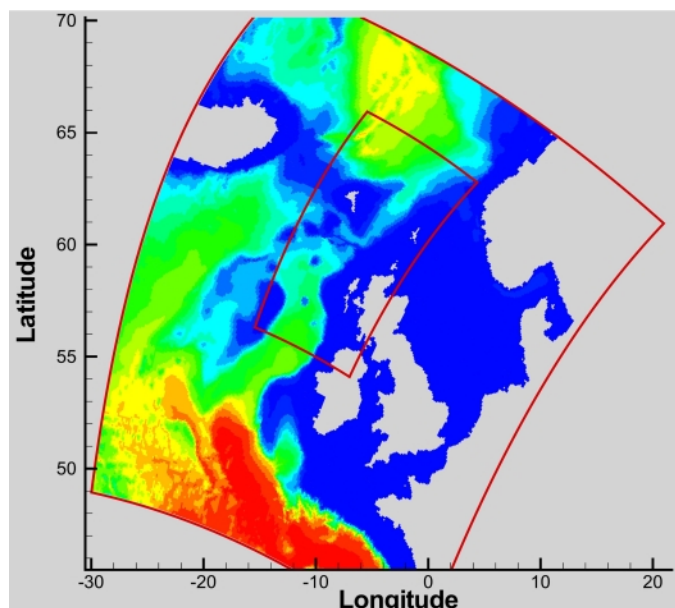


The NWAG Current Modelling carried out by Ocean Numerics in 2001 provided high-resolution, high-quality, hindcast oceanographic data for a large area of the North East Atlantic. The modelling was commissioned by the North-West Approaches Group, a joint industry grouping of oil and gas exploration and production companies, and was a logical extension of the Phase 1 validation work carried out by the Nansen Center for NWAG.

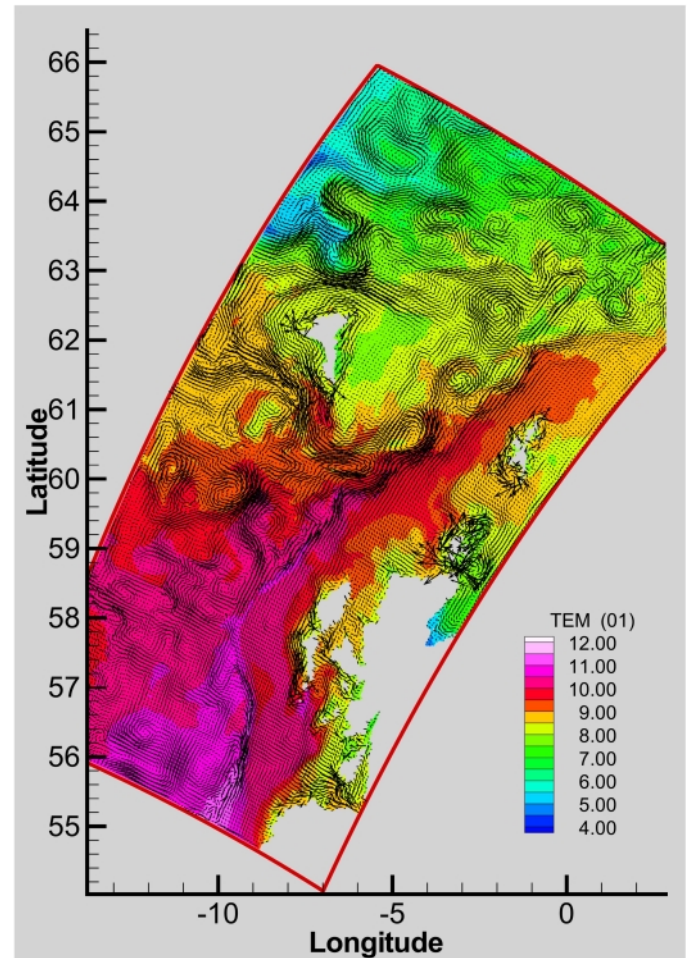
Key set-up parameters for the model were:

- A domain with a resolution of about 2km for the finer, inner grid.
- Bathymetry from interpolation of the British Oceanographic Data Centre (BODC) data set.
- Multi-level nesting of three HYCOM models (coarse-grid DIADEM model, intermediate-grid Nsea model and fine-grid model).
- Tidal boundary conditions based on the CRS tidal data set specified on the boundaries of the fine grid model.
- Wind fields from Oceanweather Inc.

Following a three-month spin-up period (January to March 1996), the model was run for a total of 2.5 years from April 1996 to September 1998. This included a 15-



