

Correlations of remote sensed chlorophyll-a data and results of numerical model of the Tropical and South Atlantic Ocean circulation

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The South and Tropical Atlantic Ocean is characterized by important large scale features that have seasonal character. The interactions between atmospheric and oceanic phenomena compose a complex system where variations in physical parameters affect the distribution of chlorophyll; for example, upwelling driven by seasonal winds cause increase in the biological productivity in the region of Cabo Frio - 23°S 41.5°W . Previous studies showed that physical variables display high values of cross-correlation with chlorophyll-a, with strong dependence of latitude and variability in the biological response time. This study aims to correlate data of chlorophyll-a from MODIS with the results of a hydrodynamical numerical model. The annual and semi-annual signals are predominant both in MODIS and model data but, even excluding these components, the correlations are still high. As an example, cross-correlations showed an inverse and instantaneous response of the biological variable to the sea surface temperature in the equatorial region; the Fourier analysis of chlorophyll-a showed a strong signal with period of 2.34 years in the equatorial region, stressing that the source of variability of chlorophyll-a in this region is not restricted to phenomena with seasonal character; but this signal is not evident in the series of the sea surface temperature.

Biography

Nair Emmanuela Pereira da Silveira graduated in Oceanography at the Oceanographic Institute of the University of Sao Paulo (SP, Brazil) in 2009 and is currently completing her M.Sc. Program in Physical Oceanography, with researches on large scale numerical modeling of physical and biological parameters of the ocean.

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