**Suspended particulate matter variability of the global coastal waters**

**over the MERIS time period.**

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Satellite remote sensing now allows for the collection of various physical and biological parameters at regional and global scales and at different temporal resolutions which are not accessible to other sampling methods. The first objective of the GlobCoast project (www.foresea.fr/globcoast/) is to assess and analyze the seasonal, inter-annual, and decadal evolution of the global coastal waters in terms of biogeochemical composition as revealed from satellite ocean colour observations. Here, we present the temporal variability (seasonal and long term trend) patterns of the suspended particulate matter, SPM, over the global coastal ocean over the last decade. For that purpose, a new global SPM algorithm combined with a new atmospheric correction algorithm, have been developed, evaluated, and applied to the MERIS (2002-2012) archive. Then, the temporal variability schemes of SPM are presented, and specific Hot Spot areas are identified. At last, the impact of waves and swell on this variability is analyzed at global scale.

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