

## **A century of turbulent motion in fluids**

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In 1915, G. I. Taylor was awarded the Adams Prize at the University of Cambridge for an essay entitled “Turbulent motion in fluids”, and also published a paper entitled “Eddy motion in the atmosphere”, describing observations made in direct response to the loss of the *Titanic*. In this talk, I will show how the key ideas of these 100-year-old papers remain absolutely central to modelling “turbulent mixing in stratified flows” even today. In particular, I will review the accumulating evidence that layering of the density stratification is ubiquitous, in that a vertical density distribution with multiple deep “layers” of relatively well-mixed fluid, separated by thin “interfaces” of substantially enhanced density gradient, is generic in geophysically relevant flows. In light of this evidence, I will highlight the truly impressive continued relevance of Taylor’s insights to recent advances in our understanding of transition, turbulence and mixing in shear flows of such layered fluids.

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