



Maria S. Merian Cruise 2 leg 1

Fourth weekly report: 12.06 - 18. 06. 2006

Irminger Sea section was the central work of this week. It was unfortunately interrupted by an unusual extension of the sea-ice coverage East of Greenland, associated to persistent westerly winds.

Work performed includes 28 CTD stations, 1 Provor and 1 glider deployment, and the recovery of mooring A. Meteorological conditions were contrasted, and the work was interrupted Wednesday night and Sunday because of high winds (force 9-10).

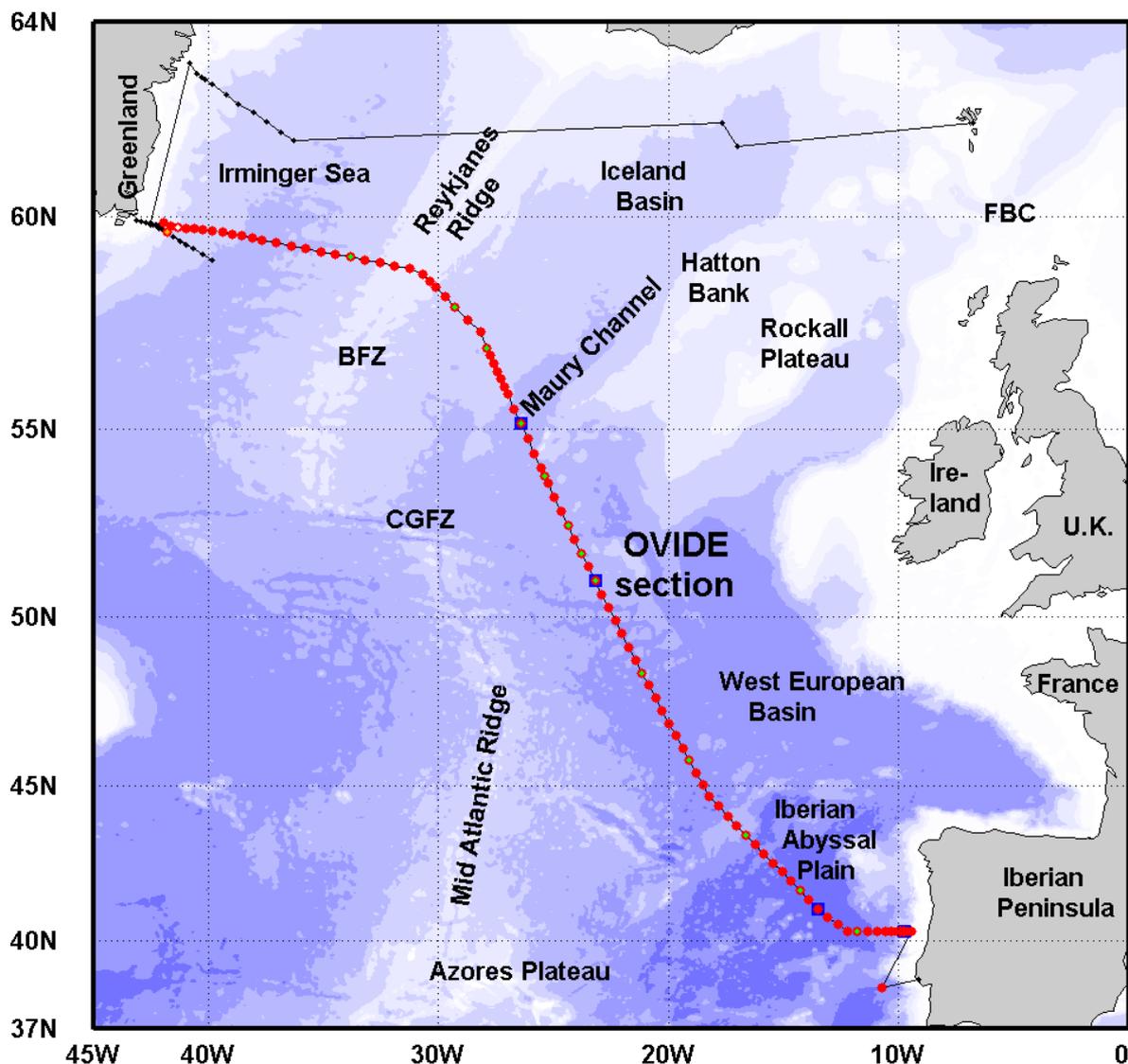


Figure 1: Sections planned for Ovide 2006. Red dots indicate the hydrological stations performed from May 24 to June 18. The blue squares indicate VMP profiles; the green dots: profiling float deployments; the white dot: a glider deployment; and the orange dot: a mooring recovery.

