National Aeronautics and Space Administration

NASA's Space Launch System:
An Enabling Capability for Discovery

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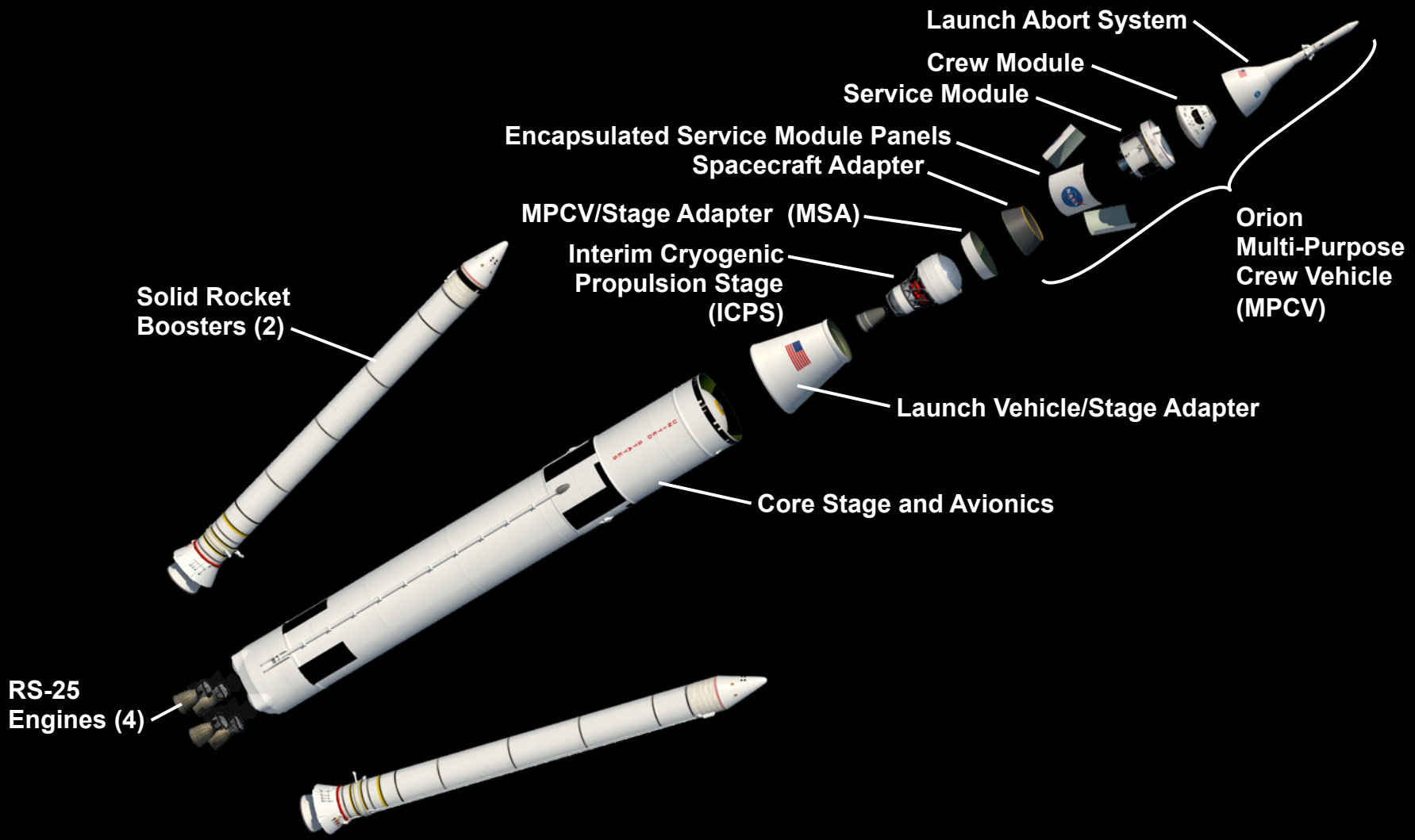
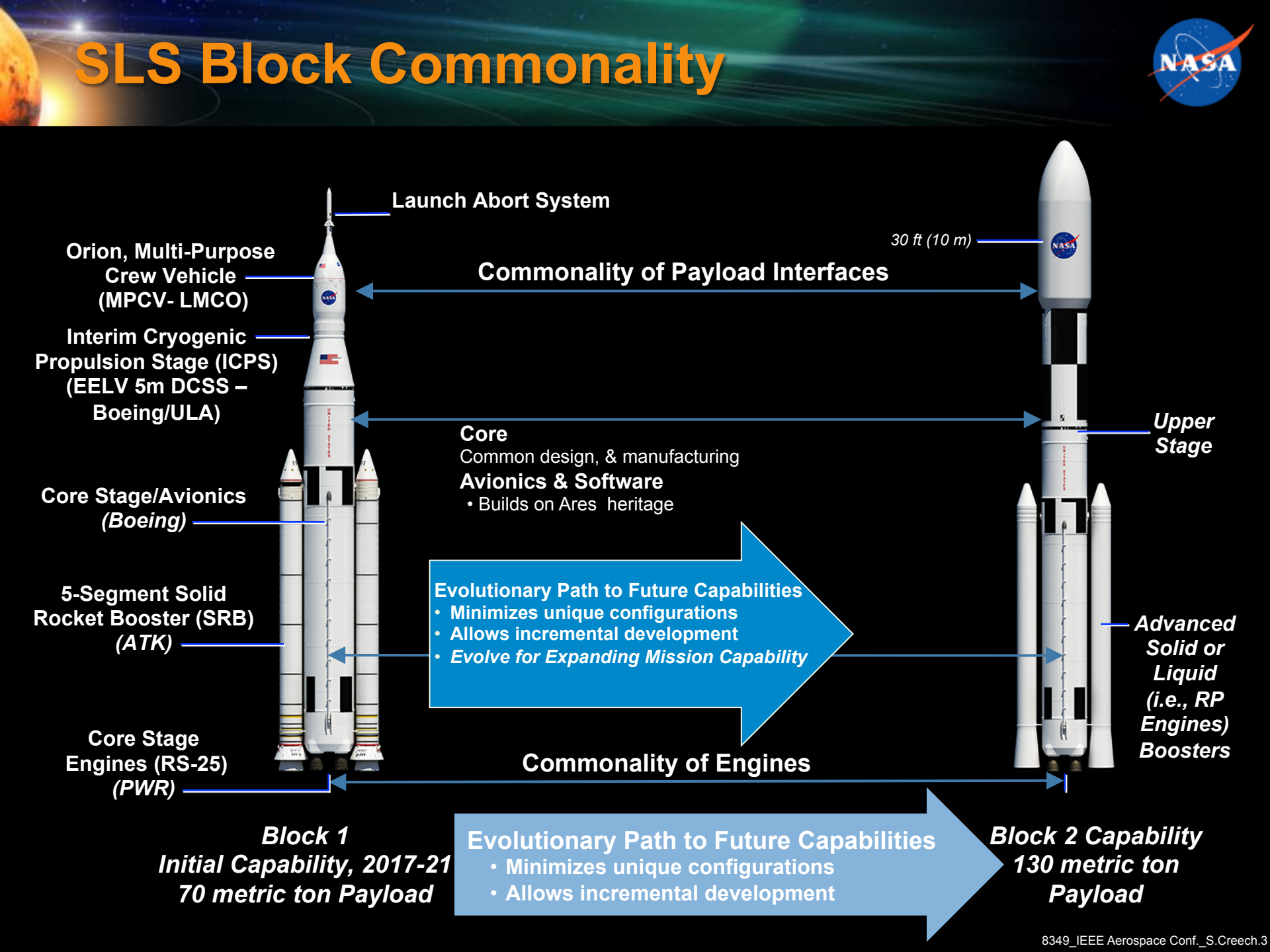
Advanced Development Manager
Space Launch System (SLS) Program
May 2014

