

Abstract Submitted  
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**The impact of an oil droplet on oil layers on water bath**<sup>1</sup> DO-HYUNG KIM, Sungkyunkwan University, ILDOO KIM, FG Research LLC, JIN-KEE LEE, Sungkyunkwan University — The impingement of droplets onto another liquid has been investigated under various settings depending on applications. In this work, we investigate the impact of an oil droplet on oil layers on water to simulate the action of the dispersant applied from ship or aircraft to remove the oil contamination on water. Our experiments cover a range of Weber number from 50 to 1000, and we observe the morphological change of the fluid interfaces using the high-speed video imaging. From the image analysis, the length scales of impact craters are measured with respect to the droplet size, the impact velocity, and the thickness of oil layer. Our measurement indicates that the impact dynamics depends on the thickness of oil layer in a non-monotonic manner, which we rationalize using a hypothesized model.

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