



SCIENCE

Outer Planets Program Status

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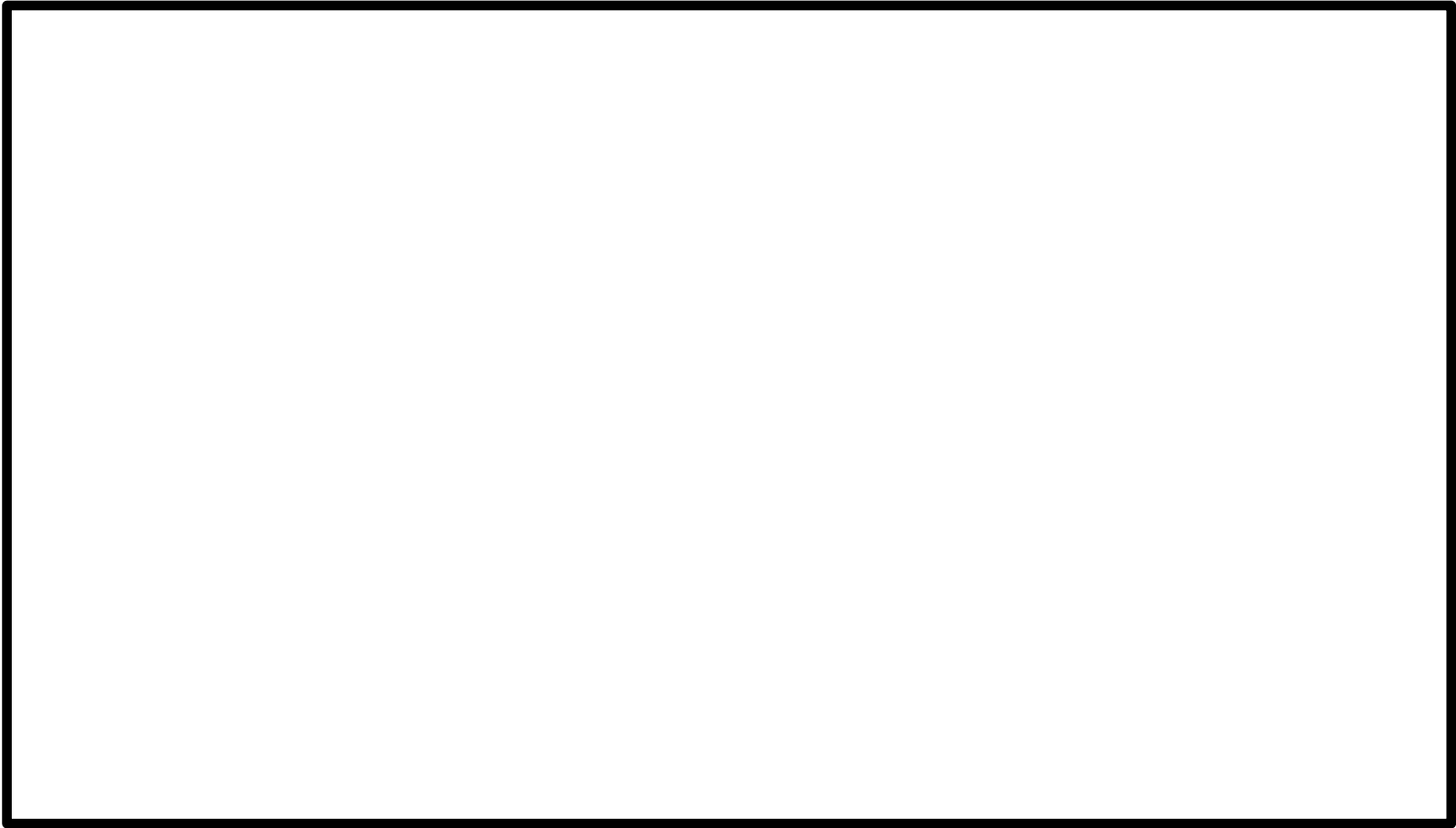
OPF Program Scientist, NASA Headquarters

