# Microplastics in the open ocean at different depths in the Canary region: Origin, fate, and composition

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**Abstract**

The issue of marine litter is widely documented, but there are relatively few studies characterizing the transport of these particles in the open ocean beyond the surface. Most studies focus on analyzing the transport of floating macro litter present on the surface through large-scale processes, such as subtropical gyres. However, marine litter is significantly influenced by mesoscale structures, both spatially (ranging from 10 to 100 km) and temporally (lasting for several months), including eddies, wind-driven advection processes, filaments from the African upwelling, among other oceanic dynamic processes. Additionally, while macroplastics are only present on the ocean's surfaces (both in the atmosphere-ocean interface and in the benthos), microplastics are also present at different depths in the water column (Vega-Moreno et al., 2021), indicating a much greater impact of these particles on marine environment than previously assumed. This distribution in the water column may be due not only to sinking processes at certain latitudes, but also to the sinking of different water masses by density and their transport at various depths (such as Mediterranean Water mass at a depth of 1100 meters, present in the Canary region, Vega-Moreno et al., 2024), which carry small-sized microplastics as passive drifters.
Researchers from several scientific institutions in the Canary region have characterized these different mesoscale transport processes on the ocean surface and down to 1100 meters depth, identifying the quantity and type of microplastics present (including composition analysis) and their relationship with these transport processes to assess possible origins.

References:

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