Abstract

The Mediterranean Forecasting System produces analyses for sea level, temperature, salinity and currents in the entire Mediterranean Sea. They are produced with a three dimensional variational assimilation scheme that considers both in situ and satellite data. The main characteristics of the data assimilation scheme is the description of the background error covariance matrix with a series of matrix operators that subdivide the vertical and horizontal part of the error covariances and considers a fixed variability in the error covariance spatial and temporal scales.

In this study we will present a new estimate the of the background error covariance matrix with vertical Empirical Orthogonal Functions (EOFs) that are defined at each grid point of the model domain in order to better account for the error covariance between temperature and salinity in the shelf and open ocean areas. This new dataset has been tested and validated for a whole year using the MyOcean Sys5 Mediterranean Monitoring and Forecasting Center analysis system.