LUNAR AND PLANETARY INSTITUTE

3303 NASA ROAD 1 HOUSTON, TEXAS 77058

FIRST ANNOUNCEMENT

MECA - LPI WORKSHOP "WATER ON MARS"

November 30 - December 1, 1984

Dear Colleague:

As part of the new NASA-sponsored LPI Study project entitled "Mars: The Evolution of its Climate and Atmosphere" (MECA), a workshop will be held Friday and Saturday (November 30 and December 1) prior to the Fall American Geophysical Union Meeting. The two-day meeting will be hosted by Bob Haberle at NASA-Ames Research Center.

In order to assess the origin and history of water and its role in the evolution of the climate and atmosphere on Mars, the workshop will address certain key questions regarding water on Mars:

1. What is the **present water cycle** and what processes affect this cycle?
2. How has the **past water cycle** changed and what can be inferred about **past climates?**
3. What are the nature and distribution of the **sources and sinks** for water at the surface today and how have they changed with time?
4. What is the current and past **bulk water content?**

Participants will be expected to furnish an abstract (maximum of 3 pages) that will be incorporated into an abstract volume to be issued before the start of the workshop. Abstracts should be received in the Publications Office, Lunar and Planetary Institute, 3303 NASA Road 1, Houston, Texas, U.S.A. 77058, **no later than October 26, 1984.**

We invite your participation in the workshop. Please return the Indication of Interest Questionnaire by September 21, 1984, or contact the LPI Projects Office (telephone 713-486-2150). The second circular for this meeting which will include **forms and instructions for preparing abstracts, will be sent only to those who return the Indication of Interest form**. If you have colleagues who may be interested in this workshop but who may not have received this mailing, please feel free to copy and distribute this announcement.

Sincerely

Ronald Greeley

Ronald Greeley
MECA Steering Committee Chairman
Arizona State University

RG/lt
Enclosure

LUNAR AND PLANETARY INSTITUTE
3303 NASA ROAD 1 HOUSTON, TEXAS 77058

FINAL ANNOUNCEMENT
MECA - LPI WORKSHOP "WATER ON MARS"
November 30 - December 1, 1984

Dear Colleague:

The arrangements for the "Water on Mars" workshop are in the final stages and a tentative program established by the MECA Steering Committee is enclosed. From the number of abstracts submitted and the pre-registrations received, we are expecting a good attendance for a productive meeting. Information concerning speakers, meeting logistics, and activities are included in this final announcement.

REGISTRATION
If you have not mailed the pre-registration form included in the second announcement, please complete the enclosed form and return it immediately or call in your registration. A list of those who have pre-registered is at the end of this announcement. It is not necessary to send the registration fee with the pre-registration form but it is important that we know that you are planning to attend. Ames Research Center Security does require that participants at the meeting be cleared for entrance to the Center ONE WEEK IN ADVANCE of the workshop. Foreign participants MUST have a request sent from their embassy to the Office of International Affairs, NASA Headquarters Washington, D.C. 20546 to be cleared for entrance to NASA Ames Research Center.

Friday morning you should enter Ames at the Navy Main Gate, turn left just before you actually enter the security area, drive past the Visitor Reception Building, and stop at the Security Station shown on the enclosed maps. When you enter the Security Station, identify yourself as a workshop participant and you will be given a car pass for the two days of the workshop. Drive through the NASA Gate (Gate 18) and follow the map to Building N-245, Space Science Auditorium where the meeting will be held. We will have a registration desk open at 8 a.m. just outside the Space Science Auditorium so that you may pick up your badge, abstract volume, etc. Late arrivals may register in this area at any time during the meeting.

SPEAKER INFORMATION
Each speaker has been alloted 10 minutes for presentation to be followed by a discussion period. In order to assist those given the responsiblity of reviewing a topic of the workshop at the special AGU session the following week, each speaker is asked to complete the enclosed "Reviewer's Help Sheet" and give it to the reviewer designated for your workshop session. The reviewers of the workshop sessions for the special session at AGU are: Heinrich Wänke, Session I "Current and Past Bulk Water Content"; Bruce Jakowsky, Session II "Present Water Cycle and Related Processes"; James Pollack, Session III "Past Water Cycle(s) and Climate(s); and Michael Carr, Session IV "Water Sources and Sinks Today and in the Past".

