Wednesday, October 10
Poster Session 3
16:00–18:00

Poster 175

REMOTE SENSING OF RIVERINE PARTICLES PROPERTIES IN THE GULF OF LYON, SOUTHERN FRANCE, USING COMPLEMENTARY IMAGES FROM SENTINEL 2 MSI AND SENTINEL 3 OLCI.

Since 2015-2016, high-resolution-MSI (~10m) on Sentinel 2a&b, and moderate-resolution-OLCI (300m) on Sentinel 3a&b provide optical data suitable to monitor riverine particles dynamics and coastal processes.Particles fluxes in the Gulf of Lyon (France) are dominated by the Rhône river plume and secondly by smaller rivers. The aim is to test and adapt generic algorithms (Nechad_SPM, Han_SAA, Lee_QAA, Lee_Zsd) to retrieve particles concentration from S2 and S3 data from small to wide river plumes. A special attention is paid to evaluate their potentials to derive the mineralogical properties of interest. Several atmospheric and sunglint correction schemes are tested. Results highlight capabilities of Sentinel 2-MSI to monitor sub-kilometric coastal sediment dynamics, and complemented by Sentinel 3-OLCI that provides instantaneous images of larger plumes (e.g. Rhône flood). Benefits of simultaneous use of S2 and S3 data are analyzed. Main results can be summarized: 1 - MSI data compare well with in situ Rrs after applying atmospheric and sunglint corrections, which still need to be improved for OLCI sensors even though results obtained from band-ratio based algorithms provide satisfying results. 2 – Turbidity/SPM mapping from satellite Rrs depend on the algorithm used and vary by one order of magnitude. On a second order, particles composition (e.g. PIC) seems to have a higher effect on Rrs Spectra than PSD. 3 – In the perspective of coupling SWOT (altimetry) with optical satellite data to assess sediment fluxes, discrepancies between in situ and algorithms data in turbid waters emphasize the importance of further studies on river sediment.

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