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Multidiurnal warm layer and inhibited gas exchange in the Peruvian upwelling regime



Surface Ocean Processes in the Anthropocene

BMBF-Verbundvorhaber SOPRAN

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Measuring nitrous oxide (N_2O) in the top 10 meters of the Peruvian upwelling

Motivation	Do we estimate gas emissions from adequate concentrations ?	N ₂ O measurements during Meteor cruise M91 in December 2012
Net gas flux	Supposed	Ship based profiles Shallow sampling away from ship's influence



Vertical N₂O gradients exist and are associated with a shallow stratified layer





Stronger N₂O gradients are associated with higher N₂O concentrations and night time stratification



Hypothesis:

Mixing is inhibited in

Existence of multidiurnal shallow stratification is verified by glider surveys

A 1-D model constrained by glider timeseries can reproduce the N₂O gradients

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Acknowledgments

This study was supported by the German Federal Ministry of Education and Research through the joint project SOPRAN (Surface Processes in the Anthropocene) under grant no. SOPRAN II

FKZ 03F0611A and SOPRAN III FKZ 03F0662A. The friendly support of all crew members of research vessel METEOR during cruise M91 is highly appreciated. Particular thanks to Rudi Link for helping to construct the sampling equipment, and to the bravehearted who sampled N₂O during long hours in the dinghy, drifting in the waves while sacrificing their health. Thanks to Gerd Krahmann who processed the glider hydrographic data. The daily ASCAT global wind field data were provided by A. Bentamy and D. Croize-Fillon of Ifremer, France.