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Particle transport in the water column of the NW-African upwelling system

The NW-African upwelling system is characterized by high primary production and export of particulate organic matter (POM).
POM plays an important role in the global carbon cycle, since its production in the surface waters and subsequent export to the deep ocean and sediments causes a net removal of CO_2 from the atmosphere. Field observations and models show that these particles are not only transported vertically, but also by lateral advection in particle rich layers so-called nepheloid layers (NLs). However, little is known about this lateral transport and its influence on POM export to the deep ocean. In my PhD-project I analyze the lipid composition and the radiocarbon ages of POM collected from these nepheloid layers using in-situ pumps, and of sinking particles collected in sediment traps.

The main goals of the project are:

- to characterize the lipid composition of particles in the water column and invesitgate alteration processes during lateral transport and vertical sinking
- to quantify the contribution of pre-aged re-suspended material to particles transported in nepheloid layers.

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