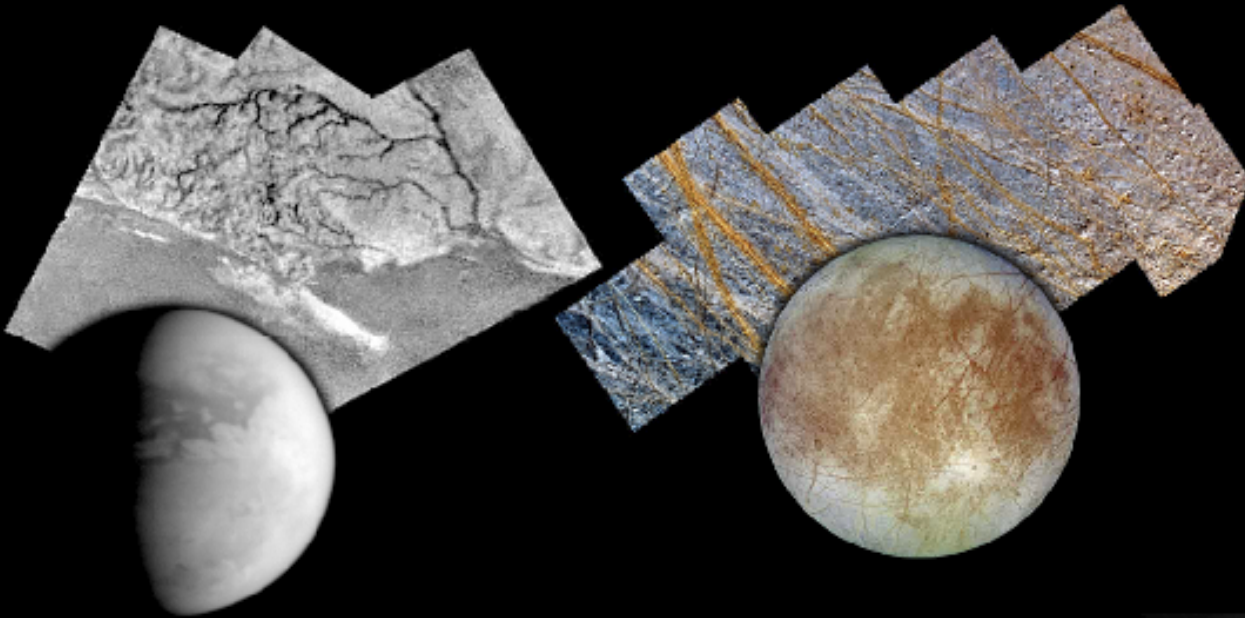




National Aeronautics and Space Administration



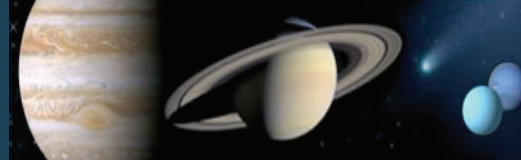
Fran Bagenal  
University of  
Colorado  
Chair



# Outer Planets Assessment Group

[www.nasa.gov](http://www.nasa.gov)

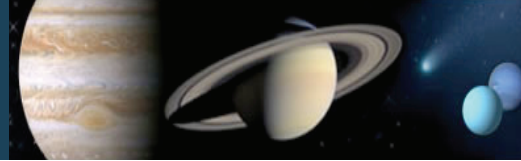




## **Nov 2007 Meeting**

### **Topics of Findings:**

- The four flagship mission studies
- Discovery & SMEX Capability Expansion
- New Frontiers
- PI qualifications
- Technology
- Small Bodies AG
- Student Projects



