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Low-Reynolds dynamics of a suspension of spheres in a stratified fluid[1] MATTHIEU MERCIER, CNRS-IMFT, UMR5502, FRANCE — The settling dynamics of small objects in stratified fluids is important to understand the fate of the biomass in lakes or oceanic environments, for industrial applications such as waste-water disposal. More specifically, the settling of a suspension of solid particles is a fundamental problem, well-studied for a homogeneous fluid and barely investigated numerically for stratified fluids. We present experimental results on the settling dynamics at low Reynolds number of an initially homogeneous suspensions of non-Brownian particles immersed in a linearly stratified viscous fluid, due to a linear variation with depth of salt. We characterize the mean and fluctuations of these quantities for various stratification intensities, in order to quantify the influence of the stratification on settling. We compare these results with similar experiments realized in a homogeneous viscous fluid.

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