</sub> in the Solar Nebula

Hashimoto A.\*  
Evaporation Kinetics of REE Oxides

Halbout J.\* Robert F. Javoy M.  
Oxygen Isotopic Contamination During HF-HCl Dissolution of Bulk  
Carbonaceous Chondrites

Alexander C. M. O'D.\* Arder J. W. McGarvie D. W.  
Schelhaas N. Ott U. Wright I. P. Pillinger C. T.  
Stable Isotopes in the Ordinary Chondrites: Characterisation of  
Isotopically Anomalous  
Phases

Ash R. D.\* Arden J. W. Alexander C. O. Grady M. M.  
Wright I. P. Pillinger C. T.  
Isotopically Heavy Carbon in the Allende Meteorite - New or  
Previously Recognised Phases?

Thursday, March 17, 1988  
LUNAR HIGHLANDS  
8:30 a.m. Gilruth 206

POSTER PRESENTATION

Chen J. H.  
238U, 235U, 234U in Lunar and Terrestrial Samples and the Determination  
of Lambda 238/Lambda 234

PRESENTED BY TITLE ONLY

Fukunaga K. Matsuda J. Nagao K. Ito K.  
The Relationship Between the Concentrations of Ar in Vapor Growth  
Diamond and the Partial Pressure of Ar

Matsuda J. Miyamoto M. Ito K.  
On the Vapor-growth Diamonds formation in the Solar Nebula

Dearborn D. Lee T. Wasserburg G. J.  
The Origin of Al-26

Spudis P. D.\* Hawke B. R. Lucey P. G.  
Geology and Deposits of the Lunar Nectaris Basin

McGee J. J.\*  
Diversity of Granulitic Breccia Clasts from Feldspathic  
Fragmental Breccia 67975

Takeda H.\* Miyamoto M.  
Mineralogical Studies of Lunar Highland Breccia 67016, an Analog  
of the Yamato-82 Lunar Meteorites

Laul J. C.\*  
Chemistry of Apollo 17 Highland Coarse Fines: Plutonic and Melt Rocks

Lindstrom M. M.\* Marvin U. B. Mittlefehldt D. W.  
Highland Clasts in Apennine Front Breccia 15295

Dasch E. J.\* Shih C.-Y. Bansal B. M. Wiesmann H. Nyquist L. E.  
Age of A15 Norites, Continued

Morgan J. W.\* Wandless G. A.  
Lunar Dunite 72415-72417: Siderophile and Volatile Trace Elements

Premo W. R.\* Tatsumoto M. Wang J. W.  
Pb Isotopes in Anorthositic Breccias 67075 and 62237: A Search  
for Primitive Lunar Lead

Meyer C.\* Yang S. R.  
Tungsten-bearing, Lunar "Yttrobetafite"

Haskin L. A.\* Korotev R. L.  
Limits from Eu Mass Balance on the Proportions of KREEP and Ferroan  
Anorthosite in the Lunar Surface Crust

Warren P. H.\* Kallemeyn G. W.  
Lunar Meteorites: Constraints on Lunar Composition and Evolution

Bersch M. G. Taylor G. J.\* Keil K.  
Ferroan Anorthosites and the Magma Ocean - Searching for Trends in  
the Sea of Confusion

POSTER PRESENTATIONS

Miura Y.  
Normal and Anomalous Compositions of Lunar Feldspars--I. Lunar  
Plagioclases

Korotev R. L. Haskin L. A.  
Compositional Survey of Particles from the Luna 20 Regolith

Korotev R. L. Jolliff B. L. Haskin L. A.  
Compositional Survey of Particles from the Luna 16 Regolith

PRESENTED BY TITLE ONLY

Korina M. I. Frenkel M. Y.  
Fragments from Lunar Highland Regolith: Search for Magmatic Relatives

Neal C. R. Taylor L. A. Patchen A. D. Lindstrom M. M.  
Evidence for REE Metasomatism of the Apollo 14 Highlands Crust

Shearer C. K. Papike J. J. Simon S. B. Shimizu N.  
An Ion Microprobe Study of the Intra-Crystalline Behavior of REE  
in Pyroxene from KREEP Basalts

Simon S. B. Galbreath K. C. Papike J. J.  
Petrology of Apollo 17 Highland Coarse Fines

James O. B.  
Trace Elements in the Plagioclase of Lunar Ferroan Anorthosites

Thursday, March 17, 1988  
THE K-T AND RELATED EVENTS  
1:30 p.m. Gilruth 104

O'Keefe J. D.\* Ahrens T. J.  
Impact Production of CO<sub>2</sub> by the K-T Extinction Bolide,  
and the Resultant Heating of the Whole Earth

Gratz A.\* Pongratz P. Preisinger A. Christie J.  
Bohor B. Frey I.  
Optical Microscopy and TEM of Shocked Material from the  
Clear Creek, Colorado K/T "Magic Layer"

Ciskowski S. M.\*  
Analogues for Magnetic Microspherules Associated with  
the K/T and Upper Eocene Extinction Events

Flexer A.\* Rosenfeld A. Honigstein A. Dvorachek M.  
A Microdiamond - Additional Support for Extraterrestrial  
Signatures Near the K/T Boundary in Israel

Rosenfeld A. Flexer A.\* Almogi-Labin A.  
Honigstein A. Dvorachek M.  
Evidence for Multiple Extraterrestrial Impacts at the  
Cretaceous-Tertiary Transition in Israel

Gilmour I.\* Anders E.  
Trace Elements at the K-T Boundary: Evidence for a Single Impact?

Orth C. J.\* Attrep M. Jr. Quintana L. R.  
Diner R. Elder W. P.  
Siderophile Abundance Maxima at Upper Cenomanian Marine  
Invertebrate Extinction Horizon: Western Interior of North America

Wolbach W. S.\* Gilmour I. Anders E.  
Environmental Changes Across the K-T Boundary at Woodside  
Creek New Zealand

Xu D.-Y.\* Zhang Q.-W. Sun Y.-Y. Yan Z. Chai Z.-F.  
On the Astrogeological Events in China

PRESENTED BY TITLE ONLY

de Silva S. L. Sharpton V. L.  
The K-T Boundary Debate - A Volcanological Perspective

Cisowski S. M.  
Paleomagnetism of Manson Structure Cores Inconsistent with K/T Link

Yamakoshi K.  
Local Event of Cosmic Matter Accretion Around 580000 Years Before  
Present Found in Two Dated Central Pacific Cores

Gerasimov M. V. Dikov Yu. P. Mukhin L. M. Rekharsky V. I.  
Structural-Chemical Peculiarities of the State of Silicon in the  
Processes of Shock Metamorphism

Yakovlev O. I. Fainberg V. S. Kaznacheev E. A.  
Pilugin N. N. Baulin N. N. Tihomirov S. G.  
Vapor Composition at Impact Vaporization: Experimental Data

Weidenschilling S. Davis D.  
Dust to Dust: Low-Velocity Impacts of Fragile Projectiles

Ivanov B.A.  
Effect of Modification of Impact Craters on the Size-Frequency  
Distribution and Scaling Law

Schultz P. H.  
Atmospheric Effects on Impact Cratering Efficiency

Hartmann W. K.  
Impact Strengths and Energy Partitioning in Impacts into  
Finite Solid Targets

Housen K. R.  
Scaling of Crater Ejecta Blocks

Schenk P. M.  
Simple-to-Complex Crater Transition Diameters on the Icy  
Satellites of Uranus and Saturn

Stooke P. J.  
Impacts on Comet Nuclei

IMPACT THEORY AND EXPERIMENTS  
3:45 p.m. Gilruth 104

Housen K. R.\* Holsapple K. A.  
Scaling Problems in Catastrophic Collisions

Schmidt R. M.\* Watson H. E.  
Impact-Generated Stress Waves and Spall in Water

Holsapple K. A.\* Choe K. Y.  
Surface Spall in Large Impact Events

Crawford D.\* Schultz P.  
Conductivity of an Expanding Plasma Cloud Above a  
Hypervelocity Impact

Thursday, March 17, 1988  
UREILITES  
1:30 p.m. Gilruth Gym

Prinz M.\* Weisberg M. K. Nehru C. E.  
Feldspathic Components in Polymict Ureilites

Takeda H.\* Mori H. Ogata H.  
Mineralogy of Magnesian and Calcic Groups of Ureilites  
and Formation Condition of Ureilites

Davis A. M.\* Prinz M. Laughlin J. R.  
An Ion Microprobe Study of Plagioclase-rich Clasts in the  
North Haig Polymict Ureilite

Goodrich C. A.\* Patchett P. J. Drake M. J.  
Nd and Sr Isotopic Analyses of the Ureilite Novo Urei:  
Evidence for a Young LREE-enriched Component

Clayton R. N.\* Mayeda T. K.  
Ureilites are not Igneous Differentiates

Warren P. H.\* Kallemeyn G. W.  
A New Model for Ureilite Origin: Incomplete Impact-Disruption  
of Partially Molten Asteroids

POSTER PRESENTATION

Spitz A. Goodrich C. Crozaz G. Lundberg L.  
Ion Microprobe Search for the LREE Host Phase in Ureilite Meteorites

PRESENTED BY TITLE ONLY

Mori H. Takeda H.  
TEM Observation of Carbonaceous Material in the Dyalpur Ureilite

Miyamoto M. Matsuda J. Ito K.  
Raman Spectra of Ureilite Diamond and the Origin of Diamond  
in Meteorites

LEW86010 AND ADOR  
3:00 p.m. Gilruth Gym

Treiman A. H.\*  
Angra dos Reis is not a Cumulate Igneous Rock

Goodrich C. A.\*  
Petrology of the Unique Achondrite LEW86010.

Prinz M.\* Weisberg M. K. Nehru C. E.  
LEW 86010, A Second Angrite: Relationship to CAI's and Opaque Matrix

Delaney J. S.\* Sutton S. R.  
Lewis Cliff 86010, an ADORable Antarctic

McKay G\*. Lindstrom D. Yang S.-R. Wagstaff J.  
Petrology of Unique Achondrite Lewis Cliff 86010

McKay G.\* Lindstrom D. Le L. Yang S.-R.  
Experimental Studies of Synthetic LEW 86010 Analogs: Petrogenesis  
of a Unique Achondrite

Crozaz G.\* Lundberg L. L. McKay G.  
Rare Earth Elements (REE) in the Unique Achondrite LEW 86010

Thursday, March 17, 1988  
TECTONIC FEATURES ON THE TERRESTRIAL PLANETS  
1:30 p.m. Gilruth 206

Aubele J. C.\*  
Morphologic Patterns in Lunar Mare Wrinkle Ridges and  
Kinematic Implications

Golombek M.\* Plescia J. Franklin B.  
The Relative Importance of Faulting Versus Folding in the Formation  
of Planetary Wrinkle Ridges

Plescia J. B.\*  
Vertical Relief of Martian Wrinkle Ridges: Implications  
for Internal Structure

Watters T.\*  
The Wrinkle Ridge Assemblage

Watters T.\* Tuttle M. Chadwick J.  
Mare Ridge-Highland Scarp Structures and Upland Scarps on the Moon,  
Mars and Mercury

Watters T.\*  
Strain Distribution in the Anticlinal Ridges of the Columbia  
Plateau: Implications for Their Origin and the Origin of First-Order  
Ridges on the Terrestrial Planets

Hills L. S.\*  
Buried Topography as a Controlling Factor in the Origin of  
the Giant Polygons of Mars

Forsythe R. D.\* Zimbelman J.  
Transcurrent Faulting on Mars: The Gordii Dorsum Escarpment

McGill G. E.\*  
Evidence for a Very Large Basin Beneath Utopia Planitia, Mars

Craddock R. A.\* Greeley R. Christensen P. R.  
Origin of Grooved Features in the Hesperian/Noachian Cratered  
Terrain, Memnonia Quadrangle (MC-16), Mars

Clow G. D.\* Moore H. J. Davis P. A. Strichartz L. R.  
Stability of Chasma Walls in the Valles Marineris, Mars

Wichman R.\* Schultz P. H.  
Ridged Plains Units on the Margins of Martian Impact Basins

PRESENTED BY TITLE ONLY

Jons H.-P.

Hints for an Embryonic Stage of Underplating/Plate Tectonics  
on Mars?

Wilhelms D. E. Baldwin R. J.

The Role of Igneous Sills in Shaping the Martian Uplands

Anderson R. C.

Lineament Analysis and Tectonic Interpretation for the Central  
Tharsis Region, Mars

Frey H. Schultz R. A.

Large Impact Basins as a Test of the Mega-Impact Origin of the  
Mars Crustal Dichotomy

Friday, March 18, 1988  
LUNAR AND METEORITE BASALTS  
8:30 a.m. Gilruth 104

Longhi J.\* Pan V.

The Parental Magmas of the SNC Meteorites

McSween H. Y.\* Lundberg L. Crozaz G.

Crystallization of the ALHA77005 Shergottite: How Closed  
is a Closed System?

Wentworth S. J.\* Gooding J. L.

Chloride and Sulfate Minerals in the Nakhla Meteorite

Neal C. R.\* Taylor L. A.

Comparison of Lunar and Terrestrial Granites: A Unique  
Petrogenesis for the Lunar Occurrence

Neal C. R.\* Taylor L. A.

