Wednesday, October 10
Oral Session 8
14:00–16:00

14:40–15:00

NOVEL APPROACHES TO DERIVE THE PARTICULATE ORGANIC CARBON FROM SPACE IN COASTAL WATERS": APPLICATION TO THE MERIS DATA SET OVER GLOBAL COASTAL WATERS

Last decades, different algorithms were developed for case 1 water to derive the surface concentration of particulate organic carbon (POC), and the integrated POC content over the mixed layer depth or the euphotic depth. Most of these algorithms are not suitable for coastal waters, mainly because of the presence of mineral particles as well as high CDOM concentrations, which greatly impact the radiometric signal. More recently, some algorithms were developed for the assessment of POC from OCR over coastal and estuary regions. However, they were developed from geographical restricted areas and were not tested on a large independent dataset. In this study, we compared the performance of 4 coastal algorithms on a database composed of 833 samples from various contrasted bio-optical coastal environments (Vietnam Sea, English Channel, French Guyana, North Sea and Mediterranean Sea). The dataset includes coincident measurements of biogeochemical parameters (POC [45.36– 5743.51 mg/m³], SPM [0.207-1945.34 g/m³], and Chla [0.02– 48.32 mg/m³]), hyperspectral Rrs, and IOPs (absorption and backscattering). Because none of these algorithms provide satisfactory results over the whole POC range, novel approaches have been developed: IOPs-based, band-ratio empirical and classification approaches. Besides the evaluation of these algorithms on an independent dataset, we also analyze the origin of the variability within these empirical and semi-analytical algorithms. The best approach has then been applied to the full MERIS dataset (GlobCoast) to characterize the spatio-temporal patterns of POC over the global coastal waters.

Kien Tran, Univ. Littoral Côte d'Opale, Univ. Lille, CNRS, UMR 8187, LOG, Laboratoire d'Océanologie et de Géosciences, trung-kien.tran@univ-littoral.fr

Hubert Loisel, Univ. Littoral Côte d'Opale, Univ. Lille, CNRS, UMR 8187, LOG, Laboratoire d'Océanologie et de Géosciences, Hubert.Loisel@univ-littoral.fr

Lucile Duforêt-Gaurier, Univ. Littoral Côte d'Opale, Univ. Lille, CNRS, UMR 8187, LOG, Laboratoire d'Océanologie et de Géosciences, Lucile.Duforet@univ-littoral.fr

Xavier Mériaux, CNRS, UMR 8187, LOG, Laboratoire d'Océanologie et de Géosciences, xavier.meriaux@univ-littoral.fr