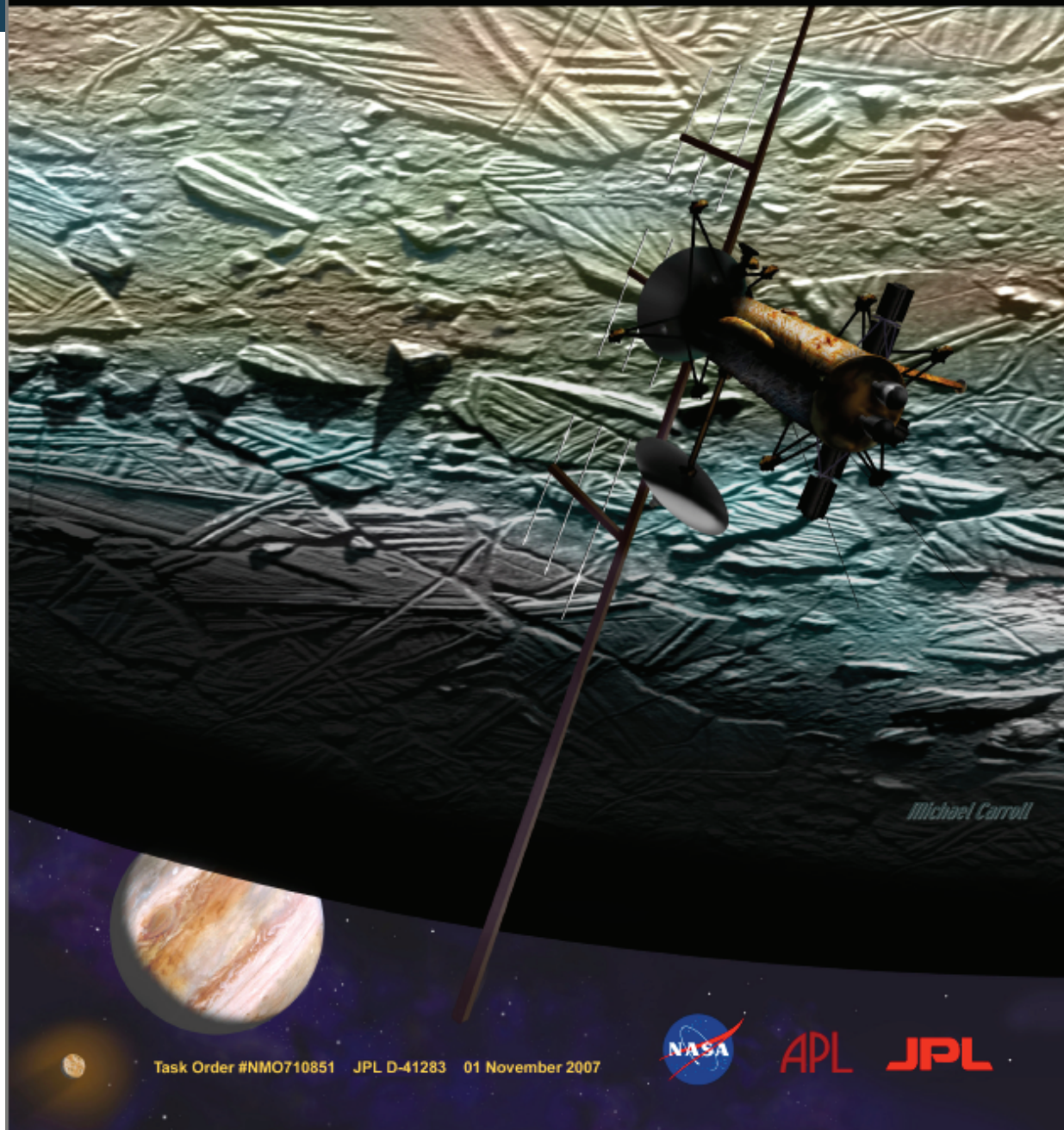
## **The Four Flagship Mission Studies**

- **Mission Concept Studies - reports Aug.2007**
  - Europa
  - Titan
  - Enceladus
  - Jovian System Observer
- **Review of Science, Technical, Management and Cost - Nov. 2007**

