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

Poster 263
IMPACT OF HURRICANE IRMA ON THE SUBSTRATE IN FLORIDA KEYS FROM REMOTE SENSING

Hurricane Irma made landfall at the Florida Keys on September 10, 2017, and caused far-reaching and devastating damages to the vegetation and properties on the ground. However, its impact on the substrate of the Florida Keys is less documented. In this study, we first validated the Rrs products from multi-sensors (i.e., NOAA-VIIRS, NASA-VIIRS, MODIS-Aqua, Sentinel3-OLCI and Landsat8-OLI) with field measurements collected in the Florida Keys from January 10 to 14, 2018. The comparisons show that NOAA-VIIRS Rrs product is overall of the highest quality in both shallow and deep waters, in terms of both the Rrs and derived inherent optical properties (IOPs) using the QAA model (Lee et al., 2002 & 2009). However, Rrs product from Landsat8-OLI, atmospherically corrected by the cloud shadow method (Lee et al., 2007), show comparable performance with NOAA-VIIRS. The promising quality of Landsat8-OLI Rrs product allowed us to derive the bottom information of the Florida Keys with a high spatial resolution of 30 meters. Bathymetry and bottom reflectance were derived from Landsat8 images acquired before and after the Hurricane Irma using the HOPE model (Lee et al., 1998 & 1999). Results from before and after Irma landfall show significant differences in both bathymetry and bottom reflectance (indicating types of substrates) in the Florida Keys. These differences imply there are substantial changes at the seabed in these regions due to hurricane Irma.

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