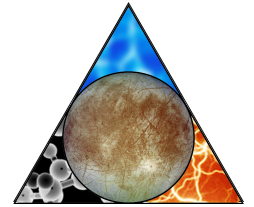


Wrap Up
Bob Pappalardo
Europa Study Scientist and SDT Chair

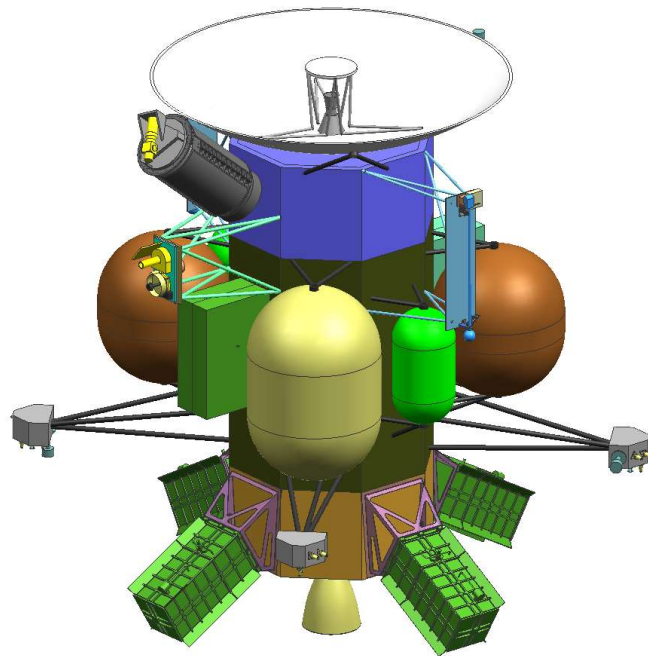
OPAG meeting, Pasadena, CA
10/19/2011



Europa Mission Elements

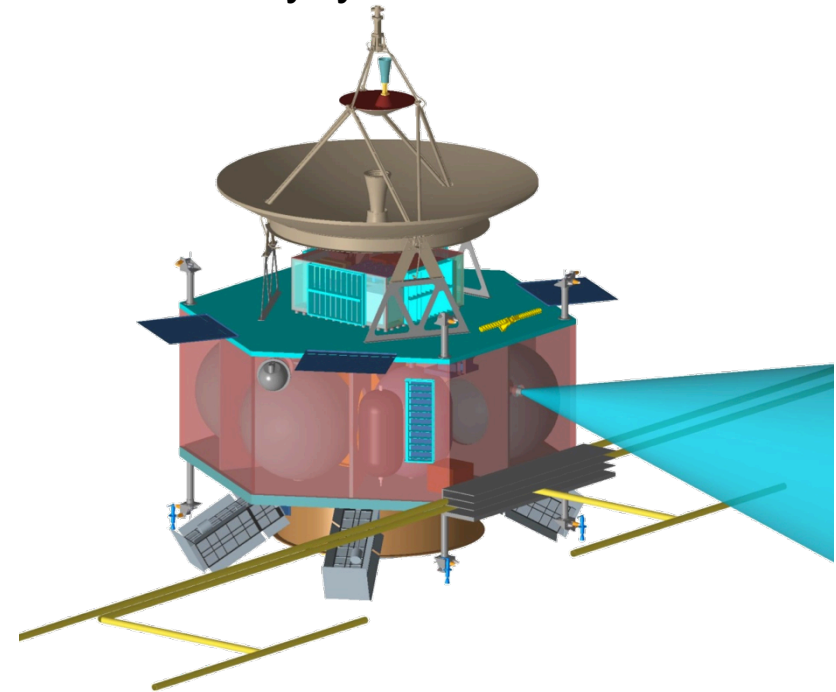


Orbiter Element



- Europa orbit for measurements requiring uniform sampling conditions
- Investigates gravity field, tidal amplitude, induction signatures, plasma environment, and stratigraphic mapping

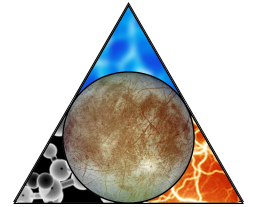
Flyby Element



- Jovian orbit with frequent Europa flybys; allows burst data collection and long playback to Earth
- Investigates subsurface dielectric horizons, surface and atmospheric constituents, and targeted landforms



Costing Methodology



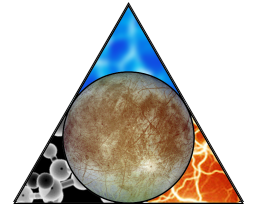
- Uses NASA recognized cost models (Price-H, SEER) to determine mission cost from technical parameters
- Model payload cost estimated using NASA Instrument Cost Model (NICM) at 70% cost confidence level
- Validated cost estimates with JPL Team-X cost estimate (estimate derived from detailed technical assessment)
- Maintained healthy 40% Cost Reserves for all WBS elements for Phases A-D
- Maintained healthy 20% Cost Reserves for all WBS elements for Phases E-F

Under these conservative conditions,
element cost estimates are approximately \$1.5B each

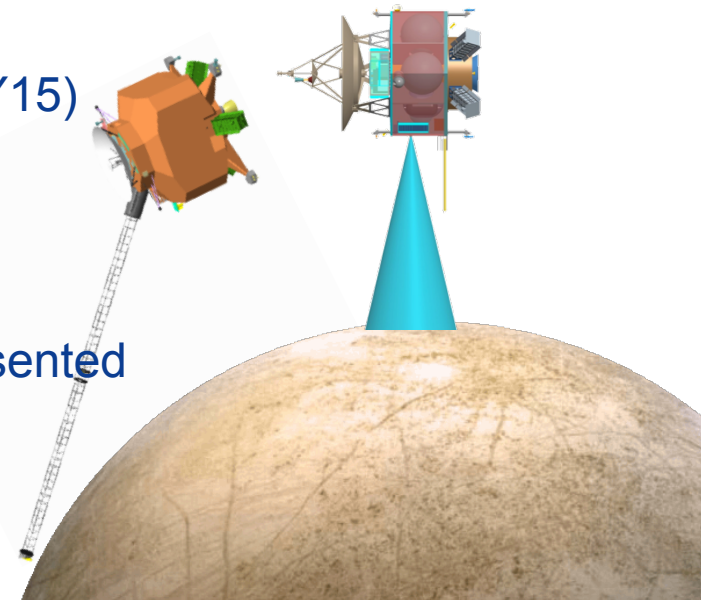
- Aerospace Corp will perform an independent Cost and Technical Analysis (CATE)

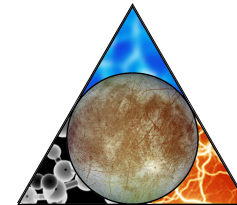


Europa SDT Summary



- To achieve the highest priority JEO Europa science objectives, invoke a two-element approach
 - Orbiter element to perform geophysical measurements (“Ocean” science) which can only be achieved from Europa orbit
 - Multiple-flyby element to perform remote measurements (“Chemistry” and “Energy” science) which can be achieved from Jupiter orbit
- Each achieves key science objectives, and each has very high science value of its own
 - Neither science nor element cost (~\$1.5B FY15) is a clear discriminator between elements
- The complementary elements would fly separately, and staggered in time
 - Anticipate the second element would be presented to the next Decadal Survey for consideration
- A landed element is now being studied by the by Europa SDT at NASA’s request





EUROPA

We invite your comments