Progress report for WINMOS, October 2014

WINMOS is a project consisting of seven activities which can be seen as seven separate projects under the same objective.

The main objectives of the Global Project are to develop the maritime winter navigation system and safeguard required icebreaking recourses to the future's requirement in EU's northernmost waters during winter time when large parts of the sea surface are covered by sea ice.

The main features in WINMOS are, assessment of future's requirements concerning number, size and type of icebreakers as well as development of electronic training- traffic management- and information systems and to safeguard icebreaking resources in short-, medium-, and long term.

The activities

1. Study on future demand for icebreaking capacity
The construction of the algorithm to a holistic model for the future's winter navigation system is ongoing. Used routes are identified from statistics and will be connected in a "fairway network" to the model. Statistics from 10 years daily ice information is a part of the model as well as *ice going performance* for a number of selected vessels. The model is complicated with many parameters which all have an impact on the flow in the winter navigation system.

2. Concept study on next generation icebreaker
A reference model (Atle/Urho class) will be defined this autumn. New concept icebreaker's performance can be compared with these well-known icebreakers. The work with a number of concepts is ongoing e.g. a trimaran icebreaker.

3. Improvement of Environmental performance
The first test trails, onboard icebreaker Ymer, with the common rail system is executed. Fuel saving and reduction of "Black Carbon" were found satisfying. But the NOx emission does not yet meet the expectations. New technique (EGR) will be tested during next season in order to reduce NOx emissions.

4. Deployment of next generation IB-Net
The very complicated specification for procurement of the pilot system is completed. The procurement procedure is estimated to be finalized in the end of this year.

5. Human element and training facilities
The developing work for modes to simulators is ongoing. Latest object was to add an ice radar function to the simulator, e.g. ice edges and vessel tracks are visible in the radar display.
Ice – Radar was compared with radar images from a real ice – radar and was found to be realistic.

6. Upgrading and life extension of old icebreakers
About 90% of the upgrading work is completed.

7. Building of a new icebreaker
The steel cutting and welding work is commenced.