

SCIENCE

# Outer Planets Program Status

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OPAG Meeting

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# Mission Status – Juno and New Horizons



- Juno is healthy and operating nominally
  - Currently resolving a side swap issue
- Earth flyby last October provided a 4 km/s boost
- Spacecraft has covered ~80% of the 19-AU-long trajectory
- JOI in 2 years!

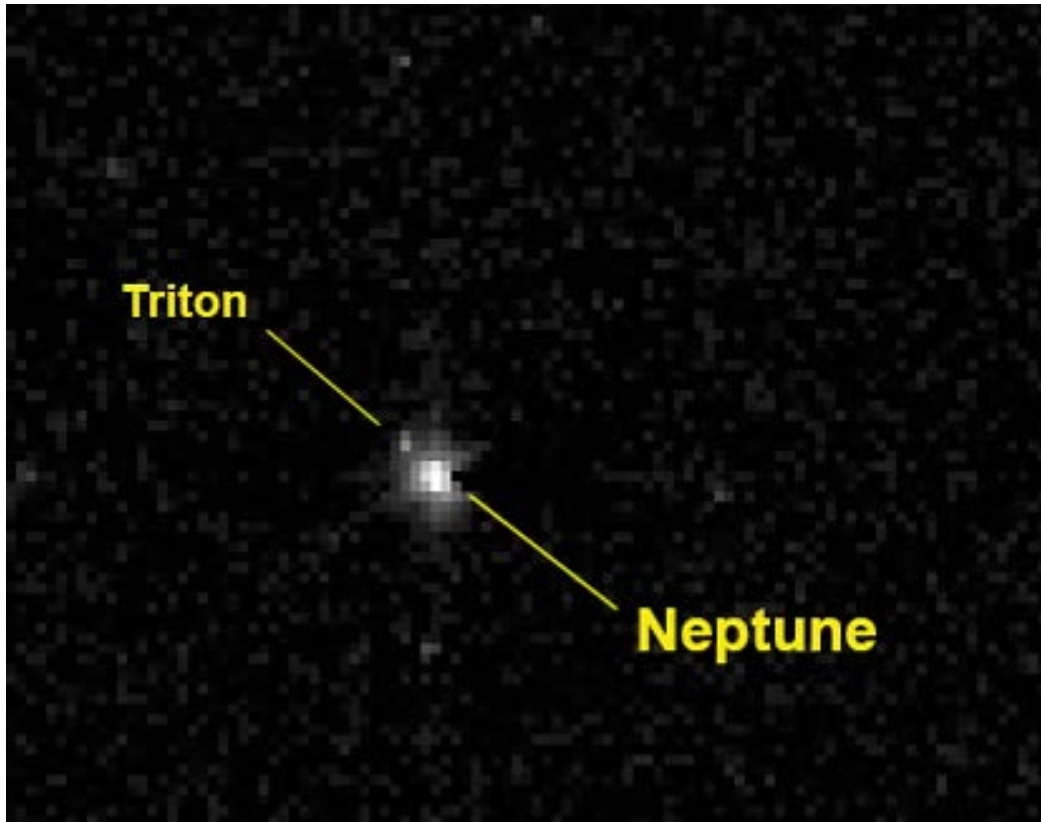


- New Horizons is in excellent health and operating nominally
- Spacecraft is 30.2 AU from the sun and 2.6 AU from Pluto system (1.4 AU closer than last January 2014)
- Proposal for HST time to search for KBO candidates selected and ongoing
- Flyby occurs in one year; encounter begins in 6 months



# New Horizons, Neptune, and Voyager 2

- On Aug. 25, New Horizons crossed the orbit of Neptune exactly 25 years after the Voyager 2 Neptune encounter
- Commemorated with public event at HQ with Ed Stone, Alan Stern, and scientists who serve(d) on both the Voyager 2 and New Horizons team



