GUIDELINES ON IMPLEMENTATION OF HELCOM RECOMMENDATION 24/7 "FURTHER DEVELOPMENT AND USE OF DRIFT FORECASTING FOR OILS AND OTHER HARMFUL SUBSTANCES IN THE BALTIC"

In order to assess whether a Contracting Party has implemented the Recommendation fully, partly or not at all, many different operational and technical requirements should be taken into consideration. To fully fulfill the Recommendation, the forecasting system should have the following elements and the following features:

General

- The system must be based on computerized, scientifically transparent, documented and tested models;
- The user interface of the system must be user friendly if the system is operated by response personnel;
- The results of the modeling system should be immediately available by fax, e-mail, etc., if the model is operated and calculated in research institutes, etc., remote from the accident command center;
- The first forecasts should be available instantly from the request;
- The meteorological data must be easily and rapidly available;
- Forecasts shall be available 24 hours/day.

Models

The modeling system must include at least an oil drift and spreading model, which are combined under the same interface. Other modules like chemical module, ice model, etc. can also be parts of the modeling system.

- Drift model
    - 3-D model with vertical resolution sufficient for surface spill simulation;
    - Has the possibility to take into account also wind forecasts (5 days ahead) and history (few days at least) or should be connected to some operational Baltic Sea oceanographic model (HIROMB, etc.);
    - It should be possible to update the drift forecast simulations by slick observations and improved wind forecasts during the calculation process;
    - Methods to assimilate current meter and other measured data into forecast calculation should be included in the modeling system.
- Spreading model
    - Possible to input data of most common oil types;
    - Includes the weathering processes;
    - Calculates continuously the mass balance of the oil slick.

Outputs

- Trajectories of the mass center of the slick in adjustable time steps;
- The oiled area after specified time periods;
- Possible to store the results in adjustable time steps;
- All the information preferably on sea charts;
- Information of the ice covered areas that are taken into account in drift calculation;
- Possibility to calculate also in the reverse mode for evidence to court documentation.

Resolution of the model

- At open sea approximately 1 to 5 km;
- Near shoreline and in archipelago depending on the roughness of the shoreline, type of archipelago, etc.

Additional characteristics (not for the implementation evaluation)
To make more efficient use of the models, following additional features can also be taken into account when developing modeling systems:

- To simulate the effects of oil response measures to the spreading of oil, the impact of booms, the effect of response vessels, etc. could also be incorporated to the modeling system;
- The same modeling system could also be used in connection with SAR operations due to the similarity of the forecast needs and the fact that the drift models often are used by the same personnel.