OPAG Meeting

February 8, 2010



View from my house





Outer Planets Program



- Budget outlook for Outer Planets Program remains positive
 - Congress increased the FY10 budget for Jupiter Europa Orbiter and requested a funding profile for both a 2020 and 2018 launch
 - President's FY11 meets the near term needs of the Outer Planets Program
- Decadal Survey is very busy
 - NASA is supporting 6 studies from Satellites, 3 studies from Giant Planets, and 4 studies from Primitive Bodies panels
- Variety of outer planets events and workshops
 - Galileo Anniversary in Padua, Italy
 - Galileo anniversary event at Rayburn Building Feb. 10
 - 5th Anniversary of the Huygens mission (January in Barcelona)
 - Titan through Time workshop (April 6-8, GSFC)
 - Io Workshop (May 25-26 in Provo, Utah)



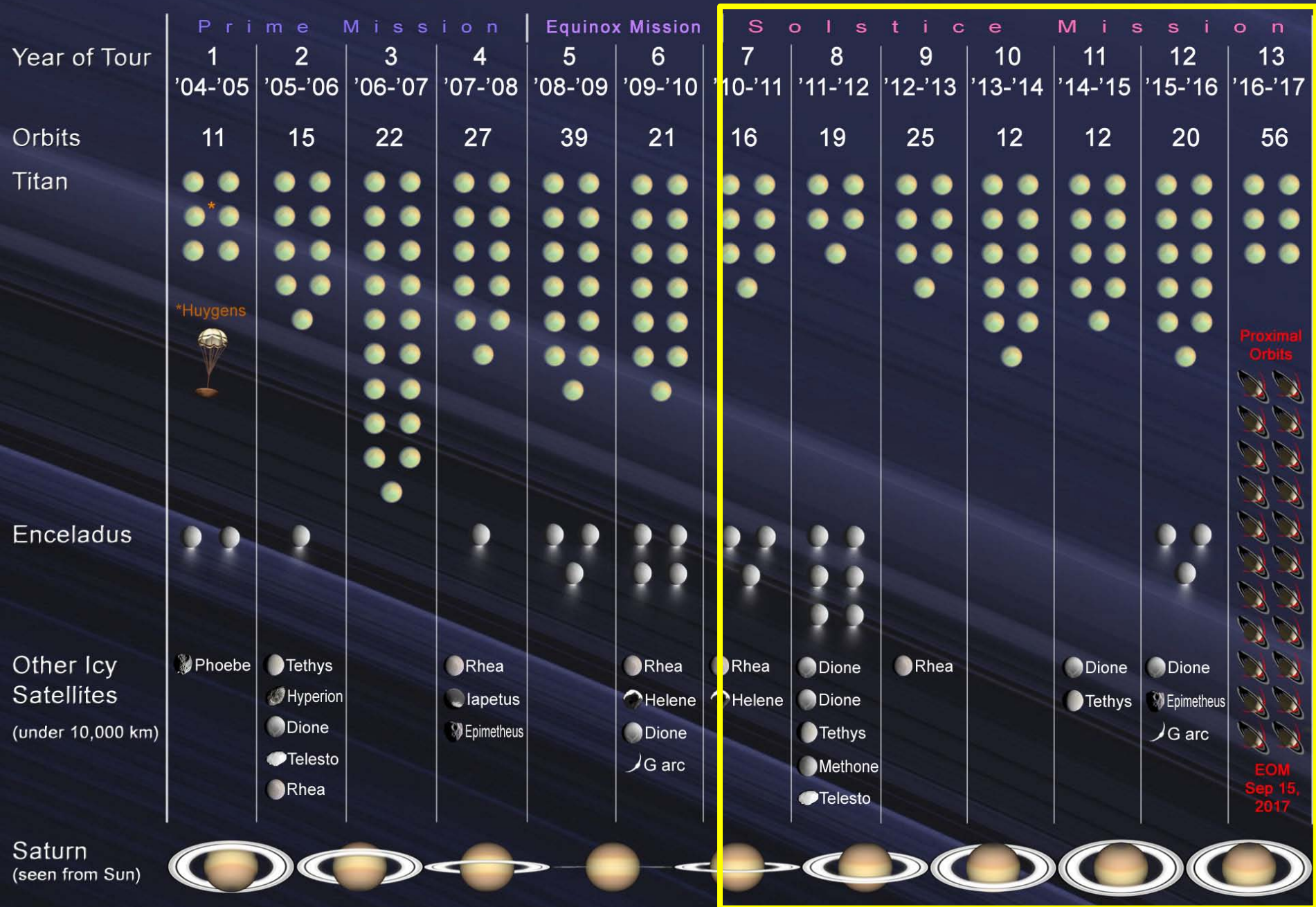
Cassini Solstice Mission



- NASA has approved the Cassini Solstice mission!
 - Funded at level recommended by Senior Review (~75% for the science team and ~60% for the engineering team, or ~\$60M/yr)
 - This Solstice mission combines the opportunities to monitor seasonal-temporal changes throughout the Saturn system with an exciting Juno-like series of proximal orbits at the end of the mission before impacting Saturn
 - Solstice mission starts in FY11 and continues through 2017 with periodic senior reviews to maintain high science value
- Cassini remains healthy with no major changes to the s/c
 - Since last OPAG meeting Cassini has conducted 9 Titan and 2 Enceladus flybys as well as Equinox science observations
- Data Usability efforts continue
 - Work has started on User Guides for INMS, Radar, UVIS
 - Project is examining the utility of a metadata library
 - New PDS image Atlas available: <http://pds-imaging.jpl.nasa.gov/search/cassini>

