

USGS Center for EROS - *What We Do*

The U.S. Geological Survey (USGS) Center for Earth Resources Observation and Science (EROS) advances land remote sensing research and science applications that increase our understanding of our planet and result in solutions to societal needs. Operated by the USGS, EROS is a national data reception, processing, archiving, distribution, and research facility for remotely sensed data and other forms of geographic information. The Center collects and distributes many types of remotely sensed and earth science data and investigates ways to use the data in scientific research and in resource planning and management.

The Center's mission is threefold: (1) to promote new uses and new users of land remote sensing data, (2) to ensure that anyone can readily access the data for the lowest costs possible, and (3) to populate and preserve the world's largest civilian archive of land remote sensing data. Specific mission elements are:

- **Earth Observation:** Observe the Earth at all scales to ensure availability of historical and current observations.
- **Terrestrial Monitoring:** Characterize and quantify land surface status and trends to provide a framework for studies at local to global scales.
- **Vulnerability Assessment:** Study potential impacts on population, environment, and economy to assess vulnerability to changes in climate, water, carbon cycle, ecosystems, invasive species, and other societal concerns.
- **Emergency Response:** Apply remote sensing technology and geospatial information to enhance the scientific basis for risk assessment and emergency response related to natural and human-induced hazards.
- **Data and Information Management:** Preserve remote sensing and geospatial data and information and provide timely and ready access for a broad range of users and applications.
- **Training and Assistance:** Promote the use of remote sensing technology by government, academia, private sector cooperators, state and local institutions, the international community, and customers through training and assistance to our partners.

The Center conducts research on remote sensing technologies and development of remotely sensed data products applied to the natural and social sciences. Its engineers and scientists provide the definitive data and information required to understand and monitor landscape characteristics, natural processes, and land management practices that affect society and the environment. The Center's staff provides informed and unbiased assessments of emerging and current science and engineering requirements of the land remote sensing and Earth system science communities. The Center conducts these activities in partnership with other U.S. Department of the Interior Bureaus, the U.S. Department of State's Agency for International Development, the U.S. Department of Agriculture, the U.S. Environmental Protection Agency, the U.S. Department of Homeland Security's Federal Emergency Management Agency, and the U.S. Department of Defense, to name a few.

The Center ensures the long-term viability of remotely sensed data as a scientific resource through the renewal and enrichment of the contents and capabilities of our archive. The archive holds the world's largest collection of civilian remotely sensed data covering the Earth's land masses, housing millions of satellite images and aerial photographs. As part of its role as a data archive, the Center operates the National Satellite Land Remote Sensing Data Archive, a legislatively mandated program designed to maintain a high quality archive of space-acquired images of the Earth for use in studying global change and other related issues. The International Council of Scientific Unions designated EROS as a World Data Center for Remotely Sensed Land

Data and a World Data Center for Land Use and Land Cover Data. Also, the Center provides fully integrated, seamless geospatial data (such as elevation, hydrography, orthoimagery, and land use and land cover) to customers and partners through *The National Map* of the USGS. The Center indexes, catalogs, stores, reproduces, and distributes aerial photographs acquired by many Federal agencies, and photographs and images of the Earth acquired by the National Aeronautics and Space Administration (NASA) research aircraft and spacecraft. Since 1991, EROS has supported the United Nations Environment Programme's Global Resources Information Database, making environmental information available to developing countries.

The Center manages and operates the USGS Landsat satellite program, including the development of the ground processing segment of the next generation Landsat satellite. It operates the flight operations and ground data processing and handling of both Landsat 5 and Landsat 7. The Center operates the Land Processes Distributed Active Archive Center in partnership with NASA, archiving and distributing land data and products from Landsat 7 and NASA's Terra and Aqua satellites. Advanced Very High Resolution Radiometer data from the National Oceanic and Atmospheric Administration satellites are received, processed, and distributed for use in regional and continental studies conducted by Federal agencies. Other data products available from the Center include certain types of USGS digital cartographic data, and other digitized Earth science data resulting from research projects and programs.