



The EuroSITES open ocean observatory network: Results and future vision

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The EuroSITES project is a network of open ocean reference stations around Europe (www.eurosites.info). Using moorings and other infrastructure the EuroSITES observatories currently deliver a unique set of climate sensitive atmospheric and oceanographic datasets in near real-time from key open ocean sites. Starting with nine core observatories in 2008, the network has expanded to 10 key sites within the Norwegian and Mediterranean Seas and the North Atlantic Ocean. The significant investment by both National and EU agencies has greatly developed Europe's capability for in situ ocean biogeochemistry so that O₂, pCO₂, chlorophyll, and nitrate are measured at several observatories with data transmitted in near real-time from the upper 1000 m. EuroSITES has also supported the development of technologies for autonomous long-term measurement of oxygen consumption in the mesopelagic, pH and mesozooplankton abundance, and seafloor missions including tsunami detection and pore water pressure (fluid flow) in the Eastern Mediterranean.

The current EU funding for the EuroSITES network (3.5 Million Euros; 2008-2011) has been crucial for developing the integration of the observatories with a common management and coordinated open access to data and metadata. As a result, the EuroSITES network is at a mature stage of development and is moving towards an integrated operational European infrastructure. As the European contribution to the international OceanSITES network (www.oceansites.org) the standardised datasets (OceanSITES NetCDF) are uploaded daily to the OceanSITES ftp site, the GMES MyOcean project and the Global Telecommunication System (GTS) for wider utilisation by the modelling communities and other users. Examples of ongoing activity include ocean modelling reanalysis studies with the expectation of use in the future by operational forecasting services. These developments have led to EuroSITES becoming considered as a key ocean data provider for the joint EC and ESA initiative Global Monitoring for Environment and Security (GMES).

Outreach and knowledge transfer of EuroSITES activities and results are also a key component to the project with a dedicated outreach website. Educational tools produced include a Fact Sheet, cruise diaries reporting science missions as they happen and two educational films about the network and links with other relevant projects including ESONET and HERMIONE.

Despite the progress and the clear need for in situ open ocean datasets, there is currently no future EU funding committed to maintaining the EuroSITES observatory network beyond April 2011. However, significant interaction with relevant projects including ESONET, EMSO, HERMIONE, GISC, EMODNET and OOI has been very productive and is ongoing. As a result, it is intended that the EuroSITES observatories will be a key component of a future integrated in situ ocean observing system around Europe linking with other in situ and remote infrastructures including gliders, floats, ships and satellites.

Since 2008, EuroSITES has been a registered contributor to the ocean component of the Group on Earth Observations (GEO), particularly through task AR-09-03c 'Global Ocean Observing Systems', data management and related societal benefit areas including climate and biodiversity. Following presentations at science and technology meetings, GEO workshops and the 2010 GEO Ministerial Summit in Beijing, it is anticipated that EuroSITES will continue to develop its contribution to the future 2012-2015 GEO Workplan, the implementation of the Data Sharing Action Plan and the development of a European Strategy for GEO. In situ atmospheric and ocean time-series from fixed-point observatories will continue to be critical to monitor and detect longer-term trends as distinct from natural variability, validate ocean and climate models and reduce uncertainty in future predictions. The EuroSITES network is a key component of the in-situ infrastructure needed to achieve this.