Paleoceanographic variations in SE sector of Indian Ocean (Australian shelf, IODP-U1460 site): is the MIS12 the trigger for long-term oceanic circulation re-organisation? Insights from benthic meiofauna (ostracods and foraminifera)

Charlie Angue Mintoo¹,², Margot Courtillat¹, and Maria-Angela Bassetti¹

¹Université de Perpignan Via Domitia & CNRS, CEFREM, UMR5110, 66860 Perpignan, France
²Ecole Normale Supérieure (ENS) de Libreville, Laboratoire des sciences de la vie et de la Terre (LASCIVIT), BP 17009, Libreville, Gabon

Micropaleontological and isotopic analyses were performed on 93 samples covering the first 50m of borehole U1460 in aim to reconstruct the paleo-environmental and paleo-climatic conditions of western australian shelf. Borehole U1460 was drilled at a water depth of 214 m during IODP (International Ocean Discovery Program) 356 expedition.

The distribution of benthic foraminifera and ostracod assemblages associated with planktonic foraminifera variation allow to characterized two main climatic phases: one dominated by generally cold conditions (glacial-like, from 50 to 20m) and another interglacial-like phase (from 20 to 0m), characterized by warmer climate. Those have been identified on the basis of distribution of tropical warm water *Goloborotalia menardii* (planktonic foraminifera) that shows high abundance only from 20 to 0 m, attributed to the interglacial-like phase, coherent with δ¹⁸O values curve.

The glacial assemblage is composed by an assemblage dominated by ostracod genera/species such as *Pterigocytherei* ssp., *Krithe* spp., *Argilloecia* sp., *Pseudocythere caudata*, *Trachyleberi* ssp. and by benthic foraminifera such as *Cibicides lobatulus*, *Elphidium* sp., *Hyalineasp.*, *Rosalina bradyi*. These assemblages indicate cold bottom conditions with probably poorly oxygenated and organic-rich sediment environment.

The interglacial assemblage is characterized by ostracods species as *Neonesidea* sp., *Bradleya* sp., *Cytherello* sp., and by benthic foraminifera as *Meloni* ssp., *Uvigerina* ssp., *Quinqueloculina* sp., *Textularia* sp., *Trifarina* sp., *Cassidulina* sp., *Brizalina* sp., *Bulimina* sp., *Sigmoilopsis schlumbergeri*. This assemblage suggests warm bottom conditions under well-oxygenated, high energy regimes and food input that would be important.

Those two phases include probably multiple glacial and interglacial stages but the most spectacular result indicates that after the onset of MIS12, one of the major glaciation in the Quaternary), the oceanographic conditions in the Western Australia sector changed deeply, either...
because of oceanic current re-organization or because of the continental climate change (dry/wet climate transition) that controls the amount of micronutrient input into the ocean.