Article By:

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New technology: geo-marine barge positioning system

Coffey Geotechnics has developed an innovative geo-marine barge positioning system that has dramatically improved the safety and project cost of geotechnical sea-bed surveys.

Developed with existing and emerging technologies, the new, low cost system creates a 'moving map' to illustrate seabed hazards such as marine slopes, soft marine soils and seabed obstructions in both near-shore and off-shore environments, and has worldwide application.

In the past, positioning exploratory jack-up barges and self-elevating work platforms has often been a dangerous and expensive process.

Coffey Geotechnics' new technology has removed a significant amount of risk from the process of positioning jack-up barges during sensitive geo-marine sea-bed investigations and enabled cost savings of up to a quarter of a million dollars on individual projects to date.

The new system allows a tow vessel master to have visibility of both the barge and its position on the tow vessel navigation screen as well as geospatial information about the seabed hazards in the investigation area.

The basics of the system are a moving map software package, and DGPS (Differential Global Positioning System). Long range radio telemetry and multiple display screens are used to present the data, with one of the screens and the DGPS equipment set up on the jack-up barge and the other screen on the towing vessel which is usually 100m away on the end of the tow line.

This configuration allows both the tow vessel master and the team on the barge to see the seabed features at the same time.

Laptops are configured to run a copy of the moving map software and each laptop has a project map loaded into it, showing bathymetry data, coastline features and seabed obstructions and other hazards within the investigation area. Once set up, the maps show the location of the jack-up barge on each of their screens.

This allows the towing vessel to easily guide the barge into the borehole position. All proposed borehole positions are loaded into the software which then is able to navigate you to the borehole from your current position around seabed features or hazardous obstructions.

Technical Details

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