

Appendix:

NASA's Strategic Goals and Outcomes



Each of NASA's six Strategic Goals is clearly defined and supported by sub-goals (where appropriate) and multi-year Outcomes that will enhance NASA's ability to measure and report Agency accomplishments.

Strategic Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.

- 1.1. Assure the safety and integrity of the Space Shuttle workforce, systems and processes, while flying the manifest.
- 1.2. By September 30, 2010, retire the Space Shuttle.



Strategic Goal 2: Complete the International Space Station in a manner consistent with NASA's International partner commitments and the needs of human exploration.

- 2.1. By 2010, complete assembly of the U.S. On-orbit Segment; launch International Partner elements and sparing items required to be launched by the Shuttle; and provide on-orbit resources for research to support U.S. human space exploration.
- 2.2. By 2009, provide the on-orbit capability to support an ISS crew of six crewmembers.



Strategic Goal 3: Develop a balanced overall program of science, exploration, and aeronautics consistent with the redirection of the human spaceflight program to focus on exploration.



Sub-goals

Sub-goal 3A: Study Earth from space to advance scientific understanding and meet societal needs.

- 3A.1. Progress in understanding and improving predictive capability for changes in the ozone layer, climate forcing, and air quality associated with changes in atmospheric composition.
- 3A.2. Progress in enabling improved predictive capability for weather and extreme weather events.
- 3A.3. Progress in quantifying global land cover change and terrestrial and marine productivity, and in improving carbon cycle and ecosystem models.
- 3A.4. Progress in quantifying the key reservoirs and fluxes in the global water cycle and in improving models of water cycle change and fresh water availability.
- 3A.5. Progress in understanding the role of oceans, atmosphere, and ice in the climate system and in improving predictive capability for its future evolution.
- 3A.6. Progress in characterizing and understanding Earth surface changes and variability of Earth's gravitational and magnetic fields.

3A.7. Progress in expanding and accelerating the realization of societal benefits from Earth system science.

Sub-goal 3B: Understand the Sun and its effects on Earth and the solar system.

- 3B.1. Progress in understanding the fundamental physical processes of the space environment from the Sun to Earth, to other planets, and beyond to the interstellar medium.
- 3B.2. Progress in understanding how human society, technological systems, and the habitability of planets are affected by solar variability and planetary magnetic fields.
- 3B.3. Progress in developing the capability to predict the extreme and dynamic conditions in space in order to maximize the safety and productivity of human and robotic explorers.

Sub-goal 3C: Advance scientific knowledge of the solar system, search for evidence of life, and prepare for human exploration.

- 3C.1. Progress in learning how the Sun's family of planets and minor bodies originated and evolved.
- 3C.2. Progress in understanding the processes that determine the history and future of habitability in the solar system, including the origin and evolution of Earth's biosphere and the character and extent of prebiotic chemistry on Mars and other worlds.
- 3C.3. Progress in identifying and investigating past or present habitable environments on Mars and other worlds, and determining if there is or ever has been life elsewhere in the solar system.
- 3C.4. Progress in exploring the space environment to discover potential hazards to humans and to search for resources that would enable human presence.

Sub-goal 3D: Discover the origin, structure, evolution, and destiny of the universe, and search for Earth-like planets.

- 3D.1. Progress in understanding the origin and destiny of the universe, phenomena near black holes, and the nature of gravity.
- 3D.2. Progress in understanding how the first stars and galaxies formed, and how they changed over time into the objects recognized in the present universe.
- 3D.3. Progress in understanding how individual stars form and how those processes ultimately affect the formation of planetary systems.
- 3D.4. Progress in creating a census of extra-solar planets and measuring their properties.

Sub-goal 3E: Advance knowledge in the fundamental disciplines of aeronautics, and develop technologies for safer aircraft and higher capacity airspace systems.

- 3E.1. By 2016, identify and develop tools, methods, and technologies for improving overall aircraft safety of new and legacy vehicles operating in the Next Generation Air Transportation System (projected for the year 2025).
- 3E.2. By 2016, develop and demonstrate future concepts, capabilities, and technologies that will enable major increases in air traffic management effectiveness, flexibility, and efficiency, while maintaining safety, to meet capacity and mobility requirements of the Next Generation Air Transportation System.
- 3E.3. By 2016, develop multidisciplinary design, analysis, and optimization capabilities for use in trade studies of new technologies, enabling better quantification of vehicle performance in all flight regimes and within a variety of transportation system architectures.
- 3E.4. Ensure the continuous availability of a portfolio of NASA-owned wind tunnels/ground test facilities, which are strategically important to meeting national aerospace program goals and requirements.

Sub-goal 3F: Understand the effects of the space environment on human performance, and test new technologies and countermeasures for long-duration human space exploration.

- 3F.1. By 2008, develop and test candidate countermeasures to ensure the health of humans traveling in space.
- 3F.2. By 2010, identify and test technologies to reduce total mission resource requirements for life support systems.
- 3F.3. By 2010, develop reliable spacecraft technologies for advanced environmental monitoring and control and fire safety.

Strategic Goal 4: Bring a new Crew Exploration Vehicle into service as soon as possible after Shuttle retirement.

- 4.1. No later than 2014, and as early as 2010, transport three crewmembers to the International Space Station and return them safely to Earth, demonstrating an operational capability to support human exploration missions.
- 4.2. No later than 2014, and as early as 2010, develop and deploy a new space suit to support exploration, that will be used in the initial operating capability of the Crew Exploration Vehicle.



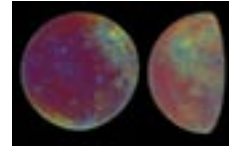
Strategic Goal 5: Encourage the pursuit of appropriate partnerships with the emerging commercial space sector.

- 5.1. Develop and demonstrate a means for NASA to purchase launch services from emerging launch providers.
- 5.2. By 2010, demonstrate one or more commercial space services for ISS cargo and/or crew transport.
- 5.3. By 2012, complete one or more prize competitions for independently designed, developed, launched, and operated missions related to space science or space exploration.



Strategic Goal 6: Establish a lunar return program having the maximum possible utility for later missions to Mars and other destinations.

- 6.1. By 2008, launch a Lunar Reconnaissance Orbiter (LRO) that will provide information about potential human exploration sites.
- 6.2. By 2012, develop and test technologies for in-situ resource utilization, power generation, and autonomous systems that reduce consumables launched from Earth and moderate mission risk.
- 6.3. By 2010, identify and conduct long-term research necessary to develop nuclear technologies essential to support human-robotic lunar missions and that are extensible to exploration of Mars.
- 6.4. Implement the space communications and navigation architecture responsive to Science and Exploration mission requirements.



Cross-Agency Support Programs

Shared Capability Assets Program

Outcome SC-1: Establish and maintain selected Agency level shared capabilities, across multiple classes of assets (e.g., wind tunnels, vacuum chambers, etc.), to ensure that they will continue to be available to support the missions that require them.

Innovative Partnerships Program

Outcome IPP-1: Promote and develop innovative technology partnerships among NASA, U.S. industry, and other sectors for the benefit of Agency programs and projects.

Advanced Business Systems (Integrated Enterprise Management Program)

Outcome IEM-1: By 2008, implement Agency business systems that provide timely, consistent and reliable business information for management decisions.

Outcome IEM-2: Increase efficiency by implementing new business systems and reengineering Agency business processes.

Education

Outcome ED-1: Contribute to the development of the STEM workforce in disciplines needed to achieve NASA's strategic goals through a portfolio of programs.

Outcome ED-2: Attract and retain students in STEM disciplines through a progression of educational opportunities for students, teachers, and faculty.

Outcome ED-3: Build strategic partnerships and linkages between STEM formal and informal education providers that promote STEM literacy and awareness of NASA's mission.