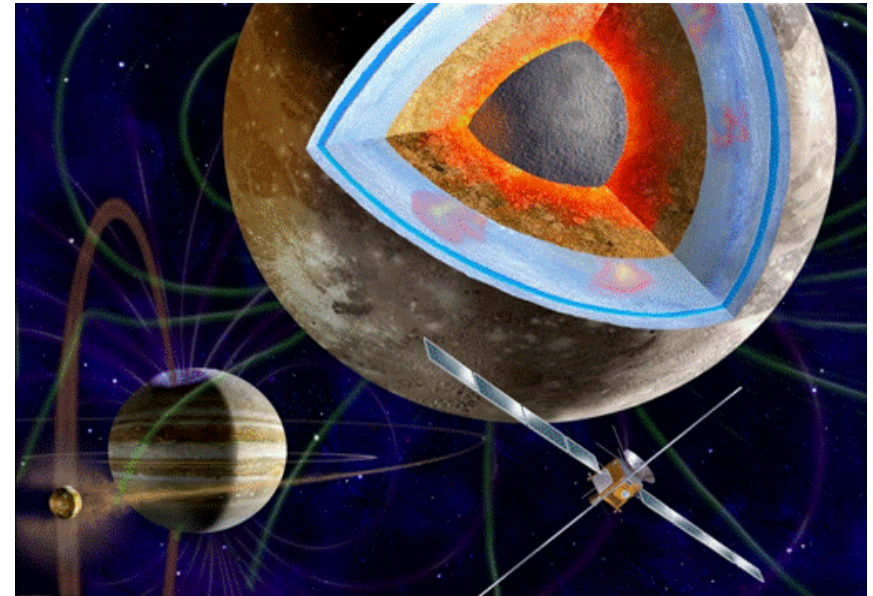
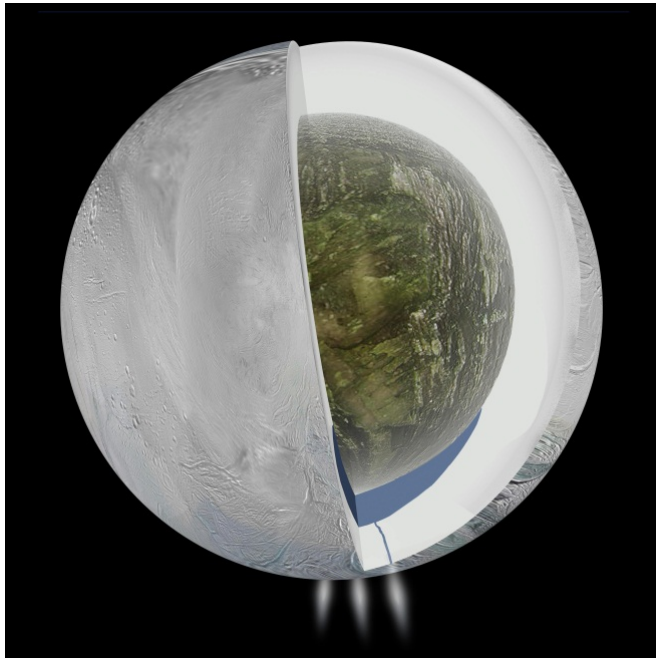




# Mission Status – Cassini and JUICE



- Cassini is in excellent health and operating nominally
  - Lowering inclination to enable more icy moon flybys
  - Completed 105<sup>th</sup> flyby of Titan
- Intensive planning for Proximal Orbit mission has begun
- Final Participating Scientist solicitation in ROSES 2015
- ESA JUICE: NASA contributions of UVS, portions of PEP and RIME
- Development is proceeding, the next major milestones are:
  - System Requirements Review (Fall 2014)
  - Formal Mission Adoption (Nov. 2014)



# Cassini Mission Overview

Four-Year Prime Tour, Equinox Mission, and Solstice Mission (Proposed), July 2004 - July 2017







