

# Mars Exploration Science Monthly Newsletter

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

February 2014

## Mars Science News

### **Mars Critical Data Products Program (Round XI)**

#### Initial Landing Site Characterization for the Mars 2020 Rover Mission

The Mars Exploration Program has issued, in January 2014, a Request for Proposal for round IX of the Mars Critical Data Products program. This RFP provides support for initial landing site surface, atmosphere, and gravity characterization for the Mars 2020 rover mission. The intent is to convert mission data and numerical simulations into products focused on specific landing site targets (to be provided by the program) that will be useful for reducing the risk to the Mars 2020 rover mission. Proposals are due on Wednesday, March 5, 2014.

Details of the RFPs are posted at:

<https://acquisition.jpl.nasa.gov/rfp/VWH-2691-120313/default.htm> or <https://acquisition.jpl.nasa.gov/bizops/>.

### **SHARAD/MARSIS Data Users' Workshop**

*March 16, 2014 in The Woodlands, TX*

This workshop will provide an introduction to the radar sounding data from the SHARAD instrument on MRO and the MARSIS instrument on Mars Express. There is no registration fee; however, attendees are required to register at the Workshop website:

[http://www.ig.utexas.edu/sharad\\_marsis/](http://www.ig.utexas.edu/sharad_marsis/)

### **8<sup>th</sup> International Mars Conference**

*July 14-18, 2014 at the California Institute of Technology, Pasadena, CA*

As of 2014, we will have completed a remarkable and unparalleled fifteen years of concentrated scientific exploration of the Red Planet. This period includes eight successful missions (1996 Mars Global Surveyor, 1996 Mars Pathfinder, 2001 Mars Odyssey, 2003 Mars Exploration Rovers, 2003 Mars Express, 2005 Mars Reconnaissance Orbiter, 2007 Mars Phoenix, and 2011 Mars Science Laboratory), as well as telescopic observations from Earth, studies of martian meteorites, and a variety of numerical and laboratory modeling activities. Two additional missions will be en-route to Mars at the time of the conference (NASA's 2013 MAVEN and ISRO's 2013 Mars Orbiter Mission), and several other missions are actively under development for launch during the period 2016-2020. The Eighth International Mars Conference will be an ideal time to step back and summarize our current understanding of Mars, to consolidate our primary paradigms for Martian processes and history, and to refocus the primary scientific questions that remain in front of us.

The First Announcement has been posted: <http://www.hou.usra.edu/meetings/8thmars2014/>.

We encourage Mars scientists from all scientific fields to plan to attend. The first four days of the conference will consist of morning and afternoon oral sessions organized around topical themes, along with late afternoon poster sessions of broader scope. The final day will consist of presentations and discussion focused on the synthesis of the ideas presented. We expect that the Call for Abstracts (included in the second conference announcement) will invite contributions from Mars scientists in all scientific sub-disciplines, and will invite both specific data-driven abstracts and broader synthesis abstracts. In accordance with new conference guidelines recently issued by NASA, the meeting will not charge a registration fee and no meals will be provided. Support for student travel will be available.

Note to those that need to forecast travel to Domestic Heavily Attended Conferences (DHAC) (i.e., those who use the NASA Conference Tracking System (NCTS) or the JPL conference tools). Note that this is a Domestic Heavily Attended Conferences (DHAC), so those that need to forecast travel (i.e., those who use the NASA Conference Tracking System (NCTS) or the JPL conference tools) should forecast soon.

## 2014 NASA Planetary Science Summer School Applications Open

NASA is accepting applications from science and engineering post-docs, recent PhDs, and doctoral students for its 26th Annual Planetary Science Summer School, which will be held in three separate sessions in summer 2014 (June 16-20, July 14-18, and August 11-15) at the Jet Propulsion Laboratory in Pasadena, Calif.

During the program and pre-session webinars, 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. By the end of the session, 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. The 2014 sessions will address planetary exploration missions needing power system trade-offs, including the use of solar electric vs. Multi-mission Radioisotope Thermoelectric Generators (MMRTG). The session in August will have a targeted focus on spacecraft power systems.

