**The Role of Lateral Processes on Mixed Layer Spring Stratification**

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Spring stratification can be characterized as warm waters cap off the underlying cold deep winter mixed layer, therefore influencing air-sea interactions and ocean primary productivity. This can happen trivially as wind forcing dies down and the ocean is heated from above, as captured by 1-D mixed layer models. This view fails to capture processes that advect warmer surface waters over colder waters, which initiates stratification faster than would be expected from heat flux alone. Theory and models suggest that small submesocale baroclinic instabilities (mixed layer eddies, or MLEs) that arise at strong lateral density gradients are a prevalent leading order process acting to restratify the mixed layer by advection. MLEs are parameterized in ocean climate models as an overturning streamfunction proportional to the horizontal density gradient and mixed layer depth, yet few observations have been able to validate the global importance of these phenomena. This work takes a global perspective to evaluate the importance of these lateral processes on the timing and properties of the shoaling mixed layer during spring. Observations from the global ARGO database are compared with results predicted by 1-D mixed layer models to suggest where MLEs may be influential in the evolution of the seasonal mixed layer.