

# Operational downscaling and down streaming in the Med-Sea assisting local and regional agencies in oil spills incidents via state of the art ICT technologies

## Introduction

The operational response of the MONGOOS-Mediterranean Oceanographic Network for Global Ocean Observing System members during the Syrian oil pollution crisis in late summer 2021 threatened the neighbouring countries in the Eastern Mediterranean Levantine basin, demonstrate a best practice within the broader context of the operational oceanography, the usefulness of the operational oceanographic downscaling and down streaming applications to the local and regional response agencies to support their decisions during major oil pollution incidents (Zodiatis et al. 2023).

## Discussion

As it was reported by REMPEC a total of 12,000 tons of crude oil was spilled in the NE Levantine basin on the 23 August 2021 from the fuel tanks of the Baniyas power station in Syria. The satellite-derived SAR images provided by EMSA-CSN warning reports were processed to initiate the well established MEDSLIK oil spill model using the operational downscaled CYCOFOS forecast and the SKIRON forecasting winds. The post operational inter-comparison of the oil spill extends observed by the satellite images and those from the MEDSLIK oil spill predictions shown good statistical agreement in most of the examined cases, thanks to the downscaled CYCOFOS and SKIRON met-ocean forecast (Keramea et al. 2023).

## Instead of Conclusion

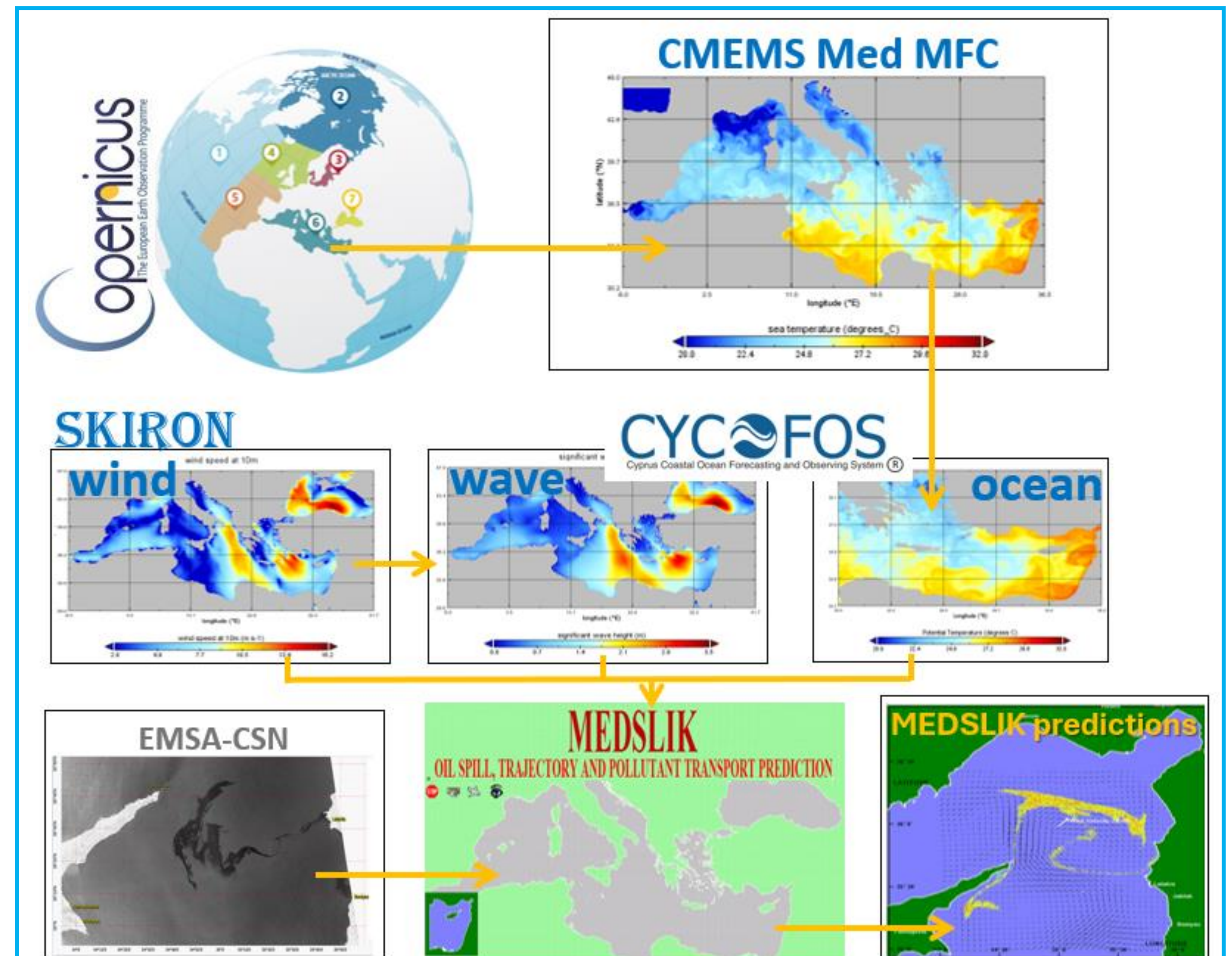
To improve the operational accessibility of the end-users to met-ocean downscaled and down streaming products, we are currently working on an implementation with state-of-the-art open-source technologies, including (a) PostGIS for geospatial data storage and transformations, (b) QGIS for geospatial processing, map creation and visualization, and (c) Docker container platform to implement an improved operational downscaled and down streaming services as a virtualized portable stack. In addition, Machine Learning (ML) modules are considered for improving the detection rate, efficiency and time, based on remote sensing data.

