

Outer Planet Mission Technology

Some thoughts from a Mission
Design perspective of how to
facilitate missions to the Outer
Planets

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Uranus, Neptune, and Kuiper Belt

- Storable Cryogenic Propellant Boosters
- “Fast” Aerocapture Systems
- Aerogravity Assist

Saturn

- “Slow” Aerocapture Systems
- Planetary Protection Technology
- Debris Shielding

All Outer Solar System

- SLS + advanced upper stage
- SEP Stages (for boost in inner SS)
- DSN upgrades
 - Increase performance & lower cost
- Spacecraft Hibernation
- Ground system automation
 - Standardized spacecraft flight software and test beds
- Trajectory Design Tools & Techniques
- RPS technologies
 - High specific power, low power, REP etc.
- Entry probe technologies
 - TPS, miniaturized instruments, etc.

Jupiter & Trojans

- “Fast” Aerocapture Systems
- Radiation Shielding
- Planetary Protection Technologies
- Light-weight, high-power solar arrays
- Low power (< 1 kW) Hall Thrusters