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Optic Properties and Regional Ocean Color Algorithms for the Case-II waters in China Seas

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Some of the Apparent Optic Properties(AOPs) and Inherent Optic Properties(IOPs) for the coastal areas of East China Sea, Yellow Sea and Bohai Sea are given, such as the Remote sensing Reflectance, diffuse attenuations coefficeints, scattering and absorption coefficients, etc. Then a group of statistical algorithms are proposed for the retrieval of the three major components(Chlorophyll, Sediment & CDOM) of Case-II waters in the area, and a semi-analytic model for absorption and scattering properties inversion is also proposed. The bio-optic properties and algorithms are based on *in situ* data set collected during the spring and autumn of 2003 cruises in Yellow Sea and East China Sea and September 2004 cruise in Bohai Sea, according to NASA ocean optics protocols with some minor modifications for Case-II waters. These algorithms are the first ones with quantitative confidence that can be applied for the area. The average relative error of the retrieved and *in situ* measured concentrations are: Chl-a~37%, total suspended matter(TSM)~25%, respectively. This preliminary result is quite satisfactory for Case-II waters, although some aspects in the model need further study. The sensitivity for input error of ±5% on remote sensing reflectance (R_{rs}) is also analyzed and it shows the algorithms are quite stable.

Keywords: Ocean color algorithms, semi-analytic model, Case-II water bio-optic properties