Applications are due April 1, 2014. Partial financial support is available for a limited number of individuals. Further information is available at <http://pscischool.jpl.nasa.gov>.

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### Photogrammetric Processing of Planetary Stereo Imagery using SOCET SET®

The Planetary Photogrammetry Guest Facility at the Astrogeology Science Center of the U.S. Geological Survey would like to announce a Call for Participation for a training opportunity on April 29 - May 1, 2014, on Photogrammetric Processing of Planetary Stereo Imagery using SOCET SET®. **The training is free to participants**, and will cover end-to-end, hands-on photogrammetric procedures for surface extraction from Mars Reconnaissance Orbiter HiRISE image pairs. The topics include

- **An introduction to photogrammetric procedures and surface generation techniques;**
- **Overview of HiRISE imagery; and**

#### **Workflow and data exchange between ISIS and SOCET SET.**

The hands-on training will include ISIS preprocessing, SOCET SET import of image and reference data, control point selection, orientation procedures, triangulation and bundle adjustment, manual and automated surface extraction of digital terrain models (DTM), editing, and data export.

If you are interested in participating in this opportunity, please send an email to [Dr. Raad Saleh \(PlanetaryPhotogrammetry@usgs.gov\)](mailto:Dr. Raad Saleh (PlanetaryPhotogrammetry@usgs.gov)) with the following specific information: your name, title, affiliation, address, full contact information, and a short statement describing your interest in the training. Please note that seating for this session is very limited, so please express your interest as soon as possible.

Please note the following:

1. Training will be 3 days, from Tuesday through Thursday, April 29 - May 1, 2014.
  2. The training will be based exclusively on a standard set of HiRISE stereo images.
  3. ISIS, SOCET SET and the Guest Facility support the use of images from several planetary cameras in addition to HiRISE. While this hands-on training will be based on HiRISE images, it would be our pleasure to advise participants on the suitability of other planetary cameras for their research projects. Furthermore, we can provide one-on-one support to producing DTMs at later days.
  4. The Guest Facility has a single workstation available year-round for users who need to generate their own products. If you would like to stay longer (after this training) or come at a later date to generate your own products using the Guest Facility, please let us know the kind of images you would be using and how many DTMs you hope to produce so that we can schedule your visit accordingly.
  5. For more information about the Guest Facility, and for Frequently Asked Questions, please visit: <http://astrogeology.usgs.gov/geology/photogrammetry-guest-facility>. Go to Downloads at the bottom of the page and follow the link "Planetary Photogrammetry Guest Facility FAQ".
  6. If you are interested in ISIS training, please see: <http://isis.astrogeology.usgs.gov/IsisWorkshop/index.php/IsisWorkshop>
- With your participation, we look forward to realizing another successful and productive training session. In the meantime, please do not hesitate to contact me directly if you have any questions or require further information.

Thank you

Contact: Dr. Raad Saleh [PlanetaryPhotogrammetry@usgs.gov](mailto:PlanetaryPhotogrammetry@usgs.gov)  
Training Coordinator, The Planetary Photogrammetry Guest Facility  
United States Geological Survey

## 6th International Summer School on Radar/SAR Systems

Fraunhofer FHR, one of Europe's leading radar research institutes and has pioneered radar and SAR research and development over the decades, is pleased to announce the 6th International Summer School on Radar/SAR, which will take place from 04-11 July 2014 in the picturesque Upper Middle Rhine region (Haus Humboldtstein). We cordially invite students, PhD candidates, post-docs and anyone else eager to broaden and deepen their understanding of radar and SAR techniques to participate in our summer school.

The highly positive feedback of previous participants showed that there is a strong interest for events that brings together young scientists to study and learn whilst at the same time building networks and forging new friendships that will lead to future collaborations. The Summer School possesses a proper balance between lectures, practical workshops and leisure activities that are an essential component for creating and sustaining an atmosphere conducive to learning and for binding with new colleagues.

Internationally renowned experts from across Europe, USA and Canada make up the summer school lecture team. This is a unique opportunity to gain an in-depth appreciation of modern radar and SAR systems whilst absorbing the multifarious atmosphere of the famous Upper Middle Rhine region. Participation in the programme of social activities with the international group of attendees will inspire and enrich your learning experience.

