



Use of DINEOF with high frequency geostationary ocean colour data in the southern North Sea.

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DINEOF (Data Interpolating Empirical Orthogonal Functions), a technique to reconstruct missing data, is applied to a series of turbidity data of the southern North Sea in 2008, obtained through the Spinning Enhanced Visible and Infrared Imager (SEVIRI) sensor on board Meteosat Second Generation 2. These data are characterised by a very high temporal resolution (15 minutes), and long night-time gaps. An outlier detection approach that exploits the high temporal resolution of the SEVIRI dataset is developed. After removal of outliers, the turbidity data are reconstructed with DINEOF, and a series of tidal cycles are examined at various positions over the southern North Sea. The main objective is to demonstrate the capability of DINEOF to reproduce tidal variability in the reconstructed dataset, and to study the high temporal and spatial variability of turbidity in the southern North Sea. An analysis of the main harmonic constituents (annual cycle, daily cycle, M2 and S2 tidal components) is performed to assess the contribution of each of these modes to the total variability of turbidity.