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Stable isotope paleobiology of the early Eocene biserial planktic foraminifer *Chiloguembelina* (south Atlantic Site 1263)

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Thin-walled planktic foraminifera bearing a biserial disposition of the chambers are characterized by relatively long stratigraphic ranges as originating in the Late Albian from the biserial *Heterohelix*, diversified in the Late Cretaceous and survive to the present day, even though their abundance is highly variable through time and space. These forms attracted the scientific interest because they thrived in correspondence with extreme global climatic and paleoceanographic events. However, paleobiology of Cenozoic biserial planktic foraminifera is not fully established. Largely accepted ecological interpretation ascribes them as low-oxygen tolerant, meso- to eutrophic thermocline dwellers inhabiting the Oxygen Minimum Zone (OMZ) and thriving in stressed environments. However, this general ecological interpretation does not agree with all available records. Stable isotope data from *Chiloguembelina wilcoxensis* and *Zeauvigerina aegyptiaca* at Deep Sea Drilling Project (DSDP) Site 401 (eastern North Atlantic) analyzed in the interval following the PETM, overