NASA New Millennium Program

Overview

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The New Millennium Program (NMP) was established in 1994 to revolutionize NASA’s Space and Earth science programs to achieve more capable, less costly missions in the 21st Century by:

- Developing and flight-validating revolutionary technologies
- Reducing development times and life cycle mission costs
- Enabling highly autonomous spacecraft
- Promoting nationwide teaming and coordination
NMP ROLE

Flight Validation of Breakthrough Technologies to Benefit Future Earth Science Missions

Breakthrough technologies
- Enable new capabilities to meet Earth Science needs
- Reduce costs of future missions

Flight validation
- Mitigates risks to first users
- Enables rapid technology infusion into future missions
NMP Mission Implementation

- Mission Team established in early definition
- Selection process extends through Confirmation Review
- NMP missions are NOT small science missions and cannot be treated as such -- inherently more risky
- Keys to success:
  - Resilient “Category” Architecture
  - Comprehensive, aggressive risk management
  - Adequate reserves in schedule and budget
  - Critical role of mission technologist
  - Management approach:

Mission Manager

Mission Technologist

Mission Team

Mission Scientist
Technology Transfer and Infusion

- Validation Plans are executed for each assigned technology
- Each validation plan has two parts:
  - Technical
  - Science
- After flight validation, the Mission Technologist and Technology Provider prepare Technology Transfer documentation based on:
  - Basic design features and planned performance
  - Ground-based calibration and characterization
  - On-orbit technical and science validation
  - Operational experience
  - Likely applications
  - Technology Infusion opportunities
- NMP workshops, technology fairs, etc. are used to disseminate the Technology Transfer documentation
- NMP works closely with Earth and Space Science Program Offices to facilitate technology infusion into future science missions
NMP Technology Evolution

**SEEDING**
- Promising Technologies
- Team Building
- Technology Maturation
- Update Roadmaps
- Prepare Results

**SELECTING**
- Future Science Priorities
- Solicit Technology Providers
- Candidate Technologies
- ADT Mission Development
- Candidate Missions
- Mission Selection

**DEVELOPING**
- Mission Definition
- Mission Development
- Launch & Check-Out
- On-Orbit Validation

**VALIDATING**
- Validation Assessments
- Technology Transfer
- Technology Infusion
- Reduced Cost of Future Science Missions

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NMP Summary

- **NMP provides the processes to:**
  - Reduce the cost and enhance the performance of future missions
  - Leverage our investments in advanced technology
  - Encourage teaming within U.S. Aerospace industry
- **NMP provides the process to explore more effective use of emerging technologies to enable future missions**