

Dedicated JPSS VIIRS Ocean Color Cal/Val Cruises

The 6th dedicated JPSS VIIRS Ocean Color Cal/Val cruise was successfully completed. The NOAA Ocean Color Team, along with collaborators from the University of Boston, the University South Florida, Oregon State University, the City College of New York, Lamont Doherty Earth Observatory at Columbia University, the University of Puerto Rico, the Naval Research Laboratory, and the National Aeronautics and Space Administration, conducted the sixth annual NOAA Ocean Color Cal/Val cruise. The contingent of cruise participants was slim this year due to the pandemic-related travel restrictions (Figure 1). The crew included two NOAA Experiential Research and Training Opportunities (NERTO) interns, Roberto Arias from University of Puerto Rico and Eder Herrera from City University of New York. After quarantining in Biloxi, MS for seven days in accordance with Office of Marine and Aviation Operations (OMAO) COVID-19 safety protocols, the team departed Pascagoula, MS aboard the NOAA Ship Gordon Gunter on April 20th and returned April 29th.

Simultaneous measurements of water-leaving radiance by each of the Cal/Val team members provide a direct validation assessment of the satellite performance. At each station, team members brought their expertise in measuring most of the derived ocean color products including phytoplankton pigment, absorption and scattering coefficients, attenuation coefficients, phytoplankton functional types, colored dissolved organic matter and many others. This simultaneous measurement of water-leaving radiances and products of interest allow the validation and refinement of existing ocean color algorithms and the development of new ones.

Thirty-three stations were visited on this cruise (Figure 2), and 26 of those stations were also able to be paired (clear-sky matchup) with 26 SNPP overpasses and 21 NOAA20 overpasses. In addition, validation measurements were conducted for several days at WavCIS AERONET-OC sensor (Sta. 5, 6, 7, 8, 17, 18, 19). Over 8 inches of rain prior to the cruise contributed to the load of particulate and dissolved solids in the nearshore area. The cruise science team was able to sample a wide range of marine optical conditions from river plumes extending into extremely blue water. These observations will lead to better optical characterization of coastal water inundated with fresh water intrusion in contrast to offshore waters for use in routine ocean color environmental monitoring.

Previous NESDIS Technical Reports on the Dedicated JPSS VIIRS Ocean Color Calibration/Validation Cruise Series:

- Report #154 September 2019 [doi: 10.25923/p9de-yw97](https://doi.org/10.25923/p9de-yw97)
- Report #152 May 2019 [doi: 10.25923/scyb-qf42](https://doi.org/10.25923/scyb-qf42)
- Report #151 October 2016 [doi: 10.7289/V5/TR-NESDIS-151](https://doi.org/10.7289/V5/TR-NESDIS-151)
- Report #148 December 2015 [doi: 10.7289/V5/TR-NESDIS-148](https://doi.org/10.7289/V5/TR-NESDIS-148)
- Report #146 November 2014 [doi: 10.7289/V52B8W0Z](https://doi.org/10.7289/V52B8W0Z)



Figure 1. GU-21-01Cruise Participants. From left to right: Roberto Arias, Mateusz Malinowski, Clemente Borgogni, Eric Stengel, Nick Tuffillaro, Charles Kovach, Michael Ondrusek, David English and Eder Herrera. Photo credit: NOAA

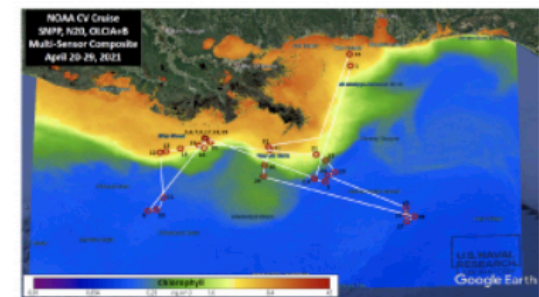


Figure 2. GU-21-01 Cruise Track and station markers overlaid on a sensor (SNPP, NOAA-20, Sentinel 3A/B) merged chlorophyll weekly mean composite covering the entire project. The project took place from April 20th (Sta. 1) to April 29th (Sta. 33). Imagery Courtesy of Sherwin Ladner, NRL.



**NOAA CV Cruise
SNPP, N20, OLCIA+B
Multi-Sensor Composite
April 20-29, 2021**