Synopsis of lecture programme of the 5th International Summer School on Radar/SAR:

- \* Radar fundamentals (Dr. M. Weiß, Fraunhofer FHR, Germany)
- \* Radar Remote Sensing (Dr. P. Rosen, JPL/NASA, USA)
- \* Bistatic & Distributed Radar (Prof. H. Griffiths, UCL, United Kingdom)
- \* SAR fundamentals (Prof. P. Lombardo, University la Sapienza, Italy)
- \* Short Range Imaging (Prof. M. Sato, Tohoku University, Japan)
- \* Antennas (Prof. D. Heberling, RWTH-Aachen, Germany)
- \* Moving target recognition (MTI/GMTI) (Dr. C. Gierull, DRDC, Canada)
- \* SAR interferometry (Dr. G. Fornaro, IREA, Italy)
- \* Compressed Sensing with Radar (Prof. J. Ender, Fraunhofer FHR, Germany)

During the ISS the participants will be split into several workshop groups. With assistance and guidance of international experts each group works on a different problem. On Friday they will present their solution to all other students of the summer school.

Outside of the lecture theatre there will be ample time for other activities, such as enjoying the surrounds of the beautiful Rhine Valley, visiting the vibrant cities of Cologne and/or Bonn. Summer school participants will also be taken on a technical tour of the Fraunhofer FHR institute, which is located nearby.

Due to the kind sponsorship from Cassidian (an EADS company) we can offer the summer school, inclusive full board and lodging, for only 600 Euro for students, 900 Euro for Ph.D. candidates, and 1200 Euro for all others.

Fraunhofer FHR cordially invites appropriate candidates to visit our website: <http://www.radarsummerschool.fraunhofer.de> for further information and to download the Application form. Specific queries regarding the summer school should be addressed to: [matthias.weiss@fhr.fraunhofer.de](mailto:matthias.weiss@fhr.fraunhofer.de).

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## Humans to Mars Summit

Co-sponsored by Explore Mars, the George Washington University, and the Space Policy Institute at GW, the Humans to Mars Summit (H2M) will be held on April 22-24, 2014 at George Washington University in Washington, DC. H2M will be a comprehensive Mars exploration conference to address the major technical, scientific, and policy related challenges that need to be overcome to send humans to Mars by 2030. Topics will include Mars mission architecture and challenges, science goals, planetary protection, International cooperation, Mars and STEM education, space and US competitiveness, ISRU, and many other topics.

Some of the tentative speakers already include Charles Bolden, William Gerstenmaier, James Garvin, James Greene, Doug McCuiston, Penelope Boston, Sam Scimemi, Mike Raftery, Marc Kaufman, Buzz Aldrin, Joel Levine, Miles O'Brien, Rebecca Keiser, and many more.

Register today at [h2m2014.exploremars.org](http://h2m2014.exploremars.org)

# Mars 2020 Announcement of Opportunity

## Amended

The Mars 2020 Investigations AO solicits flight investigations for which each Principal Investigator is responsible for a complete space flight investigation, including instrument hardware, mission operations, and data analysis. Investigations comprised of individual instruments or multiple instruments (suites) may respond to the overall Mars 2020 objectives to explore and quantitatively assess Mars as a potential habitat for life, to search for signs of past life, to collect carefully selected samples for possible future return to Earth, and to prepare for future human exploration of Mars.

The 2<sup>nd</sup> amendment (posted on October 21, 2013) changed the date for the Pre-Proposal Conference (PPC) to October 28, 2013, the due date for required Notices of Intent (NOIs) to November 4, 2013, the due date for proposals to January 15, 2014, the due date for letters of commitment to January 15, 2014, the deadline for receipt of proposals on CD-ROM to January 21, 2014, the target date for selection announcements to April 2014 and the target date for instrument Phase A contracts to May 2014. A 3<sup>rd</sup> amendment (posted early December, 2013) made a number of changes, additions, corrections and clarifications, which are identified in the Foreword and detailed in bold in the text, to the Announcement of Opportunity.

