

# OCEAN OPTICS XXIV

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<https://oceanopticsconference.org>

Monday, October 8

Poster Session 1

16:00–18:00

## Poster 13

### **A NEW PARADIGM FOR OCEAN COLOR SATELLITE CALIBRATION AND VALIDATION: ACCURATE MEASUREMENTS OF HYPERSPECTRAL WATER LEAVING RADIANCE FROM AUTONOMOUS PROFILING FLOATS (HYPERNAV)**

Ocean color satellites require routine in-orbit verification and vicarious calibration to maintain accuracy over the mission lifetime and between satellites. The majority of vicarious calibration and validation activities for ocean color satellites are carried out in areas of uniform oceanic and atmospheric optical properties using in situ radiometric data collected from fixed mooring installations or oceanographic ships. These methods have limitations in spatial coverage and in the cost of maintenance and operation. A spatially extensive network of vicarious calibration match-up data points would aid in reducing vicarious calibration uncertainty. To meet these needs, we have developed a new approach to ocean color satellite vicarious calibration and validation. Our system (HYPERNAV) combines accurate, reliable and stable hyperspectral radiometric instruments with autonomous profiling float technologies to provide a cost effective, unattended means for vicarious calibration over periods of years in the open ocean. We present data from laboratory and field experiments of the HYPERNAV system used to characterize system performance and to quantify the end-to-end radiance uncertainty budget. We present match-up comparisons of HYPERNAV field data and coincident water leaving radiance measurements from ocean color satellites, demonstrating the capabilities of the system to provide new vicarious calibration paradigm for ocean-color remote-sensing satellites.

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