



ARMOR3D: A 3D multi-observations T,S,U,V product of the ocean

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To have a synoptic view of the 3D ocean to pursue oceanic studies, an observed gridded product can be often useful instead of using raw observations which can be irregularly distributed in space and time as the in situ profiles for instance or which offer only a surface view of the ocean as satellite data. The originality of the ARMOR3D observation based product is to take advantage of the strengths of these 2 types of data by combining satellite SLA, SST, SSS datasets with in situ T, S vertical profiles in order to build a global 3D weekly temperature, salinity and geostrophic velocities fields at a spatial $1/4^\circ$ resolution. The mesoscale content of the satellite data and the vertical sampling of the in situ profiles are complementary in this statistical approach.

ARMOR3D is part of the CMEMS project through the GLO-OBS component. A full reprocessing from 1993 to 2016 and near-real-time fields from 1/1/2014 to present are available through the CMEMS web portal.

The range of applications of this product is wide: OSE studies have been already conducted to evaluate the ARGO network and in 2017, OSE and OSSE will be performed in the western Tropical Pacific as part of the TPOS2020 project (Tropical Pacific Observing System for 2020 Pacific). The product is useful also to study mesoscale eddies characteristics as well as links with the biogeochemical processes. For example, in 2015, ARMOR3D fields have been used as inputs of a micronekton model within the framework of the ESA OSMOSIS Project. Furthermore, ARMOR3D also contributes to the annual CMEMS Ocean State Report.