Storm impacts on the marine environment in the English channel

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We are considering how storms in the English Channel influence the sea water's environment, including salinity, turbidity, oxygen, and temperature. Sudden variations in these environmental variables can disrupt the coastal ecosystems. The impact can lead to eutrophication, hypoxic conditions, harmful algal bloom formation and changes in phytoplankton community structure. The objective is to address these changes using observation data. For this, we collected observation data from different sites of the English channel from 2010 to 2023. We are using databases from different French National Observing Systems (SNOs): SNO SOMLIT and SNO PHYTOBS providing at low frequency (every 15 days) biogeochemical parameters as well as phytoplankton communities, and SNO COAST HF, providing several biogeochemical parameters at high frequency (10 to 30 minutes). Météo France data hourly meteorological data are used as storm indicators. The changes in environmental structure are considered using various statistical analyses (statistical moments, probability density function, Fourier spectral analysis, biodiversity indicators). Examples from the storms Ciara (10 Feb 2020), Eunice (18 February 2022) and Mathis (31 March 2023) will be provided. Keywords: English Channel, Storm, Observation databases, Turbulence