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Monitoring coastal eutrophication with remote sensing analysis. Seasonal variability of chlorophyll-a

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Coastal waters face growing challenges from population growth, urban expansion, and alterations in hydrologic flows caused by climate change, affecting their quantity and seasonal patterns. Long-term observations of chlorophyll-a in aquatic environments, can show seasonal variability. Remote sensing analysis of chlorophyll-a seasonal variability is a significant approach for understanding the interactive dynamics of climate change, providing information for mitigation methods and trophic state. This study examines long-time series of Surface Reflectance datasets in selected sampling stations at coastal waters, proposes logical corrections after statistical analysis, and evaluates chlorophyll-a seasonal variability. The derived chlorophyll-a bloom phase was consistent with the limited field measurements. In addition, the results indicated that sampling stations of higher depth present better accuracy in evaluating seasonal phytoplankton blooms