NOOS annual report 2018

**Member report – Met Office**

Novembre 2018

|  |  |
| --- | --- |
| **Country** | UK |
| **Institution** | Met Office |
| **Observations**  **Status and new initiatives** | ***In situ Observations***   * MAWS (Marine Automated Weather Stations) – 8 offshore including 2 in Biscay and 2 in English Channel (E1 & L4). 5 Light Vessels on-shelf in English Channel. Spectral wave data now available from 6 buoys. * Data from North-Sea rigs and platforms received and transmitted on GTS. Met-ocean including waves and some SST. Of the order 110 presently operating. * Deployment of drifters (through E-SURFMAR) in the North Atlantic (~20/year). Number of drifters ~60 in N Atlantic and Med, a number of which enter the NOOS region. * Voluntary Observing Fleet (VOF) of around 220 ships. Around 20% of UK Voluntary Observing Ships (VOS) observations are from the North Atlantic. 60 vessels with Automatic Weather Stations (AWS), the majority of ship-of which are in the NOOS region * Ongoing partnership with NERC’s Sea Mammal Research Unit and BODC: The Metoffice has facilitated the addition of Argos transmitters to seal tags. Since 2017 we have been receiving temperature profiles in near-real time from May to December. 3,326 profiles received at MO between 27 April and 9 October 2018, with 16% of them assimilated in AMM7v9using 48 hour assimilation window. Data are provided to NOOS. * Receiving real-time temperature and salinity profiles from 3 NERC research vessels CTD (James Clark Ross, Discovery, James Cook)   ***Remote sensing observations***   * The OSTIA system produces analyses of foundation SST and sea ice based on a 3DVar, two length-scale analysis scheme on a 1/20° global grid. * A diurnal analysis of SST skin temperature based on OSTIA is produced daily * Met Office Space Programme have delegates on appropriate EUMETSAT, ESA and UK Space Agency meetings * Radsat, Autosat and Eumetcast systems receive data from a large array of remote sensing instruments on the many satellites. Satellites we receive and use observations from include Jason-2, Jason-3, Sentinel-3, and the MetOp series for low-earth orbiting systems. We also receive data from geostationary satellites including Meteosat-9, Meteosat-8, Meteosat-7, GOES and MTSAT-1R. |
| **Modelling**  **Status and new initiatives** | ***Status:***  ***Operational:***   * The NWS analysis and forecast system has been delivering to CMEMS * baroclinic model (NEMO FOAM AMM7) nested into a regional open ocean model (FOAM NATL12) and CMEMS Baltic model, 6 day forecasts, 1 x daily, nested to ERSEM ecosystem model and including NEMOVAR SST, SLA and profile data assimilation. Real-time ingestion of E-Hype data has been removed due to high biases in southern-north sea. * NEMO FOAM ORCA025 global model with altimetry, SST, T&S profile assimilation * Global coupled ocean-atmosphere forecasts using 1/4 o NEMO * barotropic model (POLCOMS on C-grid) using 3 nest (a 12km shelf model (CS3X), a 1.2km Bristol Channel model and a 1.2km South Coast model). 4 x daily, 6 day forecasts. Model surge is combined with tides predicted at tide gauge sites. * WWW-III surface waves Global SMC grid (3-6-12-25 km) twice daily (hourly outputs) 5 day forecast) plus 4 x day update runs to get best possible forecast winds. * AMM15 based configuration of WWW-III is now used to provide Northwest Shelf (daily) and UK Waters (4x daily) wave products for short range (up to 2 days ahead) forecasts.   ***New Initiatives:***   * A 1.5 km version of the AMM has become operational in 2018, and delivered to CMEMS in November 2018 * NEMO-surge AMM7 data are available for NOOS partners via existing data exchange * Transfer (or add) AMM15 wave data to NOOS exchange (at the moment data is from our Global model)   ***Under development:***   * Global 1/12o resolution forced and coupled systems planned for 2020 * A 1.5 km ocean-wave-atm model for use in a coupled research system in the NOOS region * A NEMO based surge model at 7 km to replace 12 km CS3X (winter 17/18 trial, winter 18/19 operational), to be followed by 1.5 km shortly afterwards * Wave model on SMC grid (3-1.5 km NWS) |
| **Dissemination**  **Status and new initiatives** | ***Status:***  ***Operational:***   * FOAM AMM7 (including, physics biogeochemistry and daily forecasting wave model equivalent), GLO coupled and OSTIA data available from CMEMS (http://marine.copernicus.eu/ ). * Since November 2018, high resolution North West shelf model AMM15 (physics and waves) available from CMEMS (http://marine.copernicus.eu/ ). * Other model data are available from [enquiries@metoffice.gov.uk](mailto:enquiries@metoffice.gov.uk) * MAWS data available and viewable from (http://research.metoffice.gov.uk/research/ocean/goos/maws\_pic.html )   ***Additionally:***   * Marine physical data :   - measured water levels and wave data on ftp server (for NOOS members)  - computed water levels and wave data on ftp server(for NOOS members)  - computed transports in North Sea and North Sea/Baltic transition area on ftp server (for NOOS members)   * NOOS homepage   - Computed transport forecasts for the North Sea on NOOS-homepage  - Computed forecasts of currents in the North Sea on NOOS-homepage   * Environment Agency flow and height data   ***New Initiatives:***   * NEMO-surge AMM7 data are available for NOOS partners via existing data exchange * Transfer (or add) AMM15 wave data to NOOS exchange (at the moment data is from our Global model) |
| **Relevant national projects** | Public Weather Service (PWS)  Defence Oceanography Programme (DOP), including MASSMO5 glider Assimilation experiment  alterECO gliders  CAMPUS: assessment of fine resolution processes with autonomous vehicle data, including data assimilation. |
| **Relevant International projects** | Copernicus Marine Environment Monitoring Service  EuroARGO: European contribution to a global ocean observatory  IOC – IODE (Committee on International Oceanographic Data Exchange)  JCOMM-OPS: provides coordination at the international level for oceanographic and marine observations from drifting buoys, moored buoys in the high seas, ships of opportunity, voluntary observing ships and sub-surface profiling floats.  ETOOFS: Expert Team on Operational Ocean Forecast Systems  GODAE-OceanView Coastal and Shelf Seas Task Team: Coordinates internationally work on global model inputs to coastal modelling  CEASELESS: developing coastal services, Met Office participation is examing wave data assimilation in Northwest Shelf domain  HiVE: CMEMS funded project looking at Verification of High-resolution ocean models  AtlantOS: Atlantic observing system experiments  IMMERSE: high resolution ocean modelling in NEMO |
| **Additional information** |  |