

Mars Exploration Science Monthly Newsletter

A publication of the Mars Program Office and the Mars Exploration Program Analysis Group (MEPAG)

Issue: April 2009

MEPAG Meeting #21: July 29-30, 2009 in Providence, Rhode Island.

Mars Science News

MEPAG Meeting

A very successful MEPAG meeting was held March 3-4, 2009. The MEPAG Chair's letter to the NASA Advisory Committee, Planetary Science Subcommittee Chair is available on the MEPAG website at:

http://mepag.jpl.nasa.gov/meeting/mar-09/MEPAG_March-mtg_2009_.pdf

Planetary Sciences Decadal Survey Chair Appointed

The chairman of the National Research Council has approved the appointment of Steve Squyres of Cornell University to chair the planetary sciences decadal survey committee. The appointment of Larry Soderblom of the U.S. Geological Survey to serve as the survey's vice-chair was also approved. Additional information about the decadal survey can be found at www.nas.edu/ssb.

David H. Smith, Study Director, Planetary Sciences Decadal Survey

Mario Acuña

Dear Colleagues,

You may have heard by now that recently the space science community lost a dynamic and vital voice. Dr. Mario Acuña died in the early hours of March 5, 2009, at home, surrounded by his family and loved ones. Mario succumbed to multiple myeloma, a cancer of the blood, after struggling with the incurable disease for more than a year.

Based at NASA's Goddard Space Flight Center since the late 1960s, Mario was an important part of the scientific exploration of our solar system, and he will remain so through his published scientific and technical work that will be studied and referred to by generations to come. His virtuoso ability in anything magnetometer, from individual transistor characteristics to m-metal core composition and performance, is legendary (it is rumored that he built many magnetometer prototypes in his garage).

As principal investigator of several magnetometer investigations, Mario led teams of national and international Co-Is, and worked closely with US and international space agencies. During Mars Orbiter (MO) and Mars Global Surveyor (MGS) project days, his

inevitable reactions to project or agency actions, those that might influence his magnetometer investigation, were famously known as "Mario-grams". They arrived as emails or were presented by him in project and team meetings. With his characteristic way of speaking, his informed interpretation of "how things really work" at NASA or other agencies, institutions, or projects, Mario added uniqueness and color to many otherwise, well, bland, presentations. Everyone in the meeting rooms looked forward to his presentations, most with appreciation, some with apprehension, but all with interest in what he had to say about this subject or that. He was respected by all.

Mario's experience in working with spacecraft and instrument engineers is unequalled. It was "understood" by project engineers, "everybody knew", that to include a magnetometer on a spacecraft would drive up spacecraft costs because of magnetic cleanliness requirements. And the apparent necessity for long booms would drive attitude control requirements. Everybody knew it, that is, until Mario showed how to do it right with MGS, a capable spacecraft built very quickly in the early 1990's to replace the MO spacecraft that blew up during Mars orbit insertion. He worked closely with the MGS builder from the beginning, so that the spacecraft was built from the ground up, part by part magnetically clean. This is in contrast to the traditional way, which attempted (not always successfully, certainly not in MO's case) to make the spacecraft clean after the fact, after all was put together. The MGS magnetometer accommodation costs were held to a small fraction of the cost incurred previously. Further, he showed how to place the instruments at the end of the solar panels, removing the need for booms.

Among his many scientific achievements (his magnetometers visited all eight planets, the Moon and asteroid Eros), his discovery of the remnant magnetic field on Mars deserves special recognition. The remnant magnetic field structures indicated an internal dynamo long extinct. The fact that there was a fully developed planetary dynamo very early in Mars' history limits models describing the formation of Mars from the primordial material. Further, the apparent cessation of the dynamo four billion years ago has far reaching implication to the evolution of both the planetary interior and the atmosphere. It will be some time before these significant discoveries will be fully digested by planetary scientists.

