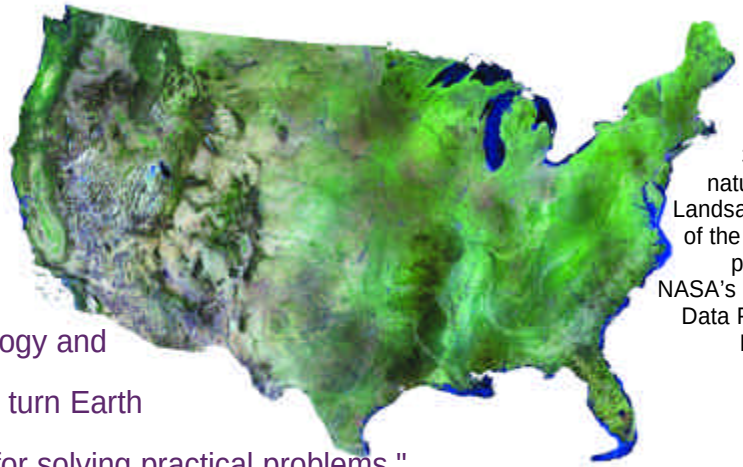
Geospace Applications and Development Directorate

The Geospace Applications and Development Directorate (GADD) at Stennis Space Center is NASA's lead center for remote sensing applications research and development. Its mission is to "extend the benefits of Earth Science Enterprise's (ESE) discoveries, knowledge, technology and data beyond the traditional science community – to turn Earth science results and capabilities into practical tools for solving practical problems."



This 30-meter natural color Landsat mosaic of the U.S. is a product of NASA's Scientific Data Purchase Program.

In support of NASA's ESE, the Geospace Applications and Development Directorate at Stennis conducts a broad range of remote sensing applications projects. Remote sensing is a way to gather information about the Earth using aircraft or satellites. This emerging multibillion-dollar industry has the potential to increase U.S. economic competitiveness in world markets and also provide NASA with a reliable commercial source for scientific data.

Farmers can control cost and increase yields with prescription farming applications.

By using digital images, interpreting photographs, and comparing results to ground truth data, the GADD provides information that has real-world applications. These applications have the potential to enhance our quality of life and to create new products, services and industries based on technology developed by NASA. Some of these applications include:

- Land-use mapping
- Flood plain management
- Crop condition monitoring
- Forest management
- Environmental monitoring
- Natural hazard assessments

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The Geospace Applications and Development Directorate (GADD) at Stennis conducts coastal aquatic research using remote sensing technologies. Remote sensing instruments, both airborne and satellite, are integrated with scientific disciplines such as biology and geochemistry to study the role of coastal environments in marine biochemical cycles. This research is important in understanding how light is transmitted through and reflected from water and how this may be applied through the use of remote sensing in coastal environments.

NASA personnel are also involved in seatruthing, which involves going out to an area of the ocean and taking measurements of phytoplankton, sediment and other constituents of the sea. Seatruthing, used to verify and calibrate data acquired by remote sensing satellites such as the Sea-viewing Wide Field-of-View Sensor, is expected to play a major role in global climate change research.

NASA has entered into a collaborative effort with the Naval Oceanographic Office at Stennis to perform joint field surveys. These activities will provide an even better understanding of coastal environments.

NASA scientists in the GADD conduct archaeological studies using remote sensing as a tool for locating prehistoric, as well as historic, human settlements. These data are used also in studying possible effects of coastal environmental change on the establishment of known prehistoric settlement patterns.

NASA and the Navy at Stennis perform joint surveys of coastal environments.

GADD scientists use remote sensing technology in conducting archaeological studies.

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