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## Understanding the linkage between water column oxygen and benthic fluxes in the upwelling system off Peru

Recent biogeochemical studies have stressed a significant role of benthic dynamics on the pelagic nitrogen (N) cycle in the oxygen minimum zones. Sedimentary denitrification and dissimilatory nitrate reduction to ammonium (DNRA) are important N transformation pathways in these regions and hypothesized to contribute to the biological production and oxygen distribution. Here, using a coupled physical-biogeochemical model, we aim to investigate the effect of benthic dynamics on the water column nitrogen distributions in the Eastern Tropical South Pacific oxygen minimum zone. Empirical transfer functions that represent the benthic denitrification and DNRA are coupled to the biogeochemical model. Our results highlight an influence of benthic dynamics on water column oxygen distributions as a result of changes in water column N and phytoplankton productivity.

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