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COMPS - The West Florida Shelf's, Real-Time, Coastal Observing System

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The University of South Florida/College of Marine Science's (USF/CMS) Coastal Ocean Monitoring and Prediction System (COMPS) was implemented in 1997 as a State of Florida legislative initiative to improve advanced storm warning capabilities along the Gulf of Mexico's west Florida coast. Coupled with complementary funding, the COMPS real-time coastal observing system has grown to eight coastal stations and four offshore weather buoys. Additional sites and a HF Radar for surface current measurements offshore Tampa Bay are planned. National standards are used to collect, process, and archive data. Data collection platforms transmit data hourly to USF/CMS via the NOAA/GOES satellite. Coastal stations record tide levels referenced to a national datum along with meteorological, water temperature, and salinity measurements. Offshore buoys record meteorological, water temperature, salinity, and in-water current measurements. In addition, nowcast and forecast sea level and circulation models are in operational test mode. Data and model products are disseminated in real-time to federal, state, and local emergency management officials via the Internet (URL http://comps.marine.usf.edu), direct FTP, as well as site-specific methods. COMPS provides real-time data for local emergency management use, improved flood and marine forecasting, search and rescue, tracking of hazardous material spills, and oceanographic research studies. COMPS fulfills requirements of the planned US Integrated Ocean Observing System (IOOS) and provides an example of the practical value of university research.

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The Accurate Measurement of the Moisture in the Atmosphere Using the Global Positioning System

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The total amount of moisture in the form of water vapor distributed throughout the atmospheric air column above a monitoring site can be ascertained by using precise measurements made by stationary surveying-grade Global Positioning System (GPS) receivers located on the ground. The accuracy of these determinations is enhanced by co-located Meteorological (MET) sensors that report the atmospheric pressure, temperature, and relative humidity also at ground level. The communication to a central network computer of the time series of the GPS and MET data is via dedicated land-lines or through the Internet. Further processing of these data is done to obtain successive determinations, with a five-minute time resolution, of the Integrated Precipitable Water Vapor (IPWV) contained in the air mass above each monitoring station. These derived values of IPWV are reported as inches or centimeters of rain and represent the entire amount of water vapor in the atmospheric column. In the United States, most of the atmospheric IPWV measuring sites are located at US Coast Guard Differential Global Positioning System (DGPS) electronic aid-to-navigation monitoring stations. This is where high accuracy GPS receivers are installed for navigational purposes. The position-error information (the GPS "noise") that is transmitted to DGPS users from these reference stations is the "signal" that is analyzed to compute, when combined with the measurements of other variables, the atmospheric moisture content.

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Comparisons of Fish and Decapod Crustacean Distribution Between Smooth Chordgrass, *Spartina alterniflora*, and Black Mangrove, *Avicennia germinans*, Marsh Edge in Central Louisiana

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Although Spartina salt marshes dominate at temperate latitudes and mangroves are restricted to tropical and subtropical coastlines due to cold intolerance, the two vegetation types do occasionally co-exist. If global average temperatures increase as projected (IPCC, 2001; +1.4 – 5.8ºC by 2100), ecologically and economically important species, which use present day Spartina marshes as nursery grounds may be impacted as black mangroves, expand their northern limit. This study is a rare example of an estuarine biocomplex response to Global Climate Change (GCC). A GCC related shift in vegetation range which then "complexes" with a resultant shift in estuarine habitat utilization by juvenile finfish and decapods. Flume nets and seines were used to sample the fishes and macrocrustaceans twice monthly within adjacent mangal and salt marshes located on the edge of Bay Champagne and surrounding tributary canals on the central coast of Louisiana. Data was collected from October, 2000 through October, 2001. Certain species have shown differential utilization between habitats within the same source/ supply of water. The newly-created habitat from mangrove expansion may result in a fundamental change in species utilization and fish nursery ground function, which may have ecological and economic ramifications for Louisiana's coastal wetlands.

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Assessment and Correction of the Historical Beam Attenuation Data from HOT – ALOHA & BATS Stations

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Comprehensive analysis, quality control, and adjustment of the beam attenuation data from the Hawaii Oceanographic Time-Series (HOT) and from the Bermuda Atlantic Time Series (BATS) data sets collected during the last decade using different instruments has been performed. These data were collected at fixed locations in the Atlantic and Pacific Oceans and provide important data on seasonal and interannual variations, and cover all seasons. The unprocessed or pre-processed data reside in the appropriate laboratories, but we have observed several different characteristic errors in the data, making some of the data unreliable for modelling and analysis in their present condition. The adjusted data used for assessment of the regional and seasonal Beam Attenuation - Particulate Organic Carbon relationships. After final checking and format adjustment the data will be posted on HOT, BATS and TAMU web-servers. We will analyze the data for seasonal and interannual variability. These data also will become available to the scientific community for the purpose of modelling ocean carbon cycles or evaluating the output from existing models.

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