

**REPORT BY THE DBCP ACTION GROUPS TO THE
TWENTY-SIXTH SESSION OF THE DBCP, OBAN, UK, 27-30 SEPTEMBER 2010**

1) Summary

Name of Action Group	Surface Marine programme of the Network of European Meteorological Services, EUMETNET (E-SURFMAR)
Date of report	31 July 2010
Overview and main requirements addressed	The EUMETNET Composite Observing System (EUCOS) surface marine (E-SURFMAR) programme is an optional programme involving 17 out of the 26 EUMETNET members, who fund the activity on a GNI basis. Its main objectives are to coordinate, optimise and progressively integrate the European meteorological services activities for surface observations over the sea – including drifting and moored buoys, and voluntary observing ships. E-SURFMAR is responsible for coordination of buoy activities carried out by the European meteorological services, and the programme supports a Data Buoy Manager (DBM) to manage these activities. The DBM is supported and advised by the E-SURFMAR Data Buoy Technical Advisory Group (DB-TAG) which is an action group of the DBCP.
Area of interest	Ocean areas potentially affecting NWP over European countries. This covers the North Atlantic Ocean North of 10°N and the Mediterranean Sea (90°N-10°N; 70°W - 40°E).
Type of platform and variables measured	<u>Drifting buoys</u> : air pressure, SST, (wind) <u>Moored buoys</u> : air pressure, wind, air temperature, SST, waves (directional spectra), relative humidity.
Targeted horizontal resolution	250 km x 250 km, >150 drifting buoys, 4 moored buoys for satellite calibration/validation.
Chairperson/Managers	Manager E-SURFMAR: Mr Pierre Blouch, Météo-France Chairperson, Data Buoy Technical Advisory Group (DB-TAG): Mr Jon Turton, UK Met Office
Coordinator	Data buoy Manager: Mr Jean Rolland, Météo-France
Participants	Belgium, Croatia, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, and the United Kingdom
Data centre(s)	Météo-France as SOC ISDM (Canada) as RNODC/DB
Website	http://www.eucos.net , under the heading “EUCOS Public” in “EUCOS networks” http://esurfmar.meteo.fr (restricted working area web site for E-SURFMAR participants)
Meetings	DB-TAG meets once a year. DB-TAG7 Madrid 18-19 May 2010
Current status (mid-2010)	109 drifting buoys in operation (48 Iridium, 61 Argos). 4 E-SURFMAR supported moored buoys in operation, plus a further 17 K-series buoys and 16 Oceanor buoys operated by members.
Summary of plans for 2011	Maintain a network of 100 drifting buoys, and the 4 reference moored buoys in operation.

2 Deployment plans for 2011

The drifting buoys will be deployed from various locations (Canada, Iceland, France, Norway, UK, USA, ...) in the Atlantic Ocean. The drifters from GDP upgraded with barometers will be deployed by vessels plying from USA to Iceland and from USA to Europe. Within the allocated budget more than 100 buoys (including 30 upgrades) will be deployed in the E-SURFMAR area of interest in the coming twelve months. New deployment routes will be investigated.

E-SURFMAR will continue to deploy buoys in the Arctic Ocean through IABP. The main challenge with the ice buoys is their ability to survive after being released from frozen ice.

At present, Cabo Silleiro (transmission through Inmarsat) is the only EUCOS moored buoy which reports directional wave spectra onto the GTS. Spectral data from K5 (transmission through Iridium) are still experimental. Lion moored buoy (transmission through Meteosat) reports omnidirectional spectra and M6 (transmission through Meteosat) is only reporting mean wave height and period. It is expected that a modified version of the system developed by the Met Office for K5 will be also installed on the Lion buoy with similar capability on M6 in due course.

3 Data management

3.1 Distribution of the data

3.1.1 Data policy

ESURFMAR encourages free and open access to data, in the spirit of WMO data exchange policy defined in WMO Congress Resolution 40 (Cg-XII). All basic meteorological and oceanographic data are coded in the appropriate WMO code form and disseminated on the WMO Global Telecommunication System (GTS)

3.1.2 Real-time data exchange

All the data are put on the GTS as quickly as possible.

The developments on a processing chain at Météo-France producing GTS reports from Iridium SBD data were consolidated. The chain is able to produce FM13-SHIP, FM18-BUOY or FM94-BUFR messages. The distribution of BUFR messages should start during summer 2010 after the first drifters having a resolution of 0.01K for SST are deployed.

The evaluation of the Iridium communication system was done as a contribution to the DBCP drifter Iridium Pilot Project. Half of the number of drifters operating are now using Iridium. This improves the data timeliness (see Annex). About 2,500 daily observations are carried out on to the GTS. The short term target (70%) of the percentage of data received within 50 minutes was reached. The long term target (90%) will be only reached if all the buoys move to Iridium SBD. NOAA buoys upgraded with barometers by ESURFMAR are still reporting through Argos.

The mean lifetime (for Air Pressure) of the SVP-B drifters was approximately 12 months (351 days). Ninety eight buoys failed to report air pressure measurements.

The availability of moored buoy data depends on the number of buoys operating. An average of 80 hourly observations per day have been reported from E-SURFMAR buoys to the GTS.

Since buoy Cabo Silleiro was taken into account in the performance computations, the percentage of EUCOS moored buoys data available within 50 minutes dropped from 100% to 80% i.e. below the target of 90%.