All amendments to the NASA Announcement of Opportunity "Mars 2020 Investigations" (NNH13ZDA018O) have been posted on the NASA research opportunity homepage at <http://solicitation.nasaprs.com/Mars2020>.

Questions concerning these amendments and the Mars 2020 AO, may be directed to Mitchell Schulte, Planetary Science Division, Science Mission Directorate, NASA Headquarters, Washington, DC 20546-0001. Telephone: (202) 358-2127; E-mail: [mars2020-ao@lists.nasa.gov](mailto:mars2020-ao@lists.nasa.gov)

### General Information:

Solicitation Number: NNH13ZDA018O  
Release Date: September 24, 2013  
Revision Date: October 21, 2013  
Pre-proposal Conference: November 4, 2013 (amended)  
Proposal Due Date: January 15, 2014 (amended)  
Letter of Commitment due: January 15, 2014 (amended)

The National Aeronautics and Space Administration (NASA) Science Mission Directorate (SMD) is releasing an Announcement of Opportunity (AO) entitled Mars 2020 Investigations to solicit proposals for investigations for a space flight mission to Mars, to be launched in July/August 2020.

The full text of the AO and any appendices are available electronically at the NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES) website (<http://solicitation.nasaprs.com/Mars2020>). Links to the AO and additional information about the intent and the capabilities of the Mars 2020 rover are located at the Mars 2020 Acquisition Website (<http://soma.larc.nasa.gov/mars2020>).

Investigations comprised of individual instruments or multiple instruments (suites) may respond to the overall Mars 2020 objectives to explore and quantitatively assess Mars as a potential habitat for life, to search for signs of past life, to collect carefully selected samples for possible future return to Earth, and to prepare for future human exploration of Mars.

The Mars 2020 Investigations AO solicits flight investigations for which each Principal Investigator is responsible for a complete space flight investigation, including instrument hardware, mission operations, and data analysis. Although individual PI-managed instrument science investigations do not have a predetermined cost cap, the total allocated cost for all the SMD-funded investigations selected is approximately \$100M in Real Year (RY) dollars for Phases A through D. Additional funding of approximately \$60M RY is allocated for investigation in Phase E. Additionally, exploration technology investigations, jointly funded by the Human Exploration and Operations Mission Directorate (HEOMD) and Space Technology Mission Directorate (STMD) may be selected at a total cost of approximately \$30M in RY dollars, including Phase E costs. The total payload resources, including mass, power, and data for the instrument complement, will be provided in a Payload Information Package (PIP) posted to the Mars 2020 Acquisition Website. Note that the Mars 2020 Investigations AO may contain provisions that differ from this notice, in which case those in the AO will take precedence.

Participation in this AO is open to all categories of organizations (U.S. and non-U.S.), including educational, industrial, and not-for-profit organizations, Federally Funded Research and Development Centers, University Affiliated Research Centers, NASA centers, the Jet Propulsion Laboratory, and other Government agencies. Principal Investigators are responsible for, and may assemble their investigation teams from, any of these organizations.

### Contracting Office Address:

NASA Goddard Space Flight Center, NASA Headquarters Acquisition Branch, Code 210.H, Greenbelt, MD 20771

## Near-term Due Dates (next three months)

Due	Project
February 14th, 2014	<b>40th COSPAR and Associated Events</b> Abstract Deadline
February 28th, 2014	<b>ExoMars 2018 Landing Site</b> Proposal Deadline
February 28th, 2014	<b>Habitable Worlds Across Time and Space</b> Abstract Deadline
February 28th, 2014	<b>1st ExoMars 2018 Landing Site Selection Workshop</b> Proposal Deadline
March 28th, 2014	<b>Habitable Worlds Across Time and Space</b> Registration Deadline
March 31st, 2014	<b>Biosignatures Across Space and Time</b> Abstract and Registration Deadline
March 31st, 2014	<b>48th ESLAB Symposium: New Insights to Volcanism Across the Solar System</b> Abstract Deadline
April 1st, 2014	<b>Annual Planetary Science Summer School</b> Application Deadline for all sessions
April 15th, 2014	<b>Origins 2014</b> Early Registration Deadline
April 15th, 2014	<b>48th ESLAB Symposium: New Insights to Volcanism Across the Solar System</b> Registration Deadline
April 15th, 2014	<b>Eighth International Conference on Aeolian Research (ICAR VIII)</b> Abstract and Early Registration Deadline


