



Comparison of CORA and EN4 in-situ datasets validation methods, toward a better quality merged dataset.

Tanguy Szekely (1), Rachel Killick (2), Jerome Gourrion (1), and Gilles Reverdin (3)

(1) CNRS, IUEM, Plouzané, France (tszekely@ifremer.fr), (2) Met Office Hadley Center, Exeter, United Kingdom (rachel.killick@metoffice.gov.uk), (3) LOCEAN, Univ Paris VI, Paris, France (gilles.reverdin@locean.upmc.fr)

CORA and EN4 are both global delayed time mode validated in-situ ocean temperature and salinity datasets distributed by the Met Office (<http://www.metoffice.gov.uk/>) and Copernicus (www.marine.copernicus.eu). A large part of the profiles distributed by CORA and EN4 in recent years are Argo profiles from the ARGO DAC, but profiles are also extracted from the World Ocean Database and TESAC profiles from GTSPP. In the case of CORA, data coming from the EUROGOOS Regional operational observing system (ROOS) operated by European institutes not managed by National Data Centres and other datasets of profiles provided by scientific sources can also be found (Sea mammals profiles from MEOP, XBT datasets from cruises ...). (EN4 also takes data from the ASBO dataset to supplement observations in the Arctic).

First advantage of this new merge product is to enhance the space and time coverage at global and European scales for the period covering 1950 till a year before the current year. This product is updated once a year and T&S gridded fields are also generated for the period 1990-year n-1. The enhancement compared to the previous CORA product will be presented.

Despite the fact that the profiles distributed by both datasets are mostly the same, the quality control procedures developed by the Met Office and Copernicus teams differ, sometimes leading to different quality control flags for the same profile. Started in 2016 a new study started that aims to compare both validation procedures to move towards a Copernicus Marine Service dataset with the best features of CORA and EN4 validation. A reference data set composed of the full set of in-situ temperature and salinity measurements collected by Coriolis during 2015 is used. These measurements have been made thanks to wide range of instruments (XBTs, CTDs, Argo floats, Instrumented sea mammals,...), covering the global ocean. The reference dataset has been validated simultaneously by both teams. An exhaustive comparison of the validation test results is now performed to find the best features of both datasets. The study shows the differences between the EN4 and CORA validation results. It highlights the complementarity between the EN4 and CORA higher order tests.

The design of the CORA and EN4 validation charts is discussed to understand how a different approach on the dataset scope can lead to differences in data validation. The new validation chart of the Copernicus Marine Service dataset is presented.