It bears emphasizing that the magnetic measurements were successful because MGS was built to magnetic cleanliness specifications, made possible by Mario's day-to-day collaboration with the spacecraft builder. It is very doubtful that these very important discoveries could have been made with MO, had it survived orbit insertion. I think I heard him say once that we were lucky twice: the 1st time when MO blew up, and the second time because one of MGS' solar panels was damaged during launch. Because of the latter, MGS had to spend considerable time before the prime mission phase, an extra year, in a magnetometer-favorable science orbit after arriving at Mars, followed by many orbits of areobraking maneuvers. The originally unplanned dipping to low altitudes during each areobraking orbit allowed us to peak below the atmosphere's shielding electron peak layer to find and map the crustal remnant fields.

Mario's family has posted a blog at <http://supermarioacuna.wordpress.com/> to chronicle his struggle. The listed outpouring of condolences from around the world attests to

the many lives Mario has touched over the years. He was a valuable colleague, friend, and teacher to many of us who had the good fortune to work with him.

It is clear that you will be missed, Mario. And we hope that, somehow, you'll miss us too...

-Daniel Winterhalter
(formerly MO and MGS Magnetometer Experiment Representative)

Mars Community Announcements

Announcement of the public release of the planetWRF Martian General Circulation Model (GCM) source code.

The planetWRF model is a planetary and global adaptation of the NCAR Weather Research and Forecasting (WRF) meso/micro-scale model (www.wrf-model.org). Developed with NASA Applied Information Systems Research (AISR) funding, we are now pleased to announce the first public release of the Martian General Circulation Model (GCM) based on WRF.

For further information or to download the code, please visit: www.planetwrf.com

Upcoming Conferences and Workshops

Type	Date & Location	Event Information
<i>Second Quarter, 2009</i>		
	April 2-4, 2009 Mainz, GERMANY	Conference on Micro-Raman Spectroscopy and Luminescence Studies in the Earth and Planetary Sciences http://www.lpi.usra.edu/meetings/spectroscopy2009/
	April 23-24, 2009 Vienna, AUSTRIA	European Geosciences Union PS2.6 Session on Mars Science and Exploration Day 1 is an all-day poster session, and day 2 is an all-day oral session http://meetingorganizer.copernicus.org/EGU2009/session/853
	UPDATE May 11, 2009 Denver, CO	Next 2001 Mars Odyssey PSG Meeting Contact Jeff Plaut (Jeffrey.J.Plaut@jpl.nasa.gov)
	May 11-15, 2009 Noordwijk, THE NETHERLANDS	International Conference on Comparative Planetology: Venus-Earth-Mars at ESTEC Contact: Augustin Chicarro, Augustin.Chicarro@esa.int or Hakan Svedhem, Hakan.Svedhem@esa.int http://www.rssd.esa.int/eslab-2009/
	May 24-27, 2009 Toronto, Ontario, CANADA	2009 GAC-MAC/AGU Joint Assembly Further information can be found at http://www.agu.org/meetings/ja09/ Conveners: Jafar Arkani-Hamed (jafar@physics.utoronto.ca), Jaime Urrutia-Facugauchi (juf@geofisica.unam.mx), and Hernan Ugalde (ugaldeh@mcmaster.ca)

