



Hindcast oil spill simulations from the existing offshore wells in the Eastern Mediterranean Levantine Basin

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Following the expansion of the exploration and exploitation of the hydrocarbons in the Eastern Mediterranean Levantine Basin during the last 5 years, oil spill simulations for 20 existing offshore platforms/wells were carried out based on new and high resolution bathymetric, meteorological, oceanographic, and geomorphological data.

The oil spill simulations were carried out using the well known MEDSLIK oil spill model, with the use of high temporal and spatial resolution data for 3D sea currents, winds and waves, provided by the CYCOFOS forecasting system, downscaled from the Copernicus Marine environment monitoring service (CMEMS).

The hindcast oil spill simulations from the 20 potential oil spill sources have been prepared for a period of four years, presenting the movement of the spills and the area affected, the fate parameters, the first impact on the coast and the extend of the affected coastline from each location every week. The modeled oil spills took into account the oil spill scenario following the REMPEC MEDEXPOL 2013 experiment.

Moreover, a qualitative analysis of the seabed morphology has been applied to examine the direction of the oil slick expansion, shown that the direction of the major axis of the oil spills, in most of the cases examined, is oriented according to the prevailing azimuth of bathymetric features.

The oil spill simulations from the existing offshore wells/platforms, show a clear trend for east and northeast movement of the oil spills in the Eastern Mediterranean Levantine Basin, with the first impact at the coast in a time interval between 1 to 20 days after the first oil spilled at sea, depending on the location of the platforms/wells and of the intensity and direction of the meteo-ocean data.