NAI ICY WORLDS FOCUS GROUP

- Formed in mid-2007
- Merger of NAI Europa, Titan, etc. focus groups
- Goals
  - Forum for programmatic input
  - Share research results
  - Venue for collaborations
- Open to community

Report to OPAG
November 2007
**NAI ICY WORLDS FOCUS GROUP**

*First meeting / workshop*

- NASA-Ames Research Center
  20-21 September 2007
- Primary goal: assess current outer planet “Flagship mission” studies and provide input to study groups
- Announced via
  - OPAG
  - General NAI list
  - Previous Focus Group lists
  - DPS list
  - Boulder *Workshop on Ices, Oceans, and Fire: Satellites of the Outer Solar System*
  - Planetary Science Newsletter
- 45 participants

**NAI ICY WORLDS FOCUS GROUP WORKSHOP**

- Presentations by each study group
  - Europa Explorer (*Pappalardo*)
  - Titan Explorer (*Burr*)
  - Enceladus (*Spencer*)
  - Jupiter System Observer (*Pappalardo* for *Senske*)
- “Real time” written assessment of mission concepts by each participant
  - General strengths and weaknesses
  - Astrobiology strengths and weaknesses
- Open workshop discussion after all studies were presented
- Compilation and synthesis of results
- Forward results to
  - NASA HQ
  - Study leads
  - NAI
  - OPAG
Flagship mission studies: consensus

- Europa Explorer
  - Mature science; well-posed questions
  - Europa priority (driven in part by astrobiology) documented by OPAG, NRC, “Road Maps,” etc.
  - Technology mature, but still work to do
  - Mission concept is conservative
  - Need surface measurements, especially for astrobiology
  - Long time for data return (but less than Enceladus and Titan)

- Titan
  - Exciting solar system object
  - For astrobiology, focus is more as “early-Earth” pre-biotic analog; less so for current life, etc. (where’s the water?)
  - Very ambitious and complex mission (orbiter, balloon, lander), high-risk; cost exceeds guidelines; could “descoped” to orbiter but loses appeal
  - Landing site in dunes much less interesting than lakes, especially for astrobiology
  - Long time for data return (late 2020s)

- Enceladus
  - Astrobiology interesting, but science objectives are work in progress (Cassini results not mature; will be better next year!)
  - Focus is on plume, but need to understand plume much better
  - Issues with plume; how/what to collect, return samples to Earth, etc.
  - Mission spacecraft concept is work in progress
  - Long time for data return (late 2020s)

- Jupiter System Observer
  - Sounds like “Galileo Mark 2” without probe
  - Solid overall science and technology; mature
  - Not much for astrobiology
  - Some data for Europa
  - Three oceans (!): Europa, Ganymede, Callisto
  - Potential orbit around Ganymede interesting (including astrobiology), but ocean very deep