

OCEAN OPTICS XXIV

Valamar Lacroma Dubrovnik Hotel | Dubrovnik, Croatia | October 7–12, 2018

<https://oceanopticsconference.org>

Thursday, October 11

Poster Session 4

10:30–12:00

Poster 52

POTENTIAL USE OF OCEAN COLOR DATA TO RETRIEVE MORE THAN PARTICLE CONCENTRATION IN A HIGHLY REFLECTIVE DREDGING PLUME IN THE RÍO DE LA PLATA (ARGENTINA)

The Rio de la Plata (RdP) waterway is an essential link between the Atlantic Ocean and numerous ports in Argentina allowing the exportation of grain and agricultural by-products, major drivers in the Argentine economy, to reach destinations all over the world. Given the shallow nature of the estuary, the navigation channels demand regular dredging. Therefore, water quality control in this highly active and human impacted area is fundamental and the knowledge of its dynamics as well as the particle size composition using remote sensing data is highly desired and of great importance. From mid-May until the end of October 2016 an unusually intense dredging plume was detected in the upper RdP estuary using remote sensing imagery. In September 25 2016 a field campaign was performed in the upper estuary and measurements of water reflectance (ρ_w), turbidity, total suspended matter, and particle size distribution (PSD) were performed in and close to the plume. Samples collected inside the plume showed different spectral characteristics, smaller median particle size, and turbidity (T) values ten times higher ($T \sim 500$ FNU) than the surrounding waters. In this study ocean color imagery was used to detect the highly reflective plume in May-October 2016. Existing models to retrieve $bbp(\lambda)$ from $\rho_w(\lambda)$ were tested and $bbp^*(\lambda)/ap^*(\lambda)$ ratio were estimated from saturated water reflectance. Backscattering spectral slope and mass-specific inherent optical properties were then related to observed variability in measured PSD in and outside the plume showing their potential use in retrieving relevant information besides particle concentration (like size) from $\rho_w(\lambda)$.

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