**STUDY OF THE COMPLEMENTARITY AND THE FUSION OF THE IMAGES THAT WILL BE PROVIDED BY THE FUTURE SATELLITE SENSORS OLCI/SENTINEL-3 AND FCI/METEOSAT THIRD GENERATION**

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With this study, our objective is to merge the information that will be provided by complementary sensors in order to get enough information to detect and monitor marine phenomena. On one hand we have the next generation meteorological satellite, like Meteosat Third Generation (MTG) with the onboard Flexible Combined Imager (FCI) that will provide images with very high temporal resolution, but reduced spatial and spectral resolutions. On the other hand, the next European ocean color sensor, Ocean Land Color Instrument (OLCI) on Sentinel 3, will acquire images with a medium spatial resolution and a high spectral resolution but with only 3 days frequency.

In this communication we present a preliminary study on the sensitivity of these 2 sensors for the estimation of water composition.

Because these 2 sensors are currently under development, we describe the process to provide simulated images. The first step consists in generating the dynamic maps of Chlorophyll, Suspended Matter and Colored Dissolved Organic Matter and using these maps as inputs of the Hydrolight radiative transfer model to eventually compute the remote sensing reflectance images over the sensor spectral bands. The atmospheric part and the sensor noise are not considered yet in the simulation process.

The first step of the fusion consists in increasing the spatial resolution of FCI to reach the OLCI one (300 m) and the second step consists in retrieving the missing OLCI channels of the first fusion product. This is achieved thanks to Lee’s radiative model. We thus obtain the OLCI images with the FCI acquisition frequency with a Relative Average Spectral Errors (RASEs) varying between 6 and 29%. The results will be explained and discussed as well as the next steps of the study in order to achieve the objectives.

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