

Title

EMODnet preliminary high-resolution temperature and salinity climatologies for the Northern Adriatic Sea

Authors

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Abstract

The proposed study, conducted in the framework of EMODnet - Physics, presents the preliminary high resolution climatologies of temperature and salinity for Northern Adriatic Sea basin. This area is strongly related to the influence of freshwater forcing, given the presence of the Po river - which accounts for approximately half of the entire freshwater input of the Adriatic Sea basin - as well as several other rivers. The input data are co-located temperature and salinity profiles integrated from SeaDataCloud (*Simoncelli et al., 2020a and 2020b*) and CORA5.2 (*Szekely et al., 2019*) historical datasets. The data quality control was performed using ODV 5.3.0 software to guarantee data consistency (<https://odv.awi.de/>) and it is detailed in *Simoncelli et al. (2020c)*. The analysis was performed with the DIVAnd (Data-Interpolating Variational Analysis in n dimensions, *Barth et al. 2014*) version 2.6.1.

Monthly and seasonal fields are calculated for the periods 1955-2016, 1955-1984 and 1985-2016, while seasonal fields are provided for 6 decades: 1955-1964, 1965-1974, 1975-1984, 1985-1994, 1995-2004, 2005-2016. The climatological fields are provided on a regular horizontal grid of 3 km of resolution on 11 vertical layers from the surface to the depth of 50 meters.

The preliminary outcomes of the work offer important results. They show a significant impact of the horizontal resolution on the detection of small scale patterns of temperature and salinity climatologies, but they also outline specific criticalities, especially for what concerns the data availability. A data gap is particularly evident along the Croatian coast, where only very few observations are available along the entire considered time period. Further developments will consider the inclusion of more data in the study in order to reduce such gap and to calculate higher resolution products.

References

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