

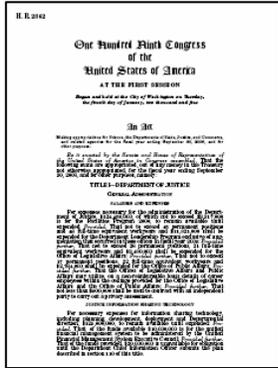
FY 2008 Budget



February 5, 2007



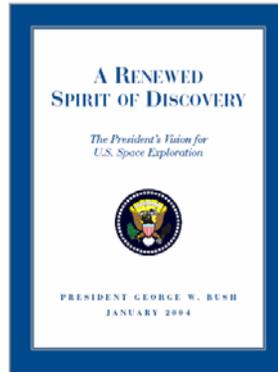
Key Governance Documents



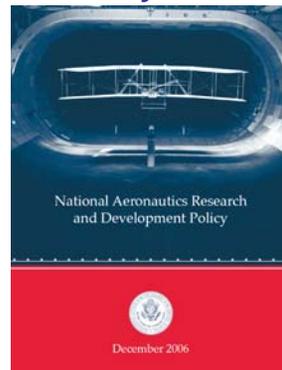
National Aeronautics & Space Act of 1958
P.L. 85-568
July 1958

NASA Authorization Act
P.L. 109-155
December 2005

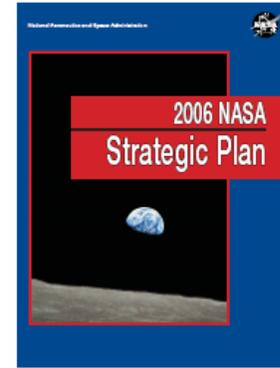
Annual Appropriations



Presidential Policy Directive Vision for Space Exploration
January 2004



National Aeronautics R&D Policy
December 2006



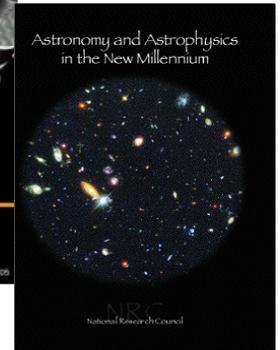
NASA Strategic Plan
February 2006



Annual Budget Requests



Exploration Systems Architecture Study



National Academy of Sciences Reports

NASA implements a balanced portfolio of space and aeronautics programs for the President and Congress within the resources provided in a “go-as-we-can-afford-to-pay” strategy



FY2008 Budget Request Summary

| \$ In millions | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 |
|------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| TOTAL NASA | 16,792 | 17,309 | 17,614 | 18,026 | 18,460 | 18,905 |
| <i>Percent change year-to-year</i> | | 3.1% | 1.8% | 2.3% | 2.4% | 2.4% |

NASA's FY 2008 budget demonstrates the President's commitment to our Nation's leadership in space and aeronautics research. The FY 2008 budget is a 3.1% increase from the FY 2007 budget request.

NASA is on track and making progress. No strategic changes in the FY 2008 budget request.

- Three Space Shuttle missions last year, and four-five Shuttle missions planned in 2007 to continue International Space Station assembly. Carefully-considered Shuttle transition to Orion CEV underway.
- Orion CEV contract awarded last August. Plan to release Ares I CLV upper stage RFP in February.
- Aeronautics Research aligned with the recent President's policy, with projects, programs, and a robust budget profile that will advance U.S. technological leadership in aeronautics.
- Science continues to develop world-class missions and research results, based on the priorities from the National Academy of Sciences decadal surveys. During FY 2008, NASA plans to launch ten new missions, with over 50 Earth Science, Heliophysics, Planetary Science, and Astrophysics missions in operations. Most of these missions involve international partners and other U.S. Government agencies.

NASA's Greatest Challenge: Safely flying the Space Shuttle to assemble the International Space Station and honor our commitment to our partners prior to retiring the Shuttle in 2010 while bringing new human spaceflight capabilities on-line not later than 2014.