	UPDATE May 26-28, 2009 Darmstadt, GERMANY	Mars Express Science Team Meeting Location ESOC. Contact Agustin Chicarro, Agustin.Chicarro@esa.int
	UPDATE June 1-3, 2009 Houston, Texas, USA	Workshop on Modeling Martian Hydrous Environments The workshop will be held at the Lunar and Planetary Institute (LPI) Abstract deadline has been extended to Sunday, April 5, 2009. For more information or to submit an abstract, visit the meeting web site at: http://www.lpi.usra.edu/meetings/hydrous2009/
	June 11-17, 2009 Moscow, RUSSIA	17th IAA Humans in Space Symposium http://iaa-his2009.imbp.ru/index00e-s.html
	June 11-17, 2009 Pasadena, California, USA	214th American Astronomical Society Meeting http://aas.org/meetings/aas214
	POSTPONED to 2010	Planetary Protection Short Course http://www.planetaryprobe.eu/
	June 14-20, 2009 Castellaneta M., ITALY	XIV International Clay Conference Note special session on Clay Minerals in Extraterrestrial Environments will include a plenary lecture by Dr. Nick Tosca, "Extracting Aqueous Chemistry from Clay-Bearing Assemblages Formed on Ancient Mars." http://www.14icc.org/
	POSTPONED to 2010	7th International Planetary Probe Workshop http://www.planetaryprobe.eu/
	June 21-26, 2009 Davos, SWITZERLAND	Goldschmidt™2009 - "Challenges to Our Volatile Planet" Note key theme areas of Mars interest: Theme 1:Nebular Processes, Planet Formation and Comparative Planetology Theme 2:Earth, The Early Years: Building a Habitable Planet Theme 16:Life at the Edge: Extreme Environments http://www.goldschmidt2009.org
	June 25-26, 2009 San Antonio, Texas, USA	Annual Meeting of Planetary Geologic Mappers Location Trinity University (GIS workshop for mappers, June 23 and 24). Contact Les Bleamaster (lbleamas@psi.edu)
<i>Third Quarter, 2009</i>		
	June 29-July 13, 2009 Reykjavik, ICELAND	Nordic-NASA Summer School "Water, Ice and the Origin of Life in the Universe" http://www.nordicastrobiology.net/iceland2009/
	July 6-11, 2009 Melbourne, AUSTRALIA	7th International Conference on Geomorphology Ancient Landscapes – Modern Perspectives Melbourne Exhibition & Convention Centre There will be dedicated sessions on Planetary Geomorphology and a field trip to examine analog landscapes in South Australia. http://www.geomorphology2009.com/ (Submitted by Mary Bourke, Planetary Science Institute, Tucson, Arizona)
	July 13–18, 2009 Nancy, FRANCE	72nd Annual Meeting of the Meteoritical Society Contact: Marc Chaussidon, Guy Libourel or Bernard Marty http://www.metsoc2009.org/

	July 20-24, 2009 Pasadena, California, USA	2009 Planetary Science Summer School (First Session) NASA is accepting applications from science and engineering post-docs, recent PhDs, and doctoral students for its 21 st Annual Planetary Science Summer School, which will hold two separate sessions this summer at the Jet Propulsion Laboratory in Pasadena, Calif. During the program, student teams will carry out the equivalent of an early mission concept study, prepare a proposal authorization review presentation, present it to a review board, and receive feedback. At the end of the week, students will have a clearer understanding of the life cycle of a space mission; relationships between mission design, cost, and schedule; and the tradeoffs necessary to stay within cost and schedule while preserving the quality of science. Applications are due May 1, 2009. Partial financial support is available for a limited number of individuals. Further information is available at http://pscischool.jpl.nasa.gov .
	July 21-24, 2009 Seattle, Washington, USA	3rd International Workshop on Mars Polar Energy Balance and the CO2 Cycle http://www.lpi.usra.edu/meetings/mpeg2009/
	July 21-23, 2009 Moffett Field, California, USA	THE 2nd ANNUAL NLSI LUNAR SCIENCE FORUM The forum consists of invited and contributed oral and poster presentations, together with breakout sessions to plan for the future of lunar science and discuss other special topics. There will be a LEAG Community Meeting. http://lunarscience2009.arc.nasa.gov contact: JEFFREY MOORE, SOC Chair, NASA ARC, LSIconf@nasa.gov
	UPDATE July 29-30, 2009 Providence, Rhode Island, USA	MEPAG #21 meeting Brown University
	August 11-15, 2009 SINGAPORE	6th Annual General Meeting of the Asia Oceania Geosciences Society 16 Sessions in Planetary Sciences covering various topics that include interiors, oceans, surfaces, atmospheres, ionospheres, magnetospheres of planets, satellites, comets, minor bodies.... Session details at: http://www.asiaoceania.org/aogs2009/public.asp?page=mars/confSessionList.asp Conference: http://www.asiaoceania.org/aogs2009/
	August 2009 Grenoble, FRANCE	IEEE GRSS Workshop on Hyperspectral Image and Signal Processing http://www.ieee-whispers.com/
	August 11-15, 2009 Pasadena, California, USA	2009 Planetary Science Summer School (Second Session) See description under July 20-24 1 st session.
	UPDATE September 13-18, 2009 Potsdam, GERMANY	European Planetary Science Congress http://meetings.copernicus.org/epsc2009/information/index.html Abstracts due date: May 8, 2009

