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Transition between a film flowing down a slope and a liquid sheet floating on a denser fluid: where is the grounding line? LAURENT LIMAT, YASAR ATAS, Laboratoire Matiere et Systemes Complexes, UMR 7057 of CNRS and Univ. Paris Diderot, Paris, France, OLIVIER DEVAUCHELLE[1], Department of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology, Cambridge, USA, JULIEN MOUKHTAR, MATHIEU RECEVEUR, Laboratoire Matiere et Systemes Complexes, UMR 7057 of CNRS and Univ. Paris Diderot, Paris, France — We have investigated experimentaly and with analytical calculations, the flow of a viscous liquid down a incline entering suddenly a liquid bath of higher density. This leads to the formation of a liquid sheet floating on the bath, the line of intersection of the substrate and liquid/liquid interface being called the grounding line in litterature relative to ice field formation. At long enough time, and for small enough substrate inclination, the position of the grounding line and the angle of detachment of the flow are given by very simple expressions, that are in good agreement with our experiments. This angle of detachment depends only on the substrate inclination and on the relative density mismatch, while the distance between the grounding line and the initial shore position is proportional to the inverse of the inclination angle.

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