



Mississippi State University

Levee Assessment via Remote Sensing



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Prevent, Protect, Respond, Recover

Homeland Security Challenge:

Managers and federal agencies need to rapidly assess the condition of levees to identify, classify, and prioritize potential problems. In Mississippi, hundreds of levees are not monitored, limiting the ability to evaluate the risk for catastrophic failure. A system to provide continuous and accurate assessment is critical to minimize cascading disasters.

Research Project Solution:

This research project is developing a new method using airborne Synthetic Aperture Radar (SAR) to support levee assessment and is also developing computer software to classify and prioritize levees in relation to potential risk. As a result of this project's research and developed applications, better knowledge of the health of levees in Mississippi will be obtained. This knowledge will significantly improve the allocation of both manpower and funding for levee inspection, testing, and repairs in most need.

National Implications:

The potential loss of life and property associated with the catastrophic failure of dams and levees is great. Over the entire U.S., there are more than 100,000 miles of dam and levee structures. The methods and software developed by this project can be extended throughout the nation to improve the ability to assess the vulnerability of these flood control structures and to efficiently and cost-effectively target improvements where needed.



Levee slope failure – this 700 ft section of levee slid into the east side of the Mississippi River at Darrow, in Ascension Parrish, Louisiana, just south of Baton Rouge.



NASA's Gulfstream III research aircraft. The UAVSAR (Unmanned Aerial Vehicle Synthetic Aperture Radar) is being used to collect radar imagery of levees for analysis.

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SERRI is managed by the Department of Energy's Oak Ridge National Laboratory for the U.S. Department of Homeland Security