

**Abstract: Radiometric Comparison of AVIRIS and SeaWiFS from the 2000 Hawaii SIMBIOS Experiment**  
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The successful combination of data from different ocean color sensors depends on the correct interpretation of signal from each of these sensors. Ideally, the sensor measured signals are calibrated to geophysical units of spectral radiance, and sensor artifacts are removed and corrected. The calibration process resamples the signal into a common radiometric data space so that subsequent ocean color algorithms that are applied to the data are based on physical processes and are inherently sensor independent.

The objective of this project is to calibrate and validate the on orbit radiometric characteristics of SeaWiFS with underflights of NASA's calibrated Airborne Visible/Infrared Imaging Spectrometer (AVIRIS). This objective is feasible because AVIRIS measures the same spectral range as SeaWiFS at higher spectral resolution.

The research presented here addresses comparisons of AVIRIS and SeaWiFS over the time period from 1997-2000. In addition to satellite sensor underflights, the AVIRIS project has supported comparison and analysis of the radiometric calibration standards used for AVIRIS and SeaWiFS. To date, both the OCTS and SeaWiFS satellite sensors have been underflown by AVIRIS with matching spectral, spatial, geometric, radiometric, and temporal domains.

The calibration and validation objective of this project is pursued for the following reasons: (1) Calibration is essential for the quantitative use of SeaWiFS and other SIMBIOS sensor data; (2) Calibration in the laboratory of spaceborne sensors is challenging; (3) Satellite sensors are subjected aging on the ground and to trauma during launch; (4) The Earth orbit environment is significantly different than the laboratory calibration environment; (5) Through years of effort AVIRIS has been demonstrated to be well calibrated; and (6) AVIRIS can match the spectral and spatial observation characteristics near the top of the atmosphere at the time of SeaWiFS measurements.