

HYPERSPECTRAL POLARIMETRY FROM OCEAN OBSERVING SATELLITES FOR NAVY PRODUCTS

NRL has a long history in developing products from ocean observing satellites, and NASA's upcoming PACE satellite will be a revolutionary step forward. PACE will produce daily hyperspectral and polarization images of the earth's oceans and atmospheres. The combination of hyperspectral and polarization sensors provides much richer information and allow breakthrough observations of the world's clouds, aerosols, and ocean ecosystems.

NRL has developed several hyperspectral polarimeters to calibrated and validate PACE's sensors after launch. NRL's PolSpec is one of the first handheld hyperspectral polarimeters for ocean measurements, and the NRL-commissioned ground-based MANTIS instrument measures hyperspectral polarization data from the entire atmosphere. The new information available from PACE and NRL's instrumentation will allow improved characterization of aerosols and better ocean particle discrimination.

IMPACT: The new observations and information gained from hyperspectral polarimetry will improve the Navy's ability to model and forecast the environment. More detailed measurements of aerosols and clouds allows will allow more accurate weather prediction and visibility models, and the improved estimates of ocean particles will improve models of diver visibility, mine-burial, and electro-optical system performance.

