

Guiding biogeochemical campaigns with high resolution altimetry: waiting for the SWOT mission

F. D'ovidio and KEOPS2 Team

Biogeochemical processes in the ocean are strongly affected by the horizontal mesoscale (~10-100 km) and submesoscale (1-10 km) circulation. Eddies and filaments can create strong dishomogeneity, either amplifying small-scale diffusion processes (mixing) or creating tracer reservoirs. This variability has a direct effect on the biogeochemical budgets - controlling for instances tracer fluxes across climatological fronts, or part of the vertical exchanges. This variability also provides a challenge to in situ studies, because sites few tens of kms or few weeks apart may be representative of very different situations. Here I will discuss how altimetry observation can be merged with other satellite data in order to track in near-real-time transport barriers and mixing regions and guide a biogeochemical adaptative sampling strategy. In particular, I will focus on the recent KEOPS2 campaign (Kerguelen region, October-November 2012) which employed Lagrangian diagnostics of a specifically designed high resolution, regional altimetric product produced by CLS (with support from CNES). The integration of such product with Lagrangian diagnostics and other satellite data allowed to sample the evolution of the bloom over several contrasted sub-regions of the Kerguelen area, providing a detailed picture of its biophysical dynamics. Such approach opens to way to the exploitation of incoming high resolution altimetry data for biogeochemical studies.