**NWAG Model Domains (Source: Ocean Numerics)**



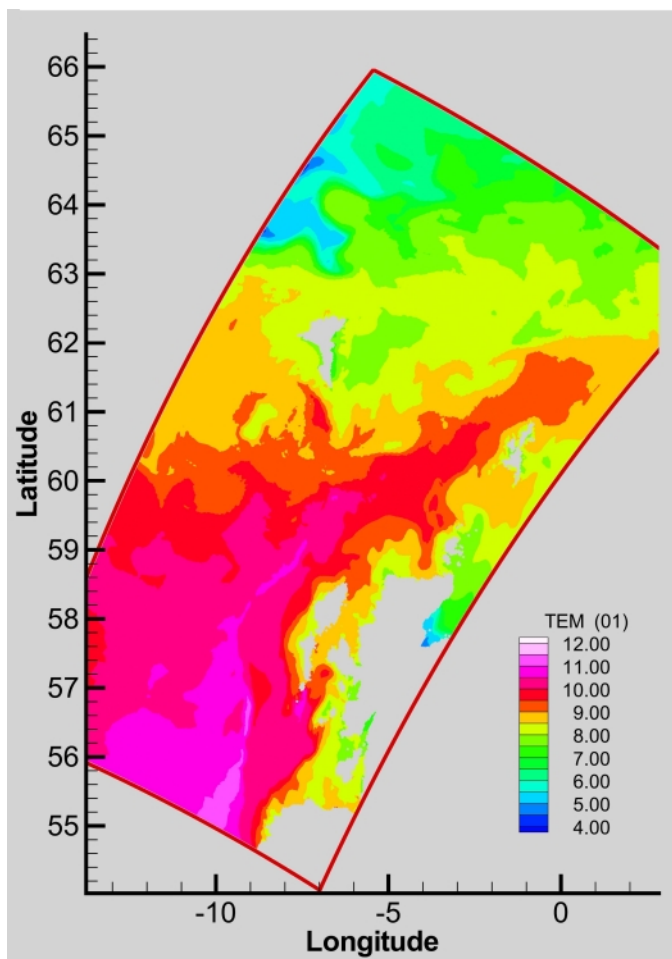
**NWAG SST and Currents (Source Ocean Numerics)**

month production test period from April 1996 to June 1997 when the model output was validated against data from moored instruments and the previous, Phase 1, NWAG model.

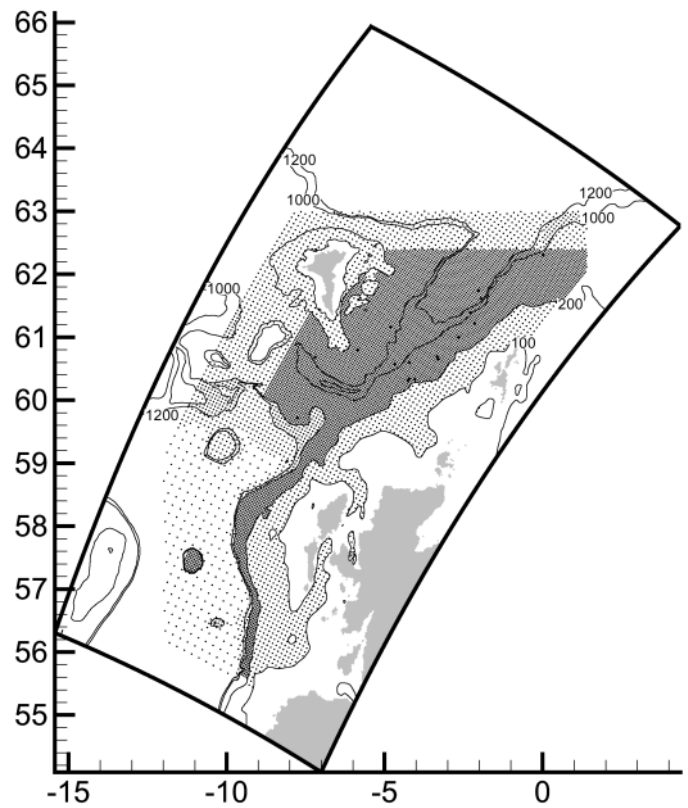
The model provided current, temperature and salinity data for a large area of the North East Atlantic, centred around the Faroes-Shetland region. These were archived as time-series data at hourly intervals for the five model variables (east and north velocity components, temperature, salinity and layer depth) for each of the 22 layer depths, at over 8000 grid points. Three additional variables (east and north wind component, and surface elevation) that were independent of layer depth were also stored for each grid point.

Deliverables from the modelling included:

- Validation report covering comparison of model output with previous (Phase 1) output and measured data.
- Animations of model fields and layers, including surface and depth-layer animations for salinity, temperature and velocity; and vertical transects of speed, temperature and salinity along selected sections.
- Internet access system to the 2.5-year archive (about 80 Gigabytes of data).



**NWAG Sea Surface Temperatures (Source: Ocean Numerics)**



**NWAG Fine Model Grid Points and Bathymetry (Source: Ocean Numerics)**

The Internet access system was an innovative, efficient and reliable method of distributing the archived data. The basic system was password-protected and allowed simple search and data retrieval of time-series data. This offered a number of advantages over the traditional CD-ROM approach including the flexibility to download grid-point data as required, and the potential to subsequently up-date the model data and offer on-line data post-processing capabilities.

For further information, please contact us at an address below.

Ocean Numerics UK  
 Gemini House, Hargreaves Road  
 SWINDON, Wiltshire, SN25 5AL, UK

Tel: ++(44) 1793 723 014  
 Fax: ++(44) 1793 728 302

E-mail: [info@oceannumerics.com](mailto:info@oceannumerics.com)

Ocean Numerics USA  
 PO Box 740010, 6100 Hillcroft (77081)  
 HOUSTON, Texas 77274, USA

Tel: ++(1) 713 346 3640  
 Fax: ++(1) 713 346 3605

Web: [www.oceannumerics.com](http://www.oceannumerics.com)