AUDIO-VISUAL AIDS
Dual screen projection of 35mm slides and single screen projection of overheads will be possible during the workshop sessions. Speakers should complete the enclosed cue sheet and give it together with presentation materials to the projectionist 15 minutes prior to the start of the session. If you have special requirements, please let me know as soon as possible. The participants scheduled for the POSTER SESSION should advise us of the wall area required for display so that space can be made available for you to hang your presentation material.

SOCIAL ACTIVITY/MEALS/REFRESHMENTS
Immediately following the afternoon session on Friday, a social will be held just outside the Space Sciences Auditorium. Coffee and donuts will be available each morning of the meeting at 8 a.m. with coffee/soft drinks served at morning and afternoon breaks. Lunch the first day will be the responsibility of the individual participants. The Ames Cafeteria will be open on Friday for those who wish to remain on the Center for lunch. On Saturday lunch will be provided for workshop participants.

MESSAGES
Telephone messages received during the workshop will be posted on a message board just outside the auditorium. Anyone wishing to reach you during the sessions may call 415-694-5029.

If you have any questions concerning the workshop program or meeting logistics please call me at 713-486-2158. I look forward to seeing you at the meeting.

Sincerely,

LeBecca Turner

LeBecca Turner
Workshop Coordinator

Enclosures

Names of Pre-registered Participants as of 11/9/84

V. Abreu
D. Anderson
R. Arvidson
B. Bills
K. Burke
M. Carr
S. Clifford
T. Clancy
R. Hargraves
K. Herkenhoff
R. Huguenin
B. Jakosky
R. Kahn
C. Kochel
H. Marshall
L. Martin
H. Masursky
D. Muhleman
R. Pepin
R. Singer
H. Wänke
B. West
D. Wilhelms

TENTATIVE PROGRAM

MECA-LPI WORKSHOP "WATER ON MARS"
Ames Research Center November 30 - December 1, 1984

Friday, November 30, 1984

8:00 - 9:00 a.m. Registration (Coffee/donuts)

9:00 a.m. Opening Remarks - Robert Haberle

9:15 a.m. Workshop Introduction - Ronald Greeley

SESSION I - CURRENT AND PAST BULK WATER CONTENT

Chairmen: Heinrich Wänke and Robert Pepin

Wänke H. Dreibus G.
Volatiles on Mars.

Rutherford M. J. Carroll M. R.
The influence of H_2O on volcanic degassing of aerosol forming elements S, Cl and F.

10:10 a.m. COFFEE BREAK

SESSION II - PRESENT WATER CYCLE AND RELATED PROCESSES

Chairmen: Bruce Jakowsky and Robert Haberle

Jakosky B. M.
The seasonal cycle of water on Mars: A review.

Roth L. E. Saunders R. S. Schubert G.
Radar and the detection of liquid water on Mars.

Christensen P. R. Zurek R. W.
Mars water-ice clouds.

Hart H. M. Jakosky B. M.
Stability and composition of condensate at the Viking Lander 2 site on Mars.

12:00 - 1:30 p.m. LUNCH

1:30 CONVENE AFTERNOON SESSION

SESSION II CONTINUED

Martin L. J. James P. B.
The possible role of water in the recession of martian polar caps.

Lee S. W.
Influence of atmospheric dust loading and water vapor content on settling velocities of martian dust/ice grains: Preliminary results.

Kahn R.
Observational constraints on the global-scale wind systems of Mars.

James P. B.
Hydrologic cycle on Mars: Effects of CO_2 mass flux on global water distribution.

2:50 p.m. COFFEE BREAK

Haberle R. M. Herdtle T.
Numerical simulation of the current water cycle on Mars.