# OPAG

Outer Planets Assessment Group

## 2007 Europa Explorer Mission Study: Final Report



Task Order #NMO710851 JPL D-41283 01 November 2007



APL

JPL



# OPAG

Outer Planets Assessment Group

## Jupiter System Observer Mission Study: FINAL REPORT

Task Order #NMO710851

01 November 2007

D-41284

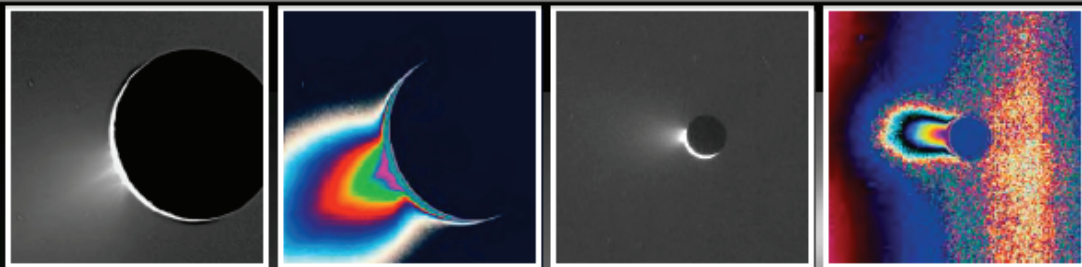


APL

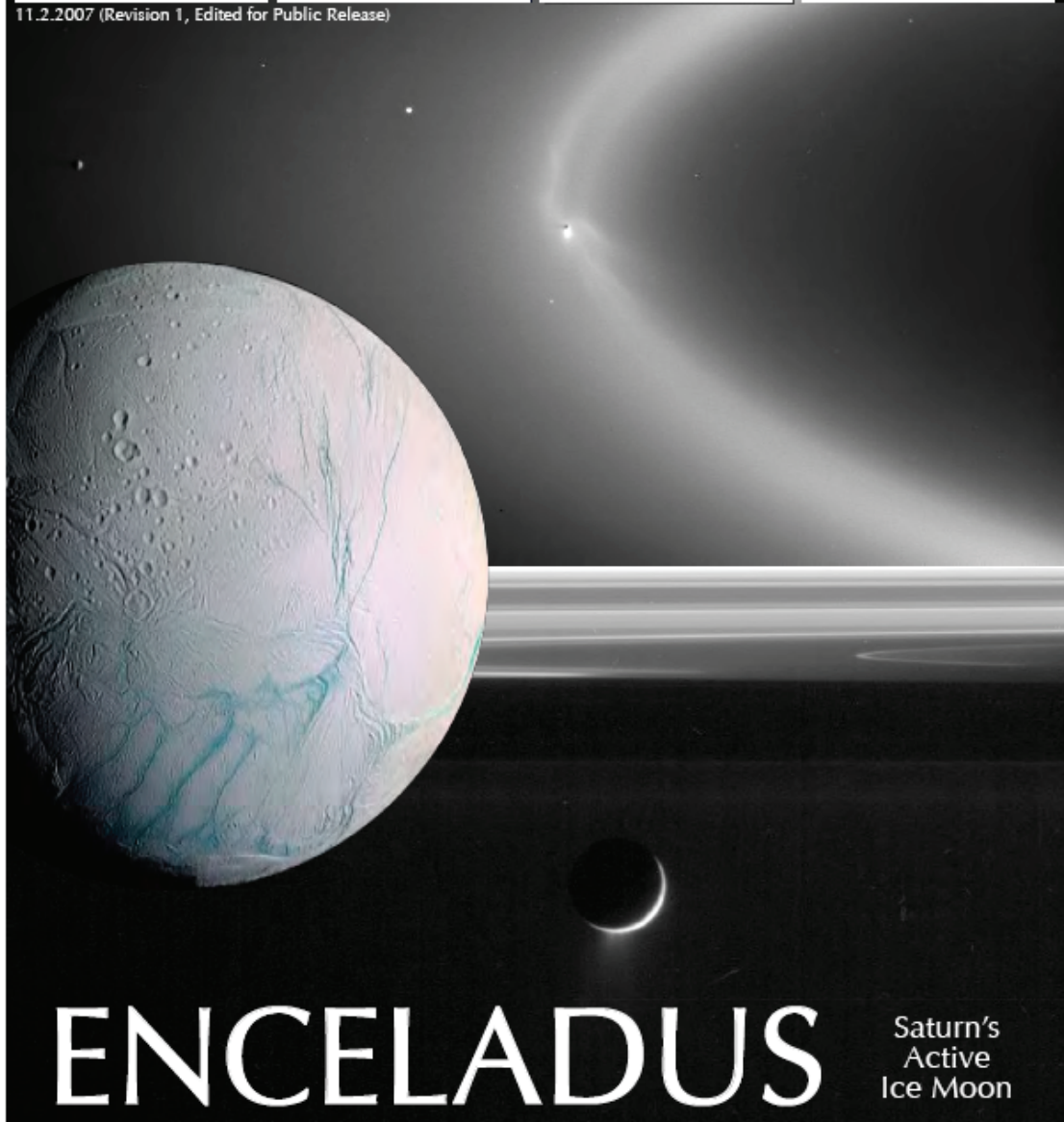
JPL

# OPAG

Outer Planets Assessment Group



11.2.2007 (Revision 1, Edited for Public Release)



