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THE SIO MARINE OBSERVATORY — THE DEVELOPMENT OF AN INSTRUMENTED, OFFSHORE TEST PLATFORM FOR OCEANOGRAPHIC RESEARCH

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LONG TERM GOALS

To develop a Marine Observatory at Scripps Institution of Oceanography that will provide researchers, development engineers, resource managers and others access to platforms that can be used to help develop new technologies; that will provide long time series measurements; and that will support multidisciplinary measurements in the littoral zone and across the coastal ocean.

SCIENTIFIC OBJECTIVES

The scientific objectives of this contract are to refurbish and modify two 10-m NDBC buoys to make oceanographic and meteorological measurements in the littoral zone and coastal ocean; to equip these platforms with a basic set of sensors and to make these data available to the community through a networked data acquisition system; to demonstrate the suitability of these platforms for basic and applied research in the coastal ocean and littoral zone; to make available these platforms to the research community to be used for the development of new technologies and for basic and applied research projects in the coastal ocean.

APPROACH

Understanding the processes that control the coastal ocean and littoral zone requires a comprehensive system of physical, chemical, biological and geological measurements between the shoreline and the continental slope. To demonstrate the utility of these measurements we are developing a Marine Observatory at Scripps Institution of Oceanography. Components of this observatory include oceanographic and meteorological measurements on the SIO pier, the deployment of two 10-m buoys between 2 and 20 km offshore to obtain in situ measurements across the coastal zone, a fiber optic network in the Scripps Canyon and over flat topography, acoustic remote sensing of the flow between the SIO pier and Buoy 1 at 2 km, radar techniques, such as CODAR or OSCAR to map the surface wave field, and surface based LIDAR, a network of shore-based pressure sensors, SODAR, wind profilers and digital imaging techniques to map the structure of the marine boundary layer and the air above.

WORK COMPLETED

The refurbishment of both 10-m buoys has been completed. Buoy #1 has been equipped with basic meteorological and oceanographic sensors. A data telemetry and acquisition system has been developed to provide web access and display for buoy information.

RESULTS

Not applicable to this contract at this time.

IMPACTS

This project has engendered considerable interest within the local community in San Diego as a source of meteorological and oceanographic data for use by schools and university researchers. Information from these platforms is available also to 3rd Fleet operations in San Diego coastal waters.

TRANSITIONS

Not applicable to this contract at this time.

RELATED PROJECTS

Several other programs are using Buoy #1 as a facility to test new measurement techniques. A group at IGPP are developing a GPS seismic array that can be deployed on the buoy. A group at NRAD are using the buoy as a source for a low-flyer detection program.