MARINE SCOTLAND SCIENCE'S OCEANOGRAPHIC OBSERVING & MODELLING FRAMEWORK

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MSS has an unstructured grid FVCOM model application for Scottish and adjacent shelf and coastal waters, the **"Scottish Shelf Model"** (SSM). The SSM includes a coarser **wider domain model** and a growing number of **higher resolution nested sub-models** covering much of the Scottish shelf and inshore areas. The SSM has been run for specific time periods, a climatological year and a future (mid-21st century) climatology, and plans are underway to develop a **short-term forecasting** capability. Such modelling efforts are underpinned by an extensive observational network that includes the **Scottish Coastal Observatory (SCObs)** and our **offshore Long Term Monitoring** programme. The latter has been traditionally dependent on moorings and ship-borne observations along standard monitoring lines in the northern North Sea and Faroe Shetland Channel, but we participate in initiatives trialling **autonomous technologies** (AUVs, ASVs) and **remote sensing** (e.g. HF radar and satellite) to complement our long-established observational monitoring network.

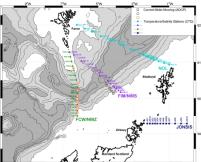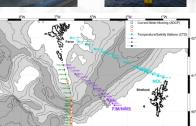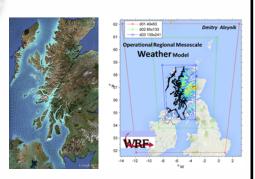The Scottish Shelf Model domains

The Scottish Coastal Observatory (SCObs)

HF radar pilot ("the Brahan Project")

Glider deployment in collaboration with UEA

Offshore Long Term Monitoring

FORECASTING

MSS is about to implement, with funding from the INTERREG Atlantic Area MyCOAST project, the methodology developed by the Scottish Association for Marine Science (SAMS) to produce short term forecasts on-demand from the SSM fine-resolution sub-models, forced by a 3rd party operational hydrodynamic model (e.g. FOAM AMM7) and met forcing by a WRF implementation.

SAMS's coupled atmospheric-hydrodynamic model