3.1.3 Delayed mode data exchange

The raw data from drifters (Argos and Iridium) are archived at "Centre de Meteorologie Marine" (CMM) at Meteo-France.

Data inserted onto the GTS are routinely archived by various centres (for drifting buoys ISDM, GDP, Coriolis..., Meteorological Services for drifting and moored buoys).

Archived data from drifters are also used to produce surface currents deduced from the buoys movement on a weekly basis

The metadata collection system at JCOMMOPS is used for drifting buoys.

E-SURFMAR will generate Moored Buoy Metadata, once a standard template is provided - this is still to be agreed by the DBCP Task Team on Moored Buoys in its metadata initiative.

3.2 Data quality

The web page giving access to the Quality Control (QC) tools was enhanced in 2009 (see <http://www.meteo.shom.fr/qctools>). Monthly statistics and 14-day graphs are now available for all surface marine observations through the same interface. More parameters are considered in the statistics: humidity, wave height and direction, salinity have been added. Buoys reporting in BUFR are monitored as those reporting through BUOY or SHIP alphanumeric messages. The blacklists, automatically issued for air pressure every day, are used to identify and correct potential problems.

For drifters the Air Pressure (AP) differences from the French model outputs showed that the target of 1% of Gross Errors was easily being achieved. The RMS of AP differences still has a seasonal variation, being higher in winter (0.8 hPa) than in summer (0.6 hPa).

For moored buoys the Air Pressure (AP) differences with the French the target of 0.5% of Gross Errors was achieved. The RMS of AP differences are between 0.5 to 0.8 hPa.

4) Instrument practices

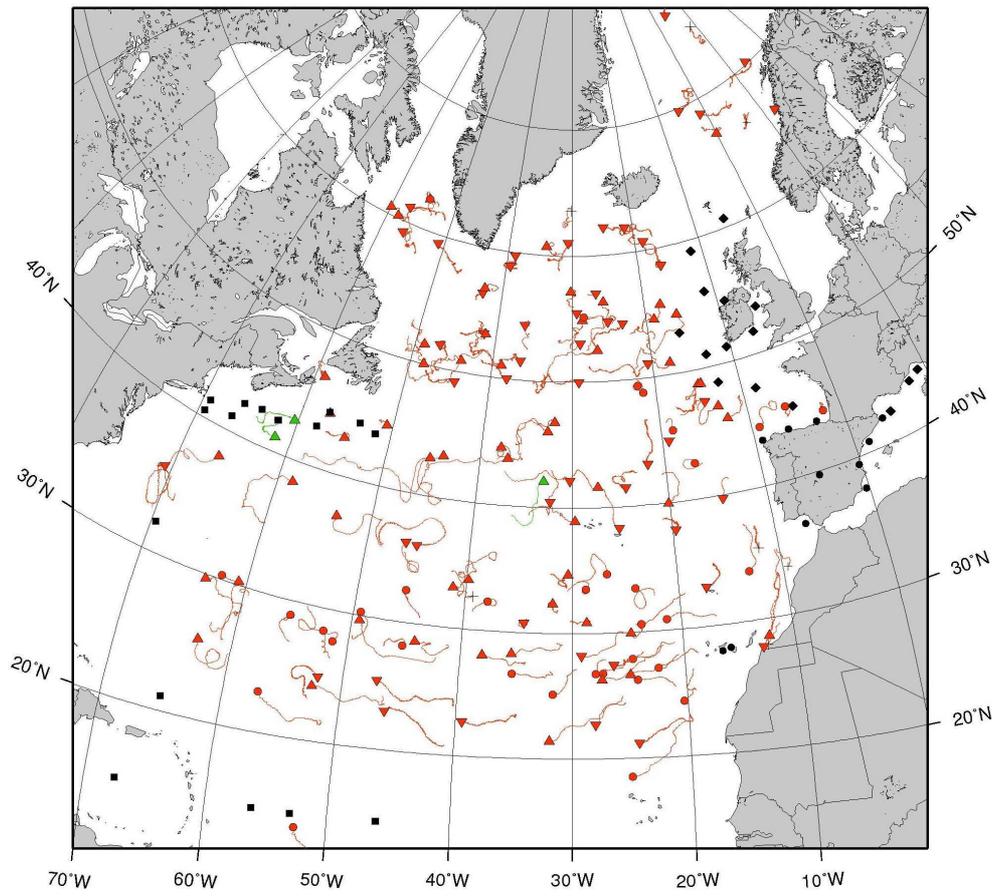
ESURFMAR drifting buoys uses recommended DBCP formats (DBCP-M2 for Argos, formats published on Iridium PP website for Iridium).

A draft technical document on E-SURFMAR moored buoys is under review. It is hoped to have a completed document for the next DBTAG meeting in May 2011.

5) OSE experiment

An OSE experiment has been carried out by ECMWF on surface marine data. The study showed a clear positive impact of buoy data, strongest at 1000hPa but lasting up to 500hPa. The impact is stronger and lasts longer when GPS Radio Occultation (GPSRO) data are used. The present density of additional buoys –compared to the situation before ESURFMAR started- has a visible but moderate impact in terms of forecasts scores. The impact on storms Klaus and Xynthia was slightly positive for 24 h forecasts but remarkable for 48 h and 96 h.

Annex



Operating Buoys in E-SURFMAR area
Drifting buoy trajectories and moored buoy positions
(June 2010)