The Origin of Phosphates in the Fra Mauro Highlands by  
Silicate Liquid Immiscibility: Part of the Basaltic  
Melt Produced in Lunar Granite Petrogenesis

Shearer C. K.\* Papike J. J. Simon S. B. Shimizu N.

An Ion Microprobe Study of the Intra-crystalline Behavior of REE  
and Selected Trace Elements in Pyroxenes from Mare Basalts With  
Different Cooling and Crystallization Histories, Preliminary Results

Papike J. J.\* Shearer C. K. Simon S. B. Shimizu N.

Lunar Pyroxenes: Crystal Chemical Rationalization of REE Zoning,  
Pattern Shapes, and Abundances - An Ion Microprobe Investigation

Shervais J. W.\* Vetter S. K. Lindstrom M. M.

Heterogeneity in Small Aliquots of Apollo 15 Olivine  
Normative Basalt: Implications for Breccia Clast Studies

Schuraytz B. C.\* Ryder G.

A New Petrochemical Data Base of Apollo 15 Olivine-Normative  
Mare Basalts

Nyquist L.\* Wiesmann H. Bansal B. Shih C.-Y.

Rb-Sr Age of the Large Mare Basalt Clast in Breccia 15459

Ryder G.\*

Limited Chemical Variation of Apollo 15 KREEP Basalts

Dickinson T.\* Bild R. W. Taylor G. J. Keil K.

Late-Stage Enrichment of Ge in the Magma Ocean: Evidence from  
Lunar Basalts

Hughes S. S.\* Delano J. W. Schmitt R. A.

Chemistry of 74220 Orange Mars Volcanic Glass; Implications for  
Their Magmatic Source Composition

Delano J. W.\*

Depths of Mare Source-regions: Limits Imposed by Buoyancy-driven  
Melt Segregation

## POSTER PRESENTATIONS

Neal C. R. Taylor L. A.

"K-frac" + "REEP-frac": A New Understanding of KREEP  
in Terms of Granite and Phosphate Petrogenesis

Neal C. R. Taylor L. A. Schmitt R.

A Re-evaluation of Olivine Vitrophyre Petrogenesis

Lu F. Taylor L. A. Jin Y.

Coarse-grained Basic Igneous Samples from Mare Crisium:  
Mineralogy, Petrography, and Petrogenesis

Jin Y. Taylor L. A. Lu F.

Mineral Chemistry and Petrology of Luna 16 Basalts: Sample 21036

Ryder G.

A New Variant of High-Ti Mare Basalt from Van Serg Drive  
Tube 79001

Burt D. M.

Lunar Production of Oxygen and Metals Using Fluorine:  
Concepts Involving Fluorite, Lithium, and Acid-base Theory

## PRESENTED BY TITLE ONLY

Tarasov L. S. Kudryashova A. F. Mashtalka A.

Frana J. Kolesov G. M.

High-Titanium and Other Basalt Types From Thaerus-Littrow  
Region (Mare Serenitatis)

Tarasov L. S. Kudryashova A. F. Bobrov V. A.

Vertman E. G. Sudyko A. F. Shipizin J. G.

Mare Basalts From the Highland Region: Petrochemical Varieties and  
Geochemical Features (Luna 20)

Jones J. H.

Partitioning of Mg and Fe Between Olivine and Liquids of Lunar  
Compositions: The Roles of Composition, Pressure and Ti Speciation

Neal C. R. Taylor L. A. Schmitt R. Hughes S. S. Lindstrom M. M.

VHK Basalt Petrogenesis: Further Evidence from Breccias 14303 and 14304

Neal C. R. Taylor L. A. Patchen A. D.

Basalts from Apollo 14 Breccia 14321: Part 1 - Mineralogy  
and Petrology

Neal C. R. Taylor L. A. Schmitt R. Hughes S. S.

Basalts from Apollo 14 Breccia 14321: Part 2 - Geochemistry

Hughes S. S. Schmitt R. A.

A Least-Squares Method Used to Constrain Mixing Models of Hybridized  
Lunar Mare Basalt Magma Sources

Hughes S. S. Schmitt R. A.

Chemistry of a Unique Low-Titanium Basalt Clast Extracted From  
60255 Regolith Breccia

Schreiber H. D. Kozak S. J. McNamee K. K. Janjic D.

Redox Speciation of Iron, Sulfur, and Oxygen in a Model Basaltic Magma

Burns R. G. Solberg T. C.

Mossbauer Spectra of Weathered Stony Meteorites Relevant to Oxidation  
on Mars: II. Achondrites and SNC Meteorites

Semenova A. S. Nazarov M. A. Kononkova N. N. Solov'eva N. V.

Modal Mineralogy and Major Element Chemistry  
of Luna 16 Basalt Rocks

Delano J. W. Hughes S. S. Schmitt R. A.

Inter-element Correlations among Mare Basalts and Pristine  
Lunar Glasses

Friday, March 18, 1988  
REFRACTORY INCLUSIONS II  
8:30 a.m. Gilruth Gym

- Blum J. D.\* Wasserburg G. J. Hutcheon I. D. Beckett J. R.  
Stolper E. M.  
Opaque Assemblages in the Allende Meteorite: Evidence for Equilibrium at Low Temperatures (<=770K) and High fO<sub>2</sub>-fS<sub>2</sub>
- Caillet C.\* MacPherson G. J. El Goresy A.  
Fremdlinge in Vigarano CAI 477B: Assemblages, Compositions, and Possible Formational History
- Davis A. M.\* MacPherson G. J.  
Rare Earth Elements in a Hibonite-rich Allende Fine-Grained Inclusion
- Ireland T. R.\* Fahey A. J. Zinner E. K.  
Calcium and Titanium Isotopic Systematics of Hibonites
- Grossman L.\* Fahey A. J. Zinner E.  
Carbon and Oxygen Isotopic Compositions of Individual Spinel Crystals from the Murchison Meteorite
- Esat T. M.\* Ireland T. R.  
Cr Isotope Anomalies in Cr-rich Murchison Spinels
- Brigham C. A.\* Hutcheon I. D. Papanastassiou D. A.  
Wasserburg G. J.  
Isotopic Heterogeneity and Correlated Isotope Fractionation in Purple FUN Inclusions
- Papanastassiou D. A.\* Brigham C. A.  
Correlated, Large Isotope Effects in Purple, Spinel-rich Inclusions
- Prombro C. A.\* Lugmair G. W.  
Calcium Isotope Disequilibrium in Allende Inclusion HN-3
- Sheng Y. J.\* Hutcheon I. D. Wasserburg G. J.  
Plagioclase-Olivine Inclusions in Allende -- A Link Between CAI and Ferro-Magnesian Chondrules
- Wark D. A.\*  
Small Compact CAI's: Collisional Splash Droplets?
- Laughlin J. R.\* Davis A. M. Kuehner S. M. Grossman L.  
Rare Earth Elements in a Compound Group II Allende Inclusion

Wark D. A.\* Palme H.  
Mo and W Anomalies in CAI's: Sign of High Temperature Condensation, or Subsolidus Alteration?

Kuehner S. M.\* Laughlin J. R. Grossman L.  
Johnson M. L. Burnett D. S.  
Electron Probe and Ion Probe Determination of Melilite/Liquid and Clinopyroxene/Liquid Partition Coefficients of Trace Elements in CMAS and NaCMAS

#### POSTER PRESENTATION

Nelson R. N.\* Bhattacharya S. K. Thiemens M. H. Nuth J. A.  
Further Studies of the Hydrous Alteration and Oxygen Isotopic Fractionation of Refractory Condensates

#### PRESENTED BY TITLE ONLY

- Bischoff A.  
Exsolution Textures Produced by Annealing A Metal Alloy of Fremdlinge Composition
- Liu Y.-G. Schmitt R. A. Holmen B. A. Woods J. A. Kring D. A.  
A Trace Element/Petrographic Study of Refractory Inclusions in Kaba (CV3)
- Esat T. M. Wark D. A. Taylor S. R.  
Mg Isotopic Composition of Rim Layers in the Vigarano Inclusion VI-1
- Esat T. M. Ireland T. R.  
Mg Isotopic Composition of Murchison Spinels
- Kinsey A. E. Esat T. M. Taylor S. R.  
Mg Isotopic Composition of Chondrules from Bjurbbole and Murchison Meteorites
- Zinner E.\* Ming T.  
Anomalous Oxygen in Spinels from a Murray Separate
- Wark D. A. Spettel B. Palme H. El Goresy A.  
Rim Formation by Flash Heating and Metasomatism: Evidence from Vigarano CAI VI-1
- Fisenko A. V. Ignatenko K. I. Lavrukhina A. K.  
Metallic Particle EM1 - The Result of the Metal Crystallization in CAI Melt

Friday, March 18, 1988  
 ASTEROIDS/COMETS  
 8:30 a.m. Gilruth 206

Gradie J. Flynn L.\*

A Search for Satellites and Dust Belts Around Asteroids:  
 Negative Results

Jones T.\* Lebofsky L. Lewis J.

The 3-micrometer Hydrated Silicate Signature on C Class Asteroids:  
 Implications for Origins of Outer Belt Objects

Harris A. W.\* Young J. W.

Two Dark Asteroids with Very Small Opposition Effects

Bell J. F.\*

An Earth-Crossing Source Body for the Basaltic Achondrites:  
 Vesta's Son or Vesta's Nephew?

Colwell J.\* Jakosky B. Sandor B.

Sublimation Rates in Icy Craters, Trenches, and Crevasses on Comets

Roessler K.\* Bischoff A. Eich G. Grun E. Fechtig H. Joo F.

Klinger J. Kochan H. Stoffler D. Thiel K.  
 Cometary Matter in Observation and Simulation Experiments

Kochan H.\* Bischoff A. Fechtig H. Feuerbecher B.

Grun E. Joo F. Klinger J. Kohl H. Krankowsky D.

Roessler K. Seboldt W. Thiel K. Schwehm G. Weishaupt U.

Laboratory Simulation of a Cometary Nucleus: Experimental  
 Setup and First Results

Bischoff A. Stoffler D.\*

Comet Nucleus Simulation Experiments: Mineralogical  
 Aspects of Sample Preparation and Analysis

Klinger J.\* Benkhoff J. Espinasse S. Grun E.

Ip W. Joo F. Keller H. v. Kochan H. Kohl H.

Roessler K. Seboldt W. Spohn T. Thiel K.

How Far Do Results of Recent Simulation Experiments Fit with  
 Current Models of Cometary Nuclei?

Hyde T.\* Alexander W. M. Goad S. McDonald R.

Dynamics of Submicron Lunar Ejecta in Selenocentric, Cislunar and  
 Geocentric Space

Oberst J.\* Nakamura Y.

A Monte Carlo Simulation of the Diurnal Variation in  
 Seismic Detection Rate of Sporadic Lunar Meteoroid Impacts

Zook H. A.\*

On the Optical Detection of Meteoroids, Small Near-Earth  
 Asteroids and Comets, and Space Debris

Van Dyk M. H. H.\* Bosma P. B. Hovenier J. W.  
 Analysis of Zodiacal Light Data Based on a Finite  
 Homogeneous Dust Cloud

#### POSTER PRESENTATIONS

Roessler K. Nebeling B.

High Energy and Radiation Chemistry in Space

Alexander W. M.\* Goad S. Pollock J. Tanner W. G.  
 McDonnell J. A. M.

Analysis of Discrete Impact Events from the Giotto Comet Halley  
 Dust Impact Experiment

Bell J. F. Owensby P. D. Hawke B. R. Gaffey M. J.  
 The 52-color Asteroid Survey: Final Results and Interpretation

#### PRESENTED BY TITLE ONLY

Nikolaeva O. V.

Comet Nucleus Matter: Some Predictions

Wdowiak T. J. Robinson E. L. Brasher L. D. Flickinger C.  
 Setze H. R.

Formation of Organic Cometary Dust by Ion Bombardment of Cosmic Ices

Cerroni P. Fujiwara A.

Experimental Study of Catastrophic Fragmentation of  
 "Differentiated" Targets

Williams J. G.

The Unusual Alexandra Family

Shoemaker C. S. Shoemaker E. M.

The Palomar Asteroid and Comet Survey (PACS), 1982-1987

Hartmann W. K.

Trojan Asteroids: A Unique Frontier in Space Research

Capaccioni F. Barucci M. A. Cerroni P. Fulchignoni M.

Experimental Measurement of the Phase Functions of Meteorites  
 and Terrestrial Rocks: Comparison with Theory and Observations  
 of Asteroids

AUTHOR INDEX

Abe Y.  
 Abe Y.  
 Adams J. B.  
 Adams J. B.  
 Agresti D. G.  
 Ahrens T. J.  
 Ahrens T. J.  
 Ahrens T. J.  
 Ahrens T. J.  
 Albee A. L.  
 Aldrich F. T.  
 Alexander C.M.O'D.  
 Alexander C.M.O'D.  
 Alexander E., Jr.  
 Alexander W. M.  
 Alexeev V. A.  
 Alton J.  
 Almogi-Labin A.  
 Anders E.  
 Anders E.  
 Anders E.  
 Anderson R. C.  
 Anderson R. R.  
 Andreichikov B.  
 Angelo J.  
 Applebee D. J.  
 Archibald S. M.  
 Arden J. W.  
 Arnold J. R.  
 Arvidson R. E.  
 Arvidson R. E.  
 Arvidson R. E.  
 Asaro F.  
 Ash R. D.  
 Ashwal L. D.  
 Attrep M. Jr.  
 Aubele J. C.  
 Aubele J. C.  
 Aylmer D.  
 Baker N.  
 Baker V.  
 Balageas D.  
 Baldwin R. J.  
 Banerdt W. B.  
 Banerdt W. B.  
 Bangs C.  
 Banin A.  
 Bansal B. M.  
 Bansal B. M.  
 Bansal B. M.  
 Barlow N. G.  
 Barlow N. G.  
 Barlow N. G.

PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 MARS WATER AND ICE, MON. PM, RM. 104  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 CHONDRULES, WED. AM., GYM  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 MARS WATER AND ICE, MON. PM, RM. 104  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 MARS WATER AND ICE, MON. PM, RM. 104  
 COSMIC DUST, MONDAY AM, GYM  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 MARS WATER AND ICE, MON. PM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104

Barracough B. L.  
 Barrett R. A.  
 Barrett R. A.  
 Barth C.  
 Barucci M. A.  
 Baryshnikova G. V.  
 Basilevsky A. T.  
 Bassett W. A.  
 Basu A.  
 Basu A.  
 Baulin N. N.  
 Baur H.  
 Beckett J. R.  
 Beckett J. R.  
 Begemann F.  
 Begemann F.  
 Bell J. F.  
 Bell J. F., III  
 Bell P. M.  
 Ben-Shlomo T.  
 Benkert J.-P.  
 Benkhoff J.  
 Benz W.  
 Berkley J. L.  
 Bernatowicz T. J.  
 Bernhard R. P.  
 Bernhard R. P.  
 Bersch M. G.  
 Bertka C. M.  
 Betterton W. J.  
 Bhandari N.  
 Bhandari N.  
 Bhattacharya S.  
 Bhattacharya S. K.  
 Bibring J-P  
 Bibring J-P  
 Bild R. W.  
 Bills B. G.  
 Bindeman I. N.  
 Bindschadler D. L.  
 Bindschadler D. L.  
 Bischoff A.  
 Bischoff A.  
 Bischoff A.  
 Bischoff A.  
 Blake D.  
 Blake D.  
 Blanchard D. P.  
 Blaney D.  
 Blanford G. E.  
 Blanford G. E.  
 Blount G.  
 Blum J. D.

NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 CHONDRULES, WED. AM., GYM  
 ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 CHONDRULES, WED. AM., GYM  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 REFRactory INCLUSIONS II, FRI. AM, GYM  
 REFRactory INCLUSIONS I, TUES. AM, GYM  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 PLANETARY ACCRETION, TUES. PM, GYM  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 REFRactory INCLUSIONS II, FRI. AM, GYM  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 CHONDRULES, WED. AM., GYM  
 REFRactory INCLUSIONS II, FRI. AM, GYM  
 CARBONACEOUS CHONDrites, TUES. AM, GYM  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 COSMIC DUST, MONDAY AM, GYM  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 CARBONACEOUS CHONDrites, TUES. AM, GYM  
 COSMIC DUST, MONDAY AM, GYM  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 REFRactory INCLUSIONS II, FRI. AM, GYM

Bobina N. N. MARS WATER AND ICE, MON. PM, RM. 104  
 Bobrov V. A. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Bockstein I. M. GEOLOGY OF VENUS, TUES. PM, RM. 104  
 Boctor N. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Boctor N. REFRACtORY INCLUSIONS I, TUES. AM, GYM  
 Bogard D. D. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Bogard D. D. IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 Bohor B. F. K-T & RELATED EVENTS & IMPACT.., THURS. PM, RM. 104  
 Bohor B. F. IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 Bonneau P. NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 Bonny P. COSMIC DUST, MONDAY AM, GYM  
 Boone S. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 Borg J. ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 Boslough M. B. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 Bosma P. B. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 Boss A. P. PLANETARY ACCRETION, TUES. PM, GYM  
 Boudreau, H. CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 Bradley J. COSMIC DUST, MONDAY AM, GYM  
 Bradley J. P. COSMIC DUST, MONDAY AM, GYM  
 Bradley T. L. MARS WATER AND ICE, MON. PM, RM. 104  
 Brannon J. C. NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 Brasher L. D. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 Brearley A. J. NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 Brigham C. A. REFRACtORY INCLUSIONS II, FRI. AM, GYM  
 Britt D. T. NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 Broadhurst C. L. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Broadhurst C. L. NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 Brokl S. GEOLOGY OF VENUS, TUES. PM, RM. 104  
 Brown R. H. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 Brown R. H. PLANETARY PHYSICS, TUES. PM, RM. 206  
 Brownlee D. E. COSMIC DUST, MONDAY AM, GYM  
 Brownlee D. E. ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 Bruckner J. EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 Buchanan P. C. CHONDRULES, WED. AM., GYM  
 Bufton J. L. GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 Buhl D. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Bunch T. E. CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 Bunch T. E. COSMIC DUST, MONDAY AM, GYM  
 Bunch T. E. CARBONACEOUS CHONDrites, TUES. AM, GYM  
 Burger M. CARBONACEOUS CHONDrites, TUES. AM, GYM  
 Burke K. GEOLOGY OF VENUS, TUES. PM, RM. 104  
 Burke K. VENUS GEOPHYSICS, TUES. AM, RM. 104  
 Burnett D. S. REFRACtORY INCLUSIONS I, TUES. AM, GYM  
 Burnett D. S. REFRACtORY INCLUSIONS II, FRI. AM, GYM  
 Burns R. G. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Burns R. G. NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 Burt D. M. EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 Burt D. M. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Buseck P. R. CARBONACEOUS CHONDrites, TUES. AM, GYM  
 Bustin R. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Byerly G. R. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Caffee M. W. NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 Caillet C. REFRACtORY INCLUSIONS II, FRI. AM, GYM  
 Cailleux A. PLANETARY ACCRETION, TUES. PM, GYM  
 Cameron A. G. W. PLANETARY ACCRETION, TUES. PM, GYM

Campbell B. A. GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 Campbell B. A. VENUS GEOPHYSICS, TUES. AM, RM. 104  
 Campbell K. E. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Capaccioni F. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 Carle G. C. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 Carlson R. W. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Carusi A. PLANETARY ACCRETION, TUES. PM, GYM  
 Casey J. F. CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 Cashore J. NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 Cassen P. CARBONACEOUS CHONDrites, TUES. AM, GYM  
 Cassidy W. A. COSMIC DUST, MONDAY AM, GYM  
 Cassidy W. A. NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 Castano J. R. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Cazes S. EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 Cerroni P. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 Chadwick J. TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 Chai Z.-F. K-T & RELATED EVENTS & IMPACT.., THURS. PM, RM. 104  
 Chang S. CARBONACEOUS CHONDrites, TUES. AM, GYM  
 Chang S. CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 Chapman M. G. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 Chen J. H. CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 Chen J. H. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Cheng S. NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 Chevallier J. M. PLANETARY ACCRETION, TUES. PM, GYM  
 Chivas A. NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 Chochia P. GEOLOGY OF VENUS, TUES. PM, RM. 104  
 Choe K. Y. K-T & RELATED EVENTS & IMPACT.., THURS. PM, RM. 104  
 Christensen P. R. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 Christensen P. R. MARS WATER AND ICE, MON. PM, RM. 104  
 Christensen P. R. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Christensen P. R. TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 Christie J. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Christie J. K-T & RELATED EVENTS & IMPACT.., THURS. PM, RM. 104  
 Ciesla T. M. EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 Cintala M. J. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Cisowski S. M. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Cisowski S. M. K-T & RELATED EVENTS & IMPACT.., THURS. PM, RM. 104  
 Cisowski S. M. PLANETARY PHYSICS, TUES. PM, RM. 206  
 Clark B. C. EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 Clark R. N. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Clayton D. D. CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 Clayton R. N. CARBONACEOUS CHONDrites, TUES. AM, GYM  
 Clayton R. N. PLANETARY ACCRETION, TUES. PM, GYM  
 Clayton R. N. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Clayton R. N. UREILITES, THURS. PM, GYM  
 Clifford S. M. MARS WATER AND ICE, MON. PM, RM. 104  
 Clow G. D. TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 Colwell J. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 Combes M. EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 Conolly H. C., Jr. CHONDRULES, WED. AM., GYM  
 Consolmagno G. J. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 Coombs C. R. GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 Costard F. M. MARS WATER AND ICE, MON. PM, RM. 104  
 Coyne L. M. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104

- Craddock R. A.  
 Craddock R. A.  
 Crawford D.  
 Croft S. K.  
 Croft S. K.  
 Crown D. A.  
 Crozaz G.  
 Crozaz G.  
 Crumpler L. S.  
 Crumpler L. S.  
 D'Aria D.  
 Dale-Bannister M.A.  
 Dalrymple W., III  
 Dasch E. J.  
 Davies A. G.  
 Davis A. M.  
 Davis D.  
 Davis P. A.  
 Davis P. A.  
 Davis P. A.  
 Davis R.  
 Dawson J. B.  
 DeAngelis M.  
 DeHart J. M.  
 Delhon R.  
 DeSilva S. L.  
 Dearborn D.  
 Delaney J. S.  
 Delaney J. S.  
 Delano J. W.  
 Delano J. W.  
 Deschamps M.  
 Deutsch A.  
 Devezeaux D.  
 Devirits A. L.  
 Dial A. L., Jr.  
 Dickinson T.  
 Dietrich J. W.  
 Dikov Yu. P.  
 Diner R.  
 Dobrovolskis A.  
 Dollfus A.  
 Donahue D.  
 Donn B.  
 Drake M. J.  
 Drake M. J.  
 Drake M. J.  
 Dreibus G.  
 Durham W. B.  
 Duxbury E. D.  
 Duxbury T. C.  
 Dvorachek M.
- MARS WATER AND ICE, MON. PM, RM. 104  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 LEW86010 & ADOR, THURS. PM, GYM  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 UREILITES, THURS. PM, GYM  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 PLANETARY ACCRETION, TUES. PM, GYM  
 REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 UREILITES, THURS. PM, GYM  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 MARS WATER AND ICE, MON. PM, RM. 104  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 COSMIC DUST, MONDAY AM, GYM  
 CHONDRULES, WED. AM., GYM  
 MARS WATER AND ICE, MON. PM, RM. 104  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 LEW86010 & ADOR, THURS. PM, GYM  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 PLANETARY ACCRETION, TUES. PM, GYM  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 COSMIC DUST, MONDAY AM, GYM  
 CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 PLANETARY ACCRETION, TUES. PM, GYM  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 PLANETARY ACCRETION, TUES. PM, GYM  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 UREILITES, THURS. PM, GYM  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104
- Eberhardt A.  
 Eberhardt P.  
 Economidou T.  
 Edgett K. S.  
 Edmunds M. S.  
 Efford N. D.  
 Eich G.  
 Ekelund A.  
 El Goresy A.  
 El Goresy A.  
 Elder W. P.  
 Elmore D.  
 Elmore D.  
 Elthon D.  
 Eluszkiewicz J.  
 Englert P.  
 Engstrom E. U.  
 Epstein S.  
 Epstein S.  
 Erlichman J.  
 Esat T. M.  
 Espinasse S.  
 Eugster O.  
 Eugster O.  
 Ezersky V. A.  
 Fahey A. J.  
 Fairberg V. S.  
 Fanale F. P.  
 Faure G.  
 Fechtig H.  
 Fedosova S. P.  
 Fegley B.  
 Fegley B.  
 Fehn U.  
 Feldman V. I.  
 Feldman V. I.  
 Ferguson H. M.  
 Ferreira J. F.  
 Ferreira M. P.  
 Fessler B. W.  
 Feuerbacher B.  
 Fieni C.  
 Fink D.  
 Fink J. H.  
 Finney S. A.  
 Finney S. A.  
 Fisenko A. V.  
 Fisenko A. V.  
 Fisher P. C.  
 Fleming R.  
 Flexer A.  
 Flickinger C.  
 Flynn G. J.  
 Flynn G. J.  
 Flynn L.  
 Flynn L.
- COSMIC DUST, MONDAY AM, GYM  
 COSMIC DUST, MONDAY AM, GYM  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 COSMIC DUST, MONDAY AM, GYM  
 CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 MARS WATER AND ICE, MON. PM, RM. 104  
 COSMIC DUST, MONDAY AM, GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 PLANETARY ACCRETION, TUES. PM, GYM  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 COSMIC DUST, MONDAY AM, GYM  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 COSMIC DUST, MONDAY AM, GYM  
 ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104

Fogel R. A.  
 Foord E. E.  
 Forsythe R. D.  
 Frana J.  
 Franaszczuk K.  
 Francis P. W.  
 Francis P. W.  
 Franck C.  
 Frank S. L.  
 Franklin B.  
 Fredriksson K.  
 Fredriksson K.  
 French B. M.  
 Frenkel M. Y.  
 Freund F.  
 Frey H.  
 Frey H.  
 Frey I.  
 Friedenreich O.  
 Fu C.  
 Fujimaki H.  
 Fujiwara A.  
 Fukunaga K.  
 Fulchignoni M.  
 Fuller M.  
 Futrell D.  
 Gaddis L.  
 Gaffey M. J.  
 Gaffey M. J.  
 Garcia P. A.  
 Garcia P. A.  
 Garrison D. H.  
 Garrison D. H.  
 Garvin J. B.  
 Garvin J. B.  
 Garvin J. B.  
 Garvin J. B.  
 Gavrilov E. Ya.  
 Geiger C. A.  
 Geissler P.  
 Geissler P.  
 Genaeva L. I.  
 Gerasimov M. V.  
 Germani M. S.  
 Gibson E. K., Jr.  
 Gibson E. K., Jr.  
 Gibson E. K., Jr.  
 Gibson E. K., Jr.  
 Giegengack R. F.  
 Gilmour I.  
 Glass B. P.  
 Goad S.  
 Godfrey D. A.  
 Golombek M.  
 Golombek M.

HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 CHONDRULES, WED. AM., GYM  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 CHONDRULES, WED. AM., GYM  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 K-T & RELATED EVENTS & IMPACT., THURS. PM, RM. 104  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 COSMIC DUST, MONDAY AM, GYM  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 PLANETARY ACCRETION, TUES. PM, GYM  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 CHONDRULES, WED. AM., GYM  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 GEOLIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 K-T & RELATED EVENTS & IMPACT., THURS. PM, RM. 104  
 COSMIC DUST, MONDAY AM, GYM  
 NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 COSMIC DUST, MONDAY AM, GYM  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 K-T & RELATED EVENTS & IMPACT., THURS. PM, RM. 104  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206

Gondet B.  
 Gooding J. L.  
 Gooding J. L.  
 Goodrich C. A.  
 Goodrich C. A.  
 Goodrich C. A.  
 Gove H. E.  
 Gradie J.  
 Gradie J.  
 Grady M. M.  
 Grady M. M.  
 Grant J. A.  
 Grant T. D.  
 Gratz A.  
 Gratz A.  
 Gratz A.  
 Greeley R.  
 Greeley R.  
 Greeley R.  
 Greeley R.  
 Greeley R.  
 Greeley R.  
 Greenberg R.  
 Greenberg R.  
 Greiner N. R.  
 Grieve R. A. F.  
 Grimm R. E.  
 Grimm R. E.  
 Gromov V. V.  
 Grossman J. N.  
 Grossman J. N.  
 Grossman L.  
 Grossman L.  
 Grun E.  
 Guimon R. K.  
 Guinness E. A.  
 Gulick V.  
 Guyot G.  
 Guyton M.  
 Haberle R. M.  
 Hagee B. E.  
 Hagen E.  
 Hager B. H.  
 Halbout J.  
 Hamilton D. C.  
 Hammer C.  
 Hapke B.  
 Harris A. W.  
 Hartmann W. K.  
 Hartmann W. K.  
 Hartmann W. K.  
 Hartmann W. K.  
 Hartung J. B.

EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 CHONDRULES, WED. AM., GYM  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 UREILITES, THURS. PM, GYM  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 LEW86010 & ADOR, THURS. PM, GYM  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 MARS WATER AND ICE, MON. PM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 K-T & RELATED EVENTS & IMPACT., THURS. PM, RM. 104  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 MARS WATER AND ICE, MON. PM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 PLANETARY ACCRETION, TUES. PM, GYM  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 CHONDRULES, WED. AM., GYM  
 ALH 85085, WED. PM, GYM  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 REFRACATORY INCLUSIONS II, FRI. AM, GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 CHONDRULES, WED. AM., GYM  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 MARS WATER AND ICE, MON. PM, RM. 104  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 MARS WATER AND ICE, MON. PM, RM. 104  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 COSMIC DUST, MONDAY AM, GYM  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 COSMIC DUST, MONDAY AM, GYM  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 K-T & RELATED EVENTS & IMPACT., THURS. PM, RM. 104  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104

- Hasan F. A.  
 Hashimoto A.  
 Hashimoto A.  
 Haskin L. A.  
 Hawke B. R.  
 Hawke B. R.  
 Hawke B. R.  
 Hayakawa M.  
 Hayashi J.  
 Head J. W.  
 Heiken G.  
 Helfenstein P.  
 Hemley R. J.  
 Hemnick T.  
 Henry L. Y.  
 Herrick R. R.  
 Herzog G. F.  
 Herzog G. F.  
 Heslop S. E.  
 Hess P. C.  
 Hewins R. H.  
 Hewins R. H.  
 Heymann D.  
 Heymann D.  
 Higgins M. D.  
 Hildebrand A.  
 Hildebrand C. E.  
 Hills L. S.  
 Hinton R. W.  
 Hinton R. W.  
 Hogenboom D. L.  
 Hohenberg C. M.  
 Holloway J. R.  
 Holloway J. R.  
 Holmen B. A.  
 Holmes N. C.  
 Holsapple K. A.  
 Honey F.  
 Honigstein A.  
 Hood L. L.  
 Horner V. M.  
 Horz F.  
 Horz F.  
 Horz F.  
 Housen K. R.  
 Hovenier J. W.  
 Hovestadt D.  
 Howington-Kraus A.  
 Howington-Kraus A.
- NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 REFRaCTORY INCLUSIONS I, TUES. AM, GYM  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 PLANETARY ACCRETION, TUES. PM, GYM  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 MARS WATER AND ICE, MON. PM, RM. 104  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 CHONDRULES, WED. AM., GYM  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 CARBONACEOUS CHONDrites, TUES. AM, GYM  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 PLANETARY ACCRETION, TUES. PM, GYM  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 REFRaCTORY INCLUSIONS II, FRI. AM, GYM  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 K-T & RELATED EVENTS & IMPACT., THURS. PM, RM. 104  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 K-T & RELATED EVENTS & IMPACT., THURS. PM, RM. 104  
 GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 MARS WATER AND ICE, MON. PM, RM. 104  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 K-T & RELATED EVENTS & IMPACT., THURS. PM, RM. 104  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104
- Hrubesh L.  
 Hudson G.  
 Hughes S. S.  
 Hughes S. S.  
 Hurtak J.  
 Huss G. R.  
 Huss G. R.  
 Hutcheon I. D.  
 Hutcheon I. D.  
 Hutcheon I. D.  
 Hutchison R.  
 Hyde T.  
 Ichikawa J.  
 Ignatenko K. I.  
 Ignatenko K. I.  
 Ip W.  
 Ireland T. R.  
 Ishiwatari M.  
 Isokh E. P.  
 Ito K.  
 Ito K.  
 Ivanov A. V.  
 Ivanov B. A.  
 Ivanov B. A.  
 Ivanov M. A.  
 Ivanov M. A.  
 Iversen J. D.  
 Jackson A. A.  
 Jackson T.  
 Jakosky B. M.  
 Jakosky B. M.  
 Jakosky B. M.  
 James O. B.  
 Janjic D.  
 Jansa L. F.  
 Jaumann R.  
 Javoy M.  
 Jephcoat A. P.  
 Jerde E. A.  
 Jerde E. A.  
 Jin Y.  
 Johnson M. L.  
 Johnson M. L.  
 Johnson P. E.  
 Johnson P. H.  
 Johnson T. V.  
 Jolliff B. L.  
 Jones J. H.  
 Jones J. H.  
 Jones K. W.  
 Jones R. H.  
 Jones T.
- ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 CHONDRULES, WED. AM., GYM  
 CHONDRULES, WED. AM., GYM  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 REFRaCTORY INCLUSIONS II, FRI. AM, GYM  
 REFRaCTORY INCLUSIONS I, TUES. AM, GYM  
 CHONDRULES, WED. AM., GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 CHONDRULES, WED. AM., GYM  
 REFRaCTORY INCLUSIONS II, FRI. AM, GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 REFRaCTORY INCLUSIONS II, FRI. AM, GYM  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 UREILITES, THURS. PM, GYM  
 CARBONACEOUS CHONDrites, TUES. AM, GYM  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 K-T & RELATED EVENTS & IMPACT., THURS. PM, RM. 104  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 MARS WATER AND ICE, MON. PM, RM. 104  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 REFRaCTORY INCLUSIONS I, TUES. AM, GYM  
 REFRaCTORY INCLUSIONS II, FRI. AM, GYM  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 CHONDRULES, WED. AM., GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206

- Jons H.-P.  
Jons H.-P.  
Joo F.  
Jordan J.  
Jordan R.  
Jull A. J. T.  
Jurgens R. F.  
Jurgens R. F.  
Kalinina G. V.  
Kallemyn G. W.  
Kallemyn G. W.  
Kallemyn G. W.  
Kemp L.  
Kemp L.  
Kapustkina I. G.  
Kargel J. S.  
Kargel J. S.  
Karlov A. A.  
Kaser S. A.  
Kashkarov L. L.  
Kashkarov L. L.  
Kashkarov L. L.  
Kashkarova V. G.  
Kashkarova V. G.  
Katchanov A.  
Kauhanen K.  
Kaula W. M.  
Kaznacheev E. A.  
Keil K.  
Keil K.  
Keil K.  
Keller K. v.  
Keller L. P.  
Kelly C. T.  
Kemurdzhian A. L.  
Kerridge J. F.  
Kharyukova V. P.  
Khisina N. V.  
Kiefer W. S.  
Kilburn C.  
Kinsey A. E.  
Kirby S. H.  
Kirillova O. P.  
Kirk R. L.  
Kirnozov F. F.  
Klecker B.  
Klein J.  
Kleppa O. J.  
Klinger J.  
Klock W.  
Knauth L. P.  
Kochan H.  
Kochel R. C.  
Kochemasov G. G.
- MARS WATER AND ICE, MON. PM, RM. 104  
TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
ASTEROIDS/COMETS, FRI. AM, RM. 206  
REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
GEOLOGY OF VENUS, TUES. PM, RM. 104  
VENUS GEOPHYSICS, TUES. AM, RM. 104  
CHONDRULES, WED. AM., GYM  
LUNAR HIGHLANDS, THURS. AM, RM. 206  
NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
UREILITES, THURS. PM, GYM  
GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
PLANETARY PHYSICS, TUES. PM, RM. 206  
GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
CARBONACEOUS CHONDrites, TUES. AM, GYM  
CARBONACEOUS CHONDrites, TUES. AM, GYM  
CHONDRULES, WED. AM., GYM  
IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
CHONDRULES, WED. AM., GYM  
IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
VENUS GEOPHYSICS, TUES. AM, RM. 104  
K-T & RELATED EVENTS & IMPACT., THURS. PM, RM. 104  
HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
LUNAR HIGHLANDS, THURS. AM, RM. 206  
ASTEROIDS/COMETS, FRI. AM, RM. 206  
CARBONACEOUS CHONDrites, TUES. AM, GYM  
MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
CARBONACEOUS CHONDrites, TUES. AM, GYM  
VENUS GEOPHYSICS, TUES. AM, RM. 104  
MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
REFRACTORY INCLUSIONS II, FRI. AM, GYM  
PLANETARY PHYSICS, TUES. PM, RM. 206  
IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
PLANETARY PHYSICS, TUES. PM, RM. 206  
EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
ASTEROIDS/COMETS, FRI. AM, RM. 206  
COSMIC DUST, MONDAY AM, GYM  
IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
ASTEROIDS/COMETS, FRI. AM, RM. 206  
PLANETARY ACCRETION, TUES. PM, GYM  
LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
CARBONACEOUS CHONDrites, TUES. AM, GYM  
HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
LUNAR HIGHLANDS, THURS. AM, RM. 206  
LUNAR HIGHLANDS, THURS. AM, RM. 206  
REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
CHONDRULES, WED. AM., GYM  
NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
GEOLOGY OF VENUS, TUES. PM, RM. 104  
VENUS GEOPHYSICS, TUES. AM, RM. 104  
LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
CARBONACEOUS CHONDrites, TUES. AM, GYM  
ASTEROIDS/COMETS, FRI. AM, RM. 206  
GEOLOGY OF VENUS, TUES. PM, RM. 104  
REFRACTORY INCLUSIONS II, FRI. AM, GYM  
PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
GEOLOGY OF VENUS, TUES. PM, RM. 104  
HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
GEOLOGY OF VENUS, TUES. PM, RM. 104  
COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
REFRACTORY INCLUSIONS II, FRI. AM, GYM  
EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
MARS WATER AND ICE, MON. PM, RM. 104  
IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
ASTEROIDS/COMETS, FRI. AM, RM. 206  
MARS WATER AND ICE, MON. PM, RM. 104  
PLANETARY PHYSICS, TUES. PM, RM. 206
- Koeberl C.  
Koeberl C.  
Koeberl C.  
Kohl H.  
Kohler A. V.  
Kolesov G. M.  
Komor S. C.  
Kononkova N. N.  
Kononkova N. N.  
Kononkova N. N.  
Kopylova M. G.  
Korina M. I.  
Korotev R. L.  
Korotev R. L.  
Korotkova N. N.  
Korotkova N. N.  
Kounvakalis A.  
Kozak R. C.  
Kozak R. C.  
Kozak S. J.  
Kozlov V. S.  
Kozul J.  
Krahenbuhl U.  
Krankowsky D.  
Kreslavsky M. A.  
Kring D. A.  
Krishnamurthy R.V.  
Kronrod M.  
Kruse H.  
Kryuchkov V. P.  
Kubik P. W.  
Kubik P. W.  
Kudryashova A. F.  
Kuehner S. M.  
Kuneth E.  
Kuzmin R. O.  
Ladyguin V. M.  
Laeverenz P.  
Lagutina E. P.  
Lakomy R.  
Lancaster N.  
Lang B.  
Langevin Y.  
Langevin Y.  
Lasater S.  
Lattimer J. M.  
Lauer H. V. Jr.  
Laughlin J. R.  
Laughlin J. R.  
Laul J. C.  
Laul J. C.  
Laurence M. R.  
Lavielle B.  
Lavielle B.
- COSMIC DUST, MONDAY AM, GYM  
IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
ASTEROIDS/COMETS, FRI. AM, RM. 206  
PLANETARY ACCRETION, TUES. PM, GYM  
LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
CARBONACEOUS CHONDrites, TUES. AM, GYM  
HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
LUNAR HIGHLANDS, THURS. AM, RM. 206  
LUNAR HIGHLANDS, THURS. AM, RM. 206  
REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
CHONDRULES, WED. AM., GYM  
NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206

