

OCEAN OPTICS XXIV

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<https://oceanopticsconference.org>

Thursday, October 11

Poster Session 4

10:30–12:00

Poster 231

ASSESSMENT OF INVERTING AN UNDERWATER LIDAR TO DERIVE IOPS

A synthetic bio-optical dataset of inherent optical properties (IOPs) was created based on Chlorophyll concentrations ranging between 0.01 and 30 mg m⁻³. Dissolved and particulate fractions of absorption were varied to account for the natural ranges in values. The IOPs were then used as inputs to a time-resolved Monte-Carlo radiative transfer model to generate accurate lidar backscatter time history wave forms. The primary lidar geometry in the model matched an existing system developed at HBOI under NOAA-OAR funding. The system uses blue and green pulsed laser sources (473 and 532 nm, respectively) and has two telescopes arranged at a 10° offset from one another. The field of view of the telescopes is set at 1°. Results from investigating approaches in inverting simulated lidar results to derive input water column IOP properties will be presented. Results are also tested through application to lidar measurements collected in an experimental tank with known suspended particle types and concentrations as well as field measurements made in waters with varying optical properties.

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