Accuracy assessment of satellite Ocean colour products in coastal waters.

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The use of Ocean Colour Remote Sensing to monitor phytoplankton blooms in coastal waters is hampered by the absorption and scattering from substances in the water that vary independently of phytoplankton. In this paper we compare different ocean colour algorithms available for SeaWiFS, MODIS and MERIS with in situ observations of Remote Sensing Reflectance, Chlorophyll-a (Chla), Total Suspended Material and Coloured Dissolved Organic Material in coastal waters of the Arabian Sea, Bay of Bengal, North Sea and Western English Channel, which have contrasting inherent optical properties. We demonstrate a clustering method on specific-Inherent Optical Properties (sIOP) that gives accurate water quality products from MERIS data (HYDROPT) and also test the recently developed ESA CoastColour MERIS products. We found that for coastal waters of the Bay of Bengal, OC5 gave the most accurate Chla, for the Arabian Sea GSM and OC3M Chla were more accurate and for the North Sea and Western English Channel, MERIS HYDROPT were more accurate than standard algorithms. The reasons for these differences will be discussed. A Chla time series from 2002-2011 will be presented to illustrate differences in algorithms between coastal regions and inter- and intra-annual variability in phytoplankton blooms