

## Models from DMI used in the SEPRISE demonstration

<b>Institution</b>	Centre for Ocean and Ice, Danish Meteorological Institute
<b>Model Name</b>	cmod
<b>Characteristics</b>	3-D hydrodynamical model (hydrostatic) using two-way nested grids
<b>Area Covered</b>	Sea Area: North Sea – Baltic Sea
<b>Variables Predicted</b>	Sea surface elevation. Zonal and meridional current velocity components. Salinity. Sea temperature. Sea ice thickness and concentration.
<b>Operational / Pre-operational</b>	Operational
<b>Source of Atmospheric Forcing</b>	DMI-Hirlam: Mean sea level pressure. 10m wind (e-w, n-s components). Temperature (2m). Humidity (2m). Cloud cover.
<b>Length of Forecast</b>	54 hours
<b>How many forecast cycles per day, i.e. how often is the model run?</b>	2 cycles/day

<b>Additional Information</b>	The model is forced by: - the atmosphere (DMI-HIRLAM), - tides (constituents) and by surge (from surge model noamod) along lateral open boundaries, - climatological S and T along lateral open bnds, - climatological river run-off.
<b>Numerical basis of the model</b>	Model Area    Lon 4° W    Lat 48° N Lon 30° E    Lat 66° N  Number of grid points in X-Y axis: Variable due to nesting: 207 x 174 312 x 191 Number of vertical levels: up to 50 layers

<b>Resolution (° or km)</b>	Variable due to nesting: Approx. 6 and 1 nautical miles resolution.
<b>Computer used</b>	LINUX PC
<b>Validation method</b>	Modelled sea level vs. Danish tide gauges. Annual validation in terms of standard error measures (bias, rms), and peak errors where a 6 hour phase error on the sea level max. is allowed. A single-figure model quality measure is calculated as the mean abs. peak error of the 3 highest observed peaks at 18 pre-defined stations.
<b>Use of model</b>	x      Research                  Public x      Governmental          Commercial Private

<b>Institution</b>	Centre for Ocean and Ice, Danish Meteorological Institute
<b>Model Name</b>	HYCOM
<b>Characteristics</b>	3D isopycnic
<b>Area Covered</b>	Sea Area: North Atlantic Ocean and Arctic Ocean
<b>Variables Predicted</b>	Sea surface height (elevation) Velocities Salinity Temperature Sea ice
<b>Operational / Pre-operational</b>	Operational
<b>Source of Atmospheric Forcing</b>	DMI-HIRLAM T15 ECMWF
<b>Length of Forecast</b>	60 hours
<b>How many forecast cycles per day, i.e. how often is the model run?</b>	2

<b>Additional Information</b>	Operational since autumn 2005.									
<b>Numerical basis of the model</b>										
<b>Resolution (° or km)</b>	0.5° for the North Atlantic area Greenland: 1/10° Norwegian shelf: 1/10° Irish seas: 1/10°									
<b>Computer used</b>	Linux-PC									
<b>Validation method</b>	?									
<b>Use of model</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 33%; text-align: center;">Research X</td> <td style="width: 33%;"></td> <td style="width: 33%; text-align: center;">Public</td> </tr> <tr> <td style="text-align: center;">Governmental X</td> <td style="text-align: center;">X</td> <td style="text-align: center;">Commercial</td> </tr> <tr> <td style="text-align: center;">Private</td> <td></td> <td></td> </tr> </table>	Research X		Public	Governmental X	X	Commercial	Private		
Research X		Public								
Governmental X	X	Commercial								
Private										

<b>Institution</b>	Centre for Ocean and Ice, Danish Meteorological Institute, DMI
<b>Model Name</b>	DMI WAM-cycle4
<b>Characteristics</b>	The 3rd generation wave model, to provide forecast on wave height, direction, period and swell.
<b>Area Covered</b>	Sea Area: North Atlantic, Mediterranean Sea, North Sea-Baltic Sea
<b>Variables Predicted</b>	Significant wave height, mean wave height, mean wave direction, peak period, mean period, swell height, swell direction, swell period, wave spectrum.
<b>Operational / Pre-operational</b>	Operational
<b>Source of Atmospheric Forcing</b>	DMI HIRLAM, 15-5km resolution
<b>Length of Forecast</b>	54hours
<b>How many forecast cycles per day, i.e. how often is the model run?</b>	4

<b>Additional Information</b>				
<b>model</b>	<b>n.atlantic</b>	<b>n.sea-baltic</b>	<b>transition area</b>	<b>med.sea</b>
space step	1/2 deg	1/6 deg	1/30 deg	1/6 deg
time step	10 min	4 min	1 min	2 min
forcing	DMI-Hirlam T	DMI-Hirlam T+S	DMI-Hirlam S	DMI-Hirlam T
long	69W-30E	20W-30E	7E-16E	6W-36E
lat	30N-78N	36N-75N	53N-60N	30.5N-46N
<b>Computer used</b>	NEC SX6, vectorised parallel super-computer			
<b>Validation method</b>	Validated every 6-months, reports published in <a href="http://ocean.dmi.dk/waves/verify/index.html">http://ocean.dmi.dk/waves/verify/index.html</a>			
<b>Use of model</b>	Research            x            Public x Governmental    x            Commercial x Private			