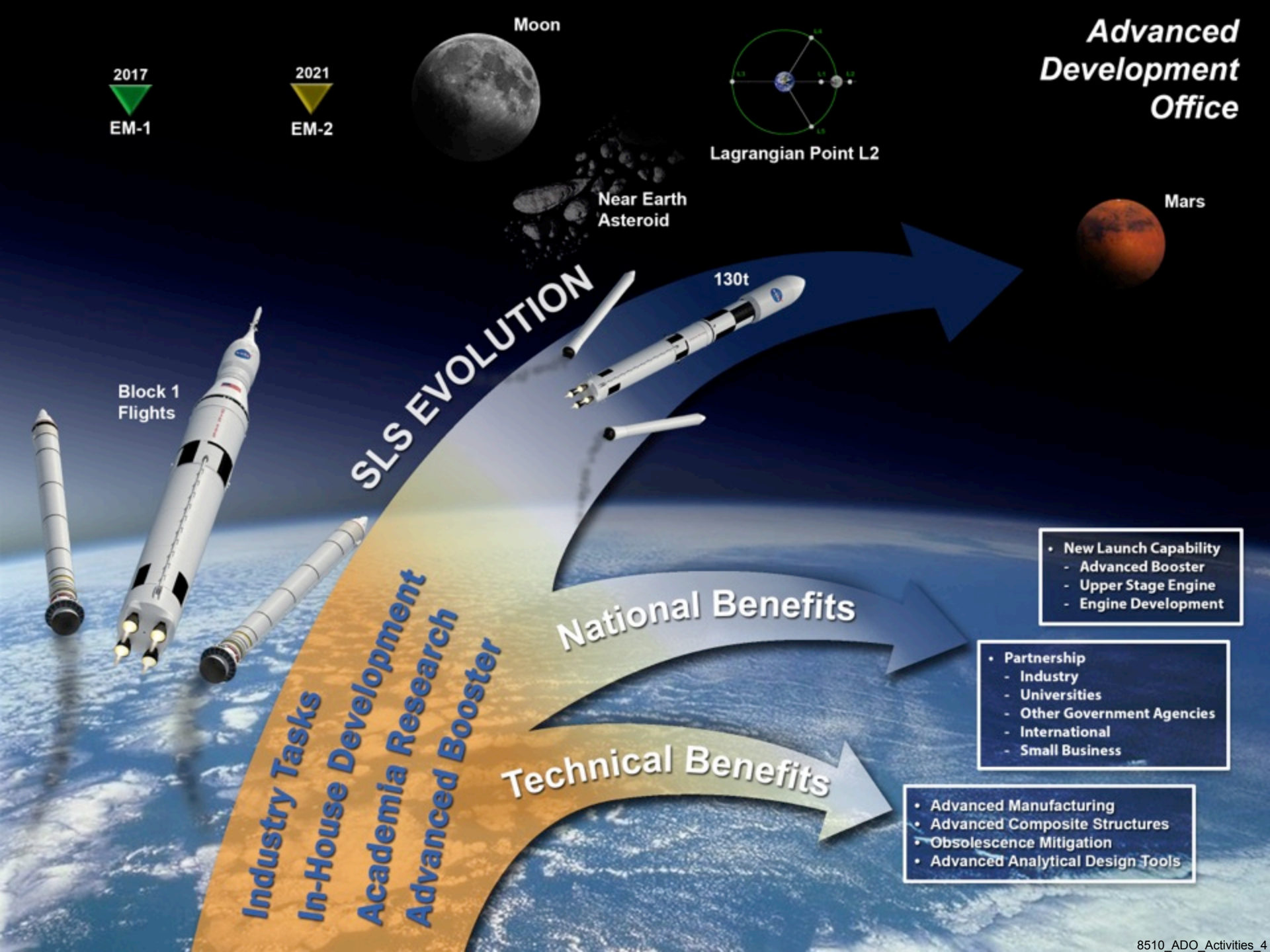
Space Launch System

SLS Initial Configuration



SLS Block Commonality





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The Path To Mars

HUMAN EXPLORATION

NASA's Path to Mars

EARTH RELIANT

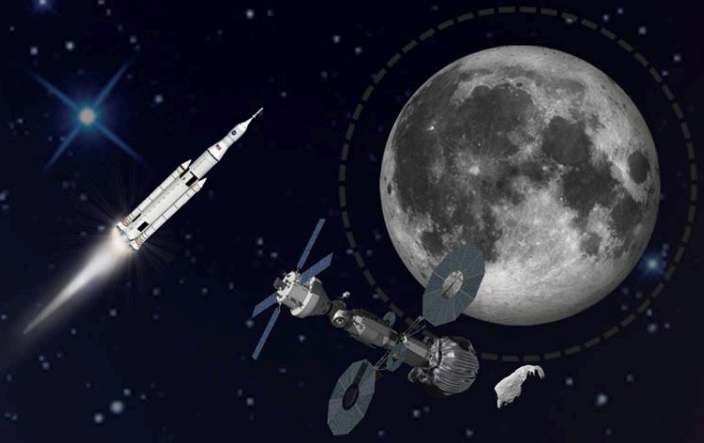
MISSION: 6 TO 12 MONTHS
RETURN TO EARTH: HOURS

