

Abstract

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SIMULATION OF THE OIL SPILL BEHAVIOUR (CASE STUDY)

Environmental and economical resources may be affected in case of accidental oil spills. Since the implementation of the International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 (OPRC 90), related issues have become important elements of the International Maritime Organization (IMO)'s Integrated Technical Co-operation Programme. Risk assessment and management, development of national contingency plans, environmental sensitivity index mapping, establishment of regional and sub-regional preparedness and response systems (agreements, plans and centres), and advice on dealing with marine pollution incidents are now highly requested. In this paper, a predictive mathematical oil spill model is used to simulate the worst oil spill case scenarios in front of the loading and discharge terminal at Jeddah Islamic Port at the Kingdom of Saudi Arabia (KSA) using different oil types (Arabian heavy and Arabian light crude oil). The model fed with real worst meteorological conditions data of year 2010. This study presented the trajectory of the spilled oil slick and its fate (total area of slick, rate of evaporation and rate of natural dispersion). Conclusions and recommendations related to the oil spill risk were interpreted based on the model outputs which are very useful for decision makers to optimize the corresponding response options which support and improve decisions in real oil spills.