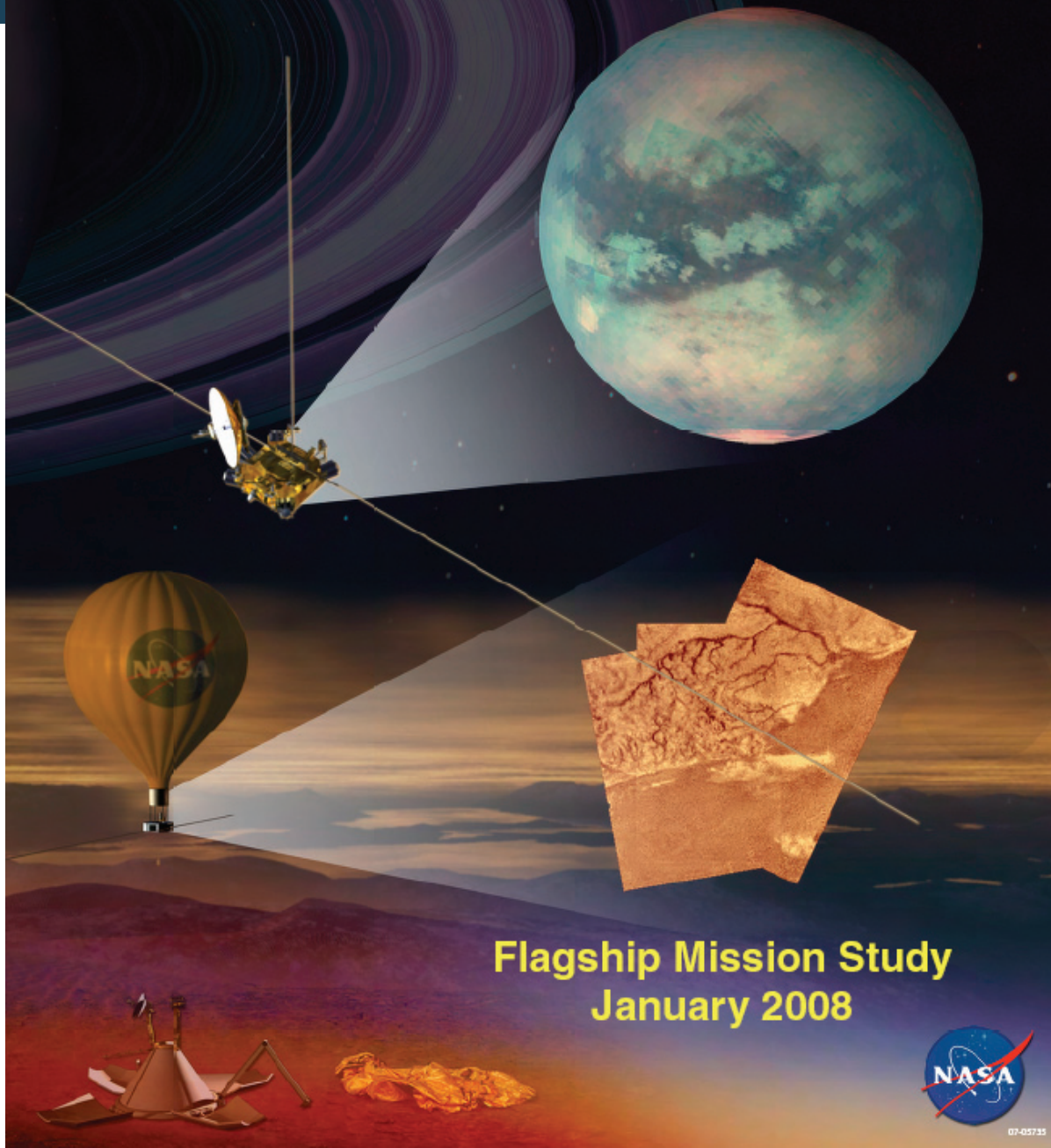
# ENCELADUS

Saturn's  
Active  
Ice Moon

# OPAG

Outer Planets Assessment Group

# TITAN EXPLORER



Flagship Mission Study  
January 2008

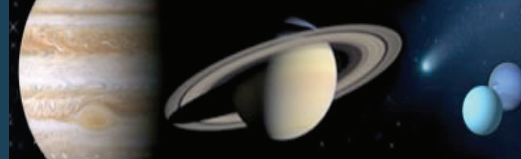


07-05735



# OPAG

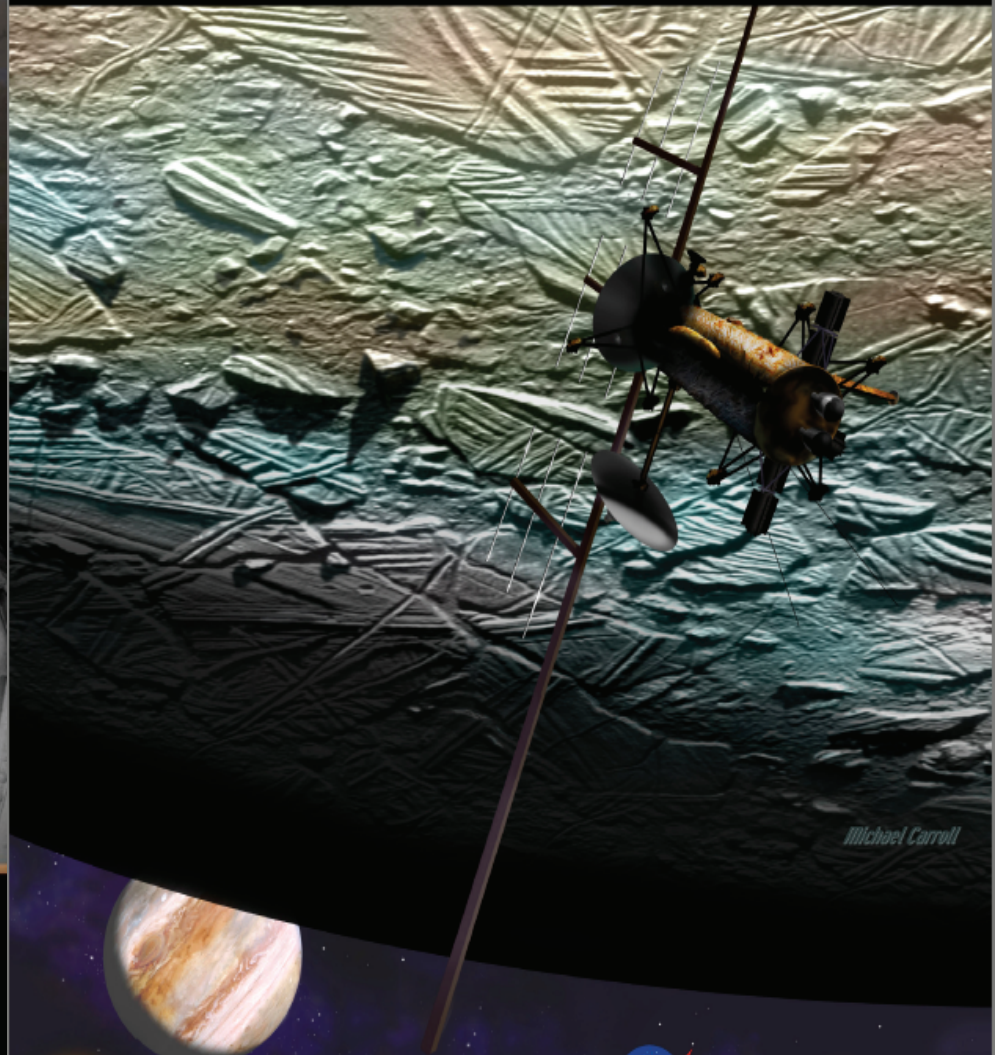
Outer Planets Assessment Group



## LAPLACE

A MISSION TO EUROPA AND THE JUPITER SYSTEM  
FOR ESA'S COSMIC VISION PROGRAMME

## 2007 Europa Explorer Mission Study: Final Report



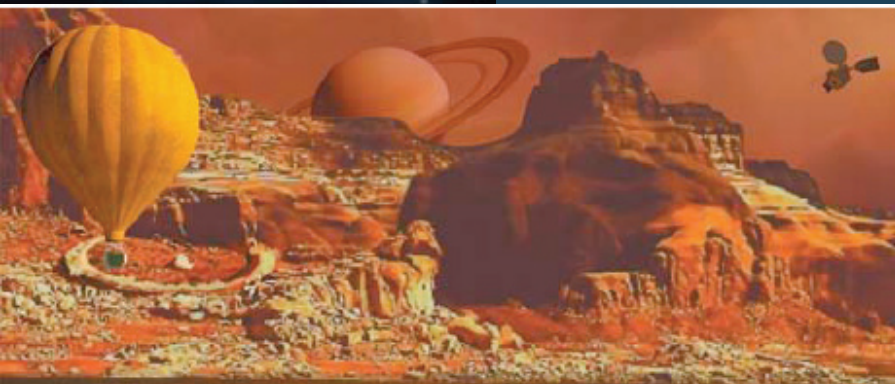
Michael Carroll





