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Space-borne ocean colour observations: a valuable tool for monitoring the water quality in the North Sea

International initiatives such as the Water Framework Directive (WFD) and Marine Strategy Framework Directive (MSFD) aim at maintaining a 'good environmental status' of marine waters. Operational monitoring is an essential part of the implementation of these directives to evaluate the effects of measures taken to improve situations like the eutrophication state of the Belgian coastal waters. While traditional seaborne observations are still considered as the main monitoring tool, optical remote sensing is a valuable supporting instrument to achieve the monitoring requirements in a time of severe resource constraints of ship time and man power. Over the last decade, mature services for marine monitoring and management have emerged using data from mainstream ocean colour sensors such as ENVISAT-MERIS and MODIS-AQUA and the recently launched Sentinel3-OLCI. These sensors typically deliver daily reflectance data used to estimate water quality parameters such as the concentrations of chlorophyll a (CHL) and total suspended matter (SPM) with a spatial resolution of 300m. Additionally, there is a growing interest in exploiting data from high-resolution sensors on polar-orbiters originally designed for land applications, such as Landsat-8/OLI giving 30m spatial resolution, Sentinel-2/MSI (10-60m) and Pleiades (2m) as they enable new types of applications (e.g. monitoring of harbors, environmental impact assessment, etc). Within running projects (i.e. FP7-HIGHROC, FP7-INFORM, STEREO-PONDER), RBINS is developing algorithms and software to turn raw Earth Observation data from satellite sensors into value for the end users. This presentation will show the state of the art of ocean colour services currently provided in Belgium, in particular in support of MSFD and WFD reporting.

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