# Recent and Ongoing Europa Activities



- Continue Europa Clipper mission pre-formulation and technology development work leading to MCR in September
- Released RFI to collect ideas on a <\$1B Europa mission
  - This has the potential to collect intriguing RFI responses meriting further study; all six responses have undergone technical and cost evaluation by Aerospace Corp.
- Continue to study various launch vehicle options including SLS
- Europa Plume HST campaign selected
- Plume research investigations selected and funded by pre-Project
- Europa in the news!
  - National Geographic cover
  - Planetary Society sponsored “Lure of Europa” event on the Hill; incredibly well attended





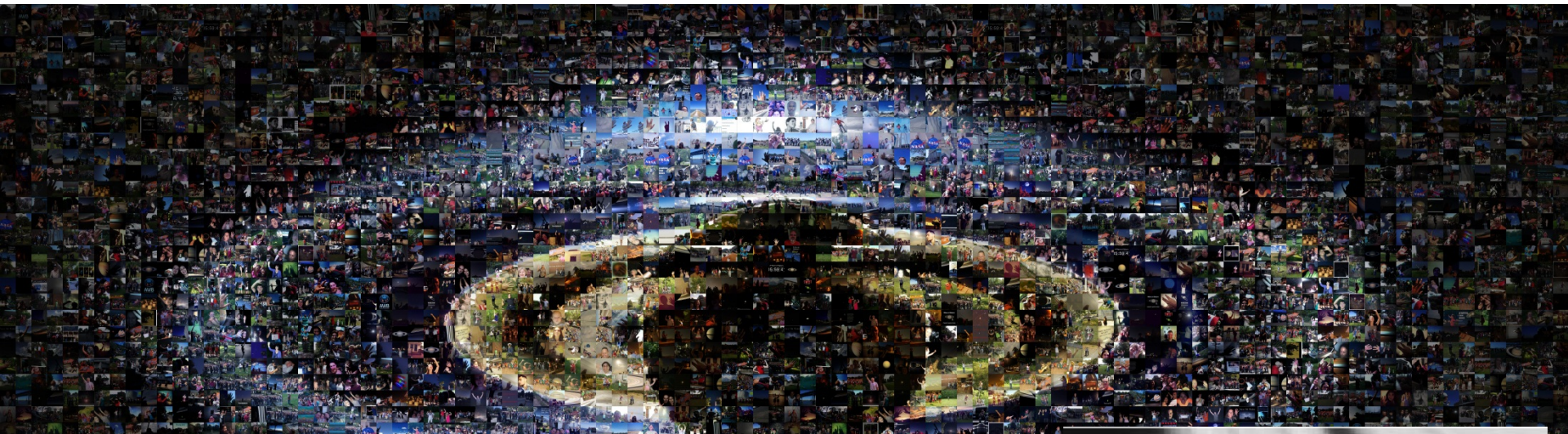
# AO for Europa Instrument Investigations



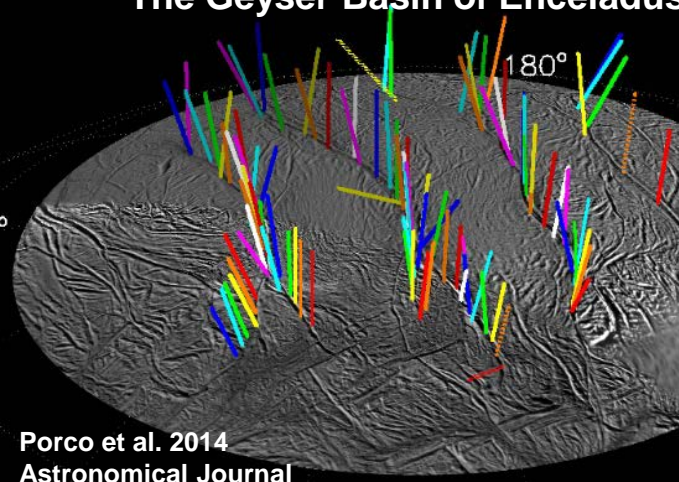
- On July 15 NASA released a PEA to solicit instrument investigations for a mission to Europa
- Proposed investigations will be evaluated and selected through a two-step competitive process
  - At any time, NASA may condense the evaluation and selection process to a single step competitive process
- Schedule
  - Pre-Proposal Conference: August 4, 2014 via webex
  - Voluntary NOIs due: August 15, 2014
  - Proposals due: October 17, 2014
  - Step-1 selections announced: April 2015
  - Step-2 selections announced: April 2016
- Questions should be addressed to [curt.niebur@nasa.gov](mailto:curt.niebur@nasa.gov) with the subject line “Europa PEA”. Answers will be posted at the acquisition website (<http://soma.larc.nasa.gov/europa/>)



