

## Additional Data on Sea Currents

In order to get additional information on the sea currents, the BEA asked the French Navy to drop drift buoys over the search zone for the AF447 wreckage from the beginning of the month of June 2010.

The drop operation took place on 3 June 2010, after a positioning flight to Dakar. A Falcon 50M from the French Navy dropped nine drift buoys over the estimated area of the accident, one of which subsequently failed.

The objective of this operation was to improve scientific knowledge of the existing surface currents in this part of the Atlantic at the same seasonal period as the accident (beginning of June).

This operation is part of the global review being carried out on the sea search operations that have been undertaken up to now.

### Preparation and Execution of the Drop Mission

The CEPPOL supplied nine SLDMB<sup>(1)</sup> buoys. This type of buoy is normally used to follow the evolutions of surface currents in case of maritime pollution.

The US Coast Guard (USCG) uses the same type of buoys.



Figure 1: photo of a METOCEAN SLDMB buoy

The data transmitted by the buoys was supplied to the BEA by CLS (Collecte Localisation Satellites) via the ARGOS system. This information was also transmitted to the IFREMER CORIOLIS database in order to make it available to the oceanographic community.

<sup>(1)</sup>The SLDMB (Self Locating Data Marking Buoy) buoy developed by METOCEAN (Canada) is equipped with lateral fabric panels that act as a floating anchor. The onboard electronics provide positioning data (GPS) and the water temperature. The SLDMB buoy is designed to deploy automatically after impact with the water. When completely deployed, it transmits its GPS position via the ARGOS system that transfers the data by satellite.

## Initial Results

Figure 2 shows the drift of the buoys between the 3<sup>rd</sup> and 17<sup>th</sup> of June 2010. Their trajectories confirm the high divergence of oceanic surface currents, and the difficulty of modeling them in the accident zone.

It should be noted that this data is not representative of the conditions that prevailed at the beginning of the month of June 2009 and can thus not be used for reverse calculations of the drift between the 6<sup>th</sup> and the 1<sup>st</sup> of June 2009. It will however allow oceanographers to better understand the structures of the surface currents in this part of the Atlantic Ocean near to the equator, which is not greatly subject to geostrophic currents<sup>(2)</sup>.

<sup>(2)</sup>Geostrophic currents, which result from the rotation of the earth generating the Coriolis Effect, can be modelled with reasonable precision in regions further away from the equator.

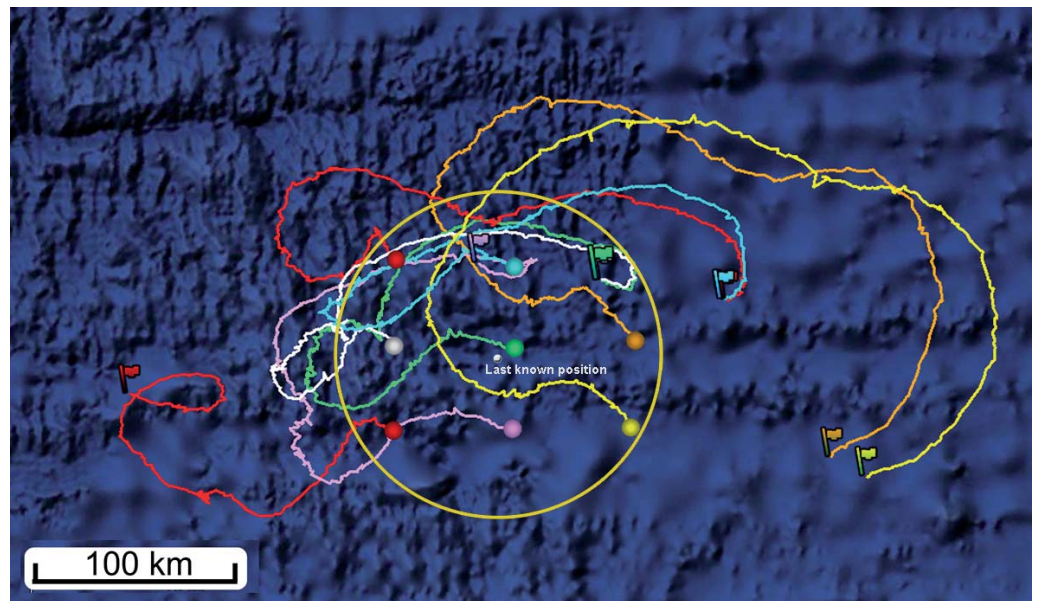


Figure 2: trajectory of the buoys from 3 to 17 June 2010