## References

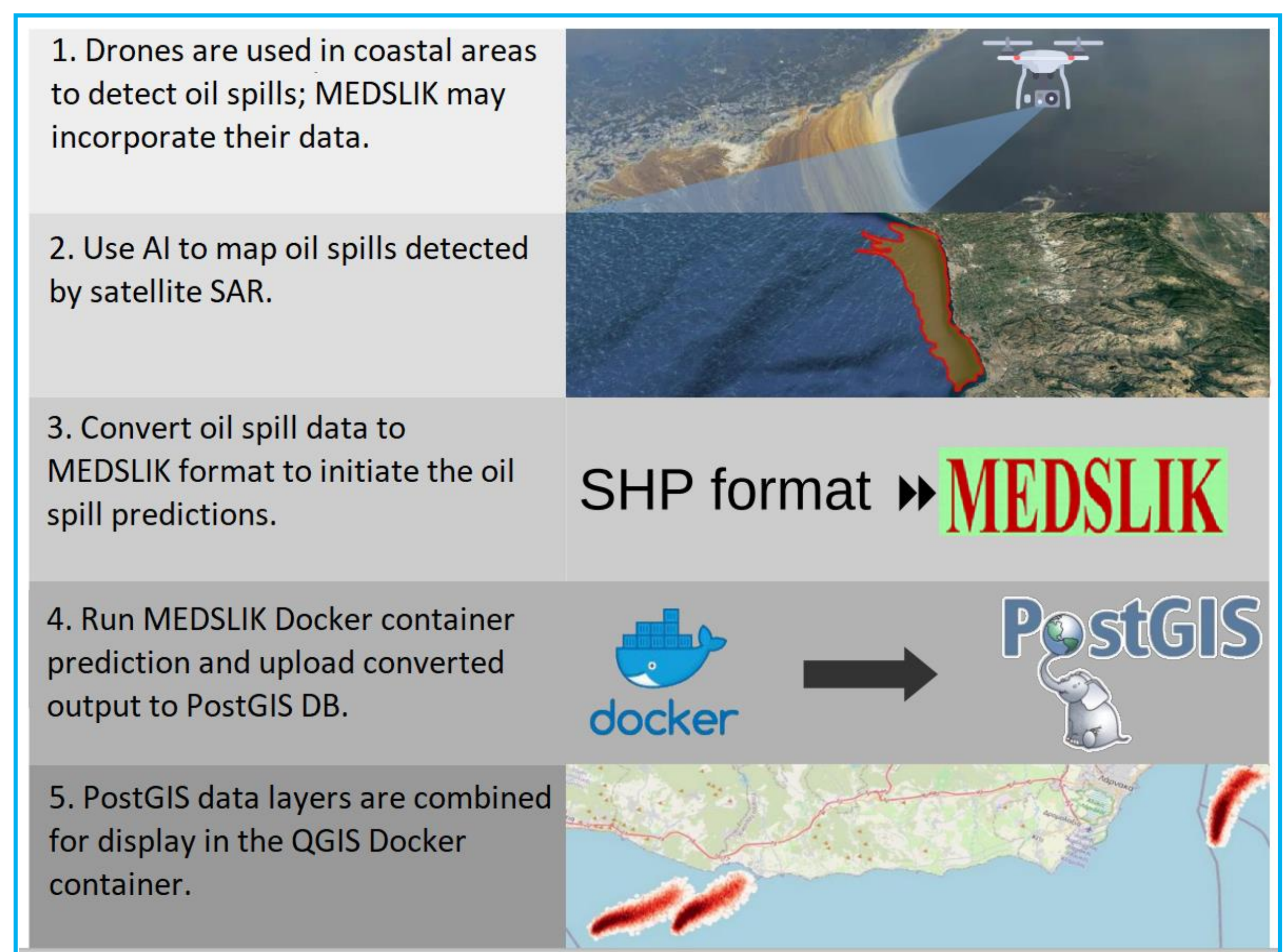
- Keramea, et al., (2023). Satellite imagery in evaluating oil spill modelling scenarios for the Syrian oil spill crisis, summer 2021. *Front. Mar. Sci.*, <https://doi.org/10.3389/fmars.2023.1264261>.
- Zodiatis, et al., (2023). The Syrian oil spill predictions in the Eastern Mediterranean using SAR images, CMEMS and CYCOFOS forecasts. Proceedings of the 10th EuroGOOS International Conference. doi: <http://hdl.handle.net/10793/1883>



The Syrian pollution incident is of the same order of magnitude of the spilled oil from a similar source type, as the one caused from the Jieh power plant during the Lebanon oil pollution in July 2006.



Schematic of the CYCOFOS downscaling and MEDSLIK downstream application following REMPEC-MONGOOS agreement or national response agencies for oil spill predictions.



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