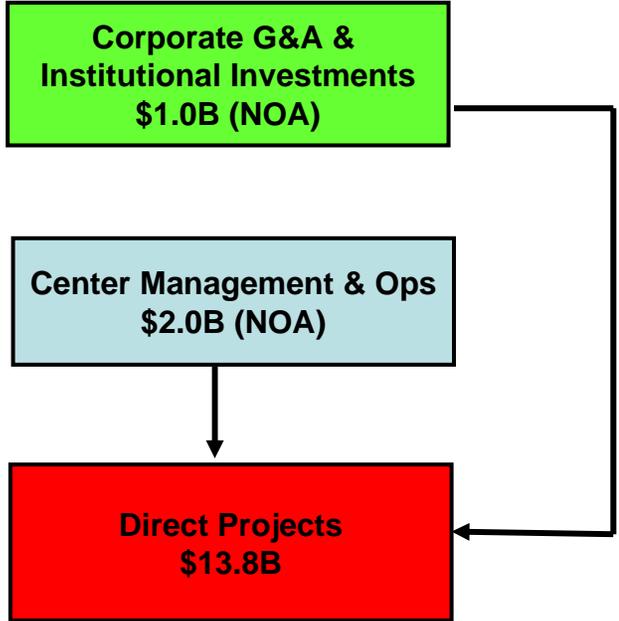
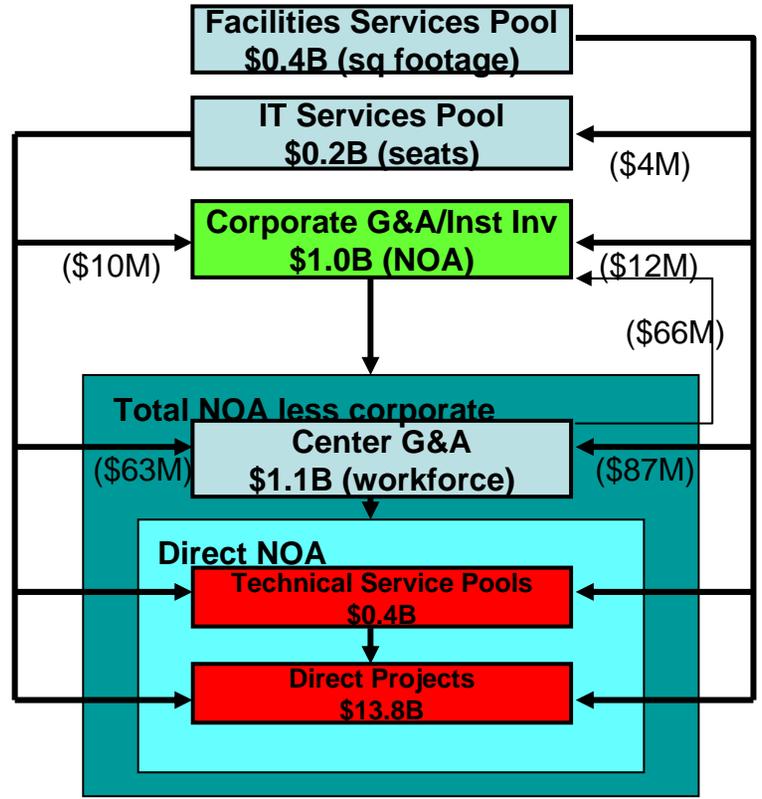
The impact of the FY 2007 appropriation on NASA's multi-year programs, including those funded in the FY 2008 request, is not yet known. NASA expects an appropriation of approximately \$545 million less than the President's FY 2007 request.

- Once the FY 2007 appropriation is enacted, NASA will keep stakeholders informed of the impacts via a FY 2007 operating plan.
- FY 2007 appropriation may have serious effects on people, projects, and programs. A careful balance across all priorities is required with the resources made available.
- The potential reduction to Exploration Systems in the FY 2007 appropriations jeopardizes NASA's ability to safely and effectively transition from the Shuttle to Orion CEV operations not later than 2014.



Full Cost Simplification

NASA has changed its overhead allocations to simplify how it manages the Agency under full cost accounting. All Center overhead is now allocated at a single unified rate across all projects. This has eliminated the disparity in Center rates, and the associated incentive to move work to Centers with lower rates. This approach was communicated to the Congress in the September 2006 Operating Plan.



The core principle behind Full Cost Simplification is to ensure a uniform rate of cost for all NASA civil servants regardless of what Government Field Center they work.



