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Validation of a 3D coupled physical-biogeochemical model in the Adriatic Sea

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Long term simulations (1980-2010) of the Adriatic Sea ecosystem dynamics carried out with the POM-BFM (Princeton Ocean Model and Biogeochemical Flux Model) coupled modelling system, forced with high spatial-temporal resolution surface forcing have been assessed and validated against the1985-2008 AVHRR SST and against the 1998-2010 SeaWifs surface pigements time series.
The atmospheric forcing functions are high frequency, interannually varying, derived from the downscaling over the Mediterranean Sea of a global coupled atmosphere-ocean model. Land based forcing consists of observed daily Po river runoff and nutrient loads and 19 monthly varying river inputs and nutrient loads derived from an hydrological model of the Mediterranean basin forced under the same atmospheric forcing.

The validation procedure aimed to define the skill of the modelling system in simulating the seasonal and interannual variability skill has been carried out by using state of the art methods (Taylor diagrams, target plots) providing informative objective metrics. In addition to that, a recently developed, wavelet based, spatial comparison method, has been implemented to evaluate the match between model predicted field and satellite observations at distinct spatial scales.