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Innovative combination of ocean modeling and remote observations to track floating marine litter in the coastal area.

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The program “PlastEcoTrack”, or “PETrack”, aims at providing an operational support to reduce Floating Marine Litter (FML). More precisely, PET aims at supporting FML reduction strategies both downstream (interception at sea with collect vessels and on beaches with cleaning facilities) and upstream (source identification and reduction), by tracking the dispersion of FML in estuaries and in the coastal ocean. PETrack is currently supported by the European Spatial Agency through the “Plastic-less society” Feasibility Study, as well as by SUEZ group subsidiaries SERAMM and LYDEC.

Using a combination of innovative detection technologies and operational metocean modelling, the service targeted by PETrack will produce tailored decision-aid indicators to monitor and guide FML collect operations, including day-to-day operation support in near real time. Guidance offered by these indicators helps maximizing the amount of FML removed from the natural environment, while at the same time contributing to reduce the cost and impacts of operations (i.e. cost per kilogram of collected FML, fuel consumption, carbon footprint). Moreover, tracking technologies contribute to the reduction of FML emission at the source, by helping to identify most probable emission sectors depending on metocean conditions.

To achieve these purposes, PETrack combines innovative detection solutions based on satellite imagery and video monitoring in the coastal area, together with metocean-based FML transport modelling at local scale. In the operational mode of the service, it provides a decision-aid dashboard supporting day-to-day FML collect operations. The dashboard offers indicators aiming at guiding FML collect operations, to monitor and optimize their efficiency. It especially provides a tracking of FML in the coastal area and a prediction of concentration hotspots to guide collect vessel at sea; and anticipate massive onshore arrivals to help beach cleaning at land.

The service demonstration is under construction in the coastal Atlantic coast of Morocco, in the Casablanca area, and along the French Mediterranean littoral Marseille bay, North Western Mediterranean Sea. It took benefit of pre-existing components developed during the former LIFE LEMA (European Union LIFE program) and FML-TRACK (Copernicus Marine Service User Uptake) projects, which were further improved and complemented to bring the tool and service to a new stage of development and on new application sites with other configurations.

