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| Title: | Trends in Chlorophyll-a Concentration Along the Krishna–Godavari Basin as Observed From MODIS Archives |
| Authors: | Yunus, Ali P. (/jspui/browse?type=author&value=Yunus%2C+Ali+P.) |
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| Abstract: | The Krishna–Godavari basin (KG), located along the southeast coast of India, is a proven rich source of gas hydrates exploration zone. An understanding of surface water conditions in this region is necessary to study the coastal dynamics, and the implications of pollutants to the marine ecological environment. Here, we report the long-term trends and spatio-temporal variability in chlorophyll-a (Chl-a) in the KG basin, and discuss the dynamics of Chl-a patterns from 2002 to 2021. Monthly Chl-a averages from the Medium Resolution Imaging Spectroradiometer (MODIS) were used for the analysis of trends and seasonal distributions by linear regression fitting. Our results revealed a downward trend in Chl-a concentrations, with a value of −0.000003 mg/m3 per month. A noticeable decreasing trend in the sediment load was also observed from the major rivers drained into the KG basin. The monthly runoff, precipitation, and wind fields were analysed to understand the Chl-a distribution patterns during the study period. We observed that runoff, precipitation, and wind forcing are the primary drivers controlling Chl-a distributions and dispersion patterns in the study area. The findings of this study contribute to a better understanding of the potential impacts of Chl-a to marine ecosystem, and provides new tools for assessing long-term trends in satellite-derived Chl-a concentrations in the prospective of climate change scenarios. |
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