

EROS SCIENCE:  
**EXPLORE** THE PAST, TO  
**UNDERSTAND**  
THE PRESENT, &  
**FORECAST** THE FUTURE

EROS scientists have studied land change and how it impacts ecosystems, economics, and everyday life for almost 50 years. Working alongside Federal agencies, educational institutions and other organizations, EROS scientists have analyzed remotely sensed data to determine not only how the Earth's land cover has changed over time, but also the driving forces behind those changes.

**LEADING THE WAY**  
ON LAND CHANGE SCIENCE

EROS research focuses largely on land change monitoring, vegetation and water dynamics, disaster early warning and response, and remote sensing research and development.

**EROS SCIENTISTS WORK ON THE FRONT LINES OF**

- Using satellite, climate, and environmental data to study the health and extent of crops, forests, mangroves, grasslands, and other types of vegetation as they document how plant communities are changing over time
- Analyzing food security by using satellite images and other data to track seasonal changes in vegetation, to monitor drought, to map water use, and to help warn where and when famine may be poised to strike
- Responding to natural and human-caused disasters by supplying satellite and other data critical for emergency responders, relief organizations, and disaster management teams worldwide
- Producing consistent, comprehensive landscape-scale geospatial products that describe vegetation, wildland fuel, and fire regimes across the United States and its territories
- Long-term mapping of land cover and land use nationwide in support of a wide range of natural resources management and development applications, and to provide definitive knowledge of the rates, causes, and consequences of U.S. land change
- Harnessing the remote sensing capabilities of satellite data to model consumptive water use by agriculture, communities, forests, and more—a valuable tool for water managers and policy makers that also is used for the National Water Census and National Water Use Science Project
- Developing models to forecast changes in land cover/land use based on socioeconomic, climate, or resource management scenarios
- Contributing high-resolution coastal elevation data that are vital for mapping flood hazards and inundation, sea-level rise, storm surge, and restoration efforts

**IMPACTING LIVES**  
WITH THE WORK WE DO

EROS Science helps improve global food security, recovery after fires, emergency responses, and more.

**SCIENCE WORK AT EROS HAS HELPED TO**

- Direct millions in metric tons of food and billions of dollars to Third World countries facing famine and food insecurity
- Protect individuals and communities from deadly mudslides that occur when rains fall on mountainsides denuded after wildfires
- Warn farmers of coming droughts, forest managers of insect invasions, and island dwellers about the rising seas
- Enable logical solutions for the sharing of water between urban and rural interests

Understanding the how and why of past land cover and land use change makes it possible to more accurately predict future changes and their impacts on people, environments and resources. That's what the Integrated Science Applications Branch at EROS does today. That's what it promises to do tomorrow.