NASA Exploration Plans

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EXPANDING HUMAN PRESENCE IN PARTNERSHIP
CREATING ECONOMIC OPPORTUNITIES, ADVANCING TECHNOLOGIES, AND ENABLING DISCOVERY

Now
Using the International Space Station

2020s
Operating in the Lunar Vicinity (proving ground)

After 2030
Leaving the Earth-Moon System and Reaching Mars Orbit

Phase 0
Continue research and testing on ISS to solve exploration challenges. Evaluate potential for lunar resources. Develop standards.

Phase 1
Begin missions in cislunar space. Initiate next key deep space capability.

Phase 2
Complete next deep space capability and checkout.
HOW ARE WE LEADING FUTURE EXPLORATION

• Maximizing utilization of the International Space Station
• Actively promoting LEO commercialization
• Resolving the human health and performance challenges
• Expanding partnerships with commercial industry
• Growing international partnerships
• Building the critical Deep Space Infrastructure
• Enabling the capabilities to explore multiple destinations
STRATEGIC PRINCIPLES FOR SUSTAINABLE EXPLORATION

• FISCAL REALISM
  Implementable in the near-term with the buying power of current budgets and in the longer term with budgets commensurate with economic growth;

• SCIENTIFIC EXPLORATION
  Exploration enables science and science enables exploration; leveraging scientific expertise for human exploration of the solar system.

• TECHNOLOGY PULL AND PUSH
  Application of high Technology Readiness Level (TRL) technologies for near term missions, while focusing sustained investments on technologies and capabilities to address the challenges of future missions;

• GRADUAL BUILD UP OF CAPABILITY
  Near-term mission opportunities with a defined cadence of compelling and integrated human and robotic missions, providing for an incremental buildup of capabilities for more complex missions over time;

• ECONOMIC OPPORTUNITY
  Opportunities for U.S. commercial business to further enhance their experience and business base;

• ARCHITECTURE OPENNESS AND RESILIENCE
  Resilient architecture featuring multi-use, evolvable space infrastructure, minimizing unique developments, with each mission leaving something behind to support subsequent missions;

• GLOBAL COLLABORATION AND LEADERSHIP
  Substantial new international and commercial partnerships, leveraging current International Space Station partnerships and building new cooperative ventures for exploration; and

• CONTINUITY OF HUMAN SPACEFLIGHT
  Uninterrupted expansion of human presence into the solar system by establishing a regular cadence of crewed missions to cis-lunar space during ISS lifetime.
The International Space Station (ISS) is a platform for deep space exploration, scientific research, economic growth and global diplomacy. ISS brings the world together to discover, develop and advance solutions for a better life both here on Earth and in space.
Created by a partnership of 5 space agencies representing 15 nations

The largest peace time effort amongst the most countries in recorded human history.

Creating knowledge that improves life here on earth and provides a stepping stone for humanity’s destiny . . . to live among the stars

Today, some 90 nations are involved in research on ISS
Launching from a modernized Kennedy spaceport, Exploration Mission-1 is the first integrated flight of the SLS rocket and Orion spacecraft demonstrating our commitment and capability to push farther into deep space – to the Moon, Mars, and beyond.
EXPLORATION SYSTEMS DEVELOPMENT
RS-25: ENGINES FOR SLS’S FIRST FLIGHT
PHASE 1

Power and Propulsion Element

Deep Space Gateway Concept

Orion