

EGU22-1098

<https://doi.org/10.5194/egusphere-egu22-1098>

EGU General Assembly 2022

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Operational response to the Syrian oil pollution crisis in 2021

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In the frame of the MONGOOS-REMPEC agreement aiming to provide oil spill predictions in causes of major pollution incidents in the Mediterranean Sea, CMCC, ORION and Orbital EOS provided on a voluntary basis daily oil spill predictions based on satellite remote sensing data, following the large Syrian pollution crisis lasted from 23 August to 12 September 2021. As it was reported by REMPEC a total of 12,000 tons of crude oil was spilled in the NE Levantine Basin, at around 10:00 UTC on the 23 August from the fuel tanks of the Baniyas power station in Syria. The current pollution incident is of the same order of magnitude in terms of the amount of the oil spilled at sea from a similar source type, as the one caused during the Lebanon oil pollution crisis in July 2006.

The MEDESS4MS multi-oil spill modeling approach was applied, using the different resolution met-ocean forecasting data and two oil spill models. In the Syrian pollution crisis, met-ocean forecasting data from CMEMS Med MFC and ECMWF, CYCOFOS and SKIRON systems were used, as well as the well established MEDSLIK and MEDSLIK-II oil spill models. Moreover, the 27 satellite-derived SAR and optical images provided by the 7 surveillance satellites were processed in order to initiate the oil spill modeling predictions.

After the spillage, the oil was washed up on the Syrian coast at the higher concentration along the southern coast of Latakia. Part of the remained sea surface emulsified oil, which was identified as a thick oil (>0.1 mm) oil, was transferred offshore westward and it was widely spread in the NE Levantine between Syria and Cyprus, threatening the most eastern tip of Cyprus. The fast westward movement of the spill was due to the westward strong sea current generated along the southern and northern periphery of the anticyclone and cyclone eddies, respectively. Further on, the emulsified oil mostly was re-circulated by the anticyclone eddy, where part of the oil was re-landed at the Syrian coast and part of it was beached on the Turkish coast near Samandağ, under the increased southerly wind force. After the 6th September the emulsified thin sheen oil was progressively dispersed under the increase of the wind-wave action.

The operational response of the MONGOOS members during the Syrian oil pollution crisis that

threatened also the neighboring countries in the NE Levantine, demonstrate a best real practice within the broader context of the operational oceanography developments in the Mediterranean, the usefulness of the down streaming applications to the local and regional response agencies to support their decisions during major oil pollution incidents.