NOOS annual report 2015

Member report - HZG

October 2015

Country	Germany
Institution	Institute of Coastal Research, Helmholtz-Zentrum Geesthacht (HZG)
Observations **Status and new initiatives**	**Status coastal observatory COSYNA:** **Underway systems:** operational FerryBox routes: • Cuxhaven – Immingham (5 times per week) • Norway-Belgium-England (weekly) • Büsum-Helgoland (summer) Cuxhaven-Helgoland (winter) (daily) • RV campaigns in the German Bight with a towed undulating vehicle (Scanfish) & FerryBox→ 3D profiles from T, S, Turb, Chl-a • Research campaigns with glider in the German Bight **Fixed stations:** • fixed FB-station in Cuxhaven operational since Sept 2010 • fixed FB-station at platform FINO-3 operational since July 2011 • fixed FB-station in Spitzbergen operated by AWI since June 2012 • 2 underwater nodes (Helgoland + Ny Alesund (Spitsbergen)) operated by AWI since June 2012 • 3 HF-radar stations (currents) operational, 1h timesteps • 2 x-band-radar at Sylt and offshore platform Fino3 (waves, currents, topography) **New Initiatives:** - high precision alkalinity sensor for unattended operation on FerryBox systems measurement successfully tested and will be installed on FerryBox systems soon - PSICAM (point source integrating cavity absorption meter) for better quantification of Chl-a and detection of algal groups (incl. HABs) under development (EU project NEXOS) -operation of active and passive samplers for heavy metals and selected organic micropollutants
Modelling **Status and new initiatives**	**Status:** A Baroclinic circulation model (GETM) with three nested grids is running in pre-operational mode • 5 km North Sea / Baltic model • 1 km German Bight model In addition setups with 200 m resolution are used for the Wadden Sea areas The Ocean wave model WAM is run in pre-operational mode with two nested grids • 5 km North Sea model • 1 km German Bight model In the framework of the COSYNA project the models are run with a forecast period of 12 hrs (wave model) and 72 hrs (German Bight circulation model) . A pre-operational system for the blending of surface current fields from a numerical model and HF radar measurements was developed and implemented. The system provides 18 hrs hindcasts and 6 hrs forecasts. A scheme was developed for the assimilation of satellite SST and FerryBox SST and SSS data **New initiatives :** under development: • coupling of ocean waves and currents • Analysis of glider data

Dissemination **Status and new initiatives**	**Status:** **Main webpage:** www.cosyna.de **Observations:** www.coastlab.org **Modelling:** http://kofserver2.gkss.de/codm/ Real Time Observations and pre-operational forecasts are freely accessible as netcdf files: • Hydrodynamic model derived parameters (e.g., tides, currents, temperature, salinity) - Model derived ocean wave parameters (e.g., Hs, peak periods, ...) - Surface current fields derived by combination of numerical model results and HF radar data are generated on a pre-operational basis with updates every hour - - **New initiatives :** -inclusion of quality checked of real-time data has been implemented on all FerryBox systems
Relevant national projects	•PACES2 Research Program of the Helmholtz Society •Coastal Observation System for Northern and Arctic Seas" (COSYNA) Bundesministerium für Bildung und Forschung; •Project: Surface Ocean Processes in the ANthropocene, SOPRAN •WIMO (Wissenschaftliche Monitoringkonzepte für die Deutsche Bucht)
Relevant International projects	•Surface Ocean Lower Atmosphere Study SOLAS (SOPRAN is the German contribution to SOLAS) •EU-project Field-AC: Fluxes, Interactions and Environment at the Land-ocean border. Downscaling, Assimilation and Coupling. •EU-project THESEUS (Innovative coastal technologies for safer European coasts in a changing climate) •EU-project EPOCA (European Project on Ocean Acidification) •EU-project JERICO-NEXT (Joint European Research Infrastructure network for Coastal Observatories) •EU-project MYOCEAN-2 •EU-project MYWAVE •EU-project NEXOS •EU-project EnviGuard •Impact of climate change and human intervention on hydrodynamics and environmental conditions in the Ems-Dollart estuary: an integrated data-modelling approach - Funded by BMBF and Nietherlands Organization for Scientific Research
Additional information	