Budget Adjustments

| FY07 PB | | \$ In Millions | | \$ In Millions | | FY 2008 Request | |
|----------|----------------------------------|-------------------------------------|--|-------------------------------------|--|----------------------|-----------------|
| 10,524.4 | | Exploration, Science, & Aeronautics | | Exploration, Science, & Aeronautics | | Simplified Full Cost | |
| | | | | | | FY 2007 | FY 2008 |
| 5,330.0 | SCIENCE | | | SCIENCE | | 5466.8 | 5,516.1 |
| 1,610.2 | Solar System Exploration | | | Planetary | | 1,411.2 | 1,395.8 |
| 1,509.2 | Universe | | | Astrophysics | | 1,563.0 | 1,565.8 |
| 2,210.6 | Earth-Sun System | | | Heliophysics | | 1,028.1 | 1,057.2 |
| 3,978.3 | EXPLORATION SYSTEMS | | | Earth Science | | 1,464.5 | 1,497.3 |
| 3,057.6 | Constellation Systems | | | EXPLORATION SYSTEMS | | 4,152.5 | 3,923.8 |
| 646.1 | Exploration Sys Research & Tech | | | Constellation Systems | | 3232.5 | 3,068.0 |
| 274.6 | Human Systems Research & Tech | | | Advanced Capabilities | | 920.0 | 855.8 |
| 724.4 | AERONAUTICS RESEARCH | | | AERONAUTICS RESEARCH | | 529.3 | 554.0 |
| 491.7 | Cross-Agency Support Prgs | | | Cross-Agency Support Prgs | | 502.0 | 489.2 |
| 153.3 | Education | | | Education | | 167.4 | 153.7 |
| 108.2 | IEMP | | | IEMP | | 97.4 | 103.1 |
| 197.9 | Innovative Partnerships | | | Innovative Partnerships | | 215.1 | 198.1 |
| 32.2 | Shared Capabilities | | | Shared Capabilities | | 22.1 | 34.3 |
| 6,234.4 | Exploration Capabilities | | | Exploration Capabilities | | 6,108.3 | 6,791.7 |
| 6,234.4 | SPACE OPERATIONS | | | SPACE OPERATIONS | | 6,108.3 | 6,791.7 |
| 1,811.3 | Space Station | | | Space Station | | 1,762.6 | 2,238.6 |
| 4,056.7 | Space Shuttle | | | Space Shuttle | | 4,017.6 | 4,007.5 |
| 366.5 | Space & Flight Support | | | Space & Flight Support | | 328.1 | 545.7 |
| 33.5 | Inspector General | | | Inspector General | | 33.5 | 34.6 |
| 16,792.3 | TOTAL NASA | | | TOTAL NASA | | 16,792.3 | 17,309.4 |