## Future Conferences and Workshops

First Quarter, 2014		
	February 9-14th Davos, SWITZERLAND	<b>Exoclimes III</b> <a href="http://www.exoclimes.org">http://www.exoclimes.org</a>
	February 18-19, 2014 Noordwijk, NETHERLANDS	<b>Science and Challenges of Lunar Sample Return Workshop</b> <a href="http://congrexprojects.com/2014-events/14c05/">http://congrexprojects.com/2014-events/14c05/</a>
	February 19, 2014 Pasadena, CA, USA	<b>2001 Mars Odyssey PSG</b>
	March 1-8, 2014 Big Sky, MT, USA	<b>IEEE Aerospace Conference</b> <a href="http://www.aeroconf.org/">http://www.aeroconf.org/</a>
<b>New!</b>	March 16, 2014 The Woodlands, TX, USA	<b>SHARAD/MARSIS Data Users' Workshop</b> <a href="http://www.ig.utexas.edu/sharad_marsis/">http://www.ig.utexas.edu/sharad_marsis/</a>
	March 17-21, 2014 Woodlands, TX, USA	<b>45th Lunar and Planetary Science Conference</b> <a href="http://www.hou.usra.edu/meetings/lpsc2014/">http://www.hou.usra.edu/meetings/lpsc2014/</a>
<b>New!</b>	March 26-28, 2014 ESAC Madrid, SPAIN	<b>1st Exomars 2018 Landing Site Selection Workshop</b> Contact: Jorge L. Vago <a href="mailto:jorge.vago@esa.int">jorge.vago@esa.int</a> Proposal deadline: February 28, 2014

## Second Quarter, 2014


	April 22-24, 2014 Washington, DC	<b>Humans to Mars Summit</b> <a href="http://h2m2014.exploremars.org">h2m2014.exploremars.org</a>
	April 28-May 1, 2014 Baltimore, MD, USA	<b>Habitable Worlds Across time and Space</b> <a href="http://www.stsci.edu/institute/conference/habitable-worlds">http://www.stsci.edu/institute/conference/habitable-worlds</a> Abstract deadline is February 28, 2014. Registration deadline is March 28, 2014.
	May 13-14, 2014 Washington, DC	<b>Mars Exploration Analysis Group (MEPAG) Meeting</b>
	May 19-21, 2014 Houston, TX, USA	<b>Venus Exploration Targets Workshop</b> <a href="http://www.hou.usra.edu/meetings/venus2014/">http://www.hou.usra.edu/meetings/venus2014/</a>
	May 20-22, 2014 Bergen, NORWAY	<b>Biosignatures Across Space and Time</b> <a href="http://www.nordicastrobiology.net/Biosignatures2014/">http://www.nordicastrobiology.net/Biosignatures2014/</a> Abstract and Registration deadline is March 31, 2014
	May 26-31, 2014 Nice, FRANCE	<b>International interdisciplinary workshop on: Accretion and early differentiation of the terrestrial planets</b> <a href="http://www.accrete.uni-bayreuth.de/?page=workshops">http://www.accrete.uni-bayreuth.de/?page=workshops</a>
	June 16-21, 2014 Noordwijk, NETHERLANDS	<b>48th ESLAB Symposium: New Insights to Volcanism Across the Solar System</b> <a href="http://congrexprojects.com/2014-events/48-ESLAB/">http://congrexprojects.com/2014-events/48-ESLAB/</a> Abstract deadline is March 31, 2014. Registration deadline is April 15, 2014.
	June 16-20, 2014 Pasadena, CA USA	<b>Annual Planetary Science Summer School, Session I</b> <a href="http://pscischool.jpl.nasa.gov">http://pscischool.jpl.nasa.gov</a> Application deadline: April 1, 2014

