



The global ocean reanalysis effort of MyOcean: description and early results

Nicolas Ferry (1), Bernard Barnier (2), Stéphanie Guinehut (3), Keith Haines (4), Simona Masina (5), Laurent Parent (1), Sandrine Mulet (3), Maria Valdivieso (4), and Andrea Storto (5)

(1) Mercator Océan, Ramonville, France (nferry@mercator-ocean.fr), (2) LEGI-CNRS, Grenoble, France (barnier@hmg.inpg.fr), (3) CLS, Ramonville, France, (sguinegut@cls.fr), (4) ESSC, Reading, UK (k.haines@reading.ac.uk), (5) CMCC, Bologna, Italy, (masina@bo.ingv.it)

We present here the global ocean reanalysis effort carried out within the project MyOcean, a project granted by the European Commission within the GMES Program (7th Framework Program), whose main goal is to set up an integrated capacity for ocean monitoring and forecasting in Europe. The production of global ocean reanalyses spanning the altimetric era (1993-present) is part of the global Monitoring and Forecasting Centre.

Several partners (namely Mercator Océan, CLS, CMCC, ESSC and LEGI-CNRS) are currently producing and making available to the community several global ocean state estimations at eddy-permitting resolution covering the 1993-present period. The reanalysis production is coordinated within the MyOcean project with other Work Packages like Thematic Assembly Centres which provide the useful observations for reanalyses. There are also tight links with the Cal/Val working group defining the appropriate way to assess and measure the quality of MyOcean products.

MyOcean reanalyses consist of 5 products. One product (CLS) is an estimation of the ocean state based on observations only (SST, SLA and in situ profiles). The four other products use the ORCA025 model configuration of the NEMO3 ocean/sea-ice GCM (at the eddy permitting resolution of $1/4^\circ$). All modelled products are forced with atmospheric surface variables from the ECMWF ERA-INTERIM atmospheric reanalysis. The LEGI-CNRS product is the control simulation with no data assimilation. Mercator Océan, CMCC and ESSC reanalyses assimilate various types of observations (SLA, SST and in situ hydrographic observations) using different data assimilation schemes (SEEK filter, 3D-VAR and OI with isothermal analysis of salinity, S(T)).

The 5 reanalyses have been produced and are part of MyOcean products (freely available upon request through the MyOcean web portal). The reanalyses have been assessed using a common validation protocol based on MERSEA/GODAE recommendations (CLASS 1 to 4 metrics), CLIVAR-GSOP reanalysis diagnostics and the MyOcean operational validation plan, adapted for global reanalyses.

Here we summarize the methodology and validation framework used in MyOcean global ocean reanalyses, and show first results for the period from 1993 to present.