
An Improved Ocean Observing System for Coastal Louisiana: WAVE-CURRENT-SURGE Information System

Xiongping Zhang¹, Gregory W. Stone², DeWitt Braud², and Yuliang Chen²

¹Applied Science Associates, Inc., 70 Dean Knauss Dr., Narragansett, RI 02882

²Coastal Studies Institute, Louisiana State University, Baton Rouge, LA 70803

ABSTRACT

The WAVE-CURRENT-SURGE Information System (WAVCIS) is a regional ocean observing and forecasting system. It was designed to automatically measure, process, forecast, and distribute oceanographic and meteorological information. WAVCIS was developed and is maintained by the Coastal Studies Institute (CSI) at Louisiana State University. The *in-situ* observing stations are distributed along the central Louisiana and Mississippi coasts. The forecast region covers the entire Gulf of Mexico with emphasis on offshore Louisiana. By using state-of-the-art instrumentation, WAVCIS provides data on waves, currents, temperature, water level, visibility, humidity, turbidity, and salinity. Through satellite communication links, measured data are transmitted to the WAVCIS laboratory. After processing, they are available to the public via the internet on a near real-time basis.

WAVCIS also includes a forecasting capability. Waves, currents, and winds are forecast every day for up to 84 hours in advance. The third generation wave models, WAM and SWAN, are running for operational purposes to forecast waves at CSI. Other numerical forecasting, *e.g.*, ADCIRC, Wave Watch 3, running at SURA Coastal and Ocean Observing and Prediction (SCOOP) partners' sites, have also been published through OGC compliant mapping services to end users at CSI. Both *in-situ* and forecast information is available online to end users through the World Wide Web. Interactive GIS web mapping is implemented on the WAVCIS webpage to visualize the model outputs and *in-situ* observing data. WAVCIS data can be queried, retrieved, downloaded, and analyzed through the web page. Near real-time numerical model skill assessment can also be performed using the data from *in-situ* observing stations.