

Typhoon-induced impact on the concentration of microplastics in Sagami Bay

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Approximately 80% of marine plastic comes from land-based sources, where mismanaged- and littered plastics are carried away by the wind and rainfall and eventually ended up in the ocean. The concentrations of marine debris thus increase during rainy season. Little is known however about storm-induced impact on the transport of marine plastic which is associated with a strong wind and heavy rainfall. We investigated the concentrations of plastic debris especially microplastics before and after typhoon at Sagami Bay in September 2019. Typhoon Faxai with the lowest sea-level pressure of 995 hPa passed over Sagami Bay in the morning of the 9th. We collected microplastics by towing a neuston net 2 days before, 1 day after and 3 days after the typhoon at the center of Sagami Bay. Visual observations of floating macroplastics were also made before and 1 day after the storm. The concentration of macroplastics increased 7 times, while microplastics increased 210 times 1 day after the typhoon. Styrofoam was the major contributor to the total microplastic concentrations. The concentration of microplastics was dramatically decreased 3 days after and reached the same level as the before typhoon status. The large amount of plastic debris may have been transported out of the bay in short time scale by the typhoon.

Keywords: marine debris, typhoon, hurricane, storm, microplastics