

Abstract Submitted
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On the potential for transport via internal tides¹ GONÇALO GIL, OLIVER FRINGER, Stanford University — Non-linear effects associated with internal waves lead to advection of fluid particles along with suspended mass such as sediment, nutrients, larvae, as well as contaminants. These factors contribute to the development of benthic communities, the geological shaping of the continental slope and, in some situations, play a role in the transport and fate of contaminants. We compute particle trajectories and resulting Stokes velocity profiles using a Navier-Stokes code with a Lagrangian particle tracking model. Results are compared to linear theory and a semi- nonlinear formulation using both uniform (idealized) and nonuniform (realistic) stratifications, namely what is found in offshore of Huntington Beach, CA. We conclude that Stoke's drift due to nonlinear internal waves is an important component to the overall transport budget, particularly in the nearshore region where nonlinear internal waves are ubiquitous and persistent.

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