

Abstract Submitted
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Footprints of turbulence over a viscous liquid MARC RABAUD, ANNA PAQUIER, FREDERIC MOISY, Laboratoire FAST, Orsay — We observe the dynamics of tiny deformations at the surface of a viscous liquid sheared by a turbulent airflow using Free-Surface Synthetic Schlieren, which allows for time-resolved measurements of the topography with a micrometric accuracy. We are interested here in the low-velocity regime, before the onset of quasi-monochromatic wind waves. In this regime, the observed small and disorganized surface deformations directly result from the applied turbulent pressure field filtered by viscous and capillary effects. The amplitude of the footprints is found to increase linearly with air velocity, and the spatio-temporal dynamics is compatible with the known dynamics of the streaks of the turbulent boundary layer over a flat rigid wall.

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