# Coastal ocean response to Hurricanes Ian and Idalia revealed through coordinated observations and models

Yonggang Liu[1], Robert H. Weisberg[1], Jason A. Law[1], Jing Chen[1], Lianyuan Zheng[1]

[1] *College of Marine Science, University of South Florida*

Catastrophic damage to West Florida coastal regions were recently caused by two major hurricanes, the Category 5 Ian, with landfall at Fort Myers on 28 September 2022 and the Category 4 Idalia, with landfall in the Big Bend region on 30 August 2023. The coastal ocean responses to these hurricanes were predicted and monitored by a coordinated coastal ocean observing and modeling system. The observing component includes a set of four surface buoys with real-time transmission of met-ocean data. The modeling component consists of two unstructured grid, nowcast/forecast coastal ocean circulation models, the West Florida Coastal Ocean Model (WFCOM) and the Tampa Bay Coastal Ocean Model (TBCOM). Based on model/data comparisons for both ocean currents and water level, these models were generally successful in predicting the coastal ocean responses to these hurricanes three days in advance of these landfall, and such timely information was of benefit to federal, state and local agencies along with the local communities. Turbid water plumes in the aftermath of the storms were also tracked by drifters and satellite imagery, providing further tests of model veracity. Along with responses to storm events, the coordinated observing and modeling system finds regular interdisciplinary use for topics such as harmful algal blooms and fisheries recruitment.