

Trajectory Modelling of Marine Debris Drifting at Bali Straits

Farica Edgina Yosafat^{1*}, Ivonne Radjawane², SUPRIJO, Totok²

¹Graduate School of Earth Sciences, Institute of Technology Bandung, ²Faculty of Earth Sciences and Technology, Institute of Technology Bandung

Marine debris is a global problem that affects everything: from environment to economy, from fishing and navigation to human health and safety. Marine debris is a serious problem at west coast of Bali, Indonesia. Seasonal marine debris from Bali Strait stranded at the west coast of Bali Island during January until April, when northwest monsoon wind blows over the straits. The drifting of marine debris at the Bali Straits was simulated in this study by using a couple model of hydrodynamic and particle trajectory. The results of hydrodynamic model are verified with observation data of ocean currents and water elevation. The discrepancies between simulation result and data is less than 10%, therefore the hydrodynamic model is able to simulate current circulation in Bali Strait. Simulation result also shows that marine debris from east coast of Java drifts along the west coast of Bali and stranded at Kuta coast, which is a famous tourism spot. It is concluded from this study that marine debris stranded at the west coast of Bali is seasonal marine debris and it comes from east coast of Java facing the Bali Strait.

Keywords: hydrodynamics, particle tracking, monsoon, marine debris, trajectory, Bali strait