Cassini Mission Overview

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



EOM
Sep 15,
2017



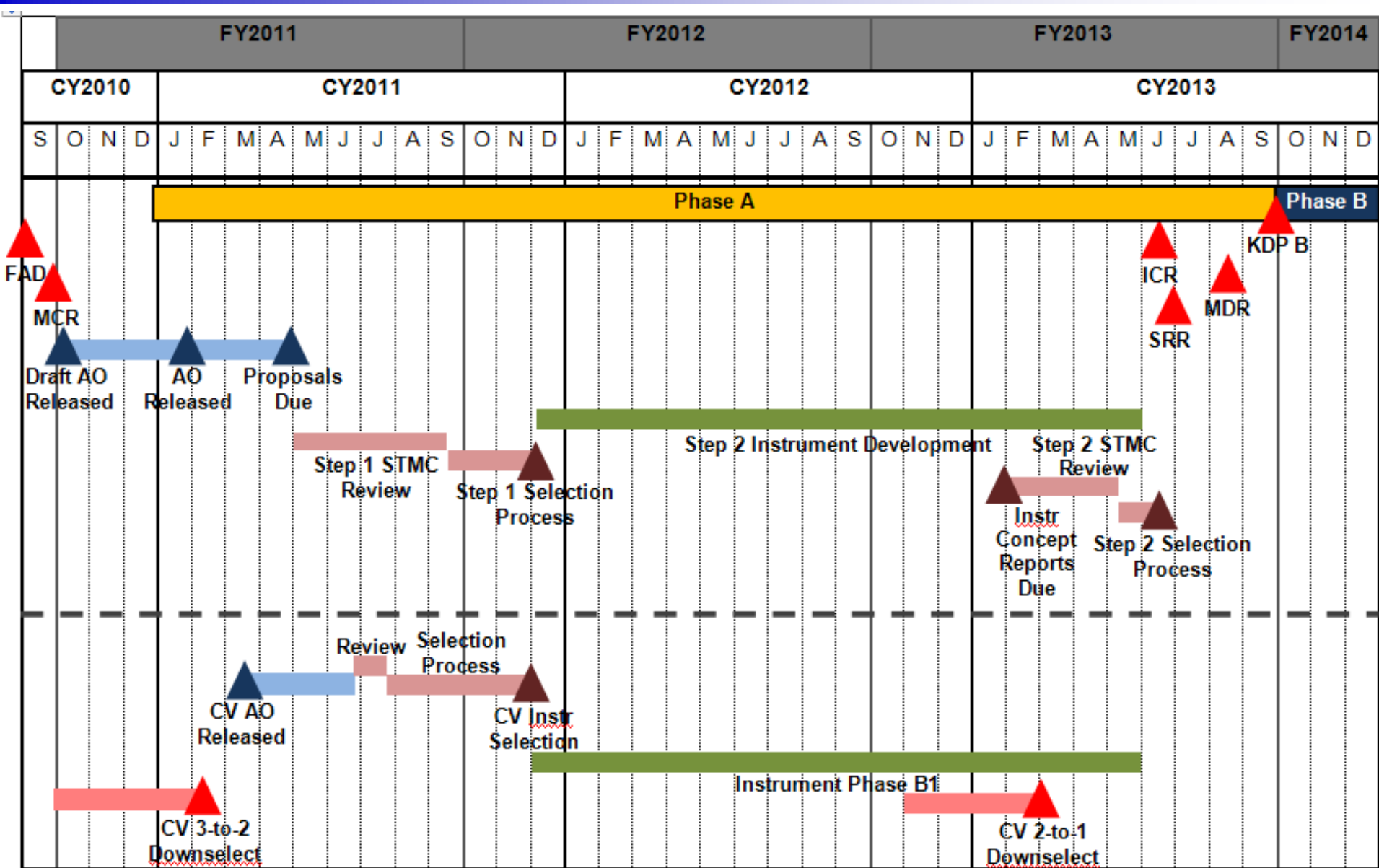
Europa Jupiter System Mission



- The President's FY11 budget provides funds to continue concept development and supports release of instrument AO in 2011
 - FY10: \$15.5M, FY11: \$20M, FY12: \$72M, FY13: \$64M, FY14: \$53M
 - Plan to establish Project Office in 2010 to support AO, Phase A efforts
- The JSDT has made important strides integrating the JEO and JGO elements into a more cohesive Jupiter system mission
 - JSDT has defined science taking advantage of having two spacecraft in the Jupiter system
 - Science content of JEO and JGO is being better integrated into EJSM science
 - JSDT expanding Jupiter atmospheric science
- Work continues on Radiation Mitigation Plan
 - Approved Parts and Materials List is now available
- Held two instrument workshops (July 2009 in US and January 2010 in Europe)
 - All presentations and audio from July 2009 workshop are available at <http://opfm.jpl.nasa.gov/>
- Future meetings are planned before the AO is released
 - May 17-19: EJSM Science Workshop
