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Orientation: Ocean Observation and Global Change
Specialization Area: Ocean Observation
Research Area: 1.2 Chemical Oceanography



PhD project: Transport and budget of carbon, nutrients and oxygen in the North Atlantic

Supervisors: Dr. Fiz Fernández Pérez (Marine Research Institute-CSIC)
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Summary: The biogeochemical status of the eastern subpolar North Atlantic was evaluated under an integrated approach based on quantifications of transports and budgets of carbon, nutrients and oxygen. The main core of the thesis was the development of an integrated biogeochemical budget centered on carbon using the longest time-series available for the OVIDE section (Portugal-Greenland 2002-2016).

On decadal time scale, the biogeochemical budget model confirms that the eastern subpolar North Atlantic is a significant atmospheric carbon sink and an important region for the oxygen uptake.

Finally, the carbon sink detected by the water-column balance approach was contrasted against sediment fluxes. With superficial sediment cores retrieved at the OVIDE/BOCATS 2016 cruise and a novel technique to establish absolute chronologies, a quantitative first-estimate of carbon fluxes into the deep-sea sediments of the subpolar basins was reached.

More info about the research progress in www.marcosfontela.com

