

South East Pacific oceanographic change during the Plio/Pleistocene – implications from surface and subsurface temperature and salinity reconstructions.

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The climatic transition from the Pliocene “warm house” to the Pleistocene “ice house” and its relation to oceanographic change is widely debated. Up to now, the southeastern S Pacific Ocean is insufficiently studied in this respect. We analysed piston core SO213-08-2 located in the SE Pacific retrieved from ca. 2181 m water depth during RV SONNE cruise SO213.

According to the still preliminary stratigraphy based on benthic bioturbates and the correlation of proxy data to the well-dated core SO213-01-2 offshore Chile (Poggemann et al., pers. com.), the core covers the Plio/Pleistocene time period from ca. 3.8 Ma to 0.4 Ma, hence covering the time periods of the constriction of the Indonesian Gateway and the closure of the Panamanian Seaway being critical to the onset of Northern Hemisphere Glaciation .

The mixed layer planktonic foraminiferal species *G. bulloides* (superficial) and the deep dweller *G. inflata* (subsuperficial) were investigated for $\delta^{18}\text{O}$ and Mg/Ca to reconstruct temperatures and salinities for the surface (SSTMg/Ca, $d^{18}\text{O}_{\text{sw}}$) and subsurface water masses (subSSTMg/Ca, sub $d^{18}\text{O}_{\text{sw}}$), and changes in the upper ocean water mass structure. The proxy data allow to estimate the Plio/Pleistocene interaction between surface-near Subtropical Water (STW) and Subantarctic Water (SAAW) as well as the evolution of the Humboldt Current system.