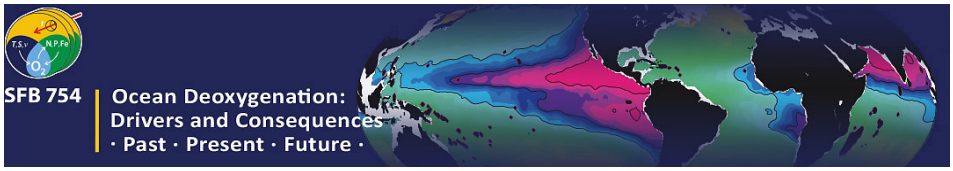

Contribution ID : **132** Type : **Poster**

Sampling in Oxygen Minimum Zones: the deviation from anoxic conditions

The study of Oxygen Minimum Zones (OMZs) is coupled directly or indirectly to the distribution of oxygen in the water column. Oxygen, even at very low concentrations controls to a large extent the presence and magnitude of diverse microbially mediated transformations in these areas. The former trivial separation between oxic and anoxic conditions was progressively redefined as a blurry range in which aerobic and anaerobic processes coexist. During laboratory incubations, aerobic and anaerobic processes have thus been measured under both apparent suboxic (few micromolar) and anoxic conditions. However, the oxygen concentrations during sampling and incubation periods have commonly be assumed, but rarely measured.
In order to evaluate the oxygen concentration present in samples collected in OMZs, a series of oxygen measurements with high-resolution sensors were performed in the East Tropical North and South Pacific OMZs. Oxygen concentrations were measured in Niskin bottles and in the outflow of a Profiling Pump System (PPS) with 400 m cable. The oxygen concentration in Niskin bottles was determined by direct measurements with STOX sensors and results were compared with subsequent measurements with the Winkler method. Oxygen in the PPS outflow was measured in glass vials or bottles that were filled with a large overflow. Water samples were collected from Niskin bottles in full glass bottles in which oxygen was measured with high-resolution optical sensors. The effect of an anoxic atmosphere versus multiple bottle volume overflows on the final oxygen concentration was evaluated. For all the tested procedures, our results showed a significant deviation from in situ anoxic conditions, resulting in values closer to 1 micromolar when samples had been retrieved on deck than the maximum of a few nanomolar that might be present in the anoxic core of these OMZs.

Position

Postdoc

Affiliation

Universidad de Cadiz

Email Address

emilio.garcia@uca.es

Are you a SFB 754 / Future Ocean member?

No

Primary author(s) : Dr GARCIA-ROBLEDO, Emilio (Universidad de Cadiz); Dr PAULMIER, Aurelien (Institut de Recherche pour le Développement (IRD)); Prof. THAMDRUP, Bo (University of Southern Denmark); Prof. REVSBECH, Niels Peter (University of Aarhus)

Presenter(s) : Dr GARCIA-ROBLEDO, Emilio (Universidad de Cadiz)

Track Classification : 04 Microbial Communities and their Impact on Biogeochemical Cycles in Oxygen Minimum Zones