Monday, October 8
Poster Session 1
16:00–18:00

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**Poster 149**

## MODELING PHYTOPLANKTON ABSORPTION IN INLAND RESERVOIR WATER

In the retrieval of inherent optical properties (IOPs) from remote sensing reflectance of water, models for the wavelength dependence of absorption and backscattering coefficients are often needed. The main constituents that affect the water leaving reflectance are the suspended particles, phytoplankton and coloured dissolved organic matter (CDOM). We found that the existing model that works well for the absorption spectrum of phytoplankton in sea waters is not sufficiently accurate for the types of phytoplankton existing in the inland reservoirs of Singapore. In order to obtain a better fit of the measured remote sensing reflectrance spectra to the computed spectra, the phytoplankton absorption spectrum is modeled by a series of Gaussian peaks from 400 nm to 750 nm which mimc the absorption due to various pigments present in phytoplankton other than chlorophyll-a. The strengths of the absorption peaks are derived from the measured remote sensing reflectance. The phytoplankton absorption model is incorporated into a semi-empirical water reflectance model for retrieving the absorption and backscattering coefficients of water constituents using the spectral optimization technique. Field measurement campaigns were conducted to obtain in-situ data of remote sensing reflectance together with water quality parameters such as the turbidity, chlorophyll concentration (Chl) and CDOM absorption spectra. The retrieved phytoplankton absorption strength near 670 nm correlates well with the in-situ Chl with a coefficient of determination (R-squared) greater than 0.7. The retrieved absorption strengths of the other absorption peaks can potentially be used for phytoplankton type identification.

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