Wrap Up
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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
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We invite your comments