

The U.S. Geological Survey Land Remote Sensing Program

In 2002, the U. S. Geological Survey (USGS) launched a program to enhance the acquisition, preservation, and use of remotely sensed data for USGS science programs, as well as for those of cooperators and customers. Remotely sensed data are fundamental tools for studying the Earth's land surface, including coastal and near-shore environments. For many decades, the USGS has been a leader in providing remotely sensed data to the national and international communities. Acting on its historical topographic mapping mission, the USGS has archived and distributed aerial photographs of the United States for more than half a century. Since 1972, the USGS has acquired, processed, archived, and distributed Landsat and other satellite and airborne remotely sensed data products to users worldwide. Today, the USGS operates and manages the Landsats 5 and 7 missions and cooperates with the National Aeronautics and Space Administration (NASA) to define and implement future satellite missions that will continue and expand the collection of moderate-resolution remotely sensed data.

In addition to being a provider of remotely sensed data, the USGS is a user of these data and related remote sensing technology. These data are used in natural resource evaluations for energy and minerals, coastal environmental surveys, assessments of natural hazards (earthquakes, volcanoes, and landslides), biological surveys and investigations, water resources status and trends analyses and studies, and geographic and cartographic applications, such as wildfire detection and tracking and as a source of information for The National Map. The program furthers these distinct but related roles by leading the USGS activities in providing remotely sensed data while advancing



ing applications of such data for USGS programs and a wider user community.

Goal and Objectives of the Land Remote Sensing Program

The fundamental goal of the Land Remote Sensing Program (LRS) is to provide the Federal Government and the public with a primary source of remotely sensed data and applications and to take the lead in defining the future of land remote sensing, nationally and internationally.

To accomplish this goal, the LRS Program is working to attain the following objectives:

- acquire regional and global remotely sensed datasets from multiple sources and participate in defining and developing future satellite missions

- ensure the preservation of and access to the Nation's remotely sensed land data assets through the National Satellite Land Remote Sensing Data Archive (NSLRSDA)
- expand the understanding and applications of remotely sensed data within the Bureau, the Department of the Interior (DOI), and the scientific and user community at large

Program Concepts

The program encompasses three major components: Satellite Mission Operations, Long-Term Data Preservation and Access, and Remote Sensing Research and Data Utilization. Each component performs specific tasks to accomplish the program's fundamental mission and primary objectives.

Satellite Mission Operations (Enter a visual of Landsat orbit here)

Satellite Mission Operations are a primary source for remotely sensed land data from government, commercial, and international assets, including data from National Technical Means (NTM) sources. The Satellite Mission Operations component of LRS coordinates mission requirements with international cooperators, maintains ground receiving stations, and implements new technologies that support ground data reception and processing in preparation for archiving.



Long-term Data Preservation and Access (Enter a visual of a change pair here)

Through the Land Remote Sensing Policy Act of 1992, Congress directed the Secretary of the Interior to establish a public-domain archive of satellite data of the Earth's land surface. The resulting NSLRSDA, managed by the USGS EROS Data Center, includes scientifically relevant global land and coastal observation data captured by Landsat satellites and augmented with data from other government, commercial, and international sources.

As the archive's holdings expand, the collection becomes increasingly valuable for researchers working to understand natural resources, hazards, and long-term changes. The major focus of this component is to manage and preserve these data so that they remain accessible to a broad range of users over time. This entails using state-of-the-art transcription and archiving technologies, transferring the archives to new media as needed, investigating and implementing advanced media and data storage systems for long-term data preservation, and exploring new ways to make data accessible to customers and cooperators.

Remote Sensing Research and Data Utilization

This component advances the use of remotely sensed data and remote sensing technology by the entire USGS and by its cooperators and customers. To accomplish this, LRS is conducting and sponsoring research in remotely sensed land data collection, access, distribution, and applications from current and future data sources. Scientists and engineers sponsored by LRS are investigating new types of satellite systems and sensors, studying promising new data sources, developing new data acquisition programs and sources, and assessing the potential for new data applications. In addition, LRS is seeking new ways to make remotely sensed data products more accessible to the land remote sensing user community, as well as ways to expand and enhance overall use of remotely sensed data and remote sensing technology. The LRS is also working to improve product distribution systems and support new avenues of education and outreach, information access and communication, and remote sensing advocacy.

Who Will Benefit?

The LRS supports a global user community. Entities that will benefit include USGS and DOI programs that use remotely sensed data, including The National Map; other Government agency programs involved in remotely sensed data collection, analysis, and application and/or land management issues, environmental monitoring, and emergency response; the Landsat international ground station/archive network; the USGS business partner network and commercial value-added processors; and the worldwide user community involved in land remote sensing applications.

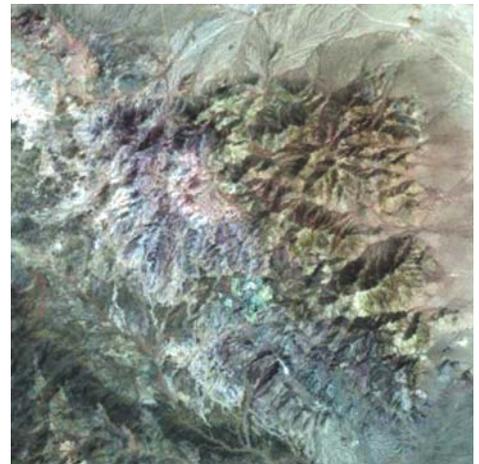
Information

The following sites on the World Wide Web provide additional information about LRS: <http://landsat7.usgs.gov>; <http://edcwww.cr.usgs.gov>; <http://edcintl.cr.usgs.gov>; <http://edcwww.cr.usgs.gov/archive/nslrda/index.html>. Or, contact the U.S. Geological Survey, Geography

Discipline, Land Remote Sensing Program at 703-648-4567.

For information on other USGS products and services, call 1-888-ASK-USGS, or visit the general interest publications Web site on mapping, geography, and related topics at mac.usgs.gov/mac/isb/pubs/pubslists/.

For additional information, visit the ask.usgs.gov Web site or the USGS home page at www.usgs.gov.



Landsat 7 ETM+ FCC of the Drum Mts., Utah



ASTER vnir-swir decorrelation stretch 4(R), 3 (G), 7(B) Saturation stretch.