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Tuesday, October 9
Oral Session 3
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IMPROVING THE ATMOSPHERIC CORRECTION OF OLCI OVER TURBID WATERS BY USING THE SWIR BAND AND A NEW BASELINE RESIDUAL TECHNIQUE

Since April 2016, the OLCI era has begun, providing a new opportunity for atmospheric correction of turbid waters due to its novel spectral band in the SWIR: the new band at 1016 nm, much less expensive for the mission than longer SWIR bands, such as MODIS' 1240, 1640 and 2130 nm bands but, with suitable algorithm development, may give similar and even better performances than far-SWIR and NIR bands for turbid water atmospheric correction. Although water absorption at this band is 6.9 and 11.8 times higher than 865 and 779 nm NIR bands, it is still not enough to fully absorb the backscattered signal produced by suspended sediments in optically-complex waters such as Río de la Plata (Argentina). This means that an alternative to the "black-pixel" approach is needed for this sensor in this region. In this work, we present a turbid water atmospheric correction algorithm developed for OLCI, based on Baseline Residuals (BLRs), i.e. spectral quantities computed from spectrally close triplets of (Rayleigh-corrected) reflectances in the Red/NIR/SWIR bands in the same way as the Fluorescence Line Height algorithm. The BLR algorithm is then evaluated and compared to results obtained with standard atmospheric correction approaches. The BLR approach showed better spatial decorrelation between atmospheric and water signal, and better estimates of Total Suspended Matter (match-up analysis using in situ data from Buenos Aires Province). Different BLR-water reflectance relations were evaluated based on reflectance models and OLCI data. Future efforts will be put in validating water reflectance using field measurements.

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