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Equatorial Upwelling Rates inferred from Helium Isotope Data

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Upwelling is one of the key processes to maintain the Tropical Atlantic cold tongue. Direct measurements of the upwelling have been hampered by the small speeds involved. Instead, vertical motion has to be estimated by indirect methods. Here we present a novel approach to infer equatorial upwelling velocities by exploiting the helium isotope disequilibrium between atmosphere and equatorial oceanic mixed layer. Although the vertical and horizontal resolution of the existing helium data in the upper tropical oceans was too poor to support a detailed study, it was sufficient to show the potential of the method.