- Lavrentjeva Z. A. CHONDRULES, WED. AM., GYM  
 Lavrukhina A. K. CARBONACEOUS CHONDrites, TUES. AM, GYM  
 Lavrukhina A. K. CHONDRULES, WED. AM., GYM  
 Lavrukhina A. K. NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 Lavrukhina A. K. REFRACtORY INCLUSIONS II, FRI. AM, GYM  
 Le L. LEW86010 & ADOR, THURS. PM, GYM  
 Lebofsky L. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 Lee S. PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 Lee T. CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 Leshin L. A. CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 Lewis J. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 Lewis R. S. NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 Lindstrom D. LEW86010 & ADOR, THURS. PM, GYM  
 Lindstrom M. M. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Lindstrom M. M. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Lindstrom M. M. LUNAR HIGHLANDS, THURS. AM, RM. 206  
 Lipschutz M. E. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Lissauer J. J. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 Liu X. COSMIC DUST, MONDAY AM, GYM  
 Liu Y.-G. CARBONACEOUS CHONDrites, TUES. AM, GYM  
 Liu Y.-G. REFRACtORY INCLUSIONS II, FRI. AM, GYM  
 Lofgren G. E. CHONDRULES, WED. AM., GYM  
 Longhi J. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Lopes R. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 Lowe D. R. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Lu F. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Lucchitta B. K. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Lucchitta B. K. MARS WATER AND ICE, MON. PM, RM. 104  
 Lucey P. G. GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 Lucey P. G. LUNAR HIGHLANDS, THURS. AM, RM. 206  
 Lucey P. G. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Lugmair G. W. REFRACtORY INCLUSIONS II, FRI. AM, GYM  
 Lugmair G. W. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Lundberg L. L. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Lundberg L. L. UREILITES, THURS. PM, GYM  
 Lundberg L. L. LEW86010 & ADOR, THURS. PM, GYM  
 Lunine J. I. PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 MacKinnon D. J. MARS WATER AND ICE, MON. PM, RM. 104  
 MacPherson G. J. ALH 85085, WED. PM, GYM  
 MacPherson G. J. REFRACtORY INCLUSIONS II, FRI. AM, GYM  
 Macedo C. R. NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 Mackinnon I. D. R. CARBONACEOUS CHONDrites, TUES. AM, GYM  
 Madonna R. COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 Magee K. P. GEOLOGY OF VENUS, TUES. PM, RM. 104  
 Makjanic J. CARBONACEOUS CHONDrites, TUES. AM, GYM  
 Makjanic J. CHONDRULES, WED. AM., GYM  
 Makjanic J. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Malcuit R. J. PLANETARY PHYSICS, TUES. PM, RM. 206  
 Malin M. C. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Malvin D. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Mannion P. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Manvelyan O. S. EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 Mao H. K. PLANETARY PHYSICS, TUES. PM, RM. 206  
 Maras A. COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 Mardon A. A. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206
- Margulies L. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 Marley M. MARS WATER AND ICE, MON. PM, RM. 104  
 Marochnik L. S. PLANETARY ACCRETION, TUES. PM, GYM  
 Marshall J. R. GEOLOGY OF VENUS, TUES. PM, RM. 104  
 Marti K. NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 Marti K. NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 Marvin U. B. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Masaitis V. L. LUNAR HIGHLANDS, THURS. AM, RM. 206  
 Mashtalka A. IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 Masursky H. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Matson D. L. EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 Matson D. L. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 Matsuda J. PLANETARY PHYSICS, TUES. PM, RM. 206  
 Matsuda J. CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 Matsuda J. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Matsui T. UREILITES, THURS. PM, GYM  
 Matsui T. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Matsui T. MARS WATER AND ICE, MON. PM, RM. 104  
 Maurette M. PLANETARY PHYSICS, TUES. PM, RM. 206  
 Mayeda T. K. COSMIC DUST, MONDAY AM, GYM  
 Mayeda T. K. CARBONACEOUS CHONDrites, TUES. AM, GYM  
 McCallum I. UREILITES, THURS. PM, GYM  
 McCord T. B. CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 McCord T. B. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 McCormick K. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 McDonald R. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 McDonnell J. A. M. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 McGarvie D. W. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 McGee J. J. CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 McGill G. E. LUNAR HIGHLANDS, THURS. AM, RM. 206  
 McGuire A. V. TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 McHone J. F. REFRACtORY INCLUSIONS I, TUES. AM, GYM  
 McKay D. S. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 McKay D. S. COSMIC DUST, MONDAY AM, GYM  
 McKay D. S. ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 McKay G. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 McKinney M. LEW86010 & ADOR, THURS. PM, GYM  
 McKinnon W. B. NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 McManus K. K. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 McSween H. Y., Jr. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 McSween H. Y., Jr. NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 Meakin P. CARBONACEOUS CHONDrites, TUES. AM, GYM  
 Mehringer D. M. PLANETARY ACCRETION, TUES. PM, GYM  
 Heinke L. PLANETARY PHYSICS, TUES. PM, RM. 206  
 Melendrez D. E. PLANETARY PHYSICS, TUES. PM, RM. 206  
 Melosh H. J. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Metzger A. E. PLANETARY ACCRETION, TUES. PM, GYM  
 Metzler K. GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 Meyer C. CARBONACEOUS CHONDrites, TUES. AM, GYM  
 Michel H. LUNAR HIGHLANDS, THURS. AM, RM. 206  
 Middleton R. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Middleton T. A. CARBONACEOUS CHONDrites, TUES. AM, GYM  
 Migdisova L. F. COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 Non-CARBONACEOUS CHONDrites, WED. PM, GYM  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206

- Miller R.  
 Milstein R. L.  
 Ming D. W.  
 Ming T.  
 Mironov Y. V.  
 Misawa K.  
 Mitchell A. C.  
 Mittlefehldt D. W.  
 Mittlefehldt D. W.  
 Mittlefehldt D. W.  
 Miura Y.  
 Miura Y.  
 Miyamoto M.  
 Miyamoto M.  
 Miyamoto M.  
 Miyamoto M.  
 Miyamoto M.  
 Mizutani H.  
 Mizutani H.  
 Moore H. J.  
 Moore H. J.  
 Moore H. J.  
 Moore H. J.  
 Moore M. H.  
 Moore V.  
 Morgan J. W.  
 Morgan J. W.  
 Morgan T. H.  
 Mori H.  
 Moroz L. V.  
 Morris G. A.  
 Morris R. V.  
 Morrison D.  
 Morrison D. A.  
 Morse A. D.  
 Moskaleva L. P.  
 Mouginis-Mark P.J.  
 Mouginis-Mark P.J.  
 Mueller S.  
 Mukhin L.  
 Mukhin L. M.  
 Mukhin L. M.  
 Muller W. F.  
 Murali A. V.  
 Murchie S. L.  
 Murray B. C.  
 Mustard J. F.  
 Myssen B. D.  
 Nagamoto H.  
 Nagao K.  
 Nagao K.  
 Nakamura N.  
 Nakamura N.  
 Nakamura Y.  
 Namiki N.  
 Navon O.  
 Nazarov M. A.
- IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 REFRACtORY INCLUSIONS II, FRI. AM, GYM  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 CHONDRULES, WED. AM., GYM  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 UREILITES, THURS. PM, GYM  
 NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 PLANETARY ACCRETION, TUES. PM, GYM  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 CARBONACEOUS CHONDrites, TUES. AM, GYM  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 UREILITES, THURS. PM, GYM  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 CHONDRULES, WED. AM., GYM  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 K-T & RELATED EVENTS & IMPACT.., THURS. PM, RM. 104  
 PLANETARY ACCRETION, TUES. PM, GYM  
 CARBONACEOUS CHONDrites, TUES. AM, GYM  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 CHONDRULES, WED. AM., GYM  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 CHONDRULES, WED. AM., GYM  
 CHONDRULES, WED. AM., GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104
- Neal C. R.  
 Nebeling B.  
 Nehru C. E.  
 Nehru C. E.  
 Nehru C. E.  
 Nellis W. J.  
 Nelson M. L.  
 Nelson R. M.  
 Nelson R. N.  
 Ness N. F.  
 Neukum G.  
 Neukum G.  
 Neukum G.  
 Neukum G.  
 Newsom H. E.  
 Newsom H. E.  
 Ngo H. H.  
 Nicol M.  
 Nicol M.  
 Niedermann S.  
 Nielsen D. C.  
 Nier A.  
 Nikishin A. M.  
 Nikolaeva O. V.  
 Nikolaeva O. V.  
 Nishiizumi K.  
 Nishikawa Y.  
 Noda S.  
 Noland A. V.  
 Ntaflos T.  
 Nuth J. A.  
 Nuth J. A.  
 Nyffenegger P.  
 Nyquist L.  
 Nyquist L.  
 Nyquist L.  
 O'Keefe J. A.  
 O'Keefe J. D.  
 O'Keefe J. D.  
 O'Keefe J. D.  
 Oberst J.  
 Ogata H.  
 Okada A.  
 Olinger C. T.  
 Olsen E. J.  
 Olsen E. J.  
 Orenberg J. B.  
 Orth C. J.  
 Ott U.  
 Ott U.  
 Owensby P. D.  
 Owensby P. D.
- LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 ALH 85085, WED. PM, GYM  
 LEW86010 & ADOR, THURS. PM, GYM  
 UREILITES, THURS. PM, GYM  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 REFRACtORY INCLUSIONS II, FRI. AM, GYM  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 PLANETARY ACCRETION, TUES. PM, GYM  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 CARBONACEOUS CHONDrites, TUES. AM, GYM  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 COSMIC DUST, MONDAY AM, GYM  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 CHONDRULES, WED. AM., GYM  
 CHONDRULES, WED. AM., GYM  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 REFRACtORY INCLUSIONS II, FRI. AM, GYM  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 K-T & RELATED EVENTS & IMPACT.., THURS. PM, RM. 104  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 UREILITES, THURS. PM, GYM  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 CHONDRULES, WED. AM., GYM  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 PLANETARY ACCRETION, TUES. PM, GYM  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 K-T & RELATED EVENTS & IMPACT.., THURS. PM, RM. 104  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 ASTEROIDS/COMETS, FRI. AM, RM. 206

