SATELLITE DATA PRODUCTS FOR CORAL REEF HEALTH, SOUTHWESTERN PUERTO RICO

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We explored the use of remote sensing to monitor land-based sources of pollution (LBSP) as well as chlorophyll dynamics in southwestern Puerto Rico. Studies on spatial and temporal changes in chlorophyll-*a* and turbidity have been used as a proxy to determine coral reef health. The influence of LBSP over coral reefs and coastal water quality were assessed overlaying geospatial data. The combination of GIS and RS provided the advantage of analyzing large areas for seasonal changes. We used imagery from Landsat 8 OLI and Sentinel to understand coastal processes from Gúanica Bay to La Parguera Natural Reserve. *In situ* data is collected during satellite overpasses for calibration purpose and inter-calibration with field sensors. Chlorophyll-*a* values are indicative of phytoplankton biomass and can be related to nutrient into aquatic ecosystems while turbidity is related to light transmittance into coral reef ecosystems. Chlorophyll values ranged from 0.1 to 8 μg/L. This parameter is mostly influenced by river discharges, wind effect and suspended algae. Total Suspended Solids (TSS) values, which ranged from 1-30 mg/L, combined with satellite imagery, showed variability of sediment sources as well as, sediment resuspension in coastal areas. Chlorophyll and TSS product retrieval from satellite in this area show high uncertainties from the influence bottom albedo signal in clear, shallow areas and from land pixel contamination near the coast. Our results can be used by resource managers to monitor the impact of LBSP over reef areas and to implement mitigation actions.