FY 2008 Budget Request

| | FY 2007 | FY 2008 | FY 2009 | FY 2010 | FY 2011 | FY 2012 |
|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <i>Budget Authority (millions)</i> | | | | | | |
| Science, Aeronautics and Exploration | \$10,650.6 | \$10,483.1 | \$10,868.4 | \$11,364.1 | \$15,386.5 | \$15,888.6 |
| Science | \$5,466.8 | \$5,516.1 | \$5,555.3 | \$5,600.6 | \$5,656.9 | \$5,802.7 |
| Planetary Science | \$1,411.2 | \$1,395.8 | \$1,676.9 | \$1,720.3 | \$1,738.3 | \$1,748.2 |
| Heliophysics | \$1,028.1 | \$1,057.2 | \$1,028.4 | \$1,091.3 | \$1,241.2 | \$1,307.5 |
| Astrophysics | \$1,563.0 | \$1,565.8 | \$1,304.2 | \$1,268.9 | \$1,266.2 | \$1,393.8 |
| Earth Science | \$1,464.5 | \$1,497.3 | \$1,545.8 | \$1,520.1 | \$1,411.2 | \$1,353.2 |
| Exploration Systems | \$4,152.5 | \$3,923.8 | \$4,312.8 | \$4,757.8 | \$8,725.2 | \$9,076.8 |
| Constellation Systems | \$3,232.5 | \$3,068.0 | \$3,451.2 | \$3,784.9 | \$7,666.0 | \$7,993.0 |
| Advanced Capabilities | \$920.0 | \$855.8 | \$861.6 | \$973.0 | \$1,059.1 | \$1,083.9 |
| Aeronautics Research | \$529.3 | \$554.0 | \$546.7 | \$545.3 | \$549.8 | \$554.7 |
| Aeronautics Technology | \$529.3 | \$554.0 | \$546.7 | \$545.3 | \$549.8 | \$554.7 |
| Cross-Agency Support Programs | \$502.0 | \$489.2 | \$453.5 | \$460.4 | \$454.7 | \$454.4 |
| Education | \$167.4 | \$153.7 | \$152.8 | \$152.7 | \$149.8 | \$149.6 |
| Advanced Business Systems | \$97.4 | \$103.1 | \$69.4 | \$71.6 | \$67.6 | \$67.5 |
| Innovative Partnerships Program | \$215.1 | \$198.1 | \$197.2 | \$199.8 | \$200.0 | \$200.0 |
| Shared Capability Assets Program | \$22.1 | \$34.3 | \$34.2 | \$36.2 | \$37.3 | \$37.2 |
| Exploration Capabilities | \$6,108.3 | \$6,791.7 | \$6,710.3 | \$6,625.7 | \$3,036.6 | \$2,978.0 |
| Space Operations | \$6,108.3 | \$6,791.7 | \$6,710.3 | \$6,625.7 | \$3,036.6 | \$2,978.0 |
| Space Shuttle | \$4,017.6 | \$4,007.5 | \$3,650.9 | \$3,634.4 | \$116.2 | \$0.0 |
| International Space Station | \$1,762.6 | \$2,238.6 | \$2,515.1 | \$2,609.2 | \$2,547.5 | \$2,600.8 |
| Space and Flight Support (SFS) | \$328.1 | \$545.7 | \$544.3 | \$382.0 | \$372.9 | \$377.2 |
| Inspector General | \$33.5 | \$34.6 | \$35.5 | \$36.4 | \$37.3 | \$38.3 |
| Inspector General | \$33.5 | \$34.6 | \$35.5 | \$36.4 | \$37.3 | \$38.3 |
| NASA FY 2008 | \$16,792.3 | \$17,309.4 | \$17,614.2 | \$18,026.3 | \$18,460.4 | \$18,905.0 |
| <i>Year to year increase</i> | | 3.1% | 1.8% | 2.3% | 2.4% | 2.4% |

*All fiscal year budgets shown are Full Cost Simplified



Highlights of FY 2008 Budget Request

Science -- \$5,516.1M

- Programmatic funding for Science (without regard to changes in full cost allocations) remains at 1% per year from FY2008 through FY2011, and begins to grow by 2.4% thereafter. The Science budget balances investments based on National Academy of Sciences priorities and programmatic needs.
- The Earth Science program will launch the Ocean Surface Topography Mission (OSTM) to measure sea surface height and the Orbiting Carbon Observatory in 2008
- Global Precipitation Measurement (GPM) on track for a launch no later than 2013 of Core spacecraft and 2014 launch of Constellation spacecraft
- Provides additional funds for Landsat follow-on and Glory missions to maintain schedules.
- The Astrophysics program will launch Herschel, Plank, GLAST, and the Hubble servicing mission.
- SOFIA reinstated with initial operations planned to begin in 2010, but program baseline still needs to be finalized in Spring 2007.
- The Heliophysics program will launch Solar Dynamics Observatory, IBEX, and CINDI.
- The Planetary program creates a new Lunar Science project, providing \$351M in FY08-12 for data archiving, research, and missions of opportunity or instruments to take advantage of NASA and international missions planned for moon.
- Mars Phoenix Lander set to launch in August, arriving at Mars in May 2008
- Dawn mission to asteroids Ceres and Vesta set to launch this summer

Aeronautics Research -- \$554.0M

- Stable budget profile starting in FY 2008, with a 4.6% budget increase from FY 2007 President's Budget Request
- \$51M of FY 2008 budget is for competitive NASA Research Announcement Awards, which is more than 11% of the Aeronautics Research direct program budget.



