Glenn Research Center (GRC)

Highlights*:

- Exploration Technology Development and Demonstration Program: New Program Office to manage $223 million in FY 2011 and $1.8 billion over five years to mature key exploration technologies through laboratory, ground and flight tests.
- Space Technology Research Grants: New Program Office to manage $70 million in FY 2011 and $350 million over five years to support foundational research and graduate studies in key aerospace-related disciplines.
- Aeronautics Research: The FY 2011 funding augmentation will be used to increase research activities into green aviation and Next Generation Air Transportation System (NextGen) capabilities.

* Proposals regarding Program Office assignments will be implemented following Congressional approval of the FY 2011 budget; and funding amounts include the cost of civil service labor.

Center Assets: Located in Cleveland, OH, GRC employs over 1,600 civil servants: scientists and engineers comprise more than half of the workforce, with technical specialists and other skilled workforce focused on space flight systems development, aeropropulsion, space propulsion, power systems, nuclear systems, and communications. Center capabilities that will be tapped in the President's new program include expertise in space flight systems, power and propulsion, program management, and technology innovation, development, and transfer. Specific new activities include the following.

Exploration Technology Development and Demonstration (ETDD) Program Office: This new program will provide a path for bringing key exploration technologies to maturity from the laboratory environment through ground testing, and ultimately to flight testing. Initial demonstration projects are likely to focus on: high-power electric propulsion; autonomous precision landing; in-situ resource utilization (including lunar volatiles characterization); human-robotic systems (including operating robots from planetary orbit); and fission surface power systems. As the Program Office, GRC will coordinate and manage these activities across the nation.

Space Technology Research Grants Program Office: This program will meet NASA's future science and exploration needs, as well as the needs of other government agencies and the commercial space sector, through technological innovation. This portfolio focuses on foundational research in advanced space systems and space technology performed primarily through collaborative efforts between academia and NASA Centers, with the option of including small business and industry partners. A significant aspect of this program is the Space Technology Graduate Fellowship Project which will train the next generation of aerospace

engineers and scientists by funding NASA-related graduate student research performed on campus during the academic year and research performed at a NASA Center during the summer months, gaining hands-on experience. Research selection for this Project will be based on topics that show significant promise for future application toward NASA missions and strategic goals. As the Program Office, GRC will spearhead the development of this approach as part of NASA's new Space Technology Program.

Aeronautics Research Augmentation:

GRC will support the Integrated Systems Research Program, addressing operational and safety issues related to the integration of unmanned aircraft systems (UAS) into the national airspace by providing expertise in: communications related to allocation of radio frequency spectrum; communication links (satellite, line of sight, network and datalink protocols); and simulations (NextGen communication schemes scalable to support the introduction of UAS).

GRC, along with other NASA Centers, will support the augmented research and development efforts, including grants and cooperative agreements, to support NASA's environmentally responsible aviation project. These research plans, which are currently being developed, will include design and feasibility studies, high-fidelity simulations, flight demonstrations, design competitions and prize challenges.