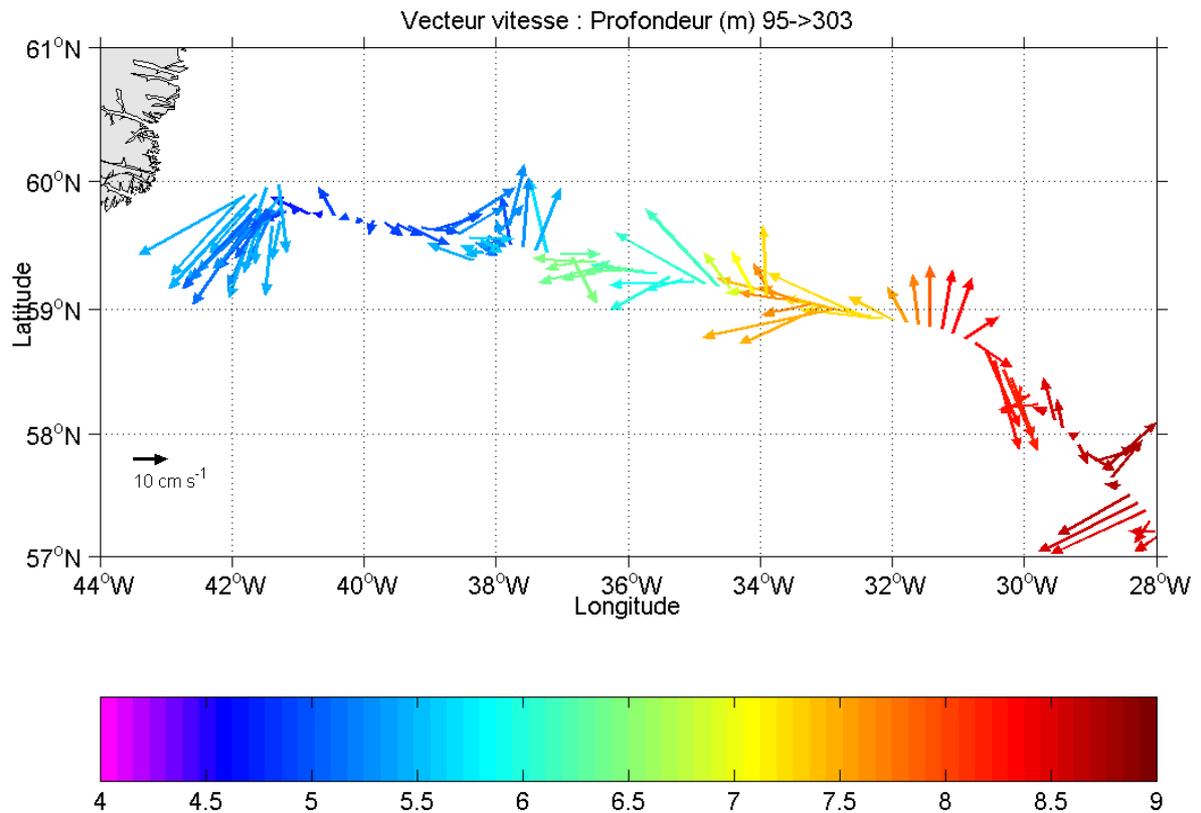


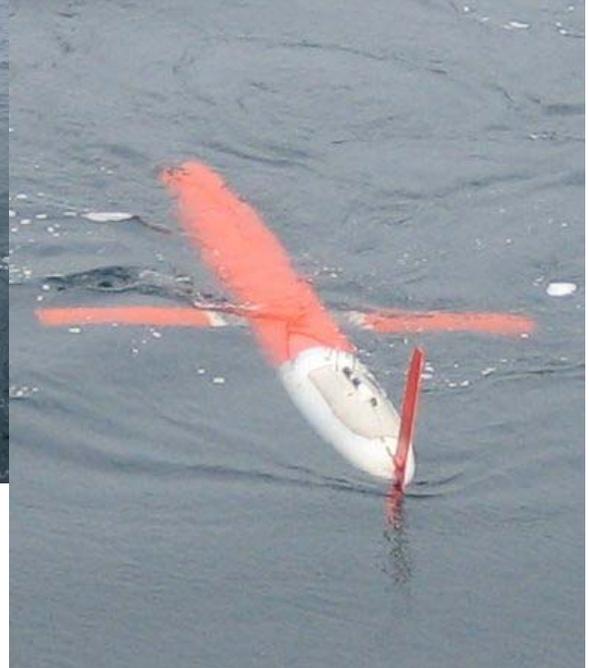
Figure 2: Velocities measured by the ship ADCP and averaged between 95 and 303 meter depths. Color indicates the mean temperature in this layer, interpolated from CTD station data.

The hydrological section is now nearly complete. The Irminger basin is characterized by strong barotropic currents, with 2 persistent features that delimitate its cyclonic circulation (figure 2): the northward flow west of Reykjanes Ridge, and the southward and cold East Greenland Current (EGC) that we reached on Friday. The latter could not be studied thoroughly due to sea ice coverage, and as it is crucial for our work, we will try to overcome this difficulty next week. Patience and easterly blow are the only ingredients we need. Meanwhile, we have lots of work to do.

The MERSEA glider (pictures below) was deployed Saturday at 41°18'W, on the verge of the EGC. (far away enough from the ice). Its evolution and performance can be followed in real time on internet at

http://www.ifm.uni-kiel.de/fb/fb1/po2/research/mersea/gliders/spray004_position.html

It is remotely controlled from land via Iridium satellites: at each surfacing between 2 1000m-deep dives -every 6 hours- it transfers the CTD/chlorophyll profile data collected on its upcast and receive the new orders (mainly waypoints and dive depth). It has performed well up to now, and moves towards the CIS mooring in Central Irminger Sea. This glider is programmed to perform this section 5 times before being recovered by the Discovery crew led by S. Bacon end of August.



Spray 004 deployment: last verifications and mission launching (up left), crane lifting (up right), smooth immersion behind the ship (bottom left), and last “au revoir” (bottom right).

