Numerical Modelling on transport of riverine plastic debris released into Northern Indian Ocean

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Most of the plastic waste mismanaged in South/Southeast Asian countries have released into the Indian Ocean and thus, large quantities of marine plastic litter are expected especially in Northern Indian Ocean. We attempt to examine the transport of these debris using a particle tracking model to understand how different factors such as seasonality of ocean currents and winds affects transport processes. The model used ocean surface currents from HYCOM combined with Stokes Drift, satellite-derived winds, and horizontal diffusion to carry the particles, and the modeled particles washed ashore on beaches are re-drifted on a timescale of 200 days in accordance with a field experiment. Plastic input from surrounding countries via rivers were based on Lebreton et al. (2017) `s experiment. We examined how plastic debris are transported in the Indian Ocean using the model for a period of 10 years.

Keywords: Marine Plastic, Particle Tracking Model, Indian Ocean