Pollack J. B. Haberle R. M.
New GCM simulations of transport into the polar regions.

Muhleman D. O. Clancy R. T. Schloerb F. P.
Mapping of the water vapor distribution on Mars; a microwave spectrometer and radio meter for MG/CO.

4:30p.m. MGCO PRESENTATION

Palluconi F. Albee A.
The Mars Geoscience/Climatology Observer (MGCO) Mission

5:00 - 6:30 p.m. SOCIAL

Saturday, December 1, 1984

8:00 a.m. COFFEE/DONUTS

8:30 a.m. CONVENE MORNING SESSION

SESSION III - PAST WATER CYCLE(S) AND CLIMATE(S)

Chairmen: James Pollack and Fraser Fanale

Zent A. P. Fanale F. P. Salvail J. R.
Short term water cycles within the Mars regolith.

Fanale F. P. Salvail J. R. Zent A. P. Postawko S. E.
Mars: Long term changes in the state and distribution of H_2O.

Jakosky B. M. Carr M.H.
Mars at high obilquity: Possible precipitation of ice at low latitudes.

Yatteau J. H. McElroy M. B.
Mars: Effect of water vapor abundance on atmospheric oxidation state.

Marshall H. G. Walker J. C. G. Kuhn W. R.
Cloud properties in past martian climates.

10:00 a.m. COFFEE BREAK

Clow G. D.
Radiation-dominated snowmelt on Mars.

Schultz P. H. Rogers J. Haber S.
Erosion of martian impact basins and the changing water cycle.

Baker V. R.
Problems in the paleohydrologic and hydroclimatologic interpretation of valley networks.

Kochel R. C. Howard A. D.
Groundwater sapping and ancient valley networks on Mars.

Moore H.
Sublimation rates required for steady-state glaciers, Mars.

12:00 - 1:00p.m. LUNCH

1:00 p.m. CONVENE AFTERNOON SESSION

SESSION IV - WATER SOURCES AND SINKS TODAY AND IN THE PAST

Chairmen: Michael Carr and Stephen Clifford

Singer R. B. Owensby P. D. Clark R. N.
Direct detection of minor clay mineralogy on Mars.

Posey-Dowty J. Tanebaum L. B. Moskowitz B.M. Crerar D. A.
Hargraves R. B.
Controls on precipitation of various iron oxides and hydroxides: Relevance to Mars

Gooding J. L.
Water and ice in the martian regolith: Dependence of stabilities on regolith mineralogy.

Huguenin R. L.
Mars: Mineralogical constraints on volatile evolution.

Anderson D. M.
The present water cycle on Mars: Some thermodynamic considerations.

2:30 p.m. COFFEE BREAK

Saunders R. S. Parker T. J. Stephens J. B. Laue E. G.
Fanale F. P.
Sediment--water deposition and erosion in the martian polar regions.

Guiness E. A. Leff C. E. Arvidson R. E.
On the latitudinal distribution of debris in the northern hemisphere of Mars.

Squyres S. W. Carr M. H.
The distribution of ground ice features on Mars.

Schultz P. H.
Polar wandering on Mars and the distribution of water-ice through time.

Clifford S. M.
Mars: Permeability requirements for a global groundwater system driven by polar basal melting.

5:00 DISCUSSION

6:00 ADJOURN

POSTER SESSION

Batson R.
No corresponding abstract.

Masursky H.
No corresponding abstract.

Palluconi F. D. Albee A. L.
The Mars Geoscience/Climatology Observer (MGCO) Mission.

Wu S. S. C.
Mars Topographic Maps

ABSTRACTS SUBMITTED FOR PRINT ONLY

Clifford S. M.
Mars: Groundwater mound development in response to polar basal melting.

Gibson E. K. Jr.
Sources and sinks of present day water within the martian regolith: Evidence from a terrestrial analog of martian weathering processes--the dry valleys of Antarctica.

Lucchitta B. K.
Ground water in the equatorial region of Mars: Evidence from landslides.