

Abstract Submitted  
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**Direct numerical simulation of rain drop impact on a thin layer of oil over a deep water pool** FRANCIS OGOKE, WOUTER MOSTERT, Princeton University, MARIE-JEAN THORAVAL, Xi'an Jiaotong University, LUC DEIKE, Princeton University — The impact of a water droplet onto a deep pool coated by a film of oil has not yet been thoroughly investigated numerically in the large Weber number range. This process occurs during rainfall on oil slicks at sea, and ejects oily aerosols into the atmosphere that later forms atmospheric particulates. We present direct numerical simulations of the three-phase process using the solver Basilisk. The numerical results are qualitatively and quantitatively compared to existing experimental data, and discuss the influence of numerical resolution on the crown and canopy closure. Finally, the effects of the oil properties and drop shape upon impact on the resulting splash dynamics are investigated.

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