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**The effect of surfactant on stratified and stratifying gas-liquid flows**[1] BAPTISTE HEILES, Ecole Normale Superieure de Cachan, IVAN ZADRAZIL, OMAR MATAR, Imperial College London — We consider the dynamics of a stratified/stratifying gas-liquid flow in horizontal tubes. This flow regime is characterised by the thin liquid films that drain under gravity along the pipe interior, forming a pool at the bottom of the tube, and the formation of large-amplitude waves at the gas-liquid interface. This regime is also accompanied by the detachment of droplets from the interface and their entrainment into the gas phase. We carry out an experimental study involving axial- and radial-view photography of the flow, in the presence and absence of surfactant. We show that the effect of surfactant is to reduce significantly the average diameter of the entrained droplets, through a tip-streaming mechanism. We also highlight the influence of surfactant on the characteristics of the interfacial waves, and the pressure gradient that drives the flow.

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