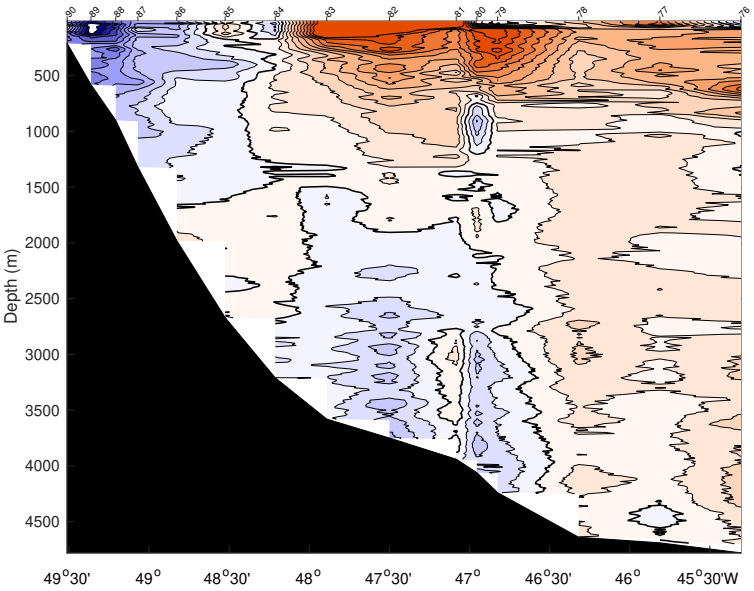
M212

Ponta Delgada — St. John's
July 30 — September 2, 2025

Weekly Report No. 5
(August 25 — August 31, 2025)

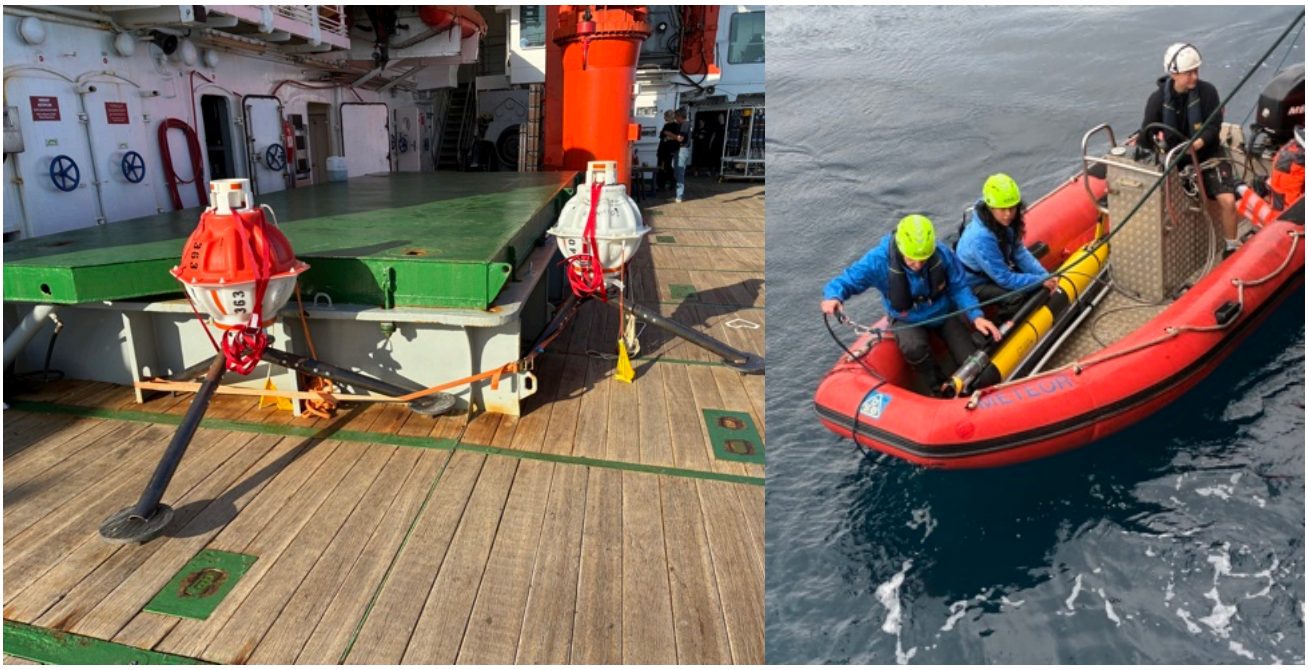
On Monday we were still on the transit from Trinity Bay, Newfoundland, where we had stayed to avoid Tropical Storm Erin. With the weather settled, we proceeded toward our second main research area, located southeast of the Grand Banks. In the afternoon we reached the frontal zone between the southward-flowing cold Labrador Current and the warm, northward North Atlantic Current. There we deployed a Slocum Glider for a six-day transect across a mesoscale eddy squeezed between the two major currents. Among other parameters, the glider measures temperature and salinity while profiling up and down through the upper 1000 meters of the water column. It is also equipped with a microstructure probe to measure the dissipation rate of turbulent kinetic energy. In the evening, the weather conditions allowed us to enjoy a nice barbecue on deck.

We arrived at our southernmost station on Tuesday afternoon, where we successfully recovered the last of a total of 16 inverted echo sounders that had been in the water for the past two years. The instruments had all worked well and returned full data sets. During the night we began the final CTD section of our cruise, starting in the southeast at the center of the so-called Mann Eddy, located east of the North Atlantic Current. In total we made 15 CTD cast along this section and we also re-deployed eight of the inverted echo sounders. It took us until Friday afternoon to complete this section, during which we crossed the North Atlantic Current, the Deep Western Boundary Current, and the Labrador Current. We then returned to the center of the Deep Western Boundary Current for the last part of the CTD program on this cruise, which were two time series stations in the center of the Deep Western Boundary Current to measure temporal variability and wave processes. The last CTD cast was on Sunday afternoon, and we then headed back to the final glider way point, where we successfully recovered the instrument in the late afternoon.



Current velocity measured with acoustic Doppler current profilers (ADCPs) along a section southeast of the Grand Banks. Southward currents (Labrador Current and deep western boundary current) in blue, and northward currents (North Atlantic Current) in red.

With the glider back on deck, our science program ended, and we started the transit to St. John's,



Two inverted echo sounders prepared for deployment (left) and a Slocum glider recovered by inflatable boat (right).

where we will arrive on Tuesday morning. We thank Captain Detlef Korte and the entire crew of the METEOR for the excellent support of our work during this cruise. Looking back, we accomplished quite a lot and, despite the interruption caused by the weather situation, we will return home with a particularly rich and valuable data set.

More information about our research activities and life on board are shared in the blog posts (https://epoc-eu.org/our-work/expeditions/m212/).

Best wishes from the scientific party of M212 to all families, friends, and colleagues on shore.

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