

First Results From WATERHYPERNET - a Network of Hyperspectral Radiometers for Multi-satellite Water Reflectance Validation adapted to Sentinel-2ABCD

A network of hyperspectral radiometers is being developed for radiometric validation of satellite missions. This network follows closely the AERONET-OC federation concept [Zibordi et al, 2009] but uses the TRIOS/RAMSES hyperspectral radiometer and a more extensive multi-look pointing scenario. The instrument system consists of one radiance and one irradiance sensor on a pointing robot, controlled by a microprocessor and supplemented with GPS, inclinometer and video camera data feeds. The measurement protocol is based on the abovewater method of [Mobley, 1999 and 2015], but includes additional scenarios for different viewing zenith and azimuth configurations. The system is being deployed initially in Belgian coastal and inland waters, then at sites in Argentina and France before full international expansion. The network will provide water reflectance data for the radiometric validation of all visible and near infrared bands of all optical missions, including Sentinel-2A&B, Sentinel-3A&B, PROBA-V, MODIS-AQUA&TERRA, VIIRS, Landsat-8, Pléiades, CHRIS-PROBA, MSG-SEVIRI, PlanetDove ... PRISMA, ENMAP, PACE, MTG and ... any future optical missions, including nanosatellites. This presentation will provide results from prototype testing on Aqua Alta Oceanographic Tower in July 2018, including a comparison with a conventional manually-operated TRIOS/RAMSES system and the automated AERONET-OC data from this site. The specific application to validation of the wide and asymmetric bands of Sentinel-2A and -2B will be described. Research in progress on the abovewater measurement protocol and the operational plan for characterisation of all radiometers will also be outlined.

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