Mastering fundamentals aboard the International Space Station

U.S. companies provide access to low-Earth orbit

PROVING GROUND

MISSION: 1 TO 12 MONTHS
RETURN TO EARTH: DAYS

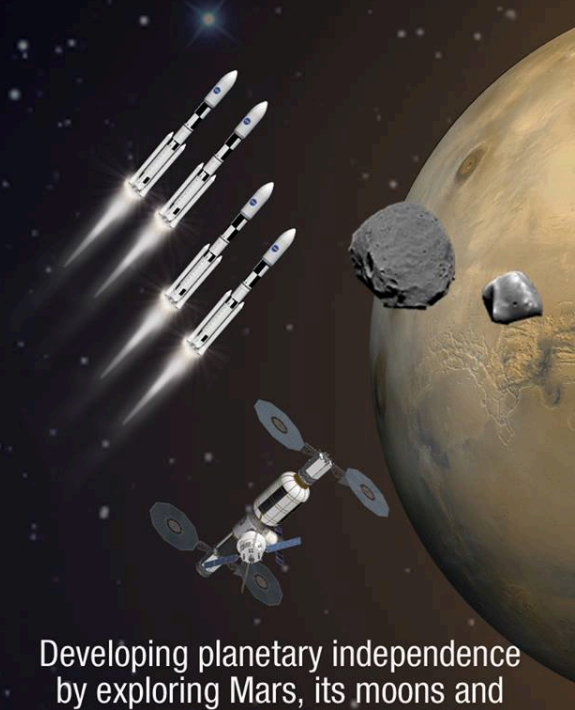


Expanding capabilities by visiting an asteroid redirected to a lunar distant retrograde orbit

The next step: traveling beyond low-Earth orbit with the Space Launch System rocket and Orion spacecraft

MARS READY

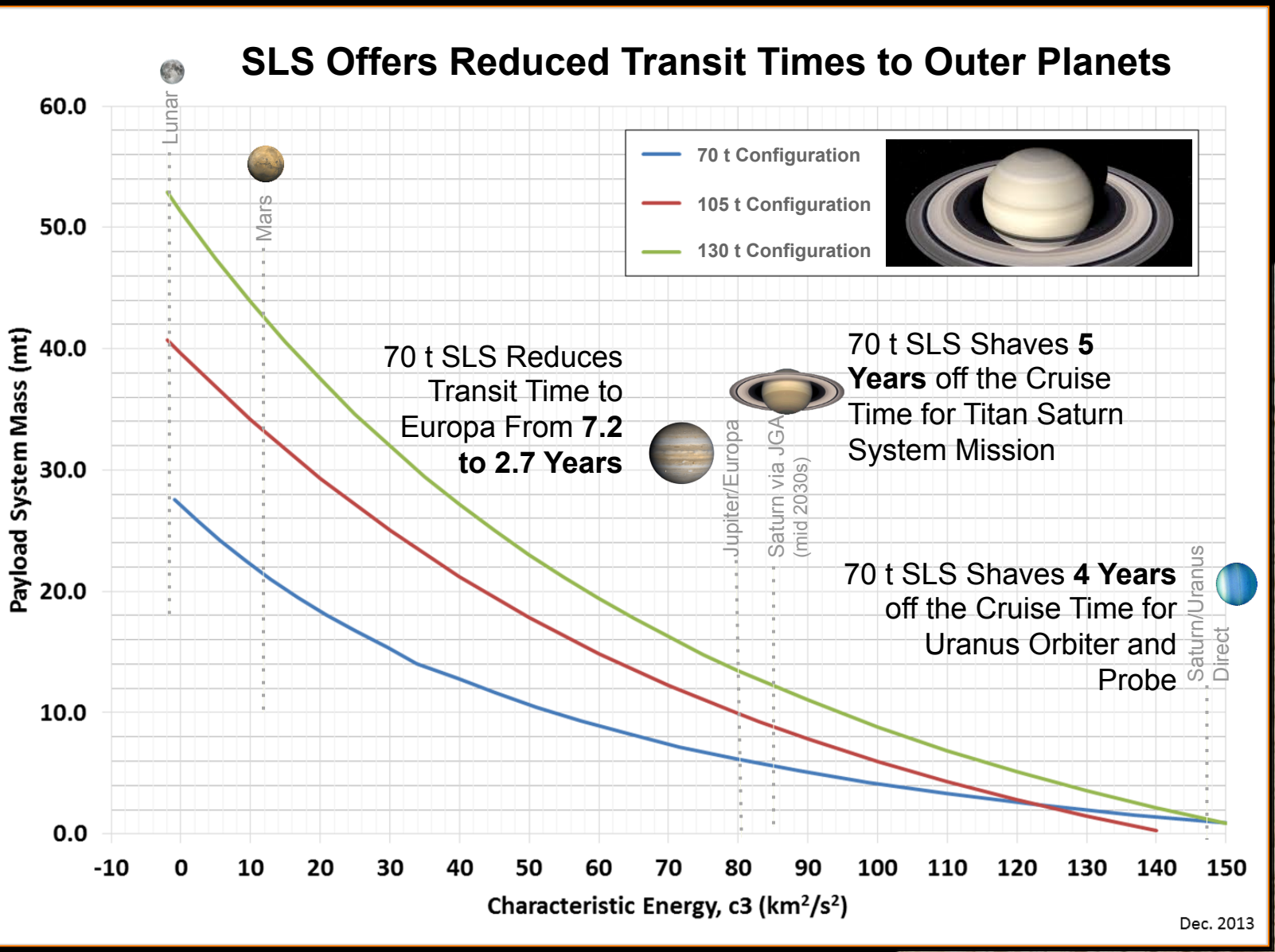
MISSION: 2 TO 3 YEARS
RETURN TO EARTH: MONTHS

