Thursday, October 11
Poster Session 4
10:30–12:00

Poster 148

COMPONENTS AND THEIR IMPACTS ON THE RETRIEVAL OF CHLOROPHYLL CONCENTRATION VIA THE SPECTRAL OPTIMIZATION SCHEME

Compared to the one-step empirical ocean color algorithm for chlorophyll concentration (Chl), the spectral optimization algorithm (SOA) can be perceived as a multi-component and multi-step algorithm for the retrieval of Chl from an Rrs spectrum. However, although SOA is rooted in ocean-optics and radiative transfer, studies have found that even after optimization of the model components of an SOA, the resulted Chl to the best is just "equivalent" to the Chl obtained from the standard empirical approach, which is thus not matching the goal of SOA for the estimation of Chl from ocean color. Here we use both synthetic and measured data to diagnose the impact of the components associated with SOA on the derivation of Chl, where the objectives include 1) to understand the effect of each individual component on the retrieval of Chl via SOA, and 2) to highlight the important or key components that are critical to improve the overall SOA scheme for Chl retrieval. The results indicate that the key source of errors come from the model of the spectral shape of detritus-gelbstoff absorption coefficient, while the spectral models of particle backscattering and phytoplankton absorption coefficients have a lesser impact. Ways to improve the estimation of detritus-gelbstoff absorption spectral shape and the advantages and limitations of both empirical and SOA schemes are discussed.

Yonghong Li, State Key Laboratory of Marine Environmental Science, Xiamen University, fairyfall@hotmail.com
Xiuling Wu, State Key Laboratory of Marine Environmental Science, Xiamen University, xmuxlwu@xmu.edu.cn
Shaoling Shang, State Key Laboratory of Marine Environmental Science, Xiamen University, slshang@xmu.edu.cn
Zhongping Lee, School for the Environment, University of Massachusetts Boston, Zhongping.Lee@umb.edu