

Metocean Phenomena in the Gulf of Mexico and Their Impact on DP Operations

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Abstract

The environmental conditions in the Gulf of Mexico are characterized by sporadic, harsh and sometimes unpredictable metocean phenomena that occur and impact offshore operations. The paper provides an overview of the key meteorological and oceanographic features understood to exist in the Gulf of Mexico, which can and do have an impact on DP operations. The focus of the first part of the paper is on weather features in the deepwater region. It provides an indication of the levels of wind speeds and associated waves that can be experienced. The paper then describes the genesis of the Loop Current and the current phenomena that are either directly or indirectly connected with it. These associated phenomena include eddies that spin off the Loop Current, submerged jets and also the near-bed current intensification that occurs in the vicinity of the Sigsbee Escarpment. The final section examines the operational support available in terms of real-time measurements, now-casts, and forecasts. The industry can use this type of support to enhance awareness and mitigate the impact of harsh metocean conditions.

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