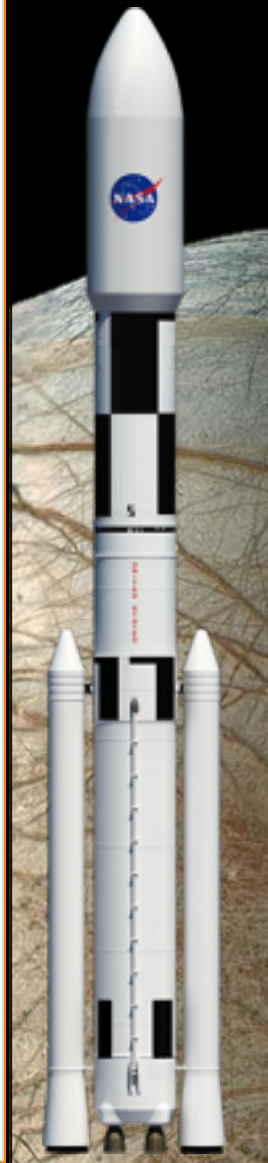


Developing planetary independence by exploring Mars, its moons and other deep space destinations

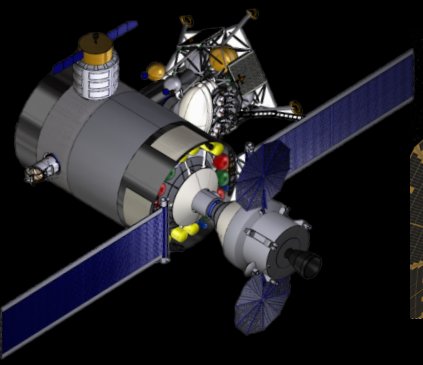
www.nasa.gov

SLS Benefits Outer Planets Exploration

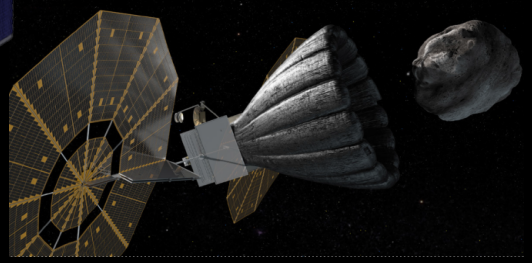




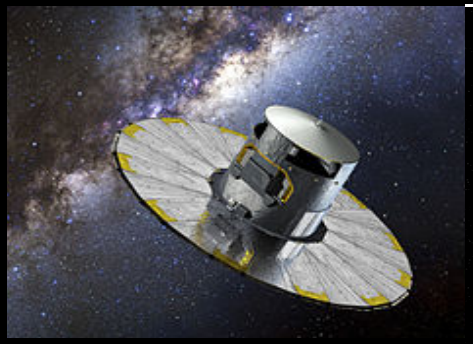
SLS Mission Capabilities



Space Habitat

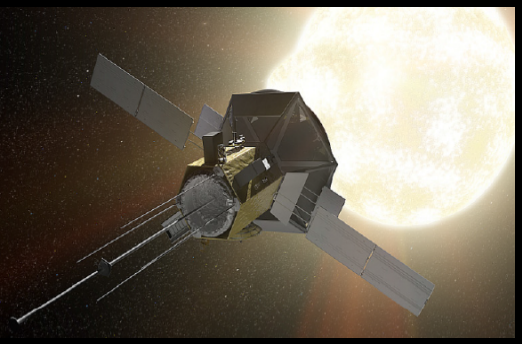


Asteroid Rendezvous



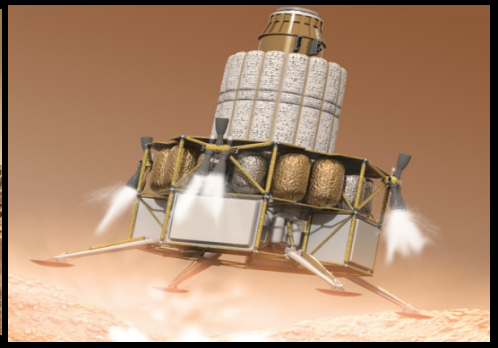
Deep Space Telescope

GEO Servicing

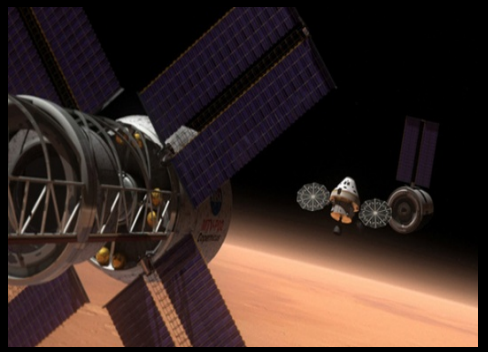


Solar Probe

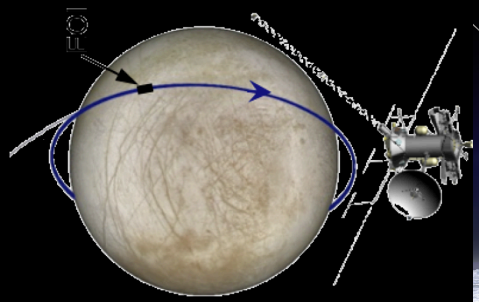
Mars Sample Return



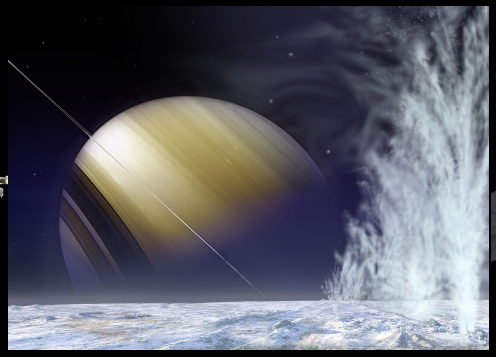
Mars Cargo Lander



Humans to Mars

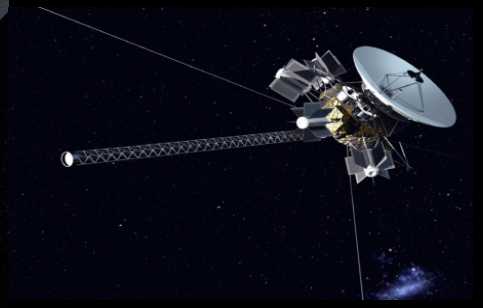


Europa Clipper



Enceladus Return

Uranus Spacecraft



Interstellar

Summary

- **SLS provides capability for human exploration missions.**
  - 70 t configuration enables EM-1 and EM-2 flight tests.
  - Evolved configurations enable missions including humans to Mars.
- **SLS offers unrivaled benefits for a variety of missions.**
  - 70 t provides greater mass lift than any contemporary launch vehicle; 130 t offers greater lift than any launch vehicle ever.
  - With 8.4m and 10m fairings, SLS will over greater volume lift capability than any other vehicle.
  - Initial ICPS configuration and future evolution will offer high C3 for beyond-Earth missions.
- **SLS is currently on schedule for first launch in December 2017.**
  - Preliminary design completed in July 2013; SLS is now in implementation.
  - Manufacture and testing are currently underway.
  - Hardware now exists representing all SLS elements.