

North Sea hydrodynamics with nested models

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The North Sea is an epeiric sea on the European continental shelf, which connects to the Atlantic Ocean through the English Channel in the South and the Norwegian Sea in the North. It hosts key north European shipping lanes, and it is a major fishery and a rich source of energy resources, including wind, wave and solar power.

Here we present a nested hydrodynamics model that is calibrated against in situ data for the year 2009, and validated for the years 2010, 2011 and 2015, which present a large range of contrasting North Atlantic Oscillation (NAO) indices. Our results are openly available and provide 10+ years of hydrodynamics data (sea surface elevation, sea water velocity, potential temperature and salinity) with a resolution of 30 arcseconds in the Southern Bight of the North Sea, and 2 arcminutes elsewhere.

With our model and resulting dataset, we aim at supporting marine research in a highly, anthropogenically impacted system, allowing stakeholders to take informed decisions to sustainably manage its valuable resources.