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Typhoon Emergency Response Planning for the South China Sea

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Abstract

This paper describes the development, implementation and performance of a comprehensive typhoon emergency response plan (ERP) utilized during 1995 by Arco China Inc. (ACI) for their offshore Hainan Is. South China Sea development. An important component of the enhanced plan is a new system to forecast winds and sea states generated by tropical cyclones (TC) built around known uncertainties in forecasts of cyclones and well proven numerical models of the TC surface wind field and the spectral wave field. The forecast system provides specification of time histories of winds and waves at the site for the nominally predicted track as well as the probabilities of exceedance of critical evaluation thresholds of wind speed and sea state. The ERP and forecast system were operated throughout the 1995 typhoon season and evaluated at the Yacheng development, which was seriously threatened by 15 tropical cyclones between June and November. The response to these threats in terms of interruption of operations, partial or total evacuation of offshore personnel and average downtime is described and compared to previous experience which used more conventional forecast systems. The evaluation has shown the new system to provide significant benefits in terms of safety, efficiency and cost savings. The wind and sea state forecast histories provided year-round by the forecast system are also of significant benefit to the management of floating production systems.