**Calibration and Validation of a SeaPRISM radiometer for AERONET‑OC**

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The global Aerosol Robotic Network for Ocean Color (AERONET-OC) program utilizes AERONET sun photometers modified for in-air observations of ocean waters situated on oil drilling platforms, off-shore lighthouses, or other platforms that meet the AERONET‑OC site requirements. The measurements provide estimates of the water-leaving radiance and are a source of validation data for ocean color satellite sensors. Accurate, validated retrievals at these sites, which present both spatially and temporally complex waters and atmospheres, aid in many aspects of the ocean color problem. In this study, we characterized and calibrated one instrument from the AERONET‑OC network – SeaPRISM0080 – using the NIST Spectral Irradiance and Radiance responsivity Calibrations using Uniform Sources (SIRCUS) facility. A laser-illuminated integrating sphere of known radiance mapped out the absolute radiance responsivity for 7 of the 8 AERONET‑OC bands. We validated these results using NIST calibrated lamp-illuminated integrating spheres. Finally, we compared the results to calibrations from the AERONET facility at NASA/GSFC and the Joint Research Centre in Italy. The results agree within the estimated uncertainties. Along the way, we determined that a specific interpretation to the way the SeaPRISM080 processed data internally was required in order to make sense of results acquired using the RS232 interface protocol. We demonstrated this was a valid interpretation by comparing this NIST custom data acquisition procedure to a firmware version in the SeaPRISM080 control unit.

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