

Water Quality Monitoring and Validation from NOAA operational satellite sensor (VIIRS) Data Products in Coral Reef Environments.

William J. Hernandez^{1,2}

Post-Doctoral Researcher, NOAA CREST UPRM, Global Science and Technology Inc.

Roy A. Armstrong¹, Alan E. Strong, Robert A. Warner⁵, Erick F. Geiger^{2,4}, C. Mark Eakin⁴, Menghua Wang⁴, Maria A. Cardona-Maldonado³, Suhey Ortiz-Rosa¹, Jeremy Kravitz⁶, Myrna J. Santiago³.

¹NOAA-CREST UPR Mayaguez, ²Global Science and Technology Inc., ³NOAA-NCAS UPR Mayaguez, ⁴NOAA/NESDIS/STAR, ⁵NOAA/NOS/NCCOS, ⁶UPR Mayaguez.

Long-term monitoring of water optical properties is required to examine the impact of land-based sources of pollution (LBSP) on coral community structure. A NOAA multi-line office collaboration with CREST-UPRM was established to conduct effective environmental monitoring and develop ecosystem management tools in the Guánica and La Parguera area. NOAA/NESDIS/STAR/CRW products in this effort included the diffuse attenuation coefficient at 490 nm ($K_d[490]$, an index of turbidity) and chlorophyll-*a* (Chl-*a*) estimates derived from the Visible Infrared Imaging Radiometer Suite (VIIRS), combined with regular field campaigns to measure *in situ* $K_d(490)$ values using a Satlantic Hyper-spectral Profiler and surface water collections for chlorophyll *a* extractions. The *in situ* $K_d(490)$ were correlated with VIIRS $K_d(490)$ ($r^2=0.6$) to evaluate sensor performance in coastal environments. Additionally, monthly mean anomalies and seasonal trends were evaluated with local precipitation values for both Puerto Rico and the USVI region, and the Guánica and La Parguera Virtual Areas (VA's). This VIIRS product time-series analysis will provide information on the spatial and temporal trends in the Guánica and Guánica/La Parguera areas. The VIIRS Chl-*a* values will also be compared with concurrent *in situ* bio-optical and biochemical measurements to evaluate satellite sensor product performance in the VA's.

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