

# OPAG

## Outer Planets Assessment Group

*Really Outer Solar System - small bodies too!*

E-mail list >500 people  
 Meetings ~ 100 attendees  
 2005 - Feb, Jun, Oct  
 2006 - May, Nov

<http://www.lpi.usra.edu/opag>

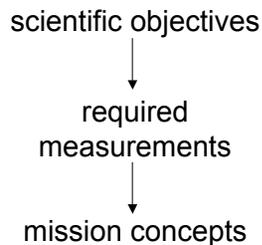
### Outer Planets Assessment Group Steering Committee

- |                                     |  |
|-------------------------------------|--|
| Fran Bagenal, U Colorado (Chair)    | Bill Kurth, U Iowa                       |
| Sushil Atreya, U Michigan           | Bill McKinnon, Washington U              |
| Kevin Baines, JPL                   | Ralph McNutt, JHUAPL                     |
| Frank Crary, SWRI San Antonio       | Bill Moore, UCLA                         |
| Paul Geissler, US Geological Survey | Julianne Moses, LPI                      |
| Randy Gladstone, SWRI San Antonio   | Amy Simon-Miller, GSFC                   |
| Ron Greeley, ASU                    | Henry Throop, SWRI Boulder               |
| Bill Hubbard, U Arizona             | Hal Weaver, JHUAPL                       |
| Torrence Johnson, JPL               | Curt Niebur, NASA HQ (Executive Officer) |

OPAG Charter: ¶  
 "OPAG is NASA's community-based forum designed to provide science input for planning and prioritizing outer planet exploration activities for the next several decades. It is chartered by NASA's Planetary Science Division\* and reports its findings at meetings of the Planetary Science Sub-Committee\* of the NASA Advisory Council'. Open to all interested scientists, OPAG regularly evaluates outer solar system exploration goals, objectives, investigations and required measurements on the basis of the widest possible community outreach." ¶  
 -- Approved by the OPAG Steering Committee, May 12, 2005 ¶

### Scientific Priorities for the Outer Solar System

July 2006



Scientific Goals and Pathways for Exploration of the Outer Solar System ¶  
 A report of the Outer Planets Assessment Group (OPAG) ¶  
 July 2006 ¶



## Why the Outer Solar System?

**Finding 1: Compelling Science** – Important scientific discoveries continue to be made in the outer solar system through NASA missions and research programs. OPAG affirms the findings of the NRC Decadal Survey and NASA's 2006 Roadmap that the outer solar system provides critical clues to unraveling the mysteries of **how solar systems form and evolve, how planetary systems become habitable, and how life has evolved in our solar system.**

## How? Generally

**Finding 2: Steady, Balanced Strategy** – Addressing these scientific questions requires a **balanced strategy** of outer solar system exploration that includes steady support for **vigorous programs of basic research, data analysis, and technology development**. Fundamental new discoveries are best made with a mixture of mission sizes that includes large flagship missions, along with small and medium-sized missions. A **stable budget** is crucial for continuity of scientific and technical capability. Such a strategy is most efficiently implemented as a coherent **Outer Planets Exploration Program**.

## Flagships

• *Support Cassini extended mission & Cassini Data Analysis Program.*

• Recognizing the recent trends of escalating costs of large missions within NASA's SMD, OPAG advocates that all studies of missions involve scientists working closely with mission engineers and that these studies must be subject to a review of technical, management and cost by an independent body. OPAG is concerned that any delays and/or cost over-runs of the next flagship mission might jeopardize the long-term goals for scientific exploration of the outer solar system.

## How? Specifically

### Findings on:

- R&A
- Mission Concept Studies
- Technology
- New Frontiers program
- Discovery program

## PSS July letter

Flagship missions will be required to address many of the most fundamental scientific objectives of solar system exploration and must be accommodated within any long-range strategy for the Planetary Science Division. The New Frontiers Program, too, is critical to the accomplishment of solar system exploration objectives. The New Frontiers Program should therefore not be expanded in an attempt to accommodate the goals and objectives of flagship-class missions.

**Do BOTH flagships AND New Frontiers**

## PSS September Report

NASA's Science Plan calls out Europa, Titan, and Enceladus as key targets for exploration of the outer solar system. To make progress on those elements of the Science Plan

***The PSS recommends that in-depth studies to evaluate mission concepts and technologies for potential outer solar system missions should be completed as soon as feasible.***

The scientific goals for these missions have been defined in the NASA Science Plan and developed by the NRC, OPAG, and a variety of "focus groups." On the basis of current understanding of the highest-priority scientific goals, these missions would involve a Europa orbiter, a Titan aerial vehicle, and an Enceladus lander. The mission definition studies should involve broad scientific community involvement and multiple institutions. **We envision mission concept studies for each of the three bodies to be funded at approximately \$1M per study to address specific science goals within the scope of the NASA Science Plan, namely a flagship-class (~\$2-3B) mission to be accomplished within a ~15-year time frame.** The study results should be reviewed independently for their potential scientific return, technical feasibility, and cost. Moreover, NASA should work with OPAG and the science focus groups to develop an ongoing program of advanced mission concepts and technologies that will permit the full implementation of Science Plan objectives.

**Next Meeting:** November 7-8th, 2006

*Sheraton Hotel / Suites* in Tuscon, Arizona *Sheraton Hotel / Suites*

- Mission status
  - Cassini
  - New Horizons
  - Juno
- Flagship studies
- RPS issues
- R&A status
- Workshop Reports
  - Uranus @ equinox
  - Enceladus
  - Probes
- Working Groups
- Open mike
- Science!

<http://www.lpi.usra.edu/opag>