



Contribution ID : 95

Type : **Oral**

Insights of the dynamics in the East Pacific Upwelling System from a nested 1/20° ocean circulation model

Thursday, 6 September 2018 17:15 (15)

The oxygen budget within the oxygen minimum zone (OMZ) is generally a complex and not yet fully understood interplay between different processes of oxygen supply and consumption. Modelling studies indicate that a deficient circulation is at the core of the problem rather than an admittedly poor quantitative understanding of biogeochemical cycle.

Here we use the new high-resolution nest configuration VIKING20X to examine dynamics in the upwelling system and adjacent regions in the tropical east south Pacific. The horizontal resolution of 5km or less together with the temporal resolution of daily hydrographic parameter fields give a good representation of the boundary current system as well as mesoscale eddy features. Focussing on the physical aspects we will investigate formation processes and development as well as life-time and spreading paths of mode water eddies contributing significantly to property exchange (heat, salt and biogeochemical parameters) from the upwelling system to the ocean interior.

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Session Classification : 05 Major Upwelling Systems

Track Classification : 05 Major Upwelling Systems