The effect of existing turbulence on stratified shear instability\textsuperscript{1}
ALEXIS KAMINSKI, WILLIAM SMYTH, CEOAS, Oregon State University —
Ocean turbulence is an essential process governing, for example, heat uptake by
the ocean. In the stably-stratified ocean interior, this turbulence occurs in discrete
events driven by vertical variations of the horizontal velocity. Typically, these events
have been modelled by assuming an initially laminar stratified shear flow which
develops wavelike instabilities, becomes fully turbulent, and then relaminarizes into
a stable state. However, in the real ocean there is always some level of turbulence
left over from previous events, and it is not yet understood how this turbulence
impacts the evolution of future mixing events. Here, we perform a series of direct
numerical simulations of turbulent events developing in stratified shear flows that
are already at least weakly turbulent. We do so by varying the amplitude of the
initial perturbations, and examine the subsequent development of the instability and
the impact on the resulting turbulent fluxes.

\textsuperscript{1}This work is supported by NSF grant OCE1537173.