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Characteristics of surface chlorophyll-a concentrations in the South China Sea

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In this study, the spatial and temporal variability of surface chlorophyll-a (Chl-a) concentrations in the South China Sea (SCS) is investigated, using the cloud-free MODISA Chl-a data set (2003-2015) reconstructed by the Data Interpolating Empirical Orthogonal Functions technique. EOF analysis on the reconstructed data set presents the characteristics of the surface Chl-a: (1) the first mode presents the high Chl-a concentrations, often with three peaks each year (January-February, June-July, and October-November), in coastal regions, except those of the Palawa and Philippines. (2) the second mode shows the surface Chl-a concentrations in the northern SCS is high in winter, with the highest values in the west of Luzon Strait, the east of Tonkin Gulf and along the northeast of Vietnam coast. (3) the third mode highlights the out-of-phase variability of surface Chl-a between the west and east coasts in winter and summer. The analysis also indicates that the variability of surface Chl-a is influenced by ENSO.