



## **Shear generated turbulence in the ocean**

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Shear-generated turbulence is an important source of mixing in the ocean ending the cascade of energy from larger scales. Often because of sampling difficulties we are limited to deriving statistical relationships between the turbulence activity and the larger scale properties of the fluid flow. The Western Equatorial Pacific proves to be an ideal natural laboratory to study shear-generated turbulence. Here turbulent production is dominated by the shear associated with relatively long-lived flow structures in the form of high vertical mode inertia-gravity waves and flow instabilities. With enough vertical resolution we can directly measure the characteristics of these flow features. We find a strong relationship between the vertical shear and stratification and the turbulent dissipation. Using this relationship we can deduce the vertical mixing length scale and derive a parameterization scheme that is shown to work well when applied to flows with similar characteristics. An important lesson from this work is the need to resolve adequately the flow features generating the turbulence in both observations and models.