



MEPAG Goals Committee Update

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2009 Goals Committee Members

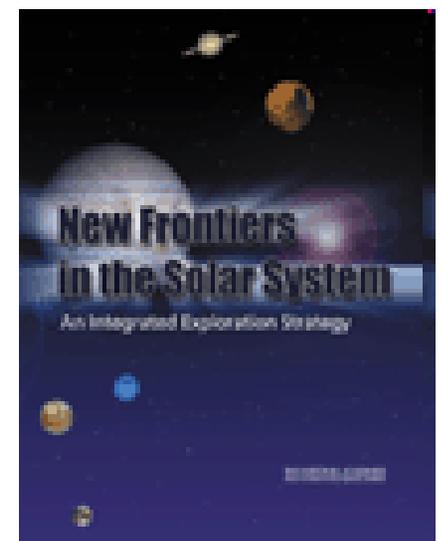


- Jeff Johnson (USGS), Chair (jrjohnson@usgs.gov)
- Goal I: Life
 - Tori Hoehler (NASA Ames; tori.m.hoehler@nasa.gov)
 - Frances Westall (CNRS, France; westall@cnrs-orleans.fr)
- Goal II: Climate
 - Scot Rafkin (SwRI; rafkin@boulder.swri.edu)
 - Paul Withers (Boston Univ.; withers@bu.edu)
- Goal III: 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)



➤ Since last MEPAG meeting

- MEPAG Goals Committee was tasked with comparing 2003 Decadal Survey (DS) cross-cutting themes and current MEPAG Goals
 - ❑ Intent was to create white paper by June 1 for DS
 - ❑ Decided to incorporate these issues into other DS white papers
 - Hear about those at this meeting
- Goals Document distilled into 7-page DS white paper
 - Draft to be placed on MEPAG Website soon





Revision of the Goals Document



- 2009 MEPAG Goals Document
 - Goal I: Desire to re-address objectives and investigations with respect to water
 - Westall and Hoehler organizing revision
 - Expect new draft on MEPAG website Sept. 7
 - Community will have opportunity to provide feedback until ~Oct. 1

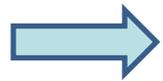


Current Goal 1 Objectives:

- A. Objective: Assess the past and present habitability of Mars
- B. Objective: Characterize Carbon Cycling in its Geochemical Context
- C. Objective: Assess whether life is or was present on Mars



Goal 1: Remodeling in Progress



Objective B (Carbon) “reabsorbed” into Habitability and Life objectives

(Not a “demotion” of carbon – which retains high priority, particularly in the Life objective. Intent is to remove current redundancies and more clearly demonstrate the connection between specific carbon investigations and broader scientific objectives.)



Deals explicitly with differing strategies with respect to past and present life, delineates separate investigations



Goal 1: Determine if life ever arose on Mars

- ➡ Did life ever exist and is it still present on Mars?
- ➡ If life appeared, is there any evidence that will tell us something about its origin?
- ➡ If it did not appear, WHY?

Objective A: Assess the past and present habitability of Mars

Objective B: Assess whether life is or was present on Mars

(N.B.: Objective B has highest priority, but some Objective A investigations seen as prerequisite or guiding; Objectives should be pursued concurrently to the extent possible)



Objective A: Habitability



Emphasizes habitability investigations as a means of prioritizing sites for life detection efforts

(stresses investigations that may help to distinguish “more habitable” from “less habitable” sites)



Investigations:

1. past habitability (local)
2. present habitability (local)
3. long-term evolution of habitability (planetary)

Sub-investigations (e.g., energy, water, elements) prioritized appropriately under each investigation



Objective B: Life



Emphasizes the search for traces of past and extant life in terms of analysis of an ensemble of biomarkers

(i.e. biomarkers related to the composition of cellular materials, metabolic processes and physical structures)



Investigations:

1. Past life (degraded organic molecules, isotopes, biominerals, fossil cells, microbialites)
2. Present life (complex organic molecules, isotopes, biominerals, non-mineralised/mineralised cells, microbialites)

(N.B. Recognizing that “past” and “present” are the end members of a continuum)



Revision of the Goals Document



Goal IV: DRA released

- 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 organizing small Science Analysis Group (SAG) to prepare revised Goal IV
 - SAG scheduled to start Oct. 1
 - Finish in time for next MEPAG meeting (March)
 - Allows input from the Review of U.S. Human Space Flight Plans panel (Augustine Commission) report due end of August
 - Will be requesting membership for SAG