

# NASA Facts

National Aeronautics and  
Space Administration



**John C. Stennis Space Center**  
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## JOHN C. STENNIS SPACE CENTER

### 40 Years of Rocket Engine Testing



Vapor billows from the A-2 Test Stand during the 1,000,000th second of Space Shuttle Main Engine test-firing and flight operations.

NASA's John C. Stennis Space Center (SSC) was initially established as a national testing center to flight-certify all first and second stages of the Saturn V rocket for the Apollo manned lunar landing program. Since 1975, the center's primary mission has been testing the main engines that propel the space shuttle during its 8½-minute ascent to orbit, and has exceeded 1 million seconds of test-firing. SSC's versatile, three-stand E Test Complex with its seven separate test cells serves as a component test facility for future generation rocket engines.

SSC hosts the rocket propulsion test program that manages the propulsion test facilities at Marshall Space Flight Center in Alabama, the White Sands Test Facility in New Mexico and the Glenn Research Center's Plum Brook Station in Ohio, as well as the test facilities at Stennis. SSC's state-of-the-art test facilities include the A, B and E Complexes, designed for rocket propulsion testing from component to

engine to stage-level. The unique waterway system and 125,000-acre acoustical buffer zone that surrounds SSC are considered national assets, and enable testing of large-scale rocket engines and components.

For more than four decades, SSC, located in south Mississippi, has served as NASA's rocket propulsion testing ground. Today, the center provides propulsion test services for NASA and for the Department of Defense, as well as the private sector.

### Applied Research & Technology

SSC's Applied Research and Technology Project Office uses NASA's science research results, remote sensing and other technical capabilities to bridge the gap between research results and the use of data to help its partner agencies (such as the Federal Emergency Management Agency and the U.S. Department of Agriculture) make better informed decisions. Scientists at SSC use remote sensing technologies and their expertise in rapid prototyping to expand and improve prediction capabilities. Through better prediction, they can speed response times to natural hazards and man-made disasters. The Applied Research and Technology Project Office focuses on Coastal Management, one of the Applications of National Priority established by NASA's Science Mission Directorate.



A satellite image of Lake Pontchartrain, New Orleans and the Louisiana-Mississippi Gulf Coast taken by the Landsat Thematic Mapper.

## Technology Development and Transfer

The Science and Technology Division provides research and technology development support to SSC mission areas. In addition, it is responsible for the transfer of NASA-developed technology into the commercial marketplace in order to benefit the nation. The goal is to provide SSC mission directorates with research and technologies that improve the safety, efficiency and effectiveness of propulsion testing, applied sciences and SSC's institution.

Through in-house and joint development partnerships, the Science and Technology Division reduces NASA's mission-related technology life-cycle costs, transfers technology to the private sector and maximizes the return on NASA's technology investment. Examples of programs used to support these efforts are: Small Business Innovation Research, Small Business Technology Transfer, Dual Use Technology Development and Center Director's Discretionary Fund.

## NASA Shared Services Center

NASA Shared Services Center officially opened for business March 1. Projected to employ approximately 500 when fully staffed, NSSC will provide NASA's centralized administrative processing services and customer contact center operations for support of human resources, procurement and financial service applications. The organization will provide increased efficiency, state-of-the-art administrative services processing and include a significant information technology staff.



An aerial view of the administrative complex at Stennis Space Center.

## A Unique Federal and Commercial City

NASA and more than 40 resident agencies share the cost of owning and operating the facility, making it more cost-effective for each agency to accomplish its independent mission.

The Naval Meteorology and Oceanography Command is headquartered at SSC. The command administers a worldwide organization of 3,000 personnel, with nearly one-third of them at SSC, making it the largest concentration of oceanographers in the world. The Naval Oceanographic Office at SSC collects and processes ocean data using ships, aircraft, remotely operated vehicles, satellites, buoys and mobile weather stations for use in oceanographic products. The Naval Research Laboratory is the Navy's corporate laboratory. The NRL at SSC conducts exploratory and advanced technological development, performs research and serves as the lead for mapping, charting and geodesy research for the National Imagery and Mapping Agency. The training ground for the Department of Defense's agent for conducting riverine warfare around the world is Special Boat Team 22. SBT 22 and the headquarters of the Naval Small Craft Instruction and Technical Training School are located at SSC.

SSC is developing a new high-tech aerospace park, with the first occupant being the Lockheed Martin Mississippi Space and Technology Center. Additionally, the Mississippi Army Ammunition Plant Industrial Complex has become a thriving industrial park accommodating high-tech and industrial tenants. It is home to commercial and government endeavors alike, such as Pratt & Whitney Rocketdyne's new RS-68 rocket engine assembly facility.

With this effective cost-sharing philosophy and its reputation for state-of-the-art test facilities, highly trained, professional work force and commitment to safety and customer satisfaction, SSC serves as a model of government efficiency, showing American taxpayers positive returns on their investments.

## Providing Economic and Community Impact

NASA has a workforce of more than 1,700 civil servants and contractors, part of the center's total workforce of approximately 4,500. With more than 1,600 scientists and engineers on site, the center strongly influences the surrounding communities. In 2005, SSC's direct global economic impact totaled \$691 million, with a \$503 million impact on Mississippi and Louisiana communities within a 50-mile radius.

SSC's community involvement includes participation in the Combined Federal Campaign fund-raising drive, hosting the annual Special Olympics, serving as a Civil Defense shelter and conducting workshops and providing materials through the Educator Resource Center.

StenniSphere, the visitor center at SSC, offers free tours of America's largest rocket test complex. Visitors to StenniSphere can see a moon rock along with a space shuttle main engine, an Apollo Saturn V engine and other artifacts from the space program and other institutions.



SSC employs more than 1,600 scientists and engineers.

**For more information about Stennis Space Center, contact the NASA Public Affairs Office at (228) 688-3341, or access the Stennis Space Center Home Page on the World Wide Web at [www.nasa.gov/centers/stennis](http://www.nasa.gov/centers/stennis)**