Xylem Worldwide Virtual Show
Coastal Data Buoy for Real-Time Observations

November 29th, 2012

Meteorological measurements
- Wind
- Air temperature
- Air pressure
- Visibility
- Precipitation
- Relative humidity

Data Buoy
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Real-time communication from Aanderaa Hyd/Met system distributed by AIS system.
Key messages from this presentation

- The introduction of the SmartGuard DCP opens new possibilities for a multidisciplinary approach to marine environment monitoring.
- The use of Aanderaa real-time communication protocols and web-based data display program GeoView allow for immediate access to the data from any place in the world with an Internet connection.
- The customer has been provided with a cost-effective but comprehensive solution to its needs for environmental information from an isolated and otherwise inaccessible location.
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Background

The Mexican National Commission for Use and Protection of Biodiversity (CONABIO), needed a real-time system capable of measuring meteorological, oceanographic and water quality parameters.

Depth in the area: 20m

Distance from shore: 20NM

Due to the distance to shore, radio telemetry was not an option. AADI implemented an interface to a GOES satellite modem on the SmartGuard data collection platform.
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Study area

Oceanographic interest:
- Frontogenetical and upwelling processes
- Algal blooms
- Proximity to protected ecosystems
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For a supporting platform, a cost effective navigation buoy was selected.

It is a polyethylene rotationally molded buoy with a 1.75m diameter. The lower section is filled with polyurethane foam and 150 kg concrete ballast. The two upper sections are usable for equipment. A 120W solar power pack accompanies the buoy.

The reserve buoyancy of the buoy is 600kg and the buoy has a life expectancy of 20 years.
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The buoy manufacturer custom-built a hatch in the mid section of the buoy and an internally welded moon pool for underwater sensors. The moon pool was modified in-house to accommodate our specially made instrument frame.
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- Wind direction
- Wind speed
- Solar radiation
- Net radiation
- Atmospheric pressure
- Temperature and relative humidity
- GPS antenna
- Satellite antenna
- Buoy orientation
- Charging regulator
- SmartGuard DCP
- Satellite transmitter
- Solar panels
- 2.12V DC batteries
- Chlorophyll
- Conductivity
- Dissolved oxygen and temperature
- Turbidity
- Current speed and direction
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The Data Collection Platform

• Full integration with Aanderaa smart and legacy sensors and third party devices:
  • Over 20 AiCaP sensors
  • Up to 10 SR10 sensors
  • Up to 6 analog sensors
  • Up to 5 serial sensors
  • Up to 4 digital sensors
• Individual power control of sensors
• USB, Ethernet and serial communications
• Easy setup in the field or remotely
• Large data storage capacity (2GB)
• Low power consumption
• Telemetry options include Ethernet, radio, GPRS, satellite
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Assembled mid and top sections

Electronics in mid and top sections

General view of the Data Buoy
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Construction details

- Internal mast for structure reinforcement
- Custom-built instrument well
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Construction details

Water protected connections and enclosures

DCP and batteries in watertight section of the buoy
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Construction details

High quality water-resistant decals as per customer supplied design
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Buoy packed and ready for shipment. The white pipe contains the submersible instruments to be inserted in moon pool.
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Deployment

The size of the buoy allowed for easy deployment from small vessel (36x8m)

Final adjustments and underwater views
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Data display

The data is transmitted hourly via GOES and received at the servers of the Mexican Navy. The data can be seen at:

Thank you

For more information, please contact me at:

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