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**The New High-Resolution Coastal Service within CMEMS**

**Abstract:** High-quality satellite-based ocean colour products can provide valuable support and insights in management and monitoring of coastal ecosystems. Today’s availability of Earth Observation (EO) data is unprecedented including traditional medium resolution ocean colour systems (e.g. SeaWiFS, MODIS-AQUA, MERIS, Sentinel-3/OLCI), high resolution land sensors (e.g. Sentinel-2/MSI, Landsat-8/OLI, Pleiades) and geostationary satellites (e.g. SEVIRI). Each of these sensors offers specific advantages in terms of spatial, temporal or radiometric characteristics.

With the High Resolution Coastal Service (HROC), CMEMS will provide high resolution ocean colour products based on Sentinel-2/MSI data for European coastal waters. It offers 12 different products which are are categorized in three groups: 1) near real time (NRT) daily products, 2) aggregated monthly products and 3) gap-filled daily products). The products are generated for the coastal waters (20km stripe for the coastline) of all European Seas and are provided in a 100m spatial resolution. The primary variable from which it is virtually possible to derive all the geophysical and transparency products is the spectral Remote Sensing Reflectance (RRS). This, together with the Particulate Backscatter Coefficient (BBP), constitute the category of the optics products. The spectral BBP product is generated from the RRS products using a quasi-analytical algorithm. The transparency products include turbidity (TUR) and Suspended Particulate Matter (SPM) concentration. They are retrieved through the application of automated switching algorithms to the RRS spectra adapted to varying water conditions. The geophysical product consists of the Chlorophyll-a concentration (CHL) retrieved via a multi-algorithm approach with optimized quality flagging. The NRT products are generally provided within 24 hours after end of the acquisition day, while monthly averaged products are provided few days after end of the respective month. A third group of products are daily gap-filled products which are provided once per quarter. Validation of the variables has been performed by match-up analysis with in situ data as well as by inter-comparison of the high resolution products with the Low Resolution CMEMS Ocean Colour products. The products will be introduced in the CMEMS service by May 2021. We will present the products themselves as well as the validation results for the different variables.

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