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Drop interaction with the ejecta sheet M.-J. THORAVAL, S.T. THORODDSEN, King Abdullah University of Science and Technology, Thuwal 23955- 6900, Saudi Arabia, K. TAKEHARA, T.G. ETOH, Kinki University, Osaka, Japan, P. RAY, C. JOSSERAND, S. ZALESKI, Institut D'Alembert, Paris, France — We studied experimentally and numerically the dynamics of the ejecta sheet produced by a drop impacting on a deep pool of the same liquid at high Reynolds and Weber numbers. Ultra-high speed imaging revealed a diversity of evolutions by using different mixtures of water and glycerine, and different impact velocities. We observed a transition from a smooth ejecta sheet to a more irregular splashing for a Reynolds number of 3500. In this transition regime, the ejecta sheet interacts with the impacting drop. This interaction can pull the ejecta sheet towards the centre of the drop at lower splash parameters, or generate a bumping on the ejecta sheet moving outwards at higher splash parameters. The volume of fluid (VOF) code Gerris was used to reproduce numerically this peculiar dynamics in axisymmetric conditions. Very good agreement with the experiments was reached by using adaptive refinement and parallelization of the calculations.

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