

OCEAN OPTICS XXIV

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Wednesday, October 10

Oral Session 6

08:30–09:50

08:50–09:10

MONITORING FLOATING ALGAE WITH ULTRAHIGH TEMPORAL RESOLUTION HIMAWARI-8 DATA

Himawari-8 (H8) is a geostationary meteorology satellite launched and operated by Japan Meteorological Agency (JMA) and takes measurements at a temporal resolution of ~10 minutes. Although designed as a meteorological satellite, H8 has 3 bands in the visible domain, 1 band in the near infrared and 2 bands in the mid-infrared to observe the Earth system, all with reasonable signal-to-noise ratios, thus has strong potentials to provide observations of ocean color properties in a high-temporal-resolution fashion. In this study, the Floating Algae Index (FAI) developed for ocean color satellites is adapted to process H8 for monitoring the dynamic variations of floating algae. The distribution of FAI of Taihu Lake, China, derived from H8 was compared with that derived from concurrent MODIS images (a total of 52), and we found the correlation coefficient is 0.87, with the area of intense FAI calculated from both images differ by just 2.5%. These results support the use of H8 measurements to obtain reliable observation of floating algae at ultrahigh temporal resolutions (10 minutes), thus significantly improve our capabilities to monitor and study this material in aquatic environments. It is also found that FAI is more stable and more applicable compared to the traditional NDVI and EVI indexes used for algae monitoring. Applications of FAI from H8 over Taihu Lake, the Yellow Sea and Gulf of Tonkin are further presented as examples.

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