Pacheco J.	IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104
Palme H.	CARBONACEOUS CHONDRITES, TUES. AM, GYM
Palme H.	CHONDRULES, WED. AM., GYM
Palme H.	PLANETARY ACCRETION, TUES. PM, GYM
Palme H.	REFRACTORY INCLUSIONS II, FRI. AM, GYM
Pan V.	LUNAR & METEORITE BASALTS, FRI. AM, RM. 104
Papanastassiou D.A.	IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104
Papanastassiou D.A.	REFRACTORY INCLUSIONS II, FRI. AM, GYM
Papike J. J.	LUNAR & METEORITE BASALTS, FRI. AM, RM. 104
Papike J. J.	LUNAR HIGHLANDS, THURS. AM, RM. 206
Papike J. J.	REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206
Parfitt E. A.	MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104
Parker T.	MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104
Parmentier E. M.	GEOLOGY OF VENUS, TUES. PM, RM. 104
Parmentier E. M.	VENUS GEOPHYSICS, TUES. AM, RM. 104
Patayev M. I.	NON-CARBONACEOUS CHONDRITES, WED. PM, GYM
Patchen A. D.	LUNAR & METEORITE BASALTS, FRI. AM, RM. 104
Patchen A. D.	LUNAR HIGHLANDS, THURS. AM, RM. 206
Patchett P. J.	CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206
Patchett P. J.	UREILITES, THURS. PM, GYM
Pattanaborwornsak B	GEOLIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206
Paul R. L.	HED'S, IRONS, AUBRITES, MON. AM, RM. 206
Pavri B.	REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206
Pe-Piper G.	IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104
Pedroni A.	REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206
Pellas P.	NON-CARBONACEOUS CHONDRITES, WED. PM, GYM
Penney G. W.	COSMIC DUST, MONDAY AM, GYM
Pernicka E.	CHONDRULES, WED. AM., GYM
Petaev M. I.	HED'S, IRONS, AUBRITES, MON. AM, RM. 206
Petushkova L. V.	CARBONACEOUS CHONDRITES, TUES. AM, GYM
Phillips M. A.	MARS WATER AND ICE, MON. PM, RM. 104
Phillips R. J.	VENUS GEOPHYSICS, TUES. AM, RM. 104
Philpott R.	OUTER SOLAR SYSTEM, THURS. AM, RM. 104
Philpotts J. A.	CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206
Phinney D.	NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104
Pierazzo E.	IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104
Pieri O.	MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104
Pieters C. M.	GEOLIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206
Pieters C. M.	NON-CARBONACEOUS CHONDRITES, WED. PM, GYM
Pieters C. M.	REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206
Pillinger C. T.	CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM
Pillinger C. T.	CHONDRULES, WED. AM., GYM
Pillinger C. T.	NON-CARBONACEOUS CHONDRITES, WED. PM, GYM
Pilugina N. N.	K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104
Pinkerton H.	MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104
Plaut J. J.	GEOLY OF VENUS, TUES. PM, RM. 104
Plescia J.	TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206
Plescia J. B.	OUTER SOLAR SYSTEM, THURS. AM, RM. 104
Plescia J. B.	TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206
Podolak M.	CARBONACEOUS CHONDRITES, TUES. AM, GYM
Pollack J. B.	GEOLOGY OF VENUS, TUES. PM, RM. 104
Pollock J.	ASTERIODS/COMETS, FRI. AM, RM. 206
Pongratz P.	IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104
Pongratz P.	K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104
Posodek F. A.	NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104
Postawko S. E.	MARS WATER AND ICE, MON. PM, RM. 104
Potter A. E.	GEOLIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206
Pourchet M.	COSMIC DUST, MONDAY AM, GYM
Pratt S. F.	REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206
Preisinger A.	K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104
Premo W. R.	CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206
Premo W. R.	LUNAR HIGHLANDS, THURS. AM, RM. 206
Prilutskii A.	EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION
Prinz M.	ALH 85085, WED. PM, GYM
Prinz M.	LEW86010 & ADOR, THURS. PM, GYM
Promo C. A.	UREILITES, THURS. PM, GYM
Pronin A. A.	REFRACTORY INCLUSIONS II, FRI. AM, GYM
Puget P.	GEOLOGY OF VENUS, TUES. PM, RM. 104
Pun A.	EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION
Quam W.	COSMIC DUST, MONDAY AM, GYM
Quintana L. R.	COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM
Radchenko V.	K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104
Radler K.-H.	EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION
Radomsky P. M.	PLANETARY PHYSICS, TUES. PM, RM. 206
Radousky H. B.	CHONDRULES, WED. AM., GYM
Raihlin A. I.	PLANETARY PHYSICS, TUES. PM, RM. 206
Raitala J.	IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104
Rajan R. S.	MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104
Rajan R. S.	REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206
Ree F. H.	HED'S, IRONS, AUBRITES, MON. AM, RM. 206
Reedy R. C.	PLANETARY PHYSICS, TUES. PM, RM. 206
Regner P.	COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM
Reid A. M.	MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104
Reilly T.	CHONDRULES, WED. AM., GYM
Reimold W. U.	COSMIC DUST, MONDAY AM, GYM
Rekharsky V. I.	IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104
Reppin C.	K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104
Reshetnyak N. B.	EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION
Reshetnyak N. B.	IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104
Reynolds R.	IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104
Rice J. W.	CARBONACEOUS CHONDRITES, TUES. AM, GYM
Rieder R.	MARS WATER AND ICE, MON. PM, RM. 104
Rieder R.	EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION
Rietmeijer F.J.M.	PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206
Rietmeijer F.J.M.	COSMIC DUST, MONDAY AM, GYM
Ringwood A. E.	ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM
Rivard B.	PLANETARY ACCRETION, TUES. PM, GYM
Rjachovsky V. M.	REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206
Robert F.	IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104
Robertson B.	CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM
Robinett L.	IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104
Robinson E. L.	GEOLOGY OF VENUS, TUES. PM, RM. 104
Rocard F.	ASTERIODS/COMETS, FRI. AM, RM. 206
Roddy D. J.	EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION
Roddy J. K.	IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104
Rodionova Zh. F.	IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104
Roessler K.	GEOLIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206
	ASTERIODS/COMETS, FRI. AM, RM. 206

- Rosenfeld A. K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 Ross D. K. CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 Ross M. N. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 Ross M. N. PLANETARY PHYSICS, TUES. PM, RM. 206  
 Rossman G. R. CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 Roth L. E. MARS WATER AND ICE, MON. PM, RM. 104  
 Rubin A. E. ALH 85085, WED. PM, GYM  
 Rubin A. E. CHONDRULES, WED. AM., GYM  
 Rubin A. E. NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 Rubin A. E. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Rutherford M. J. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Ruzicka A. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 Ryder G. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Ryder G. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Sack R. D. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Sadow J. C. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Sagdeev R. EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 Salisbury J. W. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Salvetat P. ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 Sandor B. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 Sartori S. M. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Sastri C. S. EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 Saunders R. S. GEOLOGY OF VENUS, TUES. PM, RM. 104  
 Saunders R. S. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 Saunders R. S. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Sazonova L. V. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Sazonova L. V. IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 Scattergood T. W. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 Schaber G. G. GEOLOGY OF VENUS, TUES. PM, RM. 104  
 Schaber G. G. VENUS GEOPHYSICS, TUES. AM, RM. 104  
 Schaefer B. E. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 Schaefer M. W. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 Schafer F. J. EXPLORING MARS & PHOBOS,  
 Schelhaas N. CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 Schenk P. M. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Schenk P. M. K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 Schlutter D. COSMIC DUST, MONDAY AM, GYM  
 Schmidt R. M. K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 Schmitt R. A. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Schmitt R. A. CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 Schmitt R. A. REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 Schmitt R. A. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Schneberger D. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 Schnetzler C. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Schramm L. S. COSMIC DUST, MONDAY AM, GYM  
 Schreiber H. D. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Schubert G. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 Schubert G. PLANETARY PHYSICS, TUES. PM, RM. 206  
 Schultz L. COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 Schultz P. H. K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 Schultz P. H. MARS WATER AND ICE, MON. PM, RM. 104  
 Schultz R. A. TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 Schuraytz B. C. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Schutt J. NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 Schwarz C. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Schwem G. ASTEROIDS/COMETS, FRI. AM, RM. 206
- Scott D. H. EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 Scott D. H. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 Scott D. H. MARS WATER AND ICE, MON. PM, RM. 104  
 Scott E. R. O. ALH 85085, WED. PM, GYM  
 Scott E. R. D. CHONDRULES, WED. AM., GYM  
 Sears D. W. CHONDRULES, WED. AM., GYM  
 Sears D. W. NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 Seboldt W. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 See T. H. IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 Seeger C. R. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Seifert S. PLANETARY ACCRETION, TUES. PM, GYM  
 Semeniuk J. A. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 Semenova A. S. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Semjonova L. F. CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 Sengupta D. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Sengupta O. NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 Senske D. A. GEOLOGY OF VENUS, TUES. PM, RM. 104  
 Setze H. R. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 Shaffer N. NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 Sharpton V. L. GEOLOGY OF VENUS, TUES. PM, RM. 104  
 Sharpton V. L. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Sharpton V. L. K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 Sharpton V. L. VENUS GEOPHYSICS, TUES. AM, RM. 104  
 Sharpton V. L. MARS WATER AND ICE, MON. PM, RM. 104  
 Shaw D. M. NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 Shearer C. K. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Shearer C. K. LUNAR HIGHLANDS, THURS. AM, RM. 206  
 Shelfer T. D. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 Sheng Y. J. REFRACRY INCLUSIONS II, FRI. AM, GYM  
 Sheridan M. F. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 Shervais J. W. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Shevchenko V. V. GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 Shih C.-Y. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Shih C.-Y. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Shih C.-Y. LUNAR HIGHLANDS, THURS. AM, RM. 206  
 Shimizu N. CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 Shimizu N. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Shimizu N. LUNAR HIGHLANDS, THURS. AM, RM. 206  
 Shipizin J. G. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Shkurotov Y. G. GEOLOGY OF VENUS, TUES. PM, RM. 104  
 Shoemaker C. S. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 Shoemaker C. S. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Shoemaker E. M. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 Shoemaker E. M. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Shorthill R. W. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Shukolyukov Yu. A. CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 Shukolyukov Yu. A. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Signer P. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Simon S. B. LUNAR HIGHLANDS, THURS. AM, RM. 206  
 Simon S. B. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Simon S. B. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Simon S. B. LUNAR HIGHLANDS, THURS. AM, RM. 206  
 Singer R. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Sjogren W. L. VENUS GEOPHYSICS, TUES. AM, RM. 104  
 Skripnik A. Ya. CHONDRULES, WED. AM., GYM  
 Skripnik A. Ya. NON-CARBONACEOUS CHONDRITES, WED. PM, GYM

Slade M. A.  
 Slade M. A.  
 Slyuta E. N.  
 Smith J. V.  
 Smith J. V.  
 Smith M. O.  
 Smolyakova T. P.  
 Smrekar S.  
 Solberg T. C.  
 Solberg T. C.  
 Sologub P. S.  
 Solomon S. C.  
 Solomon S. C.  
 Solov'eva N. V.  
 Sonett C. P.  
 Sonett C. P.  
 Sotin C.  
 Sotin C.  
 Soufflot A.  
 Spettel B.  
 Spettel B.  
 Spettel B.  
 Spitz A.  
 Spivack A. J.  
 Spohn T.  
 Spudis P. D.  
 Spudis P. D.  
 Spudis P. D.  
 Squyres S. W.  
 Stakheeva S. A.  
 Stecher O.  
 Steele I. M.  
 Steele I. M.  
 Stern L. A.  
 Stevenson D. J.  
 Stevenson D. J.  
 Stofan E. R.  
 Stöffler D.  
 Stöffler D.  
 Stolper E. M.  
 Stolper E. M.  
 Stone J.  
 Stooke P. J.  
 Stooke P. J.  
 Strichtart L. R.  
 Strickland E. L.  
 Strobell M. E.  
 Strom R. G.  
 Sudyko A. F.  
 Sukhanov A. L.  
 Sullivan R.  
 Sullivan R.  
 Sultan M.  
 Sun Y.-Y.  
 Sun Y.-Y.

GEOLOGY OF VENUS, TUES. PM, RM. 104  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 CARBONACEOUS CHONDrites, TUES. AM, GYM  
 PLANETARY ACCRETION, TUES. PM, GYM  
 REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 UREILITES, THURS. PM, GYM  
 REFRACTORY INCLUSIONS I, TUES. AM, GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 CHONDRULES, WED. AM., GYM  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 PLANETARY ACCRETION, TUES. PM, GYM  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 CARBONACEOUS CHONDrites, TUES. AM, GYM  
 REFRACTORY INCLUSIONS I, TUES. AM, GYM  
 REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 MARS GEOLoGY & REMOTE SENSING, MON. AM, RM. 104  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 MARS GEOLoGY & REMOTE SENSING, MON. AM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104

Sunshine J. M.  
 Surkhov Y. A.  
 Surkov Y. A.  
 Sutton S. R.  
 Svitek T.  
 Swarn G. A.  
 Swarn G. A.  
 Swindle T.  
 Tagai T.  
 Tajika E.  
 Takagi Y.  
 Takeda H.  
 Takeda H.  
 Tanaka K. L.  
 Tang M.  
 Tanner W. G.  
 Tarasov L. S.  
 Tatsumoto M.  
 Tatsumoto M.  
 Taylor G. J.  
 Taylor L. A.  
 Taylor L. A.  
 Taylor S. R.  
 Tellez J. R.  
 Teng R. T. D.  
 Tera F.  
 Theilig E.  
 Theilig E.  
 Thiel K.  
 Thiemens M. H.  
 Thiemens M. H.  
 Thomas K. L.  
 Thomas P. J.  
 Thompson T. W.  
 Thompson T. W.  
 Tielens A.  
 Tihomirov S. G.  
 Tomeoka K.  
 Touret J. L. R.  
 Treiman A. H.  
 Truscott M. G.  
 Tsou P.  
 Tucker D. W.  
 Tull A.  
 Tuniz C.

REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 COSMIC DUST, MONDAY AM, GYM  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 LEW86010 & ADOR, THURS. PM, GYM  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 REFRACTORY INCLUSIONS I, TUES. AM, GYM  
 GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 MARS GEOLoGY & REMOTE SENSING, MON. AM, RM. 104  
 CHONDRULES, WED. AM., GYM  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 MARS WATER AND ICE, MON. PM, RM. 104  
 NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 UREILITES, THURS. PM, GYM  
 MARS WATER AND ICE, MON. PM, RM. 104  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 COSMIC DUST, MONDAY AM, GYM  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 MARS GEOLoGY & REMOTE SENSING, MON. AM, RM. 104  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 CARBONACEOUS CHONDrites, TUES. AM, GYM  
 CHONDRULES, WED. AM., GYM  
 LEW86010 & ADOR, THURS. PM, GYM  
 NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM

Turcotte D. L. VENUS GEOPHYSICS, TUES. AM, RM. 104  
 Turkevich A. EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 Tuttle M. TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 Tyburczy J. A. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Tyburczy J. A. PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 Underwood J. R. IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 Ustinov V. I. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Valsecchi G. B. PLANETARY ACCRETION, TUES. PM, GYM  
 Van Dyk M. H. H. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 Van der Stap C.C.A. CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 Van der Stap C.C.A. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Vaniman D. T. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Vanzani V. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Vasiliev V. EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 Vassent B. ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 Veeder, G. H. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 Velbel M. A. NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 Velski C. NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 Verheul H. CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 Verheul H. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Verheul H. CHONDRULES, WED. AM., GYM  
 Vertman E. G. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Vetter S. K. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Veverica J. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 Vis R. D. CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 Vis R. D. CHONDRULES, WED. AM., GYM  
 Vis R. N. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Vogler K. J. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 VorderBruegge R.W. GEOLOGY OF VENUS, TUES. PM, RM. 104  
 VorderBruegge R.W. VENUS GEOPHYSICS, TUES. AM, RM. 104  
 Vrana S. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Wagstaff J. LEW86010 & ADOR, THURS. PM, GYM  
 Walker R. J. CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 Wall S. D. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Wall S. D. GEOLOGY OF VENUS, TUES. PM, RM. 104  
 Walter L. S. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Wandless G. A. LUNAR HIGHLANDS, THURS. AM, RM. 206  
 Wang O. NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 Wang D. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Wang H. COSMIC DUST, MONDAY AM, GYM  
 Wang J. W. CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 Wang J. W. LUNAR HIGHLANDS, THURS. AM, RM. 206  
 Wanke H. EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 Wanke H. PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 Wark D. A. CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 Wark D. A. REFRactory INCLUSIONS II, FRI. AM, GYM  
 Warren J. ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 Warren P. H. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Warren P. H. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Warren P. H. LUNAR HIGHLANDS, THURS. AM, RM. 206  
 Warren P. H. UREILITES, THURS. PM, GYM

Wasserburg G. J. IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 Wasserburg G. J. REFRACTORY INCLUSIONS I, TUES. AM, GYM  
 Wasserburg G. J. CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 Wasserburg G. J. CHONDRULES, WED. AM., GYM  
 Wasserburg G. J. CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 Wasserburg G. J. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 Wasserburg G. J. REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 Wasserburg G. J. ALH 85085, WED. PM, GYM  
 Wasson J. T. NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 Wasson J. T. K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 Watson H. E. TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 Watters T. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 Wdowiak T. J. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Webster W. K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 Weidenschilling S. PLANETARY ACCRETION, TUES. PM, GYM  
 Weinbruch S. CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 Weisberg M. K. ALH 85085, WED. PM, GYM  
 Weisberg M. K. LEW86010 & ADOR, THURS. PM, GYM  
 Weishaupt U. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 Wells G. L. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Wentworth S. J. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Wentworth S. J. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Wesiberg M. K. UREILITES, THURS. PM, GYM  
 Wetherill G. W. PLANETARY ACCRETION, TUES. PM, GYM  
 Wheelock M. M. COSMIC DUST, MONDAY AM, GYM  
 White B. R. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Whitford-Stark J.L. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Wichman R. TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 Wieler R. REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 Wiesmann H. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Wiesmann H. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 Wiesmann H. LUNAR HIGHLANDS, THURS. AM, RM. 206  
 Wilhelms D. E. TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 Williams A. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Williams B. G. EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
 Williams C. R. GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
 Williams C. R. PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 Williams D. R. VENUS GEOPHYSICS, TUES. AM, RM. 104  
 Williams J. G. ASTEROIDS/COMETS, FRI. AM, RM. 206  
 Williams R. S., Jr. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Williams S. H. MARS WATER AND ICE, MON. PM, RM. 104  
 Williams S. H. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 Wilson L. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 Wilson L. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 Wilson L. PLANETARY PHYSICS, TUES. PM, RM. 206  
 Wilson L. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 Winters R. R. PLANETARY PHYSICS, TUES. PM, RM. 206  
 Witkowski R. E. COSMIC DUST, MONDAY AM, GYM  
 Wolbach W. S. K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 Wood C. A. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 Wood C. A. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 Wood J. A. CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 Wood J. A. REFRactory INCLUSIONS II, FRI. AM, GYM  
 Woolum D. S. REFRactory INCLUSIONS I, TUES. AM, GYM

Wright I. P. CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
Wright I. P. CHONDRULES, WED. AM., GYM  
Wright I. P. NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
Wu S. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
Wu S. S. C. EXPLORING MARS & PHOBOS, MON. EVE. POSTER SESSION  
Wu S. S. C. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
Wu Y. PLANETARY PHYSICS, TUES. PM, RM. 206  
Xu D.-Y. IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
Xu D.-Y. K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
Yakovlev O. I. K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
Yamakoshi K. K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
Yan L. CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
Yan Z. IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
Yan Z. K-T & RELATED EVENTS & IMPACT.., THURS. PM, RM. 104  
Yang J. NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
Yang S.-R. LUNAR HIGHLANDS, THURS. AM, RM. 206  
Yang S.-R. LEW86010 & ADOR, THURS. PM, GYM  
Yaroshevsky A. A. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
Ye L.-F. IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
Young J. W. ASTEROIDS/COMETS, FRI. AM, RM. 206  
Zabalueva E. V. MARS WATER AND ICE, MON. PM, RM. 104  
Zahnle K. PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
Zaslavskaya N. I. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
Zaslavskaya N. I. NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
Zent A. P. MARS WATER AND ICE, MON. PM, RM. 104  
Zhang Q.-W. IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
Zhang Q.-W. K-T & RELATED EVENTS & IMPACT.., THURS. PM, RM. 104  
Zimbelman J. R. TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
Zimbelman J. R. GEOLOGY OF VENUS, TUES. PM, RM. 104  
Zimbelman J. R. MARS WATER AND ICE, MON. PM, RM. 104  
Zimbelman J. R. MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
Zimbelman J. R. MARS WATER AND ICE, MON. PM, RM. 104  
Zimbelman J. R. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
Zinner E. K. CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
Zinner E. K. REFRACTORY INCLUSIONS II, FRI. AM, GYM  
Zisk S. H. GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
Zohar S. VENUS GEOPHYSICS, TUES. AM, RM. 104  
Zolensky M. E. CHONDRULES, WED. AM., GYM  
Zolensky M. E. COSMIC DUST, MONDAY AM, GYM  
Zolensky M. E. IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
Zolensky M. E. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
Zook H. A. ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
Zook H. A. ASTEROIDS/COMETS, FRI. AM, RM. 206  
Zook H. A. GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206  
Zuber M. T. GEOLOGIC & REMOTE SENSING STUDIES..., WED. PM, RM. 206



## SPEAKER INDEX

- Abe Y.  
 Ahrens T.  
 Alexander C.M.O'D.  
 Alexander E., Jr.  
 Allton J. H.  
 Ash R. D.  
 Aubele J. C.  
 Aubele J. C.  
 Banerdt B.  
 Barlow N. G.  
 Barraclough B. L.  
 Barrett R. A.  
 Basilevsky A. T.  
 Basu, A.  
 Beckett J. R.  
 Bell J. F.  
 Bell J. F., III  
 Berkley J. L.  
 Bernhard R. P.  
 Bibring J-P  
 Bindschadler D.  
 Bischoff A.  
 Blake D.  
 Blake D.  
 Blaney D.  
 Blanford G. E.  
 Blum J. O.  
 Bogard D.  
 Bohor B. F.  
 Boss A. P.  
 Bradley J. P.  
 Bradley T. L.  
 Brearley A. J.  
 Brigham C. A.  
 Broadhurst C. L.  
 Brown R. H.  
 Brownlee D. E.  
 Buchanan P. C.  
 Bunch T. E.  
 Burke K.  
 Byerly G. R.  
 Caillet C.  
 Cameron A. G. W.  
 Campbell B. A.  
 Carlson R. W.  
 Cashore J.  
 Castano J. R.  
 Chen J. H.  
 Christensen P. R.  
 Cintala M. J.  
 Cisowski S. M.  
 Cisowski S. M.  
 Clayton D. D.
- PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 MARS WATER AND ICE, MON. PM, RM. 104  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 REFRACTORY INCLUSIONS I, TUES. AM, GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 CHONDRULES, WED. AM., GYM  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 COSMIC DUST, MONDAY AM, GYM  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 COSMIC DUST, MONDAY AM, GYM  
 REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 PLANETARY ACCRETION, TUES. PM, GYM  
 COSMIC DUST, MONDAY AM, GYM  
 MARS WATER AND ICE, MON. PM, RM. 104  
 NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 COSMIC DUST, MONDAY AM, GYM  
 CHONDRULES, WED. AM., GYM  
 CARBONACEOUS CHONDrites, TUES. AM, GYM  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 PLANETARY ACCRETION, TUES. PM, GYM  
 GEOLOGIC & REMOTE SENSING STUDIES ..., WED. PM, RM. 206  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM
- Clayton R. N.  
 Clifford S. M.  
 Clow G. D.  
 Colwell J.  
 Conolly H. C., Jr.  
 Coombs C. R.  
 Costard F. M.  
 Craddock R. A.  
 Crawford D.  
 Croft S. K.  
 Crown O.  
 Crozaz G.  
 Crumpler L. S.  
 Dasch E. J.  
 Davies A. G.  
 Davis A. M.  
 Davis A. M.  
 DeHart J. M.  
 DeHon R.  
 Delaney J. S.  
 Delaney J. S.  
 Delano J. W.  
 Deutsch A.  
 Dickinson T.  
 Dollfus A.  
 Donn B.  
 Dreibus G.  
 Durham W. B.  
 Eberhardt P.  
 Edgett K. S.  
 Efford N. D.  
 Ekelund A.  
 Elthon D.  
 Eluszkiwicz J.  
 Englert P. A. J.  
 Esat T. M.  
 Eugster O.  
 Eugster O.  
 Ferreira M. P.  
 Fink J.  
 Finney S. A.  
 Flexer A.  
 Flynn G. J.  
 Flynn L.  
 Forsythe R. D.  
 Frank S. L.  
 Fredriksson K.  
 French B. M.  
 Frey H.  
 Futrell D.  
 Gaddis L.  
 Gaffey M. J.  
 Garrison D. H.  
 Garvin J. B.  
 Garvin J. B.
- UREILITES, THURS. PM, GYM  
 MARS WATER AND ICE, MON. PM, RM. 104  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 CHONDRULES, WED. AM., GYM  
 GEOLOGIC & REMOTE SENSING STUDIES ..., WED. PM, RM. 206  
 MARS WATER AND ICE, MON. PM, RM. 104  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 LEW86010 & ADOR, THURS. PM, GYM  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 UREILITES, THURS. PM, GYM  
 CHONDRULES, WED. AM., GYM  
 MARS WATER AND ICE, MON. PM, RM. 104  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 LEW86010 & ADOR, THURS. PM, GYM  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 PLANETARY ACCRETION, TUES. PM, GYM  
 PLANETARY ACCRETION, TUES. PM, GYM  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 COSMIC DUST, MONDAY AM, GYM  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 CARBONACEOUS CHONDrites, TUES. AM, GYM  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 CHONDRULES, WED. AM., GYM  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 PLANETARY ACCRETION, TUES. PM, GYM  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 GEOLOGIC & REMOTE SENSING STUDIES ..., WED. PM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104

Geissler P.  
 Germani M. S.  
 Gilmour I.  
 Glass B. P.  
 Golombek M.  
 Goodrich C. A.  
 Goodrich C. A.  
 Gradie J.  
 Grant J. A.  
 Grant T. D.  
 Gratz A. J.  
 Gratz A. J.  
 Gratz A. J.  
 Greely R.  
 Greenberg R.  
 Grimm R. E.  
 Grimm R. E.  
 Grossman J. N.  
 Grossman L.  
 Grossman L.  
 Guinness E. A.  
 Halbout J.  
 Hamilton D. C.  
 Hapke B.  
 Harris A.  
 Hasan F. A.  
 Hashimoto A.  
 Haskin L. A.  
 Head J. W.  
 Helfenstein P.  
 Hewins R. H.  
 Heymann D.  
 Hildebrand A.  
 Hills L. S.  
 Hinton R. W.  
 Holloway J.  
 Holzapfel K. A.  
 Hood L.  
 Horz F.  
 Housen K. R.  
 Hughes S. S.  
 Huss G. R.  
 Hutcheon I. D.  
 Hyde T.  
 Ireland T. R.  
 Jackson A. A.  
 Jakosky B. M.  
 Jansa L. F.  
 Jaumann R.  
 Johnson P. H.  
 Jones J. J.  
 Jones R. H.  
 Jones T.  
 Jones H.-P.

