

**Outer Planets Assessment Group** (<https://www.lpi.usra.edu/opag/>)

Agenda: 21-22 February, 2018

Crown Plaza Hampton Marina

Hampton, VA 23669

**Wednesday 21 February**

9:00 Logistics and Welcome – Kunio Sayanagi (Hampton U.)

9:10 Agenda Overview— Linda Spilker (JPL)

9:20 Europa Clipper updates — Bob Pappalardo (JPL)

9:50 NAS Vision and Voyages midterm review – Louise Prockter (LPI)

10:00 NAS Large Strategic Mission report – Ralph McNutt (APL)

Q&A

10:30 break

10:45 Europa Deep Dive and future workshops – Louise Prockter (LPI)

10:55 Spatial Data Infrastructure for Europa Exploration -- Michael Bland (USGS)

11:00 Cassini update —Linda Spilker (JPL)

11:30 Juno update – Scott Bolton (SwRI, remote) or TBD

Q&A

12:15 Lunch

1:30 NASA PSD Updates and PSD responses to OPAG findings –David Schurr (NASA SMD)

Q&A

2:30 JWST update – Stefanie Milam (GSFC)

2:45 break

3:00 Science talk: Triton – Terry Hurford (GSFC)

3:30 Preliminary OPAG Findings and discussion

4:00 Poster 2-minute oral summaries

4:30 Poster session

5:30pm Reception at Virginia Air and Space Center

7pm Public Talk “Chronicles of the Unknown: Launch Preparation for the James Webb Space Telescope“ at Virginia Air and Space Center – Stefanie Milam (GSFC)

## Thursday 22 February

9:00 JUICE update – Claire Vallat (ESA)

9:30 Europa Lander Science – Kevin Hand (JPL)

### **Future mission concepts to outer planet systems:**

10:00 Future exploration of ice giant systems and KBO planets— Amy Simon (GSFC, remote)

10:20 Break

10:40 Dragonfly mission concept – Zibi Turtle (APL)

11:00 Next steps in life detection at Enceladus –

1. Chris McKay (NASA Ames, remote) or TBD
2. Jonathan Lunine (Cornell)

11:40 Deep Access to Ocean Worlds (KISS study) – Christophe Sotin (JPL)

Q&A

12:00 lunch

1:00 2-minute presentations of science nuggets (send to [Linda.I.Spilker@jpl.nasa.gov](mailto:Linda.I.Spilker@jpl.nasa.gov))

1:15 NASA's Role in Training a Diverse Next Generation of Space Scientists – Calvin Lowe (Hampton U.)

1:45 Roadmaps to Ocean Worlds — Amanda Hendrix (PSI) and Terry Hurford (GSFC)

2:15 Updated OPAG Goals document leading to next Decadal Survey – OPAG Steering Committee

2: 45 Discussion of goals document

3:15 Break

3:30 Discussion of draft findings — Linda Spilker, everyone

5:00 adjourn

## **Friday 23 February: Technology Forum**

Posters up during OPAG and Technology Forum. Please send poster (especially ColdTech awards) contributions (title and author to [patricia.m.beauchamp@jpl.nasa.gov](mailto:patricia.m.beauchamp@jpl.nasa.gov))

### **Introduction and Purpose of the Technology Forum** - Linda and Pat

The purpose of this first Technology Forum is to identify (and ultimately agree on) technologies that support near-, mid- and far-term outer planetary system missions. These technologies will then be captured in the OPAG Technology Plan, which can then be fed into PESTO and the next planetary decadal survey.

**8:30 am Overview presentations** (20 mins each) – Technology status and development in the next decade.

- Mission designs for Outer Planet missions (Astrodynamics) – Ryan Russell (UT Austin)
- Aerocapture – Tom Spilker
- TPS for Outer Planet Missions/Probes – Raj Venkatapathy and Helen Hwang (ARC)
- Communications and Radio Science - Joseph Lazio (JPL)
- Planetary Protection (Lisa Pratt (TBC))

### **Discussion**

### **10:00 am Break**

- Power – status and future needs
  - RPS – June Zakrajsek (GRC)
  - Solar Power Assessment – Rao Surampudi (JPL)
  - Energy Storage Assessment – Rao Surampudi (JPL)

### **Discussion**

### **11:00 am Outer Planet mission studies and Technology needs**

- Titan Submarine Concepts: Design Options and Technology Needs – Steve Oleson (GRC)
- Titan Lander study and Technology needs– John Elliott
- Pluto Orbiter Study results - John Elliott (JPL)
- Ice Giant Study and Technology needs – John Elliott

**Discussion:** Effect of advanced technologies or larger launch vehicles e.g. SLS and larger antenna/advanced comm. system, Autonomy etc

### **Noon – lunch**

### **1:00 pm Ocean Worlds**

Technologies for Ocean Worlds with no atmospheres

- Europa Lander - Kevin Hand
  - ILS (TRN and LHA) – Nikolas Trawny
  - Planetary Protection – Nick Benardini
  - Energy storage – Erik Brandon
  - Sample acquisition and handling –Eric Roberts

- Compact motor control with low T actuators (Gary Bolotin)

**Discussion** - advances in the next decade and general Titan Technology needs

**3:00 pm Outer Planetary Probe Mission Technologies** – Dave Atkinson (for Amy Simon)

**3:30 pm Wrap-up**– Pat/Linda

**4:00 pm Adjourn**