



Seasonal and interannual evolution of the diatom fluxes in the Northwest Mediterranean based on the study of a 12-year-long sediment trap record

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We studied the seasonal and annual evolution of the diatom assemblages through the analysis of two sediment trap records from the Gulf of Lions (Northwest Mediterranean). The general circulation in the GoL is dominated by an along-slope current called Northern Current (NC) that flows in a cyclonic direction along the continental slope

Particle fluxes to the sea floor were controlled by changes in sea surface circulation and primary productivity, which underwent strong annual cycles. To investigate seasonal and annual changes in particle fluxes over the last decade two sediment traps were deployed in the middle part of the Planier and Lacaze-Duthiers canyons and samples were taken fortnightly or monthly from 1993 to 2006.

Diatoms annual cycle can be divided in four stages that approximately coincide with the four seasons. The diatom fluxes exhibited an unimodal pattern with maximum fluxes at the beginning of the spring season that present the perfect conditions for the diatom growth with a photic zone replenish with nutrients and optimum radiation.

More than 120 diatom species were identified in the samples. *Thalassionema frauenfeldii* was the dominant taxa during the study period for both traps. Planier station was the trap with less influence of the continental shelf and, among others, exhibited the classical succession *Skeletonema-Chaetoceros-Rhizosolenia* through the spring bloom. Lacaze-Duthiers station showed important differences with Planier, as higher productivity caused by the fertilizing effect of the Rhône river or maximum diatom productivity peaks in different moments. Despite the differences between the two traps, both showed very strong seasonal variations and repetitive from year to year.