



Contribution ID : 205

Type : Oral

Intercalated low oxygen maxima, beam attenuation and ADCP amplitude within the suboxic layer off Peru.

Monday, 3 September 2018 15:00 (15)

The functioning of Oxygen Minimum Zones in the Pacific remains debated. In particular, the fate of the OMZ is unclear owing to competing processes (preservation versus microbial activity). Recent high-vertical resolution in situ observations off Peru reveal an unexpected biogeochemical structuring in the oxygen minimum zone, potentially associated with a specific vertical particles distribution and ecosystem niches, impacting the vertical transfer of both energy and essential elements. Within the Suboxic Layer ($<20 \mu\text{mol kg}^{-1}$, SL), we found Intercalated Oxygen Maxima (IOM) less than $10 \mu\text{mol kg}^{-1}$ above background and less than 50 m in vertical extent. Typically, IOMs are found in the SL with lower vertical density gradient, regionally or within the SL of one station. CTD attached ADCP of 300 kHz (LADCP) showed: echo maxima persisted throughout the day within the SL associated with these IOMs and sometimes without IOM, echo maxima persisted at the upper and below the lower oxycline throughout the day. LADCP also showed echo maxima that migrated diurnally, and were located within the stratified, no-IOM depth of the SL during the day. These daytime echo maxima did not overlap the strong echo maxima associated with the lower oxycline. Beam attenuation (C_p) showed a maximum close to the upper oxycline. In the depth range of the stratified no-IOM part of the SL, the C_p decreased approximately exponentially. C_p displayed no profile pattern associated with the IOMs. C_p profiles showed no apparent relation with LADCP echo profiles as might be expected if C_p is a proxy of particulate organic matter and LADCP echo a proxy of zooplankton.

Position

Professor

Affiliation

CICESE, Ensenada, Baja California, Mexico

Email Address

hmaske@cicese.mx

Are you a SFB 754 / Future Ocean member?

No

Primary author(s): MASKE, Helmut (CICESE)

Co-author(s): OCHOA, Jose (CICESE); ELDIN, Gerard (IRD); BRETAGNON, Marine (LEGOS (IRD/CNRS/CNES/Université de Toulouse)); Dr PAULMIER, Aurélien (LEGOS-CNRS/IRD/UPS/CNES, Toulouse, France.); Dr DEWITTE, Boris (LEGOS-CNRS/IRD/UPS/CNES, Toulouse, France.); SUDRE, Joel (LEGOS/CNRS); Dr GARÇON, Véronique (LEGOS-CNRS/IRD/UPS/CNES, Toulouse, France.)

Presenter(s) : MASKE, Helmut (CICESE)

Session Classification : 02 Ecosystem Impacts

Track Classification : 02 Ecosystem Impacts