

## Deepwater dynamics over the last 80,000 years in the Santos Basin: a multiproxy approach

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Benthic foraminifera are important paleoenvironmental indicators, for example the epifaunal specie *Cibicides wuellerstorfi* that can be used as a bottom waters hydrodynamic indicator. The multiproxy approach applied in this work connect this specie to the sedimentological proxy of current strength sortable silt (SS), allowing a better insight of deep water velocity and relations to the *Atlantic Meridional Overturning Circulation* (AMOC) changes. Therewith, this work aims to reconstruct the deep water masses dynamics at Bacia de Santos using *C. wuellerstorfi* flux and the mean sediment size of the sortable silt fraction (10-63 $\mu$ m) during the last 80 thousand years (ka). For this, we analyze the marine sediment core GL-1090 localized at 24°55,7'S 42°31,1'W and collected at 2,225 mbsl. The analysis have included: (1) *C.wuellerstorfi* flux calculation, considering the specie's density and the sedimentation rate (calculated by chronological model based on  $\delta^{18}\text{O}$  of *C. wuellerstorfi* and shallow planktonic foraminifera radiocarbon dating); and (2) analysis of the mean sediment size of SS fraction on CILAS laser particle analyzer (samples previously decarbonated and organic material oxidized). In a overview, it was possible noticed that both *C.wuellerstorfi* flux and SS tend to increase up to 32 ka, at which point they diverge and follow different trends. During the *Marine Isotope Stage* (MIS) 4 were observed low values of SS and epifaunal specie flux, indicating low deep water intensity and, consequently, AMOC reduction. Throughout MIS3, the rising values of both variables are remarkable, which indicates an increasing deep water velocity. In the last 27 ka there is a differentiation of the previously coordinated pattern. While there is an increase in the SS values, a decrease of *C. wuellerstorfi* fluxis observed, which can be explained by the response of the specie to another factor such as the labile carbon pulses. However, the assemblage determination and calibration studies of epifaunal species in Santos Basin are necessary to a better understand of the benthic foraminifera response to deep water circulation changes during MIS 1 and 2.

Keywords: benthic foraminifera, Sortable Silt, deep water circulation.

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