 - Late July: Final instrument workshop in Pasadena, CA



EJSM Schedule





Guiding Concepts for the AO



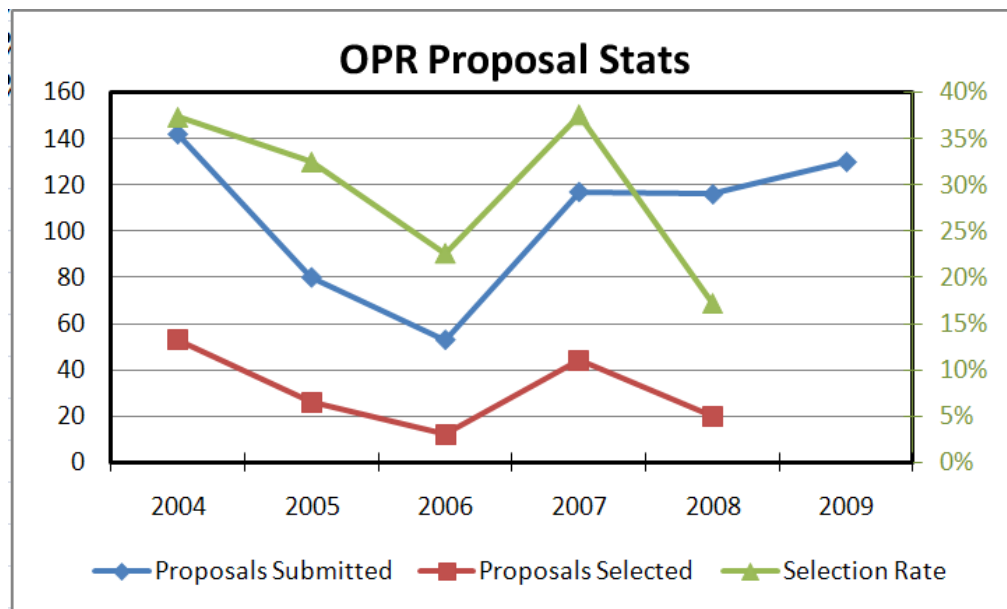
- The goal of the AO process is to provide the best information possible to NASA and ESA to enable them to select a payload that maximizes the likelihood of mission success
 - Mission success extends beyond achieving science goals
- The AO is in process and the parameters are under discussion
- NASA is considering using a two-step selection process for JEO instruments
 - At Step 1, NASA overselects (by instrument category) teams for competitive Phase A
 - During Phase A, teams work with Project on instrument concepts
 - Teams deliver Concept Study Report and undergo final TMC assessment before downselection to flight instruments
- NASA and ESA will follow the Cassini/Huygens example and coordinate all aspects of instrument calls
- It is expected that the AO and structure of the PSG will pay particular attention to issues such as:
 - Developing and operating a long-lived mission (e.g., succession planning)
 - Data access, archiving, and community involvement