	September 15-17, 2009 Moffett Field, California, USA	MARS DUST CYCLE WORKSHOP The Martian climate system is characterized in terms of the seasonal cycles of dust, water, and CO ₂ , which are coupled and driven by the general circulation. Recent workshops have focused on the water and CO ₂ cycles, but a workshop focused on the dust cycle, perhaps the most complex component of the climate system overall, has not been held since the post Viking data analysis programs of the 1980's. Given the enormous volume of data acquired since then, as well as the advances in modeling and laboratory methods, the time is right to hold a workshop focused on dust cycle. This workshop seeks to understand the global behavior of dust in the atmosphere by focusing on its lifting, transport, and deposition in the present climate regime. <i>Indication of Interest Due: May 1, 2009</i> http://humbabe.arc.nasa.gov/MarsDustWorkshop/DustHome.html Convenor: Robert M. Haberle (NASA/Ames) Robert.M.Haberle@nasa.gov
	September 20-23, 2009 Alghero, Sardina, ITALY	International Association of Sedimentologists (IAS) Meeting Session T7: Sedimentology and Stratigraphy in the inner and Outer Solar System Field trip FT5: Tunisian desert: a perfect place to simulate landing on Mars http://www.ias2009.com/
<i>Fourth Quarter, 2009</i>		
	UPDATE October 4–9, 2009 Fajardo, Puerto Rico, USA	41st Annual Meeting DPS http://www.aas.org/dps/meetings.html Abstracts deadline: July 22, 2009 Late abstracts deadline: September 8, 2009, 5:00 PM EDT / 21:00 UTC Deadline for reserving hotel rooms at the meeting rate: September 7, 2009
	October 12-16, 2009 Daejeon, SOUTH KOREA	60th International Astronautical Congress (IAC) http://www.iac2009.kr/
	12-16 October 2009 Tuscany, Italy	GEOLOGICAL MAPPING OF MARS: A WORKSHOP ON NEW CONCEPTS AND TOOLS (12-14 October) and FIELD TRIP ON THE GEOLOGY OF TUSCANY (15 – 16 October) The workshop will focus on three currently evolving aspects to planetary geological mapping: (1) the identification and mapping of geological units and features, (2) the digital tools that provide an efficient way to assemble data and map the surface, and (3) the extension of surface contact mapping into the subsurface and in a 3D environment. Contact: Gian Gabriele Ori [ggori@irsps.unich.it]
	October 12-14, 2009 Brussels, BELGIUM	9th European Workshop on Astrobiology EANA'09 http://www.exobiologie.be/eana/ Contact: Christian Muller (Christian.muller@aeronomie.be)
	October 18–21, 2009 Portland, Oregon, USA	Geological Society of America National Meeting http://www.geosociety.org/meetings/
	October 28-30, 2009 Golden, Colorado, USA	11th Space Resources Roundtable Held at the Colorado School of Mines Joining individuals from the space exploration community, the financial sector and mining and minerals industries, the SRR seeks to bring together interested parties to discuss issues related to the In-Situ Resource Utilization (ISRU) of unar, asteroidal and martian resources. http://www.isruinfo.com/
	November 23-24, 2009 ESRIN, Frascati, ITALY	Mars Express Science Team Meeting Monday-Tuesday before the Workshop on Methane on Mars (TBC) – Contact Agustin Chicarro (Agustin.Chicarro@esa.int)

