

# The Relationship between the Sea Surface Temperature and Chlorophyll-a in the Global Ocean

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The sea surface temperature (SST) and sea surface chlorophyll-a (Chl-a) play important roles in the primary production. However, it is unclear between SST and Chl-a in the ocean. In this study, SST and Chl-a derived from NASA (National Aeronautics and Space Administration) /MODIS (MODerate Resolution Imaging Spectro-radiometer) sensor are gathered from 2001 to 2007. The missing data of SST and Chl-a are filled up by the Data Interpolating Empirical Orthogonal Functions (DINEOF) method. The correlation between SST and Chl-a time series data for each grid is examined. So that a correlation map over the entire global ocean can be constructed to see whether there exists any regional dependence. The results suggest the place of ocean currents and ocean gyres play an important factor between SST and Chl-a. It is found that higher positive correlation area of SST and Chl-a time series is located in most coastal ocean area and where the ocean current flow through. The correlation between the two time series is typically negative correlation in most gyres of ocean. This information could be useful for the study of global changes in sea surface temperature and marine biosphere.

Keywords: Sea Surface Temperature, Sea Surface Chlorophyll-a, Remote-Sensing