

# OCEAN OPTICS XXIV

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<https://oceanopticsconference.org>

Thursday, October 11

Poster Session 4

10:30–12:00

## **Poster 56**

### **ERROR ANALYSIS IN ESTIMATION OF WATER LEAVING RADIANCE BY NEGLECTING THE POLARIZATION OF OCEAN SURFACE AND ATMOSPHERE**

Most inverse algorithms for ocean color from reflected solar spectrum are taken under clear sky, where the total atmospheric optical depth is small and the light reflected by ocean could penetrate the whole atmosphere and could be detected by the space-born sensors, therefore, ocean surface reflectance couldn't be neglected though it is less than several percent. Moreover, most retrieval algorithms use scalar radiative transfer model as a tool of inverse method, while the ocean surface reflectance and atmospheric scattering is polarized, neglecting effect of polarization, especially in the direction of sun glint area in forward simulations could introduce extra errors in estimation of ocean color and atmospheric correction. Through a full vector radiative transfer simulations which takes the ocean surface polarization in account, the effect of atmospheric polarization and ocean polarization on the estimation of ocean color are analyzed. It show that, depending on the wavelength, error of several percent could be introduced in the total radiance of satellite measurement given Lambertian ocean surface, and it is a little larger if the BRDF & BPDF is not taken into account, which results in tens percent in the estimation of water leaving radiance.

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