

- Improved Data Quality
- User-customized Applications
- Reduced Installation & Maintenance Costs

# WATCHDOG 1000™

Real-Time Deepwater Meteorology & Ocean Monitoring System  
for the Offshore Industry

# THE NEW ALTERNATIVE

## to Platform-mounted Oceanographic Sensor Systems

### WatchDog-1000™

**Captures the most accurate data critical to safe operations and sound engineering design of oil and gas platforms.**

**WatchDog-1000** monitoring system is a rugged, moored metocean monitoring system independent of oil platforms that is open-ocean survivable and reconfigurable to provide ocean current data from the near-surface to deep-water.

**WatchDog-1000** is completely customizable to offer a wide variety of data acquisition solutions including wind, wave, and current profiles in real-time (for example, every twenty minutes 24/7/365) in a variety of environments. The system's surface buoy, integrated with sub-surface and mooring components, requires no physical connection to the oil platform, provides unobstructed instrumentation for high quality data, and enables easy servicing. The surface buoy is completely self-powered by solar. One system strategically placed may serve the Bureau of Ocean Energy Management's Notice to Lessee (NTL) real-time data requirements for multiple platforms.

**WatchDog-1000** is designed, manufactured, tested, deployed, and maintained by Woods Hole Group around the world in waters from the near shore to full ocean depths without requiring the services of platform engineers.

#### REAL-TIME SYSTEMS FOR OFFSHORE OIL & GAS OPERATIONS

State-of-the-art real-time monitoring systems provide the means to measure ocean current profiles in ultra-deep water, surface currents, waves and winds. Real-time data are updated at frequent programmed intervals and displayed on the host facility or transmitted to multiple locations as needed on shore. The reasons for collecting current profiles are wide ranging – from satisfying regulations (MMS NTL No. 2009-G02 in the Gulf of Mexico) to assisting operations by monitoring sometimes rapid changes in the strength of currents associated with mesoscale features such as eddies – to collecting data to improve regional databases used in design.

Along with deepwater applications for the offshore oil and gas industry, **WatchDog** systems are configurable for:

- Port & Harbor Monitoring
- Global & Integrated Ocean Observing Systems (GOOS/IOOS)
- Marine Renewable Energy Project Planning & Design
- Defense & Maritime Security
- Ocean Research



### Real-Time System Specifications

#### SENSORS AND MOORING DESIGN

A typical configuration of the **WatchDog-1000** monitoring system consists of a 3-meter diameter foam-hull surface buoy and an instrumented subsurface float at 450 meters, in a compound mooring configuration.

The surface buoy instrumentation suite may consist, for example, of a 300 kHz Acoustic Doppler Current Profiler (ADCP) looking downward to a depth of 100 meters, a directional wave sensor, meteorological sensor package, a data acquisition and logging system, and dual redundant telemetry systems.

The subsurface float may contain dual 75kHz ADCPs looking up and down in the water column, a data acquisition system, and acoustic telemetry equipment to communicate with the surface buoy. This combination of ADCPs and telemetry provides high-quality ocean current profile data from near-surface to 1000m depths, in real time (20 minute averages). Additional subsurface current meters can be placed on the mooring line and connected by inductive telemetry to the subsurface float. Sufficient battery power is provided for the subsurface instruments to enable operation for more than 1 year without need for recovery of the mooring.

When the telemetered data have been received on shore, they are processed, archived and displayed on a customer-specific real-time website with protected access. The data can be transmitted automatically to the National Data Buoy Center as required by the NTL, and are also available to the customer in digital form.



SUBSURFACE FLOAT

MOORING CONFIGURATION

SUBSURFACE CURRENT METER

### PROJECT ELEMENTS

#### SYSTEM CONFIGURATION

**WatchDog-1000** monitoring system is completely customizable to match a wide variety of client data acquisition requirements.

#### DATA ANALYSIS & REPORTS

Woods Hole Group specializes in oceanography and ocean engineering and can add value to measurements from the **WatchDog-1000** monitoring system depending upon customer requirements. Data reports, design criteria studies, and specialized projects such as fatigue analysis and internal waves are within our expertise.

