



Reconstruction from EOF analysis of SMOS salinity data in Mediterranean Sea

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Sea Surface Salinity (SSS) data from the Soil Moisture and Ocean Salinity (SMOS) mission is reconstructed in the North Atlantic and the Mediterranean Sea using DINEOF (Data Interpolating Empirical Orthogonal Functions). We used the satellite data Level 2 from SMOS Barcelona Expert Centre between 2011 and 2015. DINEOF is a technique that reconstructs missing data and removes noise by retaining only an optimal set of EOFs. DINEOF analysis is used to detect and remove outliers from the SMOS SSS daily field. The gain obtained with DINEOF method and L2 SMOS data give a higher spatial and temporal resolution between 2011 and 2015, allow to study the SSS variability from daily to seasonal resolution. In order to improve the SMOS salinity data reconstruction we combine with other parameters measured from satellite such chlorophyll, sea surface temperature, precipitation and CDOM variability. After a validation of the SMOS satellite data reconstruction with in situ data (CTD, Argo float salinity measurement) in the North Atlantic and Mediterranean Sea, the main SSS processes and their variability are studied. The gain obtained with the higher spatial and temporal resolution with SMOS salinity data give assess to study the characteristics of oceanic structures in North Atlantic and Mediterranean Sea.