



## **Coherent and incoherent internal tide from current measurements off western Portugal**

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The topographic characteristics of the continental slope regions make internal tidal motions particularly significant there. Their nonlinear interactions, especially with internal inertial motions, contribute to increased local vertical mixing. In this study, long-term (10-12 months) current meter measurements from the western Portuguese continental margin at 41 N are analyzed focusing on oscillations in the internal gravity wave band. The purpose is to make a first attempt to characterize the off shelf distribution of internal tide by estimating its coherent and incoherent contributions to the semidiurnal tidal band kinetic energy spectrum. From the spectral analysis of the velocity records significant peaks are found at some of the inertial-tidal nonlinear interaction frequencies and at higher semidiurnal harmonics. The semidiurnal internal tide kinetic energy spatial distribution reveals an enhancement of the coherent contribution at near-bottom on the mid continental slope and a relative large incoherent signal in the off shelf interior. The results will be discussed considering the local characteristics for bottom topography and stratification distribution.