After this successful deployment, we come back to mooring A that was under ice early morning. As it is now relatively free of ice, we decide to recover it. Unfortunately, the mooring drifts very fast with the current after being released acoustically, and although we receive the Argos beacon, we have difficulties to locate it. After 45 minutes, we finally see it ... compacted near a growler (in our hunt, we came closer to the ice edge). Once hooked, the mooring can be brought back aboard; it comes out with huge knots in the cable, probably due to its long drift amongst sea ice. Some pictures below illustrate the story. The first results show that the five currentmeters and the Seacat (for T,S,P) have worked perfectly for 2 years, and that the knots only appeared after release of the .mooring.



Mooring A recovery: the mooring A is finally seen, embedded in a big growler (up left). The first currentmeter to come is the deepest one (up center), quickly followed by a mass of cables (right) and a huge ball of steel cable (up right).



It was a busy Saturday, followed by a quiet Sunday: force 9-10 winds are blowing again, constraining us to stop the work like Wednesday night: a station cannot be hold properly with one pod by such wind.

In the evening, we try again to reach mooring B: the strong westerly winds blew the ice some 60 nm offshore, much further than the day before. Since the 63°N shelf is also locked, it is decided to perform another section of the Deep Western Boundary Current (DWBC) and of the EGC, south to the Ovide section and along the mooring line (see Figure 1). We definitely need to have this piece in once. The strategy is to begin this short section offshore, so that we may take advantage of the easterly winds forecast for Tuesday and go further inshore this time, recovering the moorings that cannot stay longer there. This section is along the line of 11 moorings deployed by S. Bacon in 2005 and ourselves in 2004, and it can be very useful to support the on-going study of the DWBC variability at this latitude. Off we go...

More than ever, all the scientists of this mission are most grateful to Captain von Staa and to all the crew aboard the Maria S. Merian.

Bien sincèremment,

Pascale Lherminier et toute l'équipe scientifique à bord du M.S. Merian.