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Mediterranean Primary Production, seasonal and interannual variability from SeaWiFS data

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Mediterranean Sea is mainly an oligotrophic basin and requires an adaptation of the existing global model to estimate primary production (PP) from remote sensing data. Starting from Antoine et al. (1996) model, this adaptation has carried out on the base of a new large data set of chlorophyll profiles, acquired during the last 10 years in the Mediterranean Sea. With this Mediterranean data set new relationships between euphotic layer, satellite chlorophyll concentration and pigment concentration within the euphotic layer have calculated and, on the base of this new analysis, trophic condition for the basin have re-defined. Moreover, using a new data set of cloud cover and temperature and a Mediterranean algorithm recently proposed by D'Ortenzio et al. (2002) for SeaWiFS chlorophyll estimate, a time series of PP maps was computed for the period 1998-2004. The analysis of the PP maps shows the presence of an interannual signal superimposed to seasonal ones. The year-to-year variability of Mediterranean PP is more evident in the spring season and it is due to the interannual variability of the Mediterranean chlorophyll spring blooms. Comparison between present model estimates, previous models estimates and in situ data gives satisfactory results and show that the adapted model better reproduces the PP seasonal trend of Mediterranean Sea.