NASA Astrobiology Institute

Icy Satellite Environments Focus Group (ISEFoG)

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September 17, 2010

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Icy Satellites Environments Focus Group

Background

- The Icy Worlds Focus Group was originally formed from the combination of the Europa Focus Group, led by Ron Greeley and the Titan Working Group, led by Jonathan Lunine.
- It was first initiated in 2005 and run jointly by Greeley and Lunine.
- The new charter now encompasses both Titan and Europa, as well as other icy worlds of astrobiological interest, such as those found on our own planet, Earth, and in the polar regions of Mars.
- The Icy Satellites Environments Focus Group intends to encompass all icy environments to enable cross-fertilization between scientists in the various disciplines.

Icy Satellites Environments Focus Group

Objective

- Icy Satellites Environments Focus Group is a forum for the astrobiology community to discuss common goals in the study and exploration of satellites of the outer planets, and to exchange ideas from researchers in the broader icy world community of Earth and Mars.

Approach

- Face-to-face meetings of the group at AbSciCon,
- Virtual web-based lectures and discussions on specific topics,
- Periodic workshops. Tentative plan for one in 2012
  - Output from the workshop(s) will include abstract volumes of presentations and summaries of discussions.
- The results from the discussions will be particularly important in influencing and designing future missions.

All events, including the workshops would be widely announced and participation would be open to the scientific community, including participants from the NAI family, NASA, academia, industry, and other organizations.

AGENDA for first Focus Group Meeting

April 26, 2010

- **Introductions**
- **Purpose and Objectives of the Group**
- **Discussion:**

  1) Setting priorities for upcoming lectures and discussions
  2) Additional thoughts on how to structure the IWFG.
  3) Appointing the 4-5 member steering committee (if agreed to)
  4) A possible workshop for 2012 to focus on the target(s) of interest emanating from the Planetary Science Decadal Survey (or other topics).
  5) Interaction with OPAG and other AGs
  6) Relationship of IWFG to other NASA Activities
  7) Interaction with international community
  8) Europa Surface Science Package Discussion
     - the scientific rationale and goals for surface science.
     - what instruments could fulfill those goals within the constraints of ~100kg total lander mass and total instrument payload mass of <5 kg.

- **Summary and review of action items.**

Some results from the first meeting

A Workshop in 2012

- It was felt there were enough workshops/meetings on individual bodies, such as Europa and Titan, but that astrobiologically-focused comparative planetology workshops were limited, so we should move in that direction. Topics suggested for the workshop were (others still welcome):

Workshop Topics

- Comparison of oceans on icy satellites
- Age dating of icy satellites
- Chemical processes on icy satellites
- Nature of astrobiologically useful orbital measurements
- Sea-ice and sea-water interactions

Please provide suggestions for additional topics for ISEFoG workshop

Note: There was a strong sentiment to have the workshop in conjunction with an OPAG meeting. People felt that the interaction of this group to OPAG should be strong.

Some results from the first meeting

- Webcast quarterly virtual seminars on Topics of Interest to ISEFoG Astrobiologists:

Agenda for Quarterly Virtual Discussions/Seminars

  - discussion about Group administrative issues and future plans
  - student presentation and discussion
  - presentation by experienced researcher and discusion

- Two virtual seminars have occurred.

First Seminar - June

  - Morgan Cable, Caltech/JPL student 'Development of a Chemical Analysis Protocol for the Surface of Titan'
  - Kevin Hand talked on 'Update on Astrobiology Science for the Europa Jupiter System Mission'

Second Seminar – September

  - Bill McKinnon, Wash U. talked about OPAG, scientific priorities and goals
  - Alex Hayes , Caltech student, Titan's lakes and their role in the methane cycle

Please send names of students/researchers and topics for future seminars

Some Actions Items that still need work

- Contact some of the European Astrobiology centers and investigate what more can be done to further collaboration with ISEFoG
- Suggest how astrobiologists could better learn about missions and be involved in the mission studies and future missions

Please feel free to sign up for the ISEFoG Mailing List and participate! .

Join in our virtual seminars
Next one is December 1 at 9 am (tbc)