MISSISSIPPIVIEW 2019 - 2020 Activities

MississippiView was established in 2003 and is led by the Mississippi Mineral Resources Institute (MMRI) at the University of Mississippi. We promote and facilitate geospatial data usage, research, and collaboration among the geospatial community in Mississippi while fostering national and international cooperation.

Our high impact activity (HIA) involved the use of satellite-based synthetic aperture radar (SAR) to detect and monitor ground surface subsidence. This activity brought a focus on the use of satellite data, processing software, and methods for elevation changes in the Lower Mississippi River Valley. Not only is radar data an excellent way to monitor flooding and the extent of inundation, but by comparing waveform data (interferometry) from two different dates, this data can also be used to detect elevation changes. This is important because changes in elevation can impact how well levees and floodwalls protect cities and other important infrastructure.

This HIA supported the research work of a geological engineering graduate student. A thesis was successfully completed, and results were distributed at conference and several local presentations.

In addition to active research, MississippiView is engaged in developing partnerships within the state to promote use of geoinformational data and tools. We have teamed with outreach efforts from the University of Mississippi’s School of Engineering to provide spatial data and aerial imagery to support student groups at Rust College in Holly Springs, Mississippi—the state’s oldest HBCU.
• Flooding and groundwater withdrawal are of utmost importance to the State of Mississippi. Monitoring these processes lead to a more effective response to a natural disaster and better management of a valuable resource.
• The state of Mississippi is susceptible to several geohazards including flooding, river/lake bank stability issues, regional and local subsidence, and expansive soils. Satellite-based radar products can provide valuable tools for the detection and monitoring of these geohazards.
• Seismic activity in the northern part of the state can induce liquefaction hazards. Groundwater withdrawal from shallow aquifers can, over a long period of time, produce damaging ground subsidence.
• Other projects that benefit the state include the use of satellite imagery to monitor habitat of gulf coast oysters. Oysters are an important resource to the Mississippi Gulf Coast. Landsat data is used to monitor water quality parameter such as turbidity, thermal and land use change in upland watersheds.
• The M-Partners is a program that connects University of Mississippi capabilities with the goals and needs of local communities. MississippiView has participated by collaborating with the leaders of Charleston, Mississippi. We provide geospatial and remote sensing data related to their economic development and policy, marketing and tourism, and resiliency efforts.

Results from the research supporting our HIA and non-HIA was presented at: