

# Real-Time Met-Ocean Monitoring System for the Drillship *Discoverer Spirit*

## Project Characteristics:

- *Real-time environmental monitoring system*
- *38 kHz ADCPs mounted in the moon pool*
- *Oceanographic monitoring*
- *PC-based data acquisition system*

Strong currents can present hazards to drilling operations, especially as drilling moves into increasingly deeper water. The forces on risers increase dramatically. Both real-time and historical oceanographic data become critical components of daily drilling operations and long-term planning.

Real-time current monitoring is also extremely useful when drilling operations are conducted from a dynamically positioned drill ship, because the current profile can also be used to assist in positioning the vessel.

Woods Hole Group designed and built a real-time oceanographic monitoring system for the Drillship *Discoverer Spirit*, operating in the Gulf of Mexico while under lease to Shell.

The original system was installed in 2000 with a Teledyne RD Instruments' downward-looking 75kHz Doppler current profiler (ADCP). The ADCP was mounted on a movable deployment frame which allowed for the system to be raised and lowered easily. The deployment frame was moved by winches located around the moonpool and slid up and down two I-beams that were installed on the port side of the moonpool. In the Fall of 2006, the system was upgraded to a 38kHz Phased Array ADCP to meet the requirements for the MMS NTL 2005-G05.



This required modification of the deployment frame to fit the 38kHz transducer, rerouting the deck cable, and installation of the electronic chassis in the Driller's Shack. The laptop PC is connected to the Internet for dissemination of the data to the MMS. The laptop PC also has an external input of the ship's heading from the ship's gyro to transform the current directions into Earth coordinates.