## Third Quarter, 2014

	July 6-11, 2014 Nara, JAPAN	<b>ORIGINS 2014</b> <a href="http://www.origin-life.gr.jp/origins2014/index.html">http://www.origin-life.gr.jp/origins2014/index.html</a>
	July 7-11, 2014 London, UK	<b>6<sup>th</sup> Alfvén Conference: Plasma interaction with solar system objects: anticipating Rosetta, Maven and Mars Orbiter Mission</b> <a href="https://www.ucl.ac.uk/mssl/planetary-science/alfven-conference">https://www.ucl.ac.uk/mssl/planetary-science/alfven-conference</a> Abstract deadline is May 7, 2014. Early registration deadline is May 7, 2014.
	July 14-18, 2014 Pasadena, CA, USA	<b>8th International Conference on Mars</b>
	July 14-18, 2014 Pasadena, CA USA	<b>Annual Planetary Science Summer School, Session II</b> <a href="http://pscischool.jpl.nasa.gov">http://pscischool.jpl.nasa.gov</a> Application deadline: April 1, 2014
	July 21-25, 2014 Lanzhou, CHINA	<b>Eighth International Conference on Aeolian Research (ICAR VIII)</b> Special session on extra-terrestrial Aeolian research <a href="http://www.2014icar8.com">http://www.2014icar8.com</a>
	August 2-10, 2014 Moscow, RUSSIA	<b>40th COSPAR 2014 and Associated Events</b> <a href="http://www.cospar-assembly.org/">http://www.cospar-assembly.org/</a>



### Third Quarter, 2014

	August 11-15, 2014 Pasadena, CA USA	<b>Annual Planetary Science Summer School, Session III</b> <a href="http://pscischool.jpl.nasa.gov">http://pscischool.jpl.nasa.gov</a> Application deadline: April 1, 2014
	September 22, 2014	<b>MAVEN Mars Orbit Insertion (MOI)</b>
	September 24, 2014 UTC	<b>The Indian Space Research Organisation (ISRO) Mars Orbiter Mission (MOM) Mars Orbit Insertion</b>

### Fourth Quarter, 2014

<b>New!</b>	October 13-16, 2014 Edinburgh, Scotland	<b>EANA 2014 - The 14th European Astrobiology Conference</b> <a href="http://www.astrobiology.ac.uk/eana2014/">http://www.astrobiology.ac.uk/eana2014/</a>
	October 19-22, 2014 Vancouver, British Columbia, CANADA	<b>Geological Society of America Annual Meeting</b>
	November 9-14, 2014 Tucson, AZ, USA	<b>46th Meeting of the American Astronomical Society Division of Planetary Sciences (DPS 2014)</b> <a href="http://dps.aas.org/meetings">http://dps.aas.org/meetings</a>
	December 15-19, 2014 San Francisco, CA, USA	<b>AGU Fall Meeting</b>

### 2015

	March 2015	<b>46th Lunar and Planetary Science Conference</b>
	November 1-4, 2015 Baltimore, MD, USA	<b>Geological Society of America Annual Meeting</b>

### 2016

	January 7, 2016	<b>20-Day ExoMars Launch Period Opens</b>
	March 8, 2016	<b>20-Day Insight Launch Window Opens</b>
	September 20, 2016	<b>Insight Arrival at Mars</b>
	October 16, 2016	<b>ExoMars Arrival at Mars</b>

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

Good Friday	4/18/2014	4/3/2015	4/6/2016	4/14/2017
Rosh Hashanah	9/25/2014	9/14/2015	9/16/2016	9/20/2017
Yom Kippur	10/4/2014	9/23/2015	9/25/2016	9/29/2017

(Note that Jewish holidays start at sundown the previous evening)

Thanksgiving Day, U.S.	11/27/2014	11/26/2015	11/22/2016	11/23/2017
Thanksgiving Day, Canada	10/13/2014	10/12/2015	10/8/2016	10/9/2017
Christmas Day	12/25/2014	12/25/2015	12/25/2016	12/25/2017

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Please send your Mars Community Announcements and calendar items for inclusion in next month's email to:

Carla de la Paz at [paz@jpl.nasa.gov](mailto:paz@jpl.nasa.gov), 818-354-3160.

All announcements listed in this newsletter will be posted on the MEPAG website, available at:

<http://mepag.jpl.nasa.gov>