



RSM

Regional Sediment Management

Gulf of Mexico Initiative

The RSM (Regional Sediment Management) Rapid Prototyping Capability experiment was designed to demonstrate the use of VIIRS (Visible/Infrared Imager/ Radiometer Suite) sensor data as an input to RSM decision support systems.

Transported sediment, and its associated erosion and accumulations in the contiguous United States, has caused damages of up to \$16 billion a year. Sediment loads due to erosion of source areas can cause elevated water turbidity that, in turn, causes excessive sediment deposition in the Nation's watercourses, streams, and rivers.

Knowledge of sediment patterns is important to coastal planning, ecological forecasting, water and disaster management, and public health. Sediment loads carry with them such substances as dissolved and particulate organic and inorganic matter, including pesticides, pathogens, metals, and nutrients. The extent and direction of the sediment plume is indicative of where these materials may settle or spread. Sediment deposition contributes to processes such as marsh creation, coastal accretion, and shoaling of shipping channels. Suspended sediments create turbidity, which in turn keeps light from reaching submerged aquatic vegetation.

For the rapid prototyping experiment, MODIS (Moderate Resolution Imaging Spectroradiometer) data were used to simulate the VIIRS data. MODIS data were used with empirical models and in-situ measurements of suspended sediment concentrations from Mobile Bay, AL. The in-situ data was collected by the DISL (Dauphin Island Sea Lab) and by Mississippi State University on Nov. 8 and Nov. 9, 2007. Additional in-situ datasets were provided by the DISL, courtesy of Dr. Hugh MacIntyre.

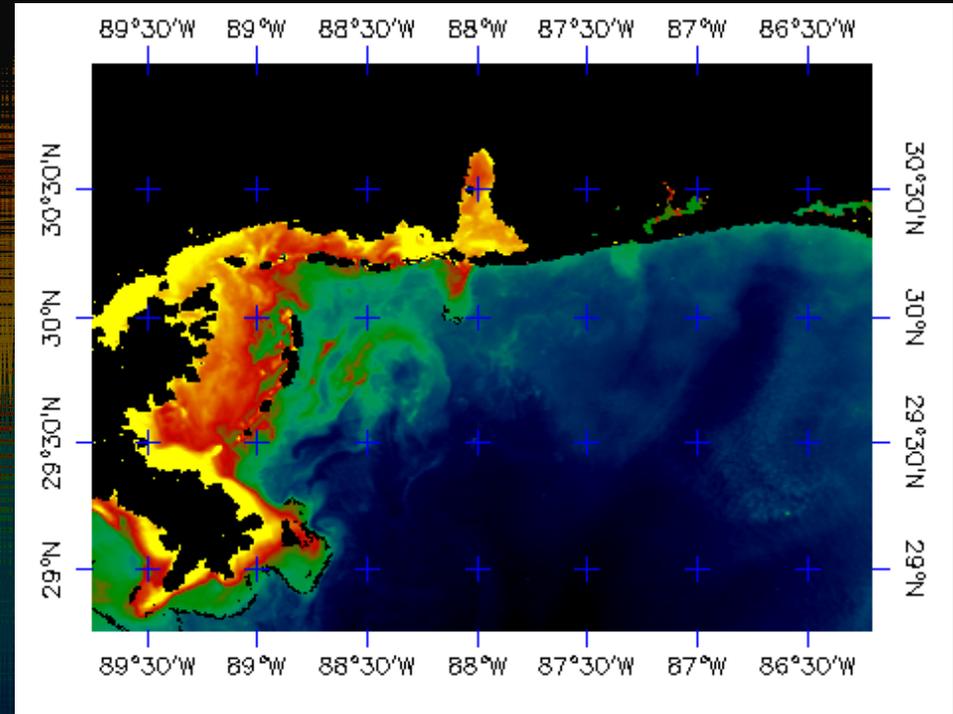
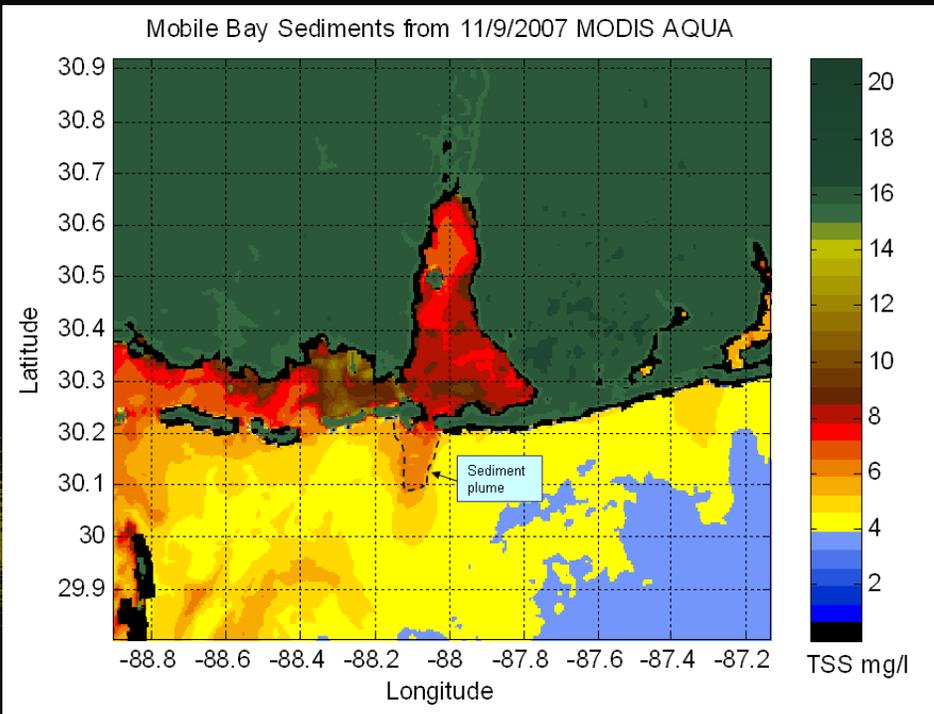
For more information please contact the following at Stennis Space Center:

Jean Ellis
Phone: 228.688.1185
Email: Jean.T.Ellis@nasa.gov

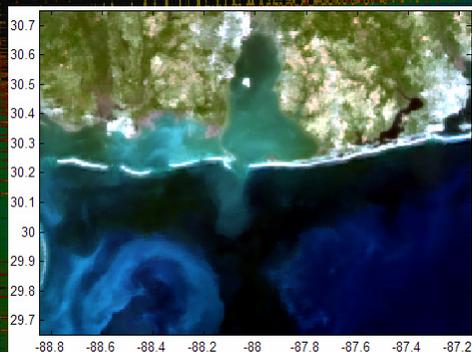
Craig Peterson
Phone: 228.688.1984
Email: Craig.A.Peterson@nasa.gov

www.coastal.ssc.nasa.gov

Gulf of Mexico Initiative



The images above show total suspended sediment concentrations for Mobile Bay estimated from simulated VIIRS data and in-situ data. The extent of the sediment plume, estimated to contain 6-7 mg/l of suspended sediment, is visible at the mouth of the bay



< Simulated VIIRS data for Nov. 9, 2007, is shown for Mobile Bay. VIIRS data (750m resolution) were simulated from MODIS data

> Total suspended sediment contours, estimated from simulated VIIRS data, shown here for Mobile Bay.

