GlobCurrent 2012
User Consultation Meeting, 7 March 2012, Ifremer, Brest (France)

Oil and chemical spill modelling: operational examples

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OILSPILL MODELLING

Example: oil spill pollution in the English Channel
(MOTHY: Météo France Model)

Probable trajectory of the pollutants:

-> to help the authorities to organize the response (clean up at sea / land)
-> to update the observation strategy for the coming days

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Example: oil spill pollution in the English Channel (MOTHY: Météo France Model)

Usefull to identify the source of the pollution
Parameters:

- Dissolving
- Spreading
- Evaporation
- Dispersal
- Sedimentation
- Biodegradation
OCEAN MODELS (input)

MOTHY (Météo France):
- Global ocean MERCATOR system with a resolution of 1/4°
- Atlantic and Mediterranean MERCATOR system with a resolution of 1/12°
- Mediterranean MFS system with a resolution of 1/16°

OILMAP and CHEMMAP software (ASA):

PREVIMER (Ifremer) – France:
résolution en fonction des zones géographiques : de 1 km, 300 mètres ou 100 mètres.

NCOM (US Navy) (world cover:
accuracy 1/8° (about 7.5 nautical miles), 72 hours forecast)

HYCOM (HYbrid Coordinate Ocean Model): -2 to 11 nautical miles, 120 hours forecast)
French Slick Drift Monitoring and Prediction Committee

which include Cedre, Ifremer, SHOM, METEO FRANCE, MRCC, French Navy

- Analyse the crisis situation and data using every output available from model
- Make operationnal recommandations
- Produce a synthetic map for broadcasting
Example of models comparison

1 - METNO model (from Norwegian Meteorological Institute / Norway)
Example of models comparison

2 - MOTHY (METEO FRANCE)
Example of models comparison

3 - OILMAP model – ASA (with Météo France winds and Previmer currents)

Example of models comparison
Operationnal Needs

- Access to hydrodynamic data
  - short delay
  - Ocean input in a predefined format (opendap)

- Uncertainty of hydrodynamic input
- Integration of currents vector in WEBGIS viewer together with the pollutant drift forecast (WMS, WFS etc ...)

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