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Does buoyancy matter in the melting dynamics of ice? JICHENG GUO, MUSTAFA ORDU, SOUMENDRA BASU, JAMES BIRD, Boston University — Ice in a horizontal cylindrical container will melt when placed in a sufficient warm environment. Because of the density difference between the ice and the continuously forming water, the ice can rise close to the boundary, separated by a thin gap of water. The melting dynamics of the ice appear qualitatively similar to the evaporation of a drop under Leidenfrost conditions; however, the extent of the analogy is unclear. Here we investigate the melting dynamics of ice in thin-walled cylindrical containers. Through a combination of experiments and physical modeling, we identify a characteristic melting time and gap thickness, which we compare to evaporating droplets.

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