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Intermittency and modal dynamics of stratified mixing at oceanographic scales[1] ALBERTO SCOTTI, University of North Carolina at Chapel Hill, PIERRE-YVES PASSAGGIA, Prisme Lab. University of Orleans — Stratified turbulent shear flows are known to generate strongly intermittent dynamics where the flow alternates irregularly between the growth of stratified shear instabilities, regions of decaying turbulence, and quasi laminar states. Quantifying intermittency at oceanographic scales from field measurements or numerical simulations may become intractable because of sampling issues. The former may offer too few spatial measurements while the latter may prove too computationally expensive. Laboratory experiments provide an interesting alternative and allow for circumventing both difficulties. This talk therefore explores this issue with the aid of an experimental dataset acquired in the UNC Joint Fluid Lab. In a large tank, we generate shear-driven turbulent mixing that spans a significant range of the parameter space encountered in the ocean and for several thousands of eddy turnover times. Hot wire and conductivity measurements are paired with PIV and LIF measurements in a plane to extract the modal features of the flow and their intermittency. These measurements are finally compared with measurements of the the bulk Richardson number which is found to be key driver of these dynamics. We finally discuss the implication for the interpretation of field data.

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