

WHICH FACTORS CONTROL THE PICOPLANKTON COMMUNITY STRUCTURE IN THE OCEAN?

Picoplankton are the most abundant organisms in the ocean, often dominate planktonic biomass and primary production, and they could represent a substantial contribution to the global export of carbon. Nowadays, we have a limited understanding about the factors that control the picoplankton community structure. A recent analysis indicates that light and temperature are the main factors explaining *Prochlorococcus* and *Synechococcus* distributions, whereas nutrient concentrations play a minor role (Flombaum et al., PNAS 2013). Methodological difficulties to quantify mixing in the marine environments have motivated the use of indirect approaches to determine the input of nutrients into the euphotic zone, however, nutrient concentrations are not necessarily a proxy of nutrient supply. We present a large data set, including open-ocean and coastal regions, of simultaneous measurements of picoplankton abundance, temperature and irradiance, together with estimates of nutrient supply. The transport of nutrients across the nutricline was computed combining nutrient concentrations and small-scale turbulence observations collected with a microstructure profiler. Our preliminary results indicate that nutrient supply also plays a role in the distribution of functional groups of picoplankton in the ocean.