

# **MEPAG Goals Committee Update**

# Jeffrey R. Johnson Chair MEPAG Goals Committee

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MEPAG Meeting Sept. 30-Oct. 1 2010



### **2010 Goals Committee Members**

• Jeff Johnson (USGS), Chair

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- Goal I: Life
  - Tori Hoehler (NASA Ames; tori.m.hoehler@nasa.gov)
  - Frances Westall (CNRS, France; westall@cnrs-orleans.fr)

### • Goal II: Climate

- Scot Rafkin (SwRI; rafkin@boulder.swri.edu)
- Paul Withers (Boston Univ.; withers@bu.edu)

#### Goal III: Geology

- Vicky Hamilton (SwRI; hamilton@boulder.swri.edu)
- Jeff Plescia (APL/JHU; Jeffrey.Plescia@jhuapl.edu)

### Goal IV: Human Exploration

- Abhi Tripathi (JSC; abhishek.b.tripathi@nasa.gov)
- Darlene Lim (NASA Ames; Darlene.Lim@nasa.gov)

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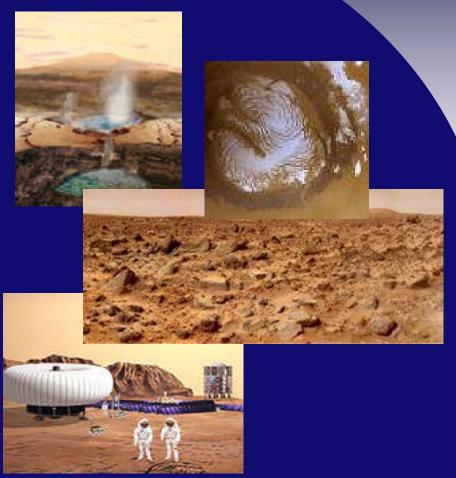




### **MEPAG Goals document**

### Science Goals for Mars Exploration

- I. Determine if life ever arose on Mars
- II. Understand the processes and history of climate on Mars
- III. Determine the evolution of the surface and interior of Mars
- IV. Prepare for human exploration







# **History of the Goals Document**

- 2001 Original MEPAG Goals Document created
  - Drafted by the MEPAG Executive Committee with inputs from the community
  - Included sessions at MEPAG meetings dedicated to establishing consensus
- 2004 First Major revisions
- 2005 Minor Maintenance
- 2006 Minor Maintenance
- 2008 Major revision of Goals II & III
- 2010 Major revision for Goals I & IV



### **Revision of the Goals Document**

- <u>Goal I</u>:
- Desire to re-address objectives and investigations with respect to water
- Westall and Hoehler organized revision
  - Inputs from:
    - Goals Committee members
    - NASA Astrobiology Institute (NAI) Mars focus group (D. DesMarais et al.) organized independent review
      - 15 reviewers (including 6 from European Mars community)
      - Successive rounds of reviews
      - Final received review 12/24/09
    - Revised document incorporating all reviews done on 3/10/10
    - Final document approved by MEPAG Executive Committee 9/17/10
  - Also to be published in Astrobiology in 2010





### **GOAL I: DETERMINE IF LIFE EVER AROSE ON MARS**

#### 2010

#### 2008

Objective A: Assess the past and present <u>habitability</u> of Mars

Objective B: Characterize <u>Carbon Cycling</u> in its Geochemical Context

Objective C: Assess whether <u>life</u> is or was present on Mars Objective A: Characterize <u>past</u> <u>habitability</u> and search for evidence of <u>ancient life</u>

Objective B: Characterize <u>present</u> <u>habitability</u> and search for evidence of <u>extant life</u>

Objective C: Determine how the long-term <u>evolution of Mars</u> <u>affected</u> the physical and chemical <u>environment critical</u> <u>to habitability</u> and the possible emergence of life



### **Revision of the Goals Document**

# Goal IV:

- Design Reference Architecture (DRA) released last fall
  - http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20090012109\_2009010520.pdf
  - http://www.nasa.gov/exploration/library/esmd\_documents.html
- MEPAG and Tripathi/Lim organized a small Science Analysis Group (SAG) to prepare revised Goal IV
  - Convened Nov. 1, 2009
  - Discussed via telecons through February, 2010
  - Reorganization of Objectives, Investigations, Measurements
  - Final document on MEPAG web site



# IV. GOAL: PREPARE FOR HUMAN EXPLORATION 2008 2010

- A. Objective. Obtain <u>knowledge</u> of Mars <u>sufficient to design and</u> <u>implement a human mission</u> with acceptable cost, risk and performance
- B. Objective. Conduct risk and/or cost reduction <u>technology and</u> <u>infrastructure</u> demonstrations in transit to, at, or on the surface of Mars
- C. Objective. Characterize the state and processes of the <u>martian</u> <u>atmosphere</u> of critical importance for the safe operation of both <u>robotic and human</u> spacecraft

Objective A: Obtain <u>knowledge</u> of Mars <u>sufficient to design</u> <u>and implement a</u> <u>human mission</u> with acceptable cost, risk and performance

Objective B: Removed, recommended to establish this in a new "sister" document maintained by MEPAG.

Objective C: merged with Investigation IV.A-1B





