



## **The Copernicus Marine Service Global Reanalysis Ensemble Product GREPV2: deriving robustness estimates for ocean variability over the altimetry era.**

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Several high resolution -  $1/4^\circ$  horizontal grid - ocean reanalyses based on the NEMO ocean model and constrained by altimetry, SST observations and in situ T and S profiles, were produced with different tunings, and were evaluated jointly using common validation guidelines (Masina et al, 2015, DOI: 10.1007/s00382-015-2728-5). The Copernicus Marine Environment Monitoring Service CMEMS – <http://marine.copernicus.eu> - now delivers a multi-reanalyses ensemble product based on GLORYS2V4 from Mercator Ocean (Fr), ORAS5 from ECMWF, FOAM/GloSea from Met Office (UK), and C-GLORS from CMCC (It). The four time series of global ocean monthly estimates were post-processed to create the Global Reanalysis Ensemble Product GREPV2, covering the altimetry ERA -1993-2016-. The ensemble mean and standard deviation of the ensemble, as well as the four individual members for the period 1993-2016, will be available in April 2018 on a regular  $0.25^\circ \times 0.25^\circ$  grid at a daily frequency. The time series will be extended by one year each year.

In the framework of the preparation of the CMEMS Ocean State Report #2 (see Ocean State Report #1, 2016, DOI:10.1080/1755876X.2016.1273446), we have explored, following Xue et al (2017, DOI: 10.1007/s00382-017-3535-y), the possibility to use the spread in between individual members in order to highlight robust ocean variability signals. For a subsample of indicators, regional reanalyses or gridded observed products from CMEMS were also used to enlarge the ensemble. Indicators and associated uncertainty estimates of heat content, surface currents, heat and mass transports, and western boundary currents will be shown in this presentation.