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Tuesday, October 9

Poster Session 2

10:30–12:30

Poster 114

DETECTING SARGASSUM BLOOMS AND PLASTIC MARINE DEBRIS FROM HIGH RESOLUTION MULTISPECTRAL SATELLITE DATA

Since 2011 blooms of Sargassum macroalgae have increased in Caribbean Sea leading to several problems to tourism and economy. Additionally, river discharge and alteration of ocean currents influence marine environment of the second largest barrier reef in the world as they lead to plastic debris accumulation. Although remote sensing is an effective tool for the detection and identification of marine pollution, there is a relative small number of studies on monitoring plastic marine debris from high-resolution satellite data. To this end, in this paper, we propose a classification procedure for distinguishing plastic marine debris from sargassum blooms based on high-resolution Landsat-8 and Sentinel-2 data in Caribbean Sea. Extracted spectral profiles indicated similar spectral patterns with the literature with certain reflectance peaks for the Sargassum at 783nm and plastic marine debris at 865nm. Ocean color (Chl-a and TSM), meteorological parameters (wind speed and precipitation) and sea surface temperature were also studied in order to estimate debris trajectories. The studied difference in the spectra behavior of sargassum and plastic debris was exploited in order to classify and distinguish them. The procedure was compared and evaluated against the FAI Index as well as available in situ data.

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