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Inversion of Ocean Transparency based on FengYun meteorological Satellite

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Ocean transparency can directly indicate the turbidity and the inherent optical properties (IOPs) of the ocean, so it's an important physical quantity for describing the optical properties of seawater. The research of spatial and temporal distribution of Ocean transparency is has great significance on monitoring of ocean water quality and underwater military activities. Satellite remote sensing has advantage in high sampling frequency and wide coverage observation, which is convenient to obtain Ocean water transparency data with high spatial-temporal resolution.

This research aiming at the requirements of ocean transparency monitoring in marine environment assessment, navigation and underwater activities. The inversion algorithm of ocean transparency developed, which is based on in-situ measured Secchi depth and remote-sensing reflectance. The results show the empirical inversion algorithm has a high correlation with the in-situ measured Secchi depth. Due to the influence of cloud and limitation of the scanning field of view by single satellite, in order to improve the spatial coverage and reliability of the retrieved quantity, we also merging ocean color data from multiple satellite sensors. The Ocean transparency is estimating accurately in the key areas of the Belt and Road region based on FengYun meteorological satellite observation data, and try to apply in international remote sensing services.