Supporting Research and Technology



- Cassini Data Analysis Program
 - Proposals were due May 1 and selections announced Oct. 22
 - 80 proposals received, 22 selected (28%)
 - Max Bernstein is transitioning off as CDAP Discipline Scientist
- Outer Planets Research Program
 - Issues: proposal quality is up, community service proposals, steady budget
 - Some changes expected in ROSES 2010 release; please read carefully and early
- Futures Line
 - As part of the Outer Planets Program we need a funding wedge dedicated to preparing us for future missions
 - Such preparation can take many forms





Begin by assuming a spherical cow...



- In our case, the simplifying assumption is that this mythical funding wedge actually exists. What should be done with it?

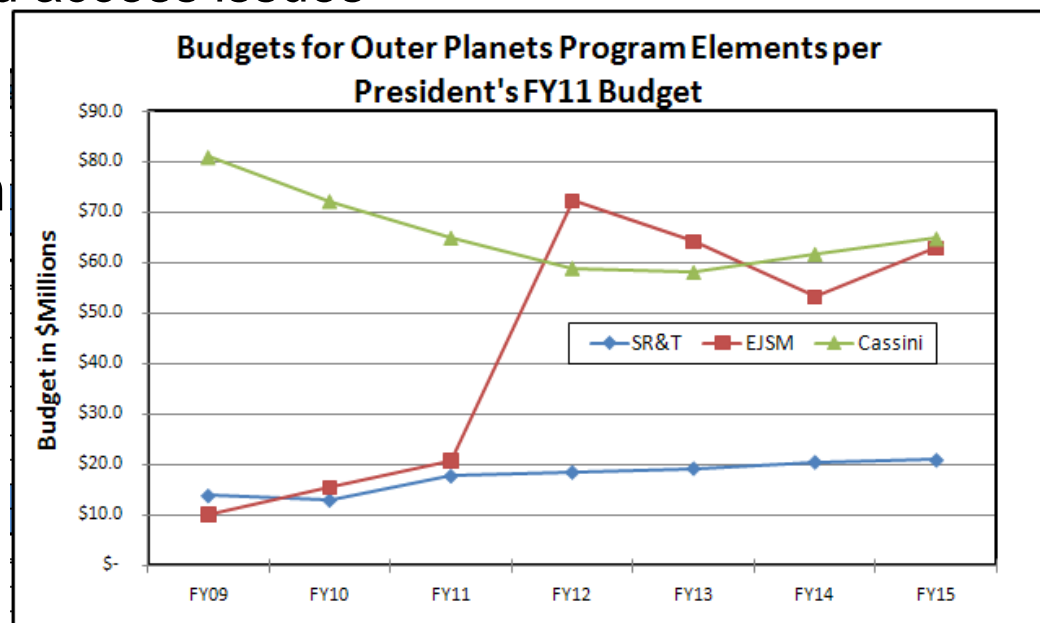




Planning for the Future



- A number of things can and/or should be done to prepare for future missions as well as take the best advantage of current missions
 - Add new scientists to Cassini team
 - Increase R&A budget
 - Create Critical Data Products opportunity
 - Develop technology for future missions
 - Address data usability and access issues
 - Conduct mission studies
- Assuming a funding wedge, what combination should be executed?
- Further discussions during Open Mike on Tuesday





The Road Ahead



- This is a time of great opportunities for outer planets exploration!
- Key event is the release of EJSM AO's by NASA and ESA in 2011
 - Final instrument workshop in July in Pasadena
- NASA and ESA have made tremendous progress but many hurdles remain (budgetary, technical, political)
- Keep in mind that EJSM is a complex international mission that is currently in pre-phase A
 - We should expect some changes as we move toward and through Phase A (programmatics, schedules, unforeseen technical issues);
 - But the important things will not change (Europa radiation environment, key science objectives, ESA/NASA team)