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A new inventory of inorganic nutrients data for the Western Mediterranean Sea: interannual variability in repeated transects

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Few studies on Mediterranean's biogeochemical properties and their temporal variability have been published since now. For this reason, one of the aims of this work was to put together a large biogeochemical dataset derived from a series of oceanographic campaigns in the Western Mediterranean from 1997 to 2012.
The analysis of these data, especially the vertical and horizontal variability of nitrate, phosphate and silicate and their stoichiometric ratios along repeated transects, allows to differentiate Mediterranean water masses and to verify biogeochemical anomalies already described in literature. In fact nutrients, besides being tracers of new production, biological cycles and transport processes, can be also used like non-conservative tracers of water masses and mixing. To obtain more specific results, the "semiconservative" parameters NO and PO were derived. This type of tracers combines oxygen, nitrate and phosphate data in order to take into account respiration processes.
The principal target of this study was the characterization of Mediterranean water masses from a biogeochemical point of view. In particular, specific repeated transects (i.e. the Sicily Channel, which is extremely important for water exchanges, the Corsica Channel and the passage between Sardinia and Sicily) permitted to analyse the temporal variability of these elements in intermediate and deep waters, which have a fundamental role in re-distribution of nutrients in the Mediterranean basin.