PLANETARY PHYSICS, TUES. PM, RM. 206  
 COSMIC DUST, MONDAY AM, GYM  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 LEW86010 & ADOR, THURS. PM, GYM  
 UREILITES, THURS. PM, GYM  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 MARS WATER AND ICE, MON. PM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 PLANETARY ACCRETION, TUES. PM, GYM  
 CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 ALH 85085, WED. PM, GYM  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 REFRactory INCLUSIONS II, FRI. AM, GYM  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 PLANETARY ACCRETION, TUES. PM, GYM  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 GEologic & REMOTE SENSING STUDIES ..., WED. PM, RM. 206  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 CHONDRULES, WED. AM., GYM  
 CHONDRULES, WED. AM., GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 REFRactory INCLUSIONS II, FRI. AM, GYM  
 ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 MARS WATER AND ICE, MON. PM, RM. 104  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 GEOlogic & REMOTE SENSING STUDIES ..., WED. PM, RM. 206  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 CHONDRULES, WED. AM., GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 MARS WATER AND ICE, MON. PM, RM. 104

Jull A. J. T.  
 Jurgens R. F.  
 Kargel J.  
 Kaula W. M.  
 Keller L. P.  
 Kerridge J. F.  
 Kiefer W. S.  
 Kirk R. L.  
 Klein J.  
 Klinger J.  
 Klock W.  
 Kochan H.  
 Koebel C.  
 Koebel C.  
 Kozul J.  
 Kuehner S. M.  
 Laughlin J. R.  
 Laul J. C.  
 Lavielle B.  
 Lavielle B.  
 Lewis R. S.  
 Lindstrom M. M.  
 Lipschutz M. E.  
 Lissauer J. J.  
 Lofgren G. E.  
 Longhi J.  
 Lowe D. R.  
 Lucchitta B. K.  
 Lunine J. I.  
 Mackinnon D. J.  
 Mackinnon I. D. R.  
 Magee K.  
 Makjanic J.  
 Malcuit R. J.  
 Mannion P.  
 Mao H. K.  
 Matson D. L.  
 Matsui T.  
 McCormick K.  
 McGee J. J.  
 McGill G. E.  
 McGuire A. V.  
 McKay D. S.  
 McKay G.  
 McKinnon W. B.  
 McSween H. Y.  
 Metzger A. E.  
 Meyer C.  
 Ming D.  
 Mittlefehldt D. W.  
 Mittlefehldt D. W.  
 Mizutani H.  
 Morgan J. W.  
 Morgan J. W.

NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 COSMIC DUST, MONDAY AM, GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 COSMIC DUST, MONDAY AM, GYM  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 HED'S, IRONS, AUBRITES, MON. PM, RM. 206  
 REFRactory INCLUSIONS II, FRI. AM, GYM  
 REFRactory INCLUSIONS II, FRI. AM, GYM  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 CHONDRULES, WED. AM., GYM  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 MARS WATER AND ICE, MON. PM, RM. 104  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 MARS WATER AND ICE, MON. PM, RM. 104  
 CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 REFRactory INCLUSIONS I, TUES. AM, GYM  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 LEW86010 & ADOR, THURS. PM, GYM  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 GEOlogic & REMOTE SENSING STUDIES ..., WED. PM, RM. 206  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 PLANETARY ACCRETION, TUES. PM, GYM  
 CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 LUNAR HIGHLANDS, THURS. AM, RM. 206

- Morgan T. H.  
 Morris R. V.  
 Mukhin L. M.  
 Murali A. V.  
 Murchie S. L.  
 Mustard J. F.  
 Neal C. R.  
 Nelson M. L.  
 Neukum G.  
 Newsom H. E.  
 Nier A.  
 Nishiizumi K.  
 Nutt J. A.  
 Nyffenegger P.  
 Nyquist L.  
 O'Keefe J. A.  
 O'Keefe J. D.  
 O'Keefe J. D.  
 Oberst J.  
 Olinger C. T.  
 Olsen E. J.  
 Orth C. J.  
 Ott U.  
 Palme H.  
 Papanastassiou D.A.  
 Papike J. J.  
 Parmentier E. M.  
 Pavri B.  
 Pellis P.  
 Phinney D.  
 Pieri D.  
 Pieters C. M.  
 Plescia J.  
 Podosek F. A.  
 Postawko S. E.  
 Premo W. R.  
 Prinz M.  
 Prinz M.  
 Prombo C. A.  
 Pun A.  
 Radler K.-H.  
 Rajan R. S.  
 Regner P.  
 Rietmeijer F.J.M.  
 Rivard B.  
 Robert F.  
 Roessler K.  
 Ross D. K.  
 Ross M. N.  
 Rubin A. E.  
 Rubin A. E.  
 Ryder G.  
 Salisbury J. W.  
 Schaber G. G.
- GEOLOGIC & REMOTE SENSING STUDIES ..., WED. PM, RM. 206  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 PLANETARY ACCRETION, TUES. PM, GYM  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 PLANETARY ACCRETION, TUES. PM, GYM  
 COSMIC DUST, MONDAY AM, GYM  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 GEOLOGIC & REMOTE SENSING STUDIES ..., WED. PM, RM. 206  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 K-T & RELATED EVENTS & IMPACT..., THURS. PM, RM. 104  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 GEOLOGIC & REMOTE SENSING STUDIES ..., WED. PM, RM. 206  
 TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
 NOBLE GASES & SOLAR SYSTEM HISTORY, TUES. EVE., RM. 104  
 MARS WATER AND ICE, MON. PM, RM. 104  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 LEW86010 & ADOR, THURS. PM, GYM  
 UREILITES, THURS. PM, GYM  
 REFRACTORY INCLUSIONS II, FRI. AM, GYM  
 COSMIC DUST, MONDAY AM, GYM  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 COSMIC DUST, MONDAY AM, GYM  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 PLANETARY PHYSICS, TUES. PM, RM. 206  
 CHONDRULES, WED. AM., GYM  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
 VENUS GEOPHYSICS, TUES. AM, RM. 104
- Schmidt R. M.  
 Schramm L. S.  
 Schubert G.  
 Schultz L.  
 Schultz P. H.  
 Schuraytz B. C.  
 Scott E. R. D.  
 Sears D. W.  
 Senske D. A.  
 Sharpton V. L.  
 Sharpton V. L.  
 Shaw D. M.  
 Shearer C. K.  
 Sheng Y. J.  
 Sheng Y. J.  
 Shervais J. W.  
 Signer P.  
 Sjogren W. L.  
 Smrekar S.  
 Sotin C.  
 Spudis P.  
 Stecher O.  
 Steele I. M.  
 Stevenson D. J.  
 Stofan E. R.  
 Stoffler D.  
 Stone J.  
 Strickland E. L.  
 Strom R. G.  
 Sullivan R.  
 Sutton S.  
 Sutton S.  
 Sutton S.  
 Svitek T.  
 Swann G. A.  
 Swann G. A.  
 Swindle T.  
 Takagi Y.  
 Takeda H.  
 Takeda H.  
 Tanaka K. L.  
 Tatsumoto M.  
 Taylor G. J.  
 Taylor G. J.  
 Thiemens M. H.  
 Thomas P. J.  
 Tomeoka K.  
 Treiman A. H.  
 Tsou P.  
 Tuniz C.  
 Turcotte D. L.  
 Tyburczy J. A.  
 Van Dyk M. H. H.  
 Vaniman D. T.
- K-T & RELATED EVENTS & IMPACT.., THURS. PM, RM. 104  
 COSMIC DUST, MONDAY AM, GYM  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 MARS WATER AND ICE, MON. PM, RM. 104  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 ALH 85085, WED. PM, GYM  
 CHONDRULES, WED. AM., GYM  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 REFRactory INCLUSIONS II, FRI. AM, GYM  
 REFRactory INCLUSIONS I, TUES. AM, GYM  
 LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 IMPACT GLASSES: FORMATION & SOURCES, WED. PM, RM. 104  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 PLANETARY ACCRETION, TUES. PM, GYM  
 GEOLOGY OF VENUS, TUES. PM, RM. 104  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 COSMIC DUST, MONDAY AM, GYM  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 GEOLOGIC & REMOTE SENSING STUDIES ..., WED. PM, RM. 206  
 GEOLOGIC & REMOTE SENSING STUDIES ..., WED. PM, RM. 206  
 MARS GEOLOGY & REMOTE SENSING, MON. AM, RM. 104  
 CHONDRULES, WED. AM., GYM  
 NON-CARBONACEOUS CHONDRITES, WED. PM, GYM  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 UREILITES, THURS. PM, GYM  
 MARS WATER AND ICE, MON. PM, RM. 104  
 CRUST & MANTLE FRACTIONATION, TUES. AM, RM. 206  
 HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
 LUNAR HIGHLANDS, THURS. AM, RM. 206  
 CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
 OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
 CARBONACEOUS CHONDRITES, TUES. AM, GYM  
 LEW86010 & ADOR, THURS. PM, GYM  
 ORBITAL COLLECTION OF COSMIC DUST, MON. PM, GYM  
 COSMIC-RAY-PRODUCED NUCLIDES, MON. PM, GYM  
 VENUS GEOPHYSICS, TUES. AM, RM. 104  
 PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
 ASTEROIDS/COMETS, FRI. AM, RM. 206  
 REGOLITHS AND MESOSIDERITES, MON. PM, RM. 206

Veeder G. J. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
Vogler K. J. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
VorderBruegge R.W. GEOLOGY OF VENUS, TUES. PM, RM. 104  
Wang H. COSMIC DUST, MONDAY AM, GYM  
Wark D. A. REFRACTORY INCLUSIONS II, FRI. AM, GYM  
Warren P. H. HED'S, IRONS, AUBRITES, MON. AM, RM. 206  
Warren P. H. LUNAR HIGHLANDS, THURS. AM, RM. 206  
Warren P. H. UREILITES, THURS. PM, GYM  
Wasson J. T. ALH 85085, WED. PM, GYM  
Wasson J. T. NON-CARBONACEOUS CHONDrites, WED. PM, GYM  
Watters T. TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
Weisberg, M. K. ALH 85085, WED. PM, GYM  
Wells G. L. IMPACT FLUX & TERRESTRIAL CRATERING, WED. AM, RM. 104  
Wentworth S. J. LUNAR & METEORITE BASALTS, FRI. AM, RM. 104  
Wetherill G. W. PLANETARY ACCRETION, TUES. PM, GYM  
Wichman R. TECTONIC FEATURES ON TERRES. PLANETS, THURS. PM, RM. 206  
Williams A. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
Williams D. R. VENUS GEOPHYSICS, TUES. AM, RM. 104  
Williams R.S.,Jr. REMOTE SENSING OF PLANETARY SURFACES, WED. AM, RM. 206  
Williams S. H. MARS WATER AND ICE, MON. PM, RM. 104  
Wolbach W. S. K-T & RELATED EVENTS & IMPACT.., THURS. PM, RM. 104  
Wood C. A. OUTER SOLAR SYSTEM, THURS. AM, RM. 104  
Wood J. CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
Woolum D. S. REFRACTORY INCLUSIONS I, TUES. AM, GYM  
Xu D.-Y. K-T & RELATED EVENTS & IMPACT.., THURS. PM, RM. 104  
Zahnle K. PLANETARY ATMOSPHERES & RELATED TOPICS, TUES. AM, RM. 206  
Zent A. P. MARS WATER AND ICE, MON. PM, RM. 104  
Zimbelman J. R. MARS WATER AND ICE, MON. PM, RM. 104  
Zinner E. CHEMICAL & ISOTOPIC CHARACTERISTICS..., THURS. AM, GYM  
Zisk S. H. GEOLOGIC & REMOTE SENSING STUDIES ..., WED. PM, RM. 206  
Zolensky M. CHONDRULES, WED. AM., GYM  
Zook H. A. ASTEROIDS/COMETS, FRI. AM, RM. 206

**ORDER FORM**  
**Lunar and Planetary Science**  
**ABSTRACTS of the Conference**

To obtain abstracts enclose payment in U.S. dollars only (checks made out to LPI Order Dept.)

**ORDER DEPARTMENT**  
**LUNAR AND PLANETARY INSTITUTE**  
**3303 NASA ROAD ONE**  
**HOUSTON TX 77058-4399**

No. OF COPIES			COST/COPY	TOTAL
XVII 1986	XVIII 1987	XIX 1988 (New)		
_____	_____	_____	Mailed to anywhere in the United States	\$7.00 _____
_____	_____	_____	Mailed AIR BOOK RATE to: Mexico, Canada	18.00 _____
_____	_____	_____	Mailed AIR BOOK RATE to: Central America, Columbia, Caribbean Islands, Venezuela, Bahamas, Bermuda, St. Pierre, and Miquelons	32.00 _____
_____	_____	_____	Mailed AIR BOOK RATE to: South America (except Colombia & Venezuela), Europe (except Estonia, Latvia, Lithuania, USSR), and North Africa (Morocco, Algeria, Tunisia, Libya and Egypt)	53.00 _____
_____	_____	_____	Mailed AIR BOOK RATE to: Estonia, Latvia, Lithuania, USSR, Asia, Pacific Ocean Islands, Africa (other than North Africa), the Indian Ocean Islands, and the Middle East	73.00 _____
_____	_____	_____	Mailed SURFACE BOOK RATE to: All foreign countries	11.00 _____
TOTAL AMOUNT ENCLOSED				_____
All prices subject to change These prices effective 2/15/88				

NAME : \_\_\_\_\_

ADDRESS : \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Please print or write legibly. This is your mailing label.

## CONTENTS

Lunar and Planetary Science Conference XIX	1
On-Line 19th LPSC Program	2
Publication of 19th Proceedings	3
18th Proceedings Ordering Information	3
LPI Announces Two Conferences for 1988	3
More Meetings on Mars	4
Other Meetings--Here and There	5
Earth Science and Applications Data Systems	6
New Publications	6
LPI Announces New Slide Set	9
Calendar	10
Bibliography	15
Appendix:      Preliminary LPSC XIX Program	i
Author Index	xxxiii
Speaker Index	xlvii
Order Form: LPSC XIX (Abstracts of the Conference)	ii



Universities Space Research Association  
LUNAR AND PLANETARY INSTITUTE  
3303 NASA Road One  
Houston, TX 77058-4399

Non-Profit  
U.S. Postage Paid  
Permit No. 600  
Houston TX



ADDRESS CORRECTION REQUESTED

DATED MATERIAL - PLEASE DISTRIBUTE