

OCEAN OPTICS XXIV

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<https://oceanopticsconference.org>

Tuesday, October 9

Poster Session 2

10:30–12:30

Poster 118

THE EFFECTS OF INSTRUMENT TEMPERATURE AND INTEGRATION TIME ON ABSOLUTE RADIOMETRIC CALIBRATION FOR HYPERSPECTRAL RADIOMETERS.

Absolute radiometric calibrations were performed on number of hyperspectral instruments that are commonly used for ocean colour algorithm development, validation and general marine research in Australia. Measurements were performed at different temperatures and (where applicable) integration times to assess the applicability of a given lab-based radiometric calibration to those conditions likely to be encountered in the field. For all spectrometers, sensor temperature was found to have an influence on the spectral calibration coefficient magnitudes - up to 0.56%/°C for blue wavelengths and -0.42%/°C for NIR wavelengths, suggesting that a spectral approach for temperature correction should be investigated for all such devices, and especially when they are to be used outside typical calibration facility “room” temperatures. Integration time linearity was also investigated, and nonlinearities were observed. In general, the commercial spectrometers were stable within $\pm 4\%$ across different integration times likely to be used in the field. Trends were consistent, so there is a possibility that further compensating the instrument’s response to integration time will improve the accuracy of these devices.

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