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Modeling the space-time variability of the chlorophyll concentration in the Red Sea in relation to physical parameters

The concentration of phytoplankton is an important parameters for fisheries, marine ecology and climatology. It is a strongly non linear spatial process depending on the dynamics of the ocean, the concentration of nutrients and the ecosystem. The concentration of phytoplankton on the sea surface can be estimated by satellite data measuring the Chlorophyll-a (Chl-a) concentration. This data is however noisy and incomplete.

In [D.E. Raitsos 2011], a Generalized Additive Model has been applied to the time series of monthly and spatially averages of Chl-a, nutrients concentration, sea surface temperature and salinity. In this project, we would like to improve on this analysis by keeping the spatial aspect in the regression.

Raitsos, D. E., et al. "Assessing chlorophyll variability in relation to the environmental regime in Pagasitikos Gulf, Greece." *Journal of Marine Systems*(2011).