

Exploration Systems Mission Directorate and Open Government

Creating Technologies and Capabilities for the Expansion of Humanity into the Solar System

<http://www.nasa.gov/exploration>

Transparency Participation

Collaboration

NASA's Exploration Systems Mission Directorate (ESMD) manages the development of capabilities for long-duration human and robotic exploration, including human transportation elements, robotic precursors to scout targets for future human activities, demonstrations of technologies that could reduce the cost and expand the capability of future space exploration activities, and the creation of innovative life support and medical technologies. We focus on increasing participation in exploration activities by a wider and more diverse group of both new and established partners. Today, other federal agencies, industry, and academia actively participate with NASA, and we work extensively with other space-faring nations to collaborate on mutually beneficial plans for the future exploration of space. We are also focused now on identifying and pursuing innovative ways in which to meaningfully engage the general public in NASA exploration activities.

Overview

NASA is entering a new era in human exploration that will leverage American ingenuity and propel the nation on a new journey of innovation and discovery.

Groundbreaking new technologies will enable exploration of new worlds and increase our understanding of the Earth, our solar system and the universe beyond. Further collaborations on the International Space Station will increase NASA's return on investment and provide an optimal test bed for space technology research and development. The President's FY 2011 budget proposes canceling the Constellation Program and developing several new initiatives that will foster a sustainable human space exploration program.

NASA doesn't intend to embark on this new journey alone. Commercial and international partnerships will benefit from a collective spirit of discovery and adventure, and will reduce the cost of space exploration by employing new business practices and leveraging common goals. NASA also invites citizen stakeholders to participate and share in the excitement of space exploration

Commercial Crew and Cargo Program

<http://www.nasa.gov/offices/c3po/home/index.html>



Commercial Crew and Cargo Program
NASA is partnering with industry in new ways. The Commercial Crew and Cargo Program (C3PO) is exemplary of NASA's shift to becoming a buyer of space services by setting clear requirements and then taking a hands-off management approach to enable maximum use of innovative, cost-effective commercial practices. The C3PO is responsible for challenging private industry to establish capabilities and services that can open new space markets, support the crew and cargo transportation needs of the International Space Station, and provide future services for exploration.

through upcoming initiatives designed to educate as well as glean new, creative ideas from standard and unconventional contributors.

Many of the activities within ESMD will continue. We have been at the forefront of conducting robotic exploration with the Lunar Reconnaissance Orbiter and the Lunar Crater Observation and Sensing Satellite (LCROSS) and have performed human analogue research in simulated environments from the desert to the Antarctic to the ocean floor. We have conducted key technology demonstrations such as the Crew Escape System for launch vehicles to thermal protection systems for re-entry capsules. The President's FY 2011 budget proposes NASA will reconnoiter the solar system's resources and test new technologies that will enable vast improvements in our exploration capabilities. Partnerships have always been a key element of long-term missions. Space exploration is a complex endeavor that requires the application and integration of a broad range of technical capabilities, expertise, and resources. We have adopted an open and inclusive approach to engaging international space agencies that perform space exploration activities. NASA has a long history of including interested parties that desire to discuss their objectives and plans.

In 2007, we joined 13 other space agencies to establish a global exploration strategy and a supporting international coordination framework. The international coordination enabled by this framework includes the identification of common goals and objectives, the sharing of information regarding space exploration capabilities, the exchange of scientific data, the development of international standards, and the development of reference system architectures for exploration.

The program of robotic precursor missions and technology demonstrations outlined in the President's FY 2011 budget will provide great opportunity for increased collaboration as well as for infusing other Open Government principles into the new programs.

How this fits into Open Government

We are focused on achieving the objective of increasing the participation in our exploration activities with a wider and more diverse group, and as we extend our presence beyond the cradle of Earth, we will share this responsibility with both new and established partners. In

Pavilion Lake Research Project

<http://www.pavilionlake.com>



Deepworker at Pavilion Lake and The Lunar Electric Rover

The Pavilion Lake Research Project (PLRP), conducted in British Columbia, Canada, is a multi-disciplinary science and exploration mission to explain the origin of freshwater microbialites. NASA conducts analog missions at Pavilion Lake because the extreme, remote location will provide a challenging setting to test and develop research and exploration methods. Collecting microbialite samples will help improve techniques for future space exploration missions and scientific research. The project is a pilot for an Analog Missions Program to train astronauts in field science activities and to help develop exploration success metrics and protocols for future human operations on the Moon and Mars.

working to extend knowledge and develop innovative solutions to human health challenges, we competitively award grants to researchers from academia, industry and other federal agencies. We will continue to work to increase the ability of small, medium, and large organizations to participate as partners in NASA's goals of exploration and discovery.

Useful Links

1. <http://www.nasa.gov/exploration/home/index.html> - ESMD home page
2. http://www.nasa.gov/home/hqnews/2010/feb/HQ_10-039_Edu_Texas_Instruments.html Human Research Project and Texas Instruments Use Human Spaceflight to Bring Math and Science Topics into High School Classrooms
3. <http://pds.nasa.gov> –View the newest images of the Earth's moon from LRO
4. <http://www.nasa.gov/directorates/esmd/home/analog.html> - ESMD analog studies
5. www.nasa.gov/pdf/178109main_ges_framework.pdf - Global Exploration report