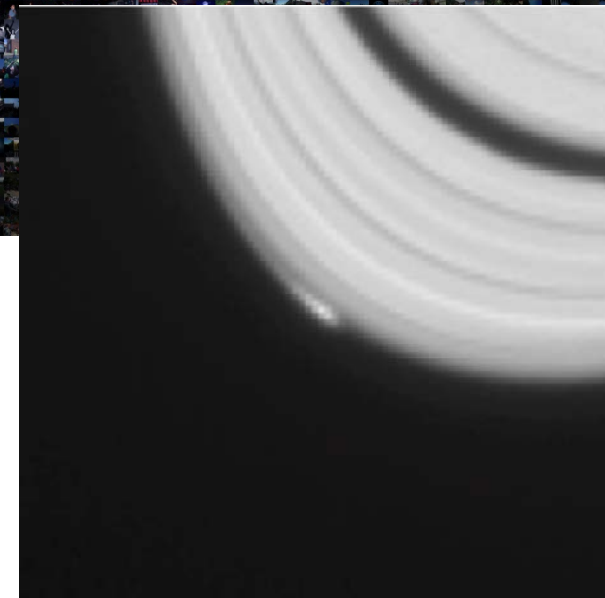
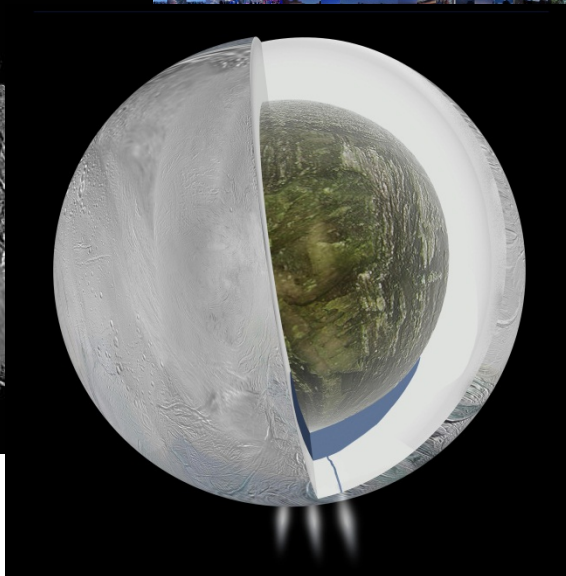
# Questions?



The Geyser Basin of Enceladus



Porco et al. 2014  
Astronomical Journal





# JPL Selects Europa Plume Studies for Science and Engineering Planning of the Europa Clipper Mission

## **Notification of Successful Source Selection: RFP # KM-2691-042214**

A better understanding of the density and compositional structure of potential Europa plumes would help in planning of science observations and to understand potential engineering concerns due to dust as well as the potential effects of drag on the spacecraft.

The Jet Propulsion Laboratory (JPL) is pleased to advise that the following sources have been selected for the effort as described in the subject RFP:

Josef Dufek (PI), Georgia Tech: *Plume Morphology on Europa: Assessment of the Driving Forces, Multiphase Plume Dynamics, and Plasma Environment*

David Goldstein (PI), UT Austin: *Numerical Modeling of Europa Plumes*

Sascha Kempf (PI), CU Boulder: *Modeling Europa's Dust Plume*

Valeriy Tenishev (PI), UM Ann Arbor: *Kinematic Modeling of the Composition and Dynamics of Europa's Plumes*

A total of 19 proposals were received (21% selection rate).  
Study duration is  $\leq 12$  months.

