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Remote detection of plastic litter in a marine environment

Abstract: We have identified the most appropriate spectral wavelengths for marine litter detection and identification. The analysis is based on spectral measurements in a laboratory setting, outdoor spectral measurements and the analysis of Sentinel-2 imagery. The research has been focused on floating and slightly submerged macroplastics. Wavelength selection has been done taking into account spectral reflectance of the plastics, clear and turbid water reflectance, surface features and atmospheric transmittance. Ongoing work is focusing on the presence of algae in the water and the effects of biofouling and weathering.

Based on the selected wavelengths a prototype marine plastics sensor has been developed which can be mounted on a drone or deployed on a bridge to monitor floating macroplastics. "