



# John C. Stennis Space Center



The moon hangs over one of the John C. Stennis Space Center stands used to test the rocket engines for NASA's Apollo and Space Shuttle programs.

# NASAfacts

## Rocket Engine Testing

For more than four decades, John C. Stennis Space Center in south Mississippi has served as NASA's primary rocket propulsion testing ground. Today, the center provides propulsion test services for NASA and the Department of Defense, as well as the private sector. It also hosts NASA's Rocket Propulsion Test Program, which is responsible for managing all of the agency's propulsion test facilities.

State-of-the-art facilities, a seven-and-one-half mile canal waterway system and the 125,000-acre acoustical buffer zone that surrounds Stennis enable delivery and testing of large-scale rocket engines and components.

Stennis was established in the 1960s to flight-certify all first and second stages of the Saturn V rocket for the Apollo manned lunar landing program. From 1975 to 2009, the center's primary mission was to test the main engines that propel the space shuttle during

its eight-and-one-half-minute ascent to orbit.

With NASA's Space Shuttle Program ending in 2010, Stennis now is preparing to test the next generation of rocket engines for America's space program. NASA has announced a change in direction to partner with commercial interests in providing space travel and transportation, and Stennis already is working with commercial companies to supply their rocket propulsion testing needs. For instance, the center has partnered with Orbital Sciences Corporation to provide testing of the AJ26 Aerojet rocket engines that will be used to power the Taurus® II on commercial transport flights to the International Space Station.

Stennis' state-of-the-art test facilities include the A, B and E complexes, which enable testing of components, full-scale engines and rocket stages, as well testing for future-generation engines. An A-3 Test Stand also is under construction to conduct simulated high-altitude testing on engines.



**Stennis scientists use imagery such as this shot of Hurricane Katrina in 2005 to help improve storm prediction capabilities.**

### **Applied Science and Technology**

Stennis' Applied Science and Technology Project Office uses NASA-generated science research, remote sensing and other technical capabilities to help partner agencies, such as the Federal Emergency Management Agency and the U.S. Department of Agriculture, make more informed decisions. For instance, Stennis scientists use remote sensing technologies and their expertise in rapid prototyping to expand and improve hurricane prediction capabilities. They also focus on coastal management, an important consideration for the entire Gulf Coast region and one of NASA's national science priorities.

### **Innovative Partnership Program**

The Office of Innovative Partnership Program (IPP) transfers NASA-developed technologies to the commercial sector to help improve the economic strength of the United States and the quality of life for its citizens. IPP is responsible for the research and development of new technologies, as well as the assessment, certification and acquisition of new and useful technologies from the commercial, academic and government sectors that improve the safety, efficiency and effectiveness of propulsion testing, Earth science applications and Stennis Space Center.

### **NASA Shared Services Center**

Officially opened in 2006, the NASA Shared Services Center located at Stennis provides the national agency

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with centralized administrative processing services and customer contact center operations for support of human resources, procurement, financial management and information technology. The organization provides increased efficiency, state-of-the-art administrative services processing and a significant information technology staff. The work performed by the NSSC frees agency resources that can then be redirected to NASA's core mission.

### **A Unique Federal City**

Stennis Space Center is home to a number of federal, state, academic and private organizations and several technology-based companies that 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, the largest concentration of oceanographers in the world, is headquartered at Stennis, along with the Naval Research Laboratory, the Navy's corporate laboratory. Stennis also is the riverine warfare training ground for the Department of Defense's Special Boat Team TWENTY-TWO, and the headquarters of the Naval Small Craft Instruction and Technical Training School.

Stennis is home to the Lockheed Martin Mississippi Space and Technology Center, the Rolls-Royce North America Outdoor Jet Engine Testing Facility and the Pratt & Whitney Rocketdyne RS-68 rocket engine assembly facility as well.

With its effective cost-sharing philosophy, state-of-the-art test facilities, highly-trained and professional workforce, and commitment to safety and customer satisfaction, Stennis is a model of government efficiency, providing American taxpayers positive returns on their investments.

### **Providing Economic and Community Impact**

NASA has a workforce of more than 2,000 civil servants and contractors, part of the center's total workforce of 5,000-plus. The center has a strong influence on the economy of surrounding communities.

Stennis' community involvement includes, among other efforts, participation in the Combined Federal Campaign fund-raising drive, hosting the area's annual Special Olympics and conducting educator workshops.

StenniSphere, the visitor center at Stennis, offers free tours of America's largest rocket engine test complex. StenniSphere displays include the Science on a Sphere exhibit and various artifact, including a moon rock, a space shuttle main engine and an Apollo Saturn V engine.

**For more about Stennis, contact the NASA Public Affairs Office at 228-688-3341 or visit [www.nasa.gov/centers/stennis](http://www.nasa.gov/centers/stennis).**