OCEAN OPTICS XXIV

Valamar Lacroma Dubrovnik Hotel | Dubrovnik, Croatia | October 7–12, 2018

https://oceanopticsconference.org

Monday, October 8
Poster Session 1
16:00–18:00

» View Extended Abstract

Poster 185

CALIBRATION UNCERTAINTY BUDGET FOR SEA-BIRD SCIENTIFIC RADIOMETERS

In-situ and above water radiometers are a critical for validating Ocean Color Satellite measurements, used to monitor in-water constituents of the global ocean. The calibration process, the instrument response characterization, and environmental measurement effects all contribute to the overall uncertainty budget of the radiometric measurement. An integral part of this uncertainty traceability chain is accurate laboratory calibration of radiometric sensors. In 2017, Sea-Bird Scientific transitioned the manufacturing of radiometric products from the Halifax, Nova Scotia CA (Satlantic, LTD) facility to the Philomath, Oregon USA (WET Labs, Inc.) facility. As part of this transition, the radiometer calibration facility was reproduced at the Philomath site. In order to maintain accuracy, Sea-Bird Scientific conducted an extensive cross facility set of round robin experiments to quantify uncertainties between our laboratories and . These efforts insured that the radiometric calibration uncertainty were maintained at 3-4%, or improved as part of the manufacturing transition process. This work will review efforts to reproduce the radiometric calibration facility in Philomath and processes established to maintain or reduce uncertainty due to calibration. At each site, four independent calibrations were performed with a secondary source, NIST traceable FEL lamp for the following radiometer products: Hyperspectral (HOCR), Microseries-504 (channels for 380, 412, 443, 490, 555nm and PAR), and Microseries-507 radiometers (channels for 412, 443, 490, 555, 590, 620 665, 683, 705, 865nm, and PAR) and PAR sensors. A calibration uncertainty budget is presented for calibrated sensors and recommendations are presented to further reduce the uncertainty budget for the Philomath site.

Cristina Orrico, Sea-Bird Scientific, corrico@seabird.com
Ronnie Van Dommelen, Sea-Bird Scientific, rvandommelen@seabird.com
Andrew Barnard, Sea-Bird Scientific, abarnard@seabird.com
Ryan Lamb, Sea-Bird Scientific, rlamb@seabird.com
James Foesenek, Sea-Bird Scientific, jfoesenek@seabird.com
Saleem Muhammad, Sea-Bird Scientific, smuhammud@seabird.com
Keith Brown, Sea-Bird Scientific, kbrown@seabird.com
Michael Dewey, Sea-Bird Scientific, mdewey@seabird.com
Alan Crisp, Sea-Bird Scientific, acrisp@seabird.com
Wesely Strubhar, Sea-Bird Scientific, wstrubhar@seabird.com
Casey Moore, Sea-Bird Scientific, cmoore@seabird.com