Remote Sensing Data in Mapping Plastics at Surface Water Bodies

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SUMMARY

The millions of tonnes of plastics ending up in the ocean every year. Marine plastic litter is a global environmental problem with significant economic, ecological, public health and aesthetic impacts. In order to reduce those impacts and reduce plastics abundance, source of litter and they pathways need to be identified. Land based litter, transported by rivers to oceans, is estimated to be a major contributor but there is not comprehensive methodologies for providing quantitative data for assessment of riverine as well as ocean plastics. Currently, there are only regional assessments of plastics at on beaches and water columns. Beach surveys, is usually conducted by volunteer community groups, are highly accurate but are very constrained both spatially and temporally.

Plastic litter is mostly concentrated at banks, coastlines and in upper layer of surface water bodies. Therefore, remote sensing from space and airborne platforms, available in different spatial, spectral and temporal resolution, has the potential to be a reliable source of long-term qualitative and quantitative information on large geographic areas. The distinguish plastics from surrounding classes, and assessment of it spatial extent and temporal variability, is possible due to unique spectral signature of polymers in near-infrared part of electromagnetic spectrum.

In this paper we investigate optical properties of wet and dry plastics and present possibility to use the multi spectral images in mapping of plastic distribution at surface waters. Those data represents useful information for determine priority sites for mitigating adverse impacts across broad areas and increasing water quality.

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