

OCEAN OPTICS XXIV

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Wednesday, October 10

Oral Session 7

11:10–12:30

12:10–12:30

REMOTE SENSING OF SARGASSUM HORNERI BLOOMS IN THE EAST CHINA SEA

A floating algae bloom in the East China Sea was observed in Moderate Resolution Imaging Spectroradiometer (MODIS) imagery in May 2017. Using satellite imagery from MODIS, Visible Infrared Imaging Radiometer Suite (VIIRS), Geostationary Ocean Color Imager (GOCI), and Ocean Land Imager (OLI), and combined with numerical particle tracing experiments and laboratory experiments, we examined the history of this bloom as well as similar blooms in previous years and attempted to trace the bloom source and identify the algae type. Results suggest that one bloom origin is offshore Zhejiang coast where algae slicks have appeared in satellite imagery almost every February–March since 2012. Following the Kuroshio Current and Taiwan Warm Current, these “initial” algae slicks are first transported to the northeast to reach South Korea (Jeju Island) and Japan coastal waters (up to 135°E) by early April 2017, and then transported to the northwest to enter the Yellow Sea by the end of April. The transport pathway covers an area known to be rich in *Sargassum horneri*, and spectral analysis suggests that most of the algae slicks may contain large amount of *S. horneri*. The bloom covers a water area of ~160,000 km² with pure algae coverage of ~530 km², which exceeds the size of most *Ulva* blooms that occur every May–July in the Yellow Sea. The record-high 2017 *S. horneri* bloom is hypothesized to be a result of high water temperature, increased light availability, and continuous expansion of *Porphyra* aquaculture along the East China Sea coast.

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