Center for Integration of Natural Disaster Information

The U.S. Geological Survey's Center for Integration of Natural Disaster Information (CINDI) is a research and operational facility that explores methods for collecting, integrating, and communicating information about the risks posed by natural hazards and the effects of natural disasters. The U.S. Geological Survey (USGS) is mandated by the Robert Stafford Act to warn citizens of impending landslides, volcanic eruptions, and earthquakes. The USGS also coordinates with other Federal, State, and local disaster agencies to monitor threats to communities from floods, coastal storms, wildfires, geomagnetic storms, drought, and outbreaks of disease in wildlife populations.



Hurricane Floyd Response (September 1999): The CINDI collaborated with other USGS offices through the USGS Hurricane Response Team to collect field data, imagery, and map information for use in quantifying the effect on water quality caused by flooded hog and poultry farms. These activities provided valuable information for emergency response communities in North Carolina, Virginia, and New Jersey to assess threats to human health.

Integration of Hazards and Disaster Data

Natural hazards become natural disasters when they affect people, the structures that they build, and/or important ecosystems. Natural disasters injure and kill people, damage or destroy property, weaken the societal infrastructure, and cost the United States billions of dollars each year in economic losses. Scientific analysis of hazard and disaster data is needed before, during, and after a natural disaster to understand its effect and dimension and to determine how best to respond to existing and potential losses and how to aid with recovery activities. CINDI data integration specialists contribute to scientific analysis by combining, or integrating, data from multiple sources to create custom geospatial and communication products that portray hazards and disasters. These products help USGS hazards scientists and the disaster response community to save lives, lessen economic losses, and reduce the severity of a natural disaster's effects. The CINDI is emerging as the USGS focal point for hazard information through research, disaster response, and outreach.

Research

The CINDI Research Program promotes interdisciplinary research for hazards response and mitigation. Grants are awarded annually to USGS hazards researchers through a competitive proposal evaluation process. Scientists using the evolving CINDI research facility have access to cutting-edge geospatial technology for hazards studies. Research activities range from developing new methods for evaluating and analyzing hazards and disaster data to designing predictive mod-



CINDI staff research three-dimensional digital mapping technology for use in tracking water pollution from coal mines in Pennsylvania.

eling and decision support systems for hazard response activities. Research applications help citizens, local and State officials, and Federal managers make well-informed decisions when faced with a natural hazard or disaster.

Disaster Response

Before, during, and after a disaster, the CINDI focuses on near-real time monitoring efforts. Before a disaster strikes, the CINDI integrates and disseminates information gathered from the USGS hazards programs and other official sources on hazards such as approaching hurricanes, volcanic activity, landslides, and drought potential. During a disaster, the CINDI integrates data from multiple sources to quickly provide information and custom geographic information system products needed by decision makers and recovery teams. The CINDI staff facilitates disaster-response meetings that link headquarters staff to field personnel using conference calling and the Internet. In collaboration with USGS hazards and external affairs programs, the CINDI disseminates disaster information to the media and other USGS employees. After a disaster, the CINDI obtains remote sensing data to combine with existing spatial information to assess the disaster's impact.

Outreach

Outreach is a natural derivative of the CINDI data integration and research roles. CINDI outreach enhances the visibility of the USGS as a leader in natural hazards information, both within the USGS community and throughout the natural hazards community worldwide. The CINDI promotes the activities of the USGS hazards programs through its Web site, briefings to visitors, and facility tours. The CINDI facility is designed for outreach and accommodates audiences of varying sizes and technical levels. It is available to all USGS staff to use as a showcase for USGS hazards programs, to conduct disaster-related meetings, or to carry out research.

Information

For more information on the CINDI, please contact:

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For information on other USGS products and services, call 1-888-ASK-USGS, use the Ask.USGS fax service, which is available 24 hours a day at 703-648-4888, or visit the general interest publications Web site on mapping, geography, and related topics at mac.usgs.gov/mac/isb/pubs/pubslists/index.html.

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



CINDI scientists provide numerous outreach briefings and tours each month to national and international scientists, professionals, and education groups.



Hurricane Mitch was one of the deadliest hurricanes in the history of the Western Hemisphere. From October 27 through November 1, 1998, it battered the Caribbean coast and parts of Honduras, Nicaragua, El Salvador, and Guatemala, in Central America (the storm track is shown in gray). In response to this disaster, the CINDI produced an atlas of more than 40 map layers that can be combined to generate custom maps of the affected area. The atlas can be viewed online at http://cindi.usgs.gov.