

Abstract Submitted  
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**Drops settling in sharp stratification with and without Marangoni effects**<sup>1</sup> FRANCOIS BLANCHETTE, AVI SHAPIRO, U.C. Merced — We present numerical simulations of drops settling in a layered ambient fluid. The ambient is made up of miscible fluids, with the top layer lighter than the lower one, representing fluid stratified through temperature or salinity variations. The surface tension between the ambient and the drop may be uniform or be smaller in the lower layer. Such a system is applicable to oil droplets settling or rising in the ocean. When surface tension is uniform, the drop slows down significantly as it encounters the transition region, due to entrained fluid from the upper layer, before accelerating again in the lower layer. When the lower surface tension is smaller, the drop suddenly accelerates through the transition region. We characterize these effects in terms of the sharpness of the transition, and the drop's Reynolds number.

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