A WEB-BASED GIS FOR OIL SPILL PREDICTION

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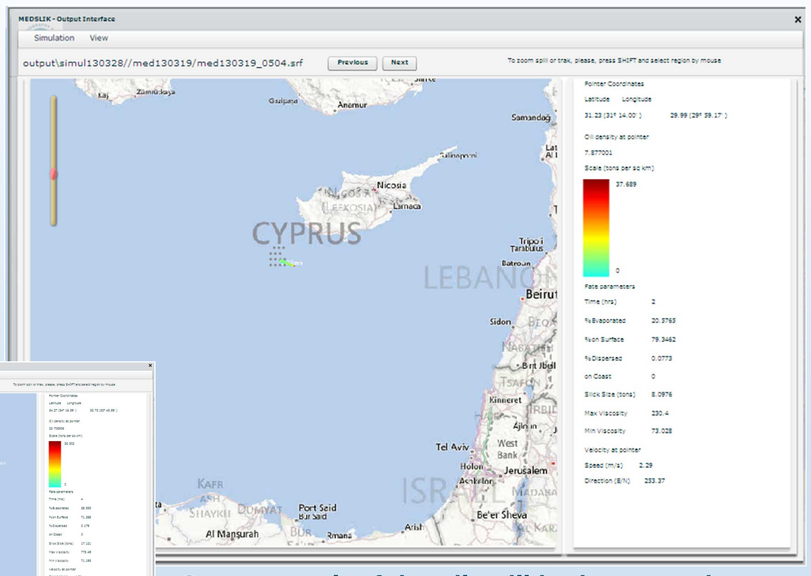
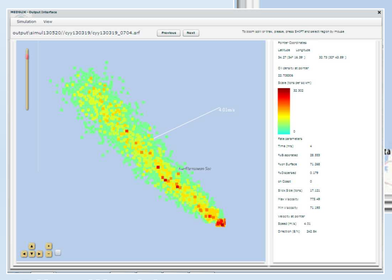
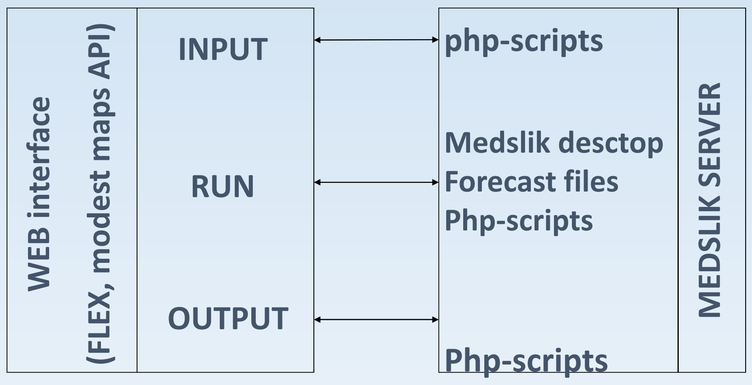
The Cyprus Oceanography Centre (OC-UCY) has implemented a web-based Geographic Information System for the existing oil spill forecasting system MEDSLIK, which has been developed at the OC-UCY. The online-MEDSLIK system allows authenticated users to use the main MEDSLIK functionality via an interactive and user friendly web application without the need of installing any software locally. The application consists of three main interfaces: the input interface, simulation and visualization of the results. The online MEDSLIK development has carried out in the frame of the MEDESS-4MS, NEREIDs and PREMARPOL projects.



Output result of the oil spill in the Levantine



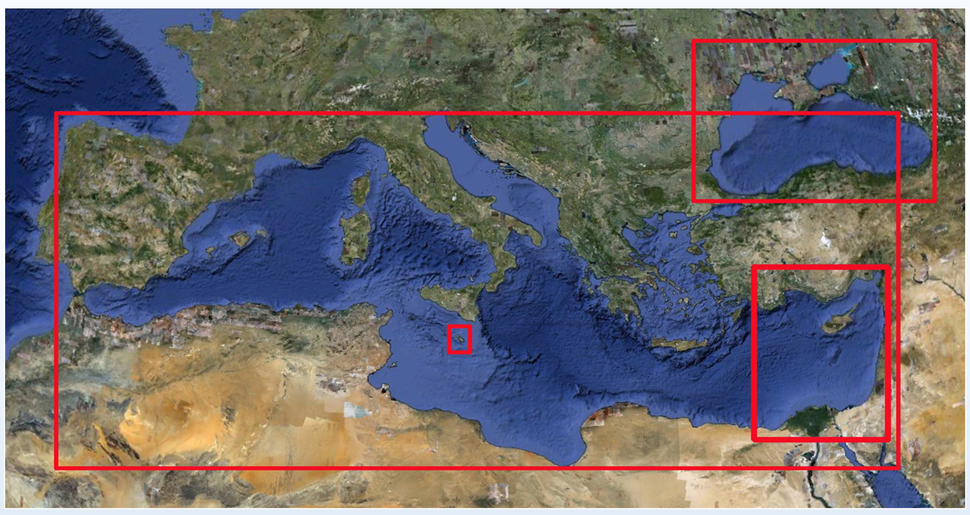
Oil spill with zoom



Flow Diagram of the online MEDSLIK

A number of different technologies, such as FLEX, PHP, and modestmaps API for mapping and visualization were used in developing of the web-based application. Oil spill prediction results from the MEDSLIK module are presented remotely to the users through a rich web application in a geographical context.

The oil spill prediction at present covers the regions of the Levantine Basin using the high resolution CYCOFOS forecasts, the Mediterranean using the MyOcean MFS and Black Sea regional forecasting data and the ROSARIO for Malta region.



The regions covered by online MEDSLIK

Each user owns a directory at the online MEDSLIK server. The name of the directory is the same as the user login. This directory keeps the user input data and the simulation result files.

Users directory consists:

INPUT files (spill and/or trajectory)

OUTPUT directory which includes:

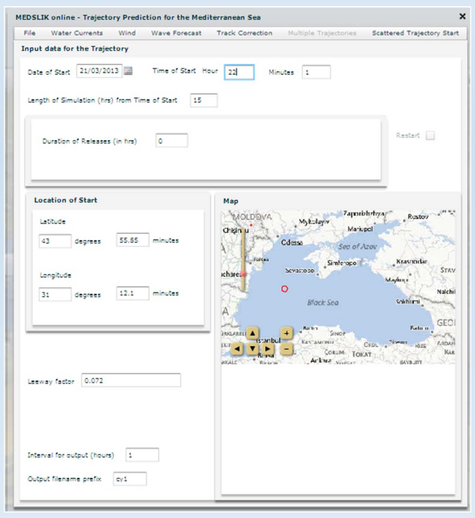
SIMULATION subdirectories

- SRF subdirectory with srf files
- DSP subdirectory with dsp files
- CST subdirectory with cst files

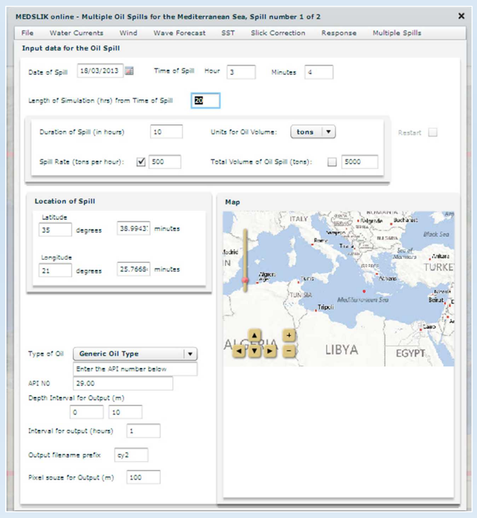
trajectories and hindcasts files

The structure of the user directory

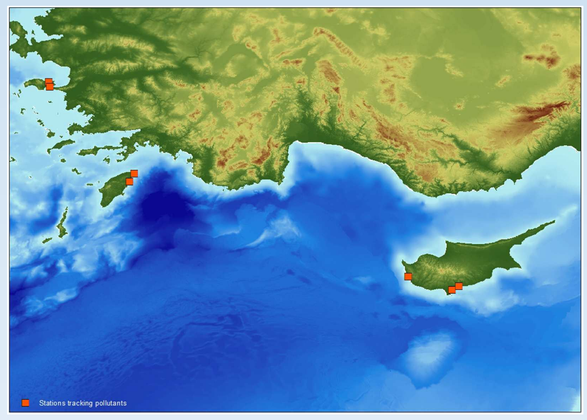
The online MEDSLIK presently allows the predictions for up to two oil spills simultaneously or trajectories, including hindcasts (backward predictions). Through the output interface users have the ability to use basic map controls, view information about the amount of oil on surface, evaporated, dispersed, beached, size of spill and size of area, maximum and minimum viscosity. This information can be also viewed as time-series for the entire period of each simulation.



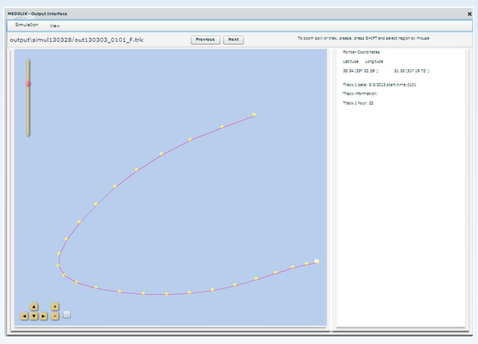
Input of oil spill info in the Black Sea



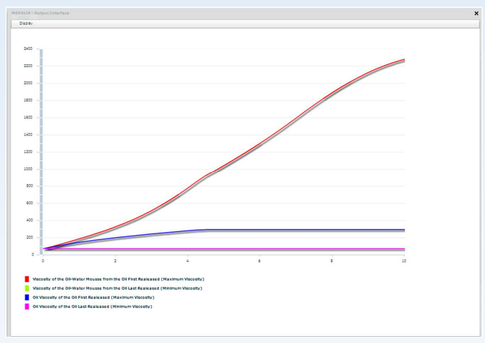
Input of oil spills info in the Mediterranean Sea



The 7 ports in the Eastern Mediterranean will be included in the online MEDSLIK



Output results of trajectory prediction



Output of oil spill viscosity in time-series

Ongoing Developments

Adaptation of the online MEDSLIK to include high resolution domains for 3 ports in Cyprus, 2 in Rhodos and 2 in Samos islands, in the frame of PREMARPOL project.