

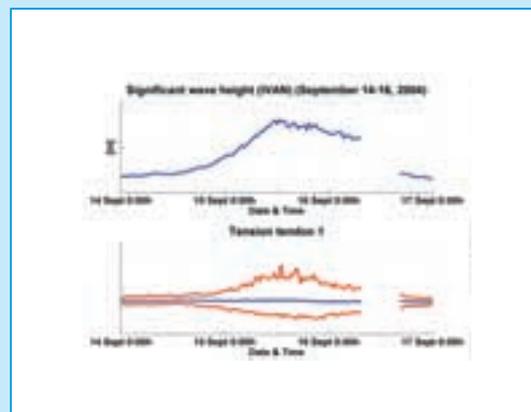
The Marco Polo Tension Leg Platform (TLP) has been subjected to an extensive monitoring campaign since June, 2004. Report tracks its progress.



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Marco Polo is installed in the Gulf of Mexico, 150 miles south of New Orleans in 4,300 ft of water. Featuring a stable, four-column hull, the TLP is pre-tensioned to the ocean floor by 2x4 columns. Excluding deck steel, the platform payload is 11,500 tonnes, at a displacement of 27,412 tonnes. In 2003, the owners GulfTerra and Caldiva, awarded the instrumentation contract to MARIN T&M in a bid to collect data to resolve deep water issues in design, operation and inspection. Issues examined included the actual wind (hurricane), wave and (loop) current, platform motions, tensions in tendons and risers, VIV behaviour, extreme loads and the fatigue life.

Instrumentation comprises strains in the column-tendon supports, loads and vibrations of the tensioned risers, as well as high frequency and low frequency motions of the platform. Both to check the design input data and to gather sufficient data for analysing the platform behaviour, much attention was paid to wind, wave and current conditions. In total, 173 signals are continuously recorded with a high sample rate and stored for post-processing.



Joint Industry Project

The analysis of the data to derive the dynamic behaviour of TLPs in operational and survival conditions and to verify design methods and numerical analysis, is the subject of a Joint Industry Project. In this JIP, the partners in Marco Polo (GulfTerra, Anadarko, MODEC and SEA Engineering) will co-operate with other operators interested in the optimisation of deep water operations and the extension to ultra deep water. This three-year project will start in July.

Hurricane Ivan

In September last year, Hurricane Ivan passed the Gulf of Mexico resulting in the destruction of seven platforms and significant damage to 24 other units. The US Minerals Management Service (MMS) plans to award a contract for a technical study to examine the structural forces experienced by the oil and gas platforms during Ivan. Ivan in fact, passed Marco Polo 120 nautical miles east of the platform. But it survived without damage and the monitoring system recorded the wind, waves and current profile, as well as motions, strains and riser and tendon dynamics.