	UPDATE November 25-27, 2009 ESRIN, Frascati, ITALY	Joint ESA-ASI Workshop on Methane on Mars: Current Observations, Interpretation and Future Plans The goal of the workshop is to review the potential reservoirs and release mechanisms of methane and its circulation in the atmosphere, and possible origins of this constituent. http://www.congrex.nl/09c26/ Abstract submission deadline: September 1, 2009 Contact Olivier Witasse (Olivier.Witasse@esa.int)
	December 14–18, 2009 San Francisco, California, USA	AGU Fall Meeting www.agu.org/meetings
2010		
	TENTATIVE February 27-28, 2010 Monrovia, California, USA	MEPAG #22
	UPDATED March 1-5, 2010 The Woodlands, Texas, USA	Lunar and Planetary Science Conference #41 http://www.lpi.usra.edu/meetings/
	UPDATE April 19-23, 2010 El Paso, Texas, USA	First International Conference on Mars Sedimentology and Stratigraphy A week-long conference including a 2-day field trip to look at the Mars analog sedimentary rocks that have filled the western part of the Permian Basin. Conference web site will be posted through LPI.
	June 12-13, 2010 Barcelona, SPAIN	Planetary Protection Short Course http://www.planetaryprobe.eu/
	June 14-18, 2010 Barcelona, SPAIN	7th International Planetary Probe Workshop http://www.planetaryprobe.eu/
	June 8-12, 2010 Oslo, NORWAY	International Polar Year Oslo Science Conference http://www.ipy-osc.no/
	July 18–25, 2010 Bremen, GERMANY	38th COSPAR Scientific Assembly Abstract Deadline: Mid-February 2010 Topics: - SC B: The Earth-Moon System, Planets, and Small Bodies of the Solar System - SC C: The Upper Atmospheres of the Earth and Planets Including Reference Atmospheres - SC D: Space Plasmas in the Solar System, Including Planetary Magnetospheres - SC F : Astrobiology and Space Science, Including Habitability on Mars : Past, Present & Future - Panel on Planetary Protection (PPP) Contact: cospar@cosparhq.cnes.fr http://www.cospar2010.org/ or http://www.cospar-assembly.org
	July 25 or August 1, 2010 Toronto, Ontario CANADA	73rd Annual Meeting of the Meteoritical Society Contact: Dr. G. Srinivasan http://www.meteoriticalsociety.org/simple_template.cfm?code=news_meetings
	UPDATE September 2010	Fourth MSL Landing Site workshop

	October 18-22, 2010 Madison, Wisconsin, USA	42nd Annual Meeting of the DPS http://www.aas.org/dps/meetings.html
	October 31– November 3, 2010 Denver, Colorado, USA	Geological Society of America National Meeting http://www.geosociety.org/meetings/
	December 13–17, 2010 San Francisco, California, USA	AGU Fall Meeting www.agu.org/meetings
<i>2011</i>		
	UPDATE April 2011	Fifth MSL Landing Site workshop
	July 2013 Pasadena, California, USA	8th International Conference on Mars California Institute of Technology
	August 2011 Greenwich England, UNITED KINGDOM	74th Annual Meeting of the Meteoritical Society Contact: Gretchen Benedix http://www.meteoriticalsociety.org/simple_template.cfm?code=news_meetings
	October 2011 Nice, FRANCE	43rd Annual Meeting of the DPS http://www.aas.org/dps/meetings.html
	October 9–12, 2011 Minneapolis, Minnesota, USA	Geological Society of America National Meeting http://www.geosociety.org/meetings/
	December 12–16, 2011 San Francisco, California, USA	AGU Fall Meeting www.agu.org/meetings
<i>2012</i>		
	August 2012 Cairns, Queensland AUSTRALIA	75th Annual Meeting of the Meteoritical Society Contact: Trevor Ireland http://www.meteoriticalsociety.org/simple_template.cfm?code=news_meetings
	August 2012 Brisbane, AUSTRALIA	The 34th International Geological Congress http://www.33iqc.org/

Special holidays to consider when scheduling conferences/workshops/ meetings:

Good Friday	4/10/2009	4/2/2010	4/22/2011	4/6/2012	3/29/2013
Rosh Hashanah	9/19/2009	9/9/2010	9/29/2011	9/17/2012	9/5/2013
Yom Kippur	9/28/2009	9/18/2010	10/8/2011	9/26/2012	9/14/2013
(Note that Jewish holidays start at sundown the previous evening).					
Thanksgiving Day, U.S.	11/26/2009	11/25/2010	11/24/2011	11/22/2012	11/28/2013
Thanksgiving Day, Canada	10/12/2009	10/11/2010	10/10/2011	10/8/2012	10/14/2013

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Please send your Mars Community Announcements and calendar items for inclusion in next month's email to Joyce Pulliam, Joyce.N.Pulliam@jpl.nasa.gov, 818-393-0444.

All announcements listed in this newsletter will be posted on the MEPAG website, available at <http://mepag.jpl.nasa.gov>.