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EARSC Statement.

Microplastics pollution – measures to reduce its impact on the environment

The European Association of Remote Sensing Companies ([EARSC](http://www.earsc.eu)) is a trade association based in Brussels, representing the European downstream services sector. EARSC counts more than 135 members across 25 countries in Europe.

EARSC welcomes the proposal for the EU initiative to tackle microplastics released into the environment.

In the context of the zero-pollution vision for 2050, the use of digital solutions is becoming increasingly important to meet the European Union's climate targets. The explosion in Earth Observation (EO) data from the Copernicus programme¹, a new generation of commercial satellites including emerging constellations of smallsats and the integration with other technologies are creating new opportunities to face the challenges in the world today such as monitoring plastics in the environment. Earth Observation has the advantage of large spatial coverage at high detail and can provide repeat-coverage datasets and a global view of the Earth parameters without requiring any ground equipment installation.

A significant part of aquatic plastic litter is the result of bad waste management on land. According to a report from the World Economic Forum², more than 8.3 billion tons of plastic litter enter the oceans each year. Anything below 5 millimeters in size is microplastic and that

¹ Copernicus programme: Copernicus is the European Union's Earth observation programme coordinated and managed by the European Commission in partnership with the European Space Agency, the EU Member States and EU agencies. It aims at achieving a global, continuous, autonomous, high quality, wide range Earth observation capacity (www.earsc.eu)

² World Economic Forum report on the New Plastics Economy ([link](#))

debris degraded from plastic has been documented in all aquatic environments, from shallow to the open ocean.

Detection of aquatic plastic litter³ with satellites is at the research stage but the first promising results are available and it is an active field of European research⁴ and is one of the priorities of the Copernicus Marine Environment Monitoring Service (CMEMS) evolution strategy⁵. While it is not possible to detect aquatic microplastic directly, proxies such as satellite-based turbidity could indicate the presence of particles in a water body. Currently, only plastic accumulations at the size of the sensor resolution or larger can be detected. Tackling ocean plastic pollution requires a first step in estimating the amount of plastic present within the ocean region and monitoring how it drifts. Using satellite observations and numerical models, we can establish a clearer picture of the drift patterns of the plastics and where they come from. Plastics visible in remotely sensed imagery show high reflectance in the near-infrared compared to the other materials and disturb ocean wave patterns. The satellite measures that disturbance, when there is plastic or other debris near the ocean surface and waves, are dampened and the sea surface is less rough than it would be otherwise. Knowing the origin and sources of marine plastic pollution allows for improved waste management systems and adopt suitable public policies.

High spatial resolution improvements, shorter observation intervals, and data-cost reductions are changing the ability to monitor plastic waste and can help institutions to understand the size of the threat and to build coherent plastic management strategies acting on waste monitoring to reduce environmental pollution. EARSC remains at your disposal to work together on this objective.

³ More than 1000 rivers account for 80% of global riverine plastic emissions into the ocean (link) and Monitoring Plastics in Rivers and Lakes: Guidelines for the Harmonization of Methodologies (link)

⁴ A step forward in detecting plastic marine litter from space (link)

⁵ https://marine.copernicus.eu/sites/default/files/media/pdf/2021-12/Copernicus_Marine_Service_evolution_strategy_RD_priorities.pdf