



A practical indicator for the importance of heat and freshwater on the surface buoyancy flux

Johannes Karstensen

Leibniz Institut für Meereswissenschaften, Kiel, Germany (jkarstensen@ifm-geomar.de)

The interplay of heat and freshwater exchange at the ocean surface can either drive convection or stratify the water. Depending on the local atmospheric and oceanic state the individual contribution of the components could enhance or compensate for each other. Here a quantitative measure of the relative contribution of heat and freshwater buoyancy flux components is proposed. The formulation leads to an angular measure that has the advantage over a simple flux ratio as the sign of the individual components is preserved and it is non-ambiguous. The angle could be useful for e.g. climate studies where one is interested in detecting the shift in the buoyancy flux pattern. Distributions of the angle based on climatological data are presented and discussed.