

SeaDataCloud temperature and salinity climatologies for the European marginal seas and the Global Ocean

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SeaDataCloud Temperature and Salinity historical data collections covering the time period 1900-2018 were released in 2020 for each European marginal sea (Arctic Sea, Baltic Sea, Black Sea, North Sea, North Atlantic Ocean, and Mediterranean Sea). A Quality Assurance Strategy (QAS) was developed and continuously refined in order to improve the quality of the SeaDataNet database content and derive the best data products through an iterative approach, which allows the versioning of data products. Regional Temperature and Salinity climatologies (see Figure 1) have been produced using DIVAnd software (Barth et al. 2014) and integrating for the first time SeaDataNet data with external data sources, such as CMEMS in situ TAC (Coriolis Ocean Dataset for Reanalysis) that highly increased the temporal and spatial data coverage. Regional climatologies were designed with a harmonized initial approach and all cover the time period after 1955, when marine data start to be sufficient for mapping. All regional products are characterized by monthly fields over the whole time span 1955-2018 and seasonal decadal fields on the same vertical standard levels of the World Ocean Atlas (WOA18, Garcia et al., 2019).

A global SDC climatology has been created for the first time, which contains two different monthly climatologies for temperature and salinity, one covering the time period 1900-2017 and the other with a different time coverage 2003-2017, computed from World Ocean Database (WOD2018, Boyer et al., 2019). This choice has been made because spatial coverage of SeaDataNet data at global scale is still too sparse.

A consistency analysis of all SDC climatologies versus the WOA has been performed to demonstrate the differences and the value added of SDC products.

SDC team worked to optimize the data integration process with external sources, to better tune the DIVAnd parameters, the background field estimation and to improve the final consistency analysis with the available multi-year products from WOA and CMEMS.

An overview of the methodology applied to compute the SDC climatologies and their main characteristics will be presented together with the main results achieved by the SDC products team.

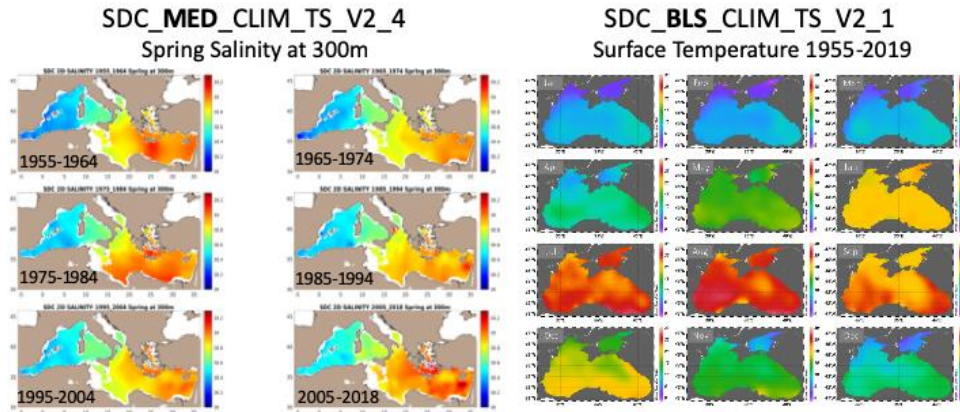


Figure 1: Example of climatological maps from Mediterranean and Black Seas.

Products availability

SDC products, data collections and climatologies, are available through a dedicated web catalogue (<https://www.seadatanet.org/Products/>) together with their Digital Object Identifier (DOI) and the relative Product Information Document (PIDoc), containing all specifications about product's generation, quality assessment, technical details and usability to facilitate users' uptake.

References

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