# OPAG

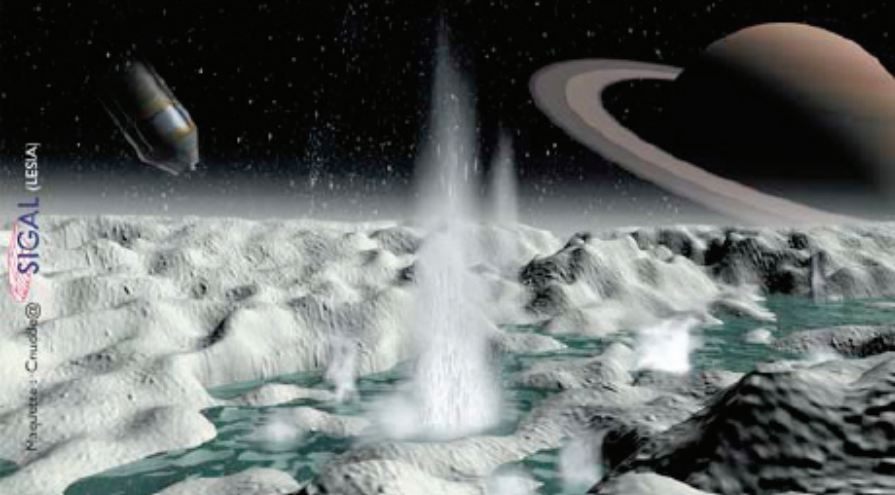
Outer Planets Assessment Group



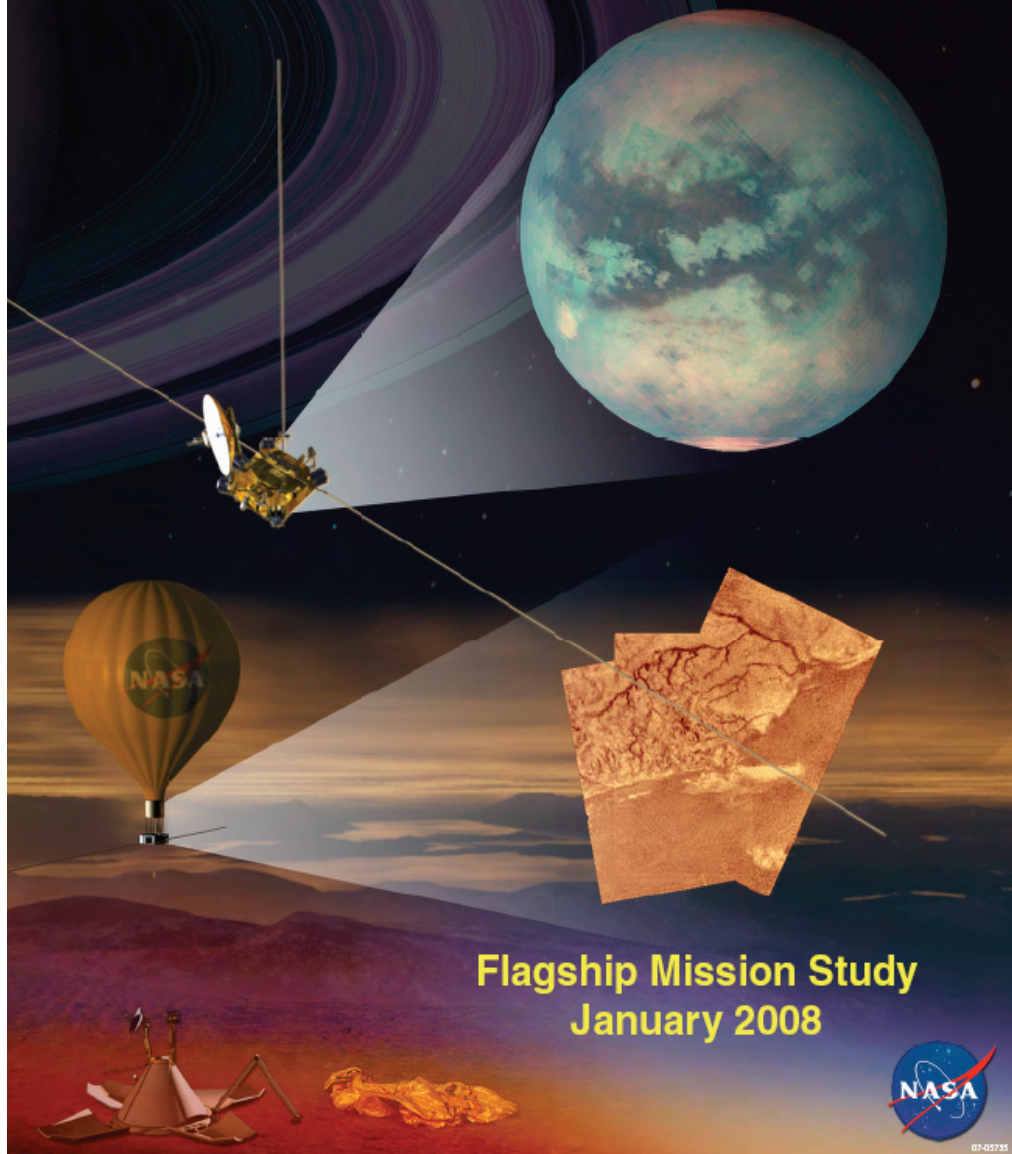
## TANDEM

TITAN AND ENCELADUS MISSION  
A proposal in response to the ESA Cosmic Vision Plan

Athena Coustenis  
for The TANDEM Consortium



## TITAN EXPLORER

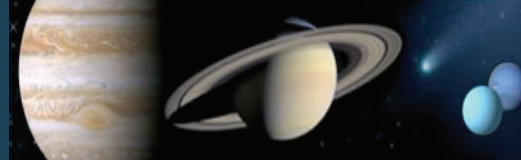


Flagship Mission Study  
January 2008



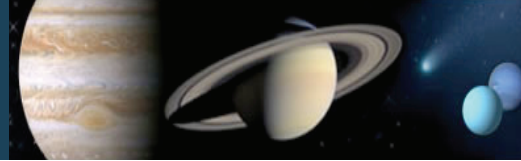
07-05735

Minares - Cruelle@SIGAL (LESIA)



# The Three Outer Planet Flagship Studies

- Mission Concept Studies
  - Europa
  - Titan
  - Jovian System Observer
- ESA/NASA/(JAXA?) collaboration
- Reports to be delivered summer 2008



## **Pu-238 availability**

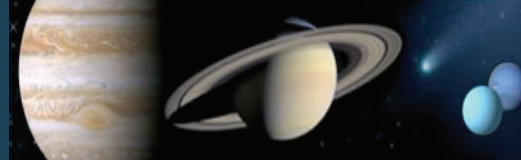
- OPAG requests that NASA and the DOE clarify the issue of their plans for Pu-238 availability to the science community.
- Sterling RTG testing on Discovery mission
- Future:
  - steady supply of Pu-238
  - regular production of RTGs with suitable capability for outer solar system exploration





## Uranus & Neptune Orbiters? Probes?

- Logical sequence after *Galileo* & *Cassini*
- Comparison of J&S vs. U&N
  - Hydrogen vs. Water, Ammonia, Methane
- Why/Is Uranus so different?
- Triton - captured KBO? Pluto comparison



## Next Meeting

- Report on Flagship Studies
- Technology development for outer solar system - needs of flagship mission(s)
- Strategic planning post flagship
- Cassini extended-extended mission
- Update science plan

March 31st - April 1st 2008 in Boulder

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