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## The Influence of mixing on N<sub>2</sub>O production in the coastal waters off Peru

The Peruvian upwelling area is known as an area of high N<sub>2</sub>O emissions. While oxygen-free waters of the OMZ core are depleted in N<sub>2</sub>O, extremely high production is triggered within the sharp gradients of the oxycline in the coastal waters off Peru, and mixing and upwelling processes can effectively transport these waters with extreme N<sub>2</sub>O supersaturations towards the surface. This turns the Peruvian upwelling into the most important ocean area for N<sub>2</sub>O emissions which accounts for about 25% of the global oceanic N<sub>2</sub>O emissions alone.

Here we investigate the effect of mixing between oxygenated surface waters with waters from the OMZ core on N<sub>2</sub>O production in a series of incubation experiments with different mixing conditions using GC-ECD and 15N tracer incubations. N<sub>2</sub>O production was triggered when water from the OMZ was mixed with oxygenated surface waters.

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