Highlights of FY 2008 Budget Request, cont.

Exploration Systems -- \$3,923.8M

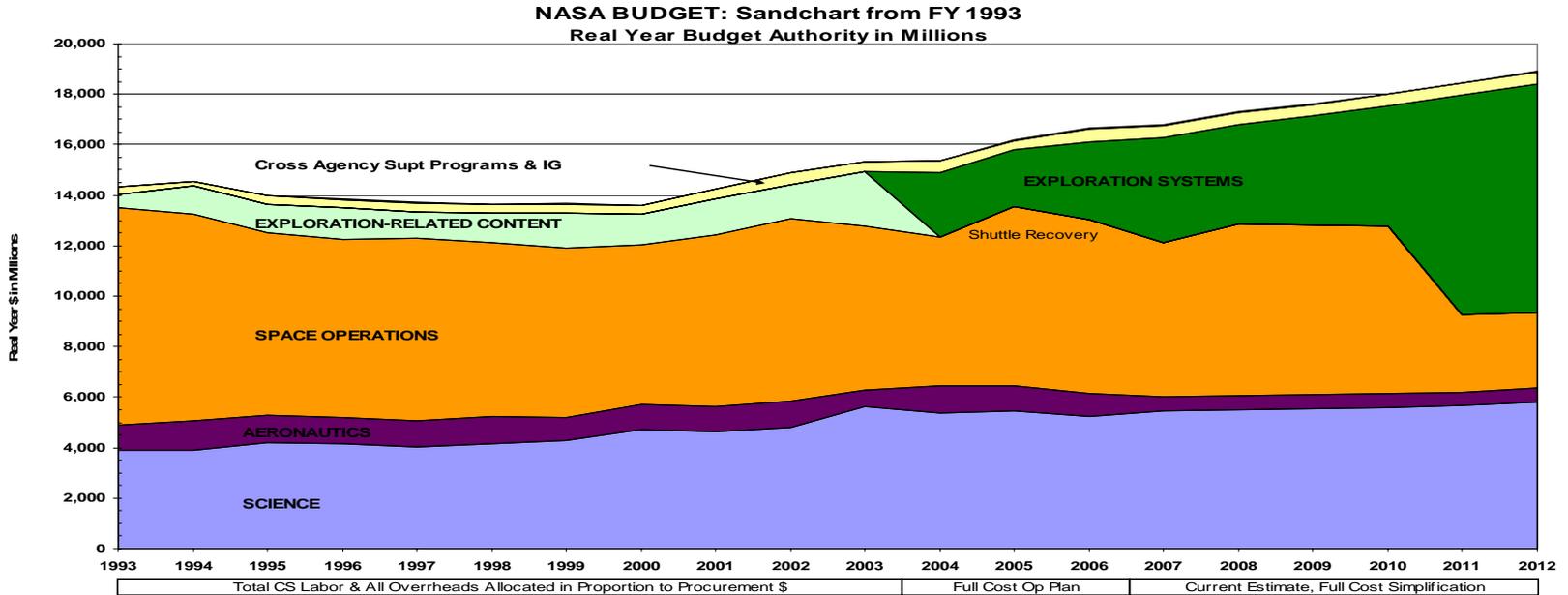
- Orion CEV and Ares I CLV development have been on track for IOC not later than 2014, but this schedule may be jeopardized due to potential funding reductions in FY 2007 appropriations
- Commitment to purchasing commercial cargo and crew services to support the Space Station, assuming those services are successfully demonstrated and cost-effective
 - NASA has accepted a management challenge to identify cost savings in Space Operations and will defer some Advanced Capabilities efforts if commercial service costs exceed the current program budget.
 - COTS demonstrations still managed by ESMD, but transfer management of ISS Crew/Cargo Services purchases to Space Operations
- Lunar Reconnaissance Orbiter (LRO) with Lunar CRater Observation and Sensing Satellite (LCROSS) secondary payload mission planned for launch in late 2008.

