



Episodic meteorological and nutrient load events as drivers of a NW Mediterranean coastal ecosystem.

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In temperate coastal zones, episodic meteorological forcing can have a strong impact in the classical seasonal phytoplankton succession. Episodes of continental runoff and wind storms involve nutrient enrichment and turbulence, two factors that can promote primary production along with changes in the planktonic community composition and structure. The aim of this study was to determine the influence of these variables in the changing osmotrophic planktonic community of Blanes Bay, Spain (NW Mediterranean Sea). We used a time series of monthly frequency data of several water column parameters, and we looked for correlations between these and several meteorological and physical high-frequency time series through cross correlation analyses. Influence of river runoff in this particular location was found to be dominant. Cross correlations allowed to define a sequence of responses to meteorological forcings, from turbidity, to nutrient concentration, phytoplankton and bacteria. Response of chlorophyll to nutrient enrichment lagged between 10 and 15 days. Readily available high frequency time series of meteorological and physical data are shown to be potentially good predictors of the state of the coastal ecosystem.