#### MOBILIZATION

Prior to installation of **WatchDog-1000** monitoring system, all equipment is tested and integrated.

#### INSTALLATION

Woods Hole Group installs the **WatchDog-1000** monitoring system, which eliminates the need for involvement of platform personnel. Once the installation is complete, Woods Hole Group engineers train the client or rig-designated personnel in data retrieval and interpretation.

#### SERVICING

**WatchDog-1000** monitoring system includes a Preventative Maintenance Plan with routine and unscheduled field service provided by Woods Hole Group.

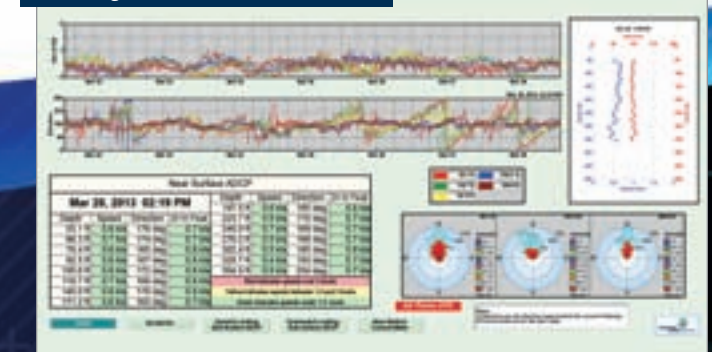
#### DEMOBILIZATION

At the completion of the measurement program, the entire **WatchDog-1000** monitoring system may be demobilized, extracted from the ocean, or simply transferred to a new location.

WatchDog-1000 Daily Summary Screen

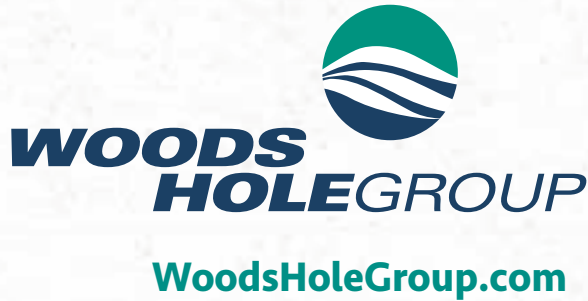


WatchDog-1000 Near Surface ADCP Screen



#### WATCHDOG-1000 MONITORING SYSTEM IS MODULAR AND FLEXIBLE

- User-customized & designed software displays
- Instrument suite
- Onboard data communications options (i.e., inductive, direct cabling, acoustic)
- Offsite data telemetry (i.e., satellite, cell phone, direct cable, radio)



**At Woods Hole Group**, we place our emphasis on quality, safety, and customer service. We have decades of experience supporting offshore oil and gas requirements for exploration and production operations. We also support pipeline and transportation design through measurement and analysis projects extending from ports and harbors to deep water. Our Oceanography & Measurement Systems team includes a diverse staff of design engineers, field engineers and technicians with international experience, as well as world-class oceanographers and ocean engineers with both research-institution and practical industrial experience. Our client base is worldwide and includes major and independent oil and gas companies, engineering companies, drilling companies, port and harbor authorities, and government agencies. Woods Hole Group also provides Coastal Engineering and Applied Ecological services.

Clients rely on our team to provide turn-key services from design, integration and deployment of measurement systems, to data telemetry and quality control, scientific analysis, and engineering/operational guidance. The team adheres to schedules and budgets, operates according to approved HSE protocols and quality standards, and is responsive to customer needs.

**Woods Hole Group has completed nearly 2,000 projects to the satisfaction of our customers in more than 25 years of doing business.**

## Learn More About the WatchDog-1000

For more information about WatchDog-1000, please visit [www.WoodsHoleGroup.com/WatchDog-1000](http://www.WoodsHoleGroup.com/WatchDog-1000). View our video and see how it works. Or, call us to discuss your custom application requirements.

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