Space Operations -- \$6,791.7M

- Approximately 55% of the International Space Station assembly is completed.
- Number of Shuttle Flights Planned for ISS Assembly: 4-5 in 2007; 4-5 in 2008 (including Hubble); 4 in 2009; and 1 in 2010. Contingency flights in 2010 may be manifested, if necessary.
- Space Shuttle Atlantis may be retired after Hubble Servicing Mission
- Lien of \$308 million (in FY09-12) in Space Operations starting in FY09
- Beginning development of two replenishment Tracking and Data Relay Satellite System (TDRSS)
- Plans underway for carefully-considered Shuttle transition to new Exploration systems



Perspective on Science and Exploration

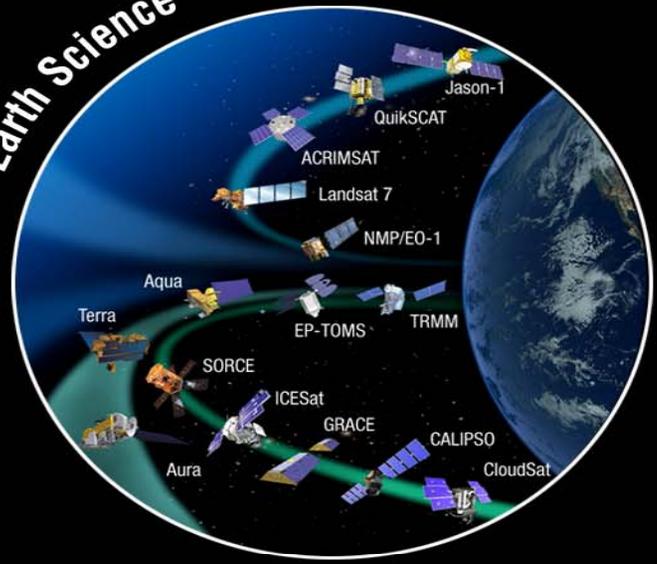


- **The retirement of the Space Shuttle in 2010 and development of new human spaceflight systems occurs once-in-a-generation. A slower rate of budget growth for Science missions is necessary to avoid a prolonged gap in strategic capability of U.S. human spaceflight.**
 - Science program budget is moderated to 1% annual growth in FY08-11, and then growing consistent with NASA's topline growth thereafter (2.4% in FY12).
 - The Science budget is 32% of the total NASA budget today. In 1992, Science was only 24% of NASA's budget.
- **The rate of growth previously planned for Science was not sustainable, given the need to complete International Space Station assembly with the Space Shuttle and need to retire the Space Shuttle by 2010.**
 - In the FY 2007 budget for FY07-11, the Science budget paid \$2.44B and the Exploration budget paid \$1.26B to make up the difference in the previous, placeholder estimated costs for Space Shuttle and ISS operations (additional \$2.2B and \$1.5B needed in FY06-10, respectively).

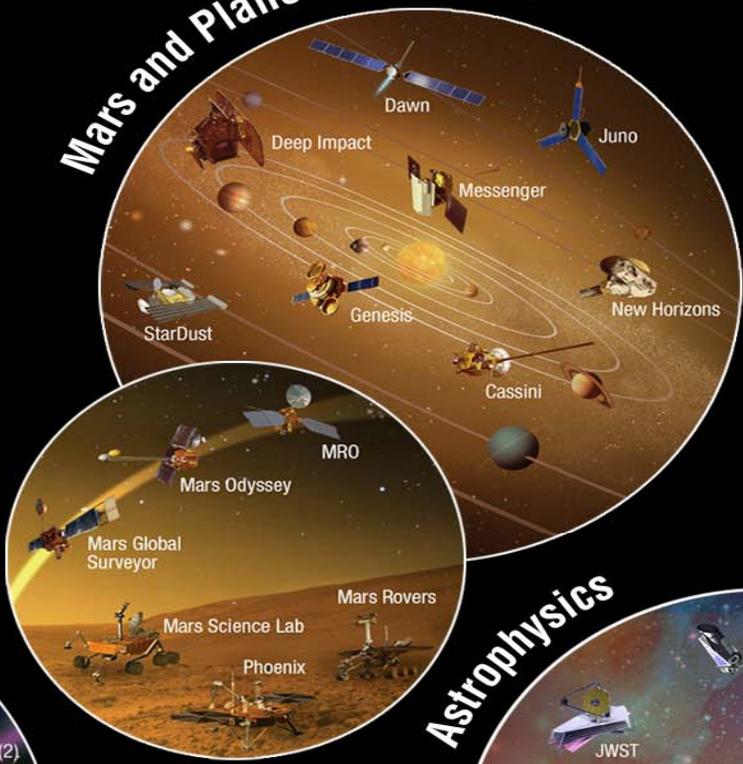


NASA Science Missions

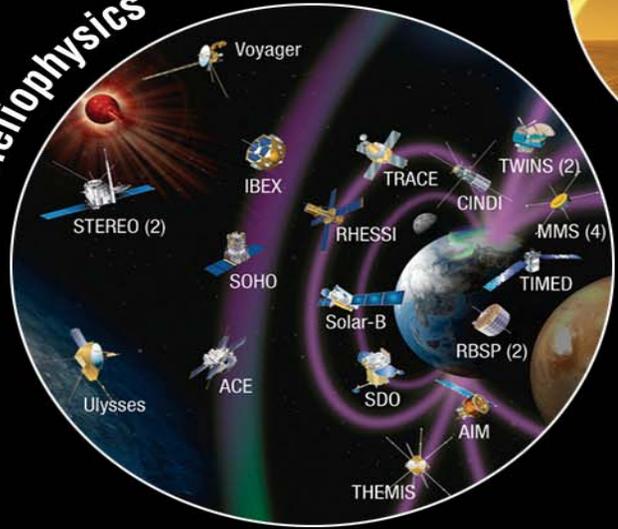
Earth Science



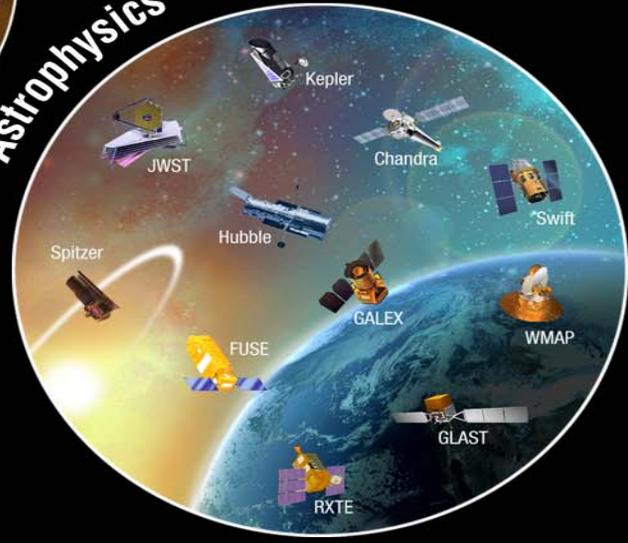
Mars and Planetary Science



Heliophysics

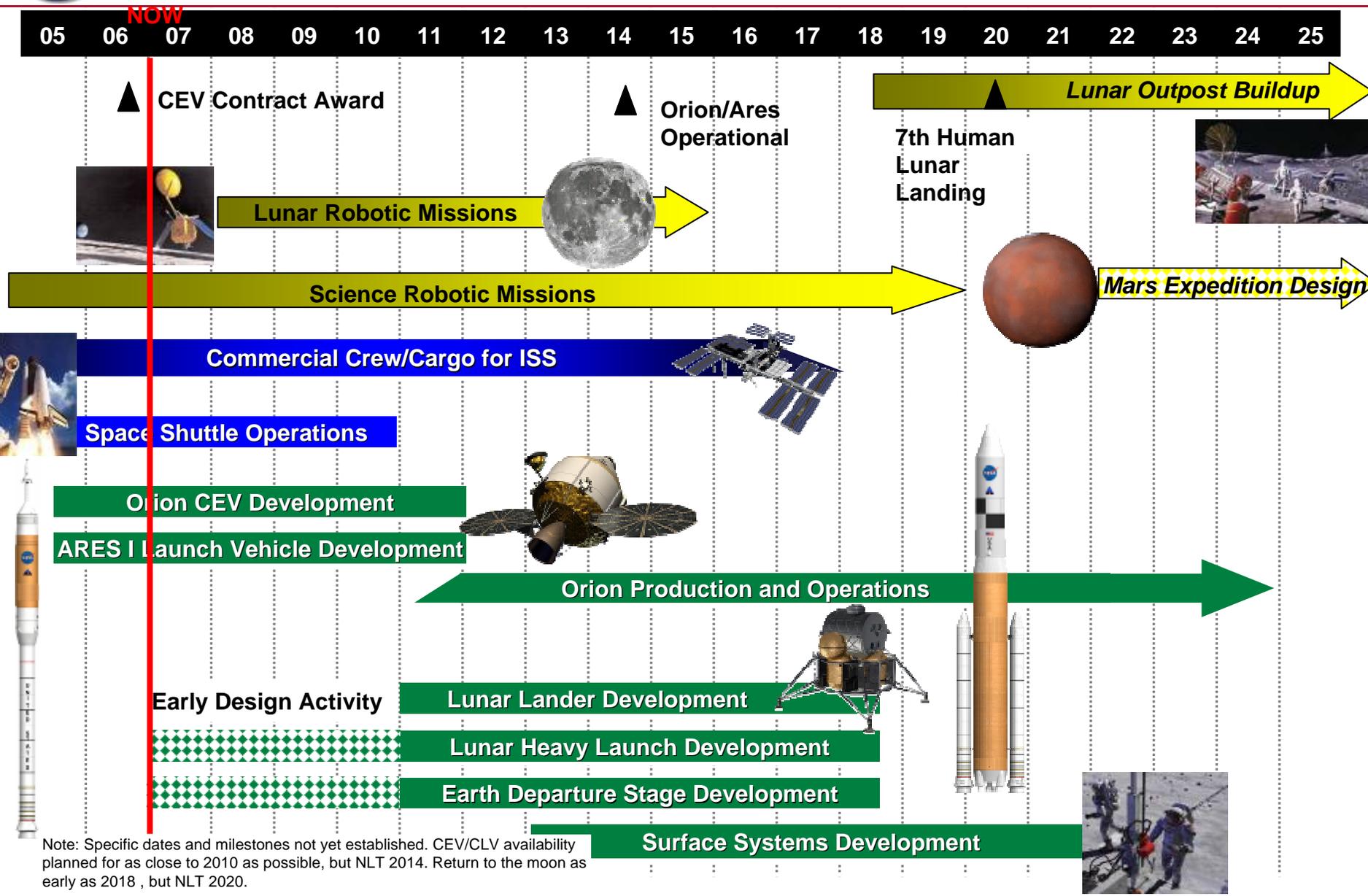


Astrophysics





Exploration Roadmap



Note: Specific dates and milestones not yet established. CEV/CLV availability planned for as close to 2010 as possible, but NLT 2014. Return to the moon as early as 2018, but NLT 2020.



Challenges Ahead

- **Flying the Space Shuttle Safely, International Space Station Assembly, Hubble Servicing Mission**
- **Space Shuttle Retirement and Transition to New Exploration Capabilities**
 - Preserving the Shuttle workforce necessary to fly the Shuttle through Space Station assembly
 - Transitioning key elements of the highly-skilled engineering and technician workforce (appx. 16,000 contractors and 2,000 civil servants) to the new Exploration systems
 - Exploration Systems funding uncertainty with the FY 2007 appropriation and ability to carryover funds during busy development years of FY09-10
 - Operating and maintaining the Space Station post-2010
 - Fully understanding Space Shuttle retirement costs with the disposition of Space Shuttle facilities and equipment (valued at approximately \$5.7B and \$12B, respectively)
 - **Beyond our budget request, NASA is preparing a package of legislative and administrative tools to help in the transition from the Space Shuttle to these new systems.**
- **Affordable, Executable, World-Class Missions**
 - “Go-As-We-Can-Afford-To-Pay” for all NASA Science, Exploration, and Aeronautics Research missions
 - Consistent with the priorities from the National Academy of Sciences’ Decadal Surveys
 - Need to fully understand technical requirements and develop credible cost estimates before initiating development, because technical problems and cost growth hurt credibility
 - While international and interagency collaboration improves the effectiveness of many Science and Exploration missions, dependence also comes with certain management risks in carrying out the missions

NASA’s FY 2008 budget demonstrates the President’s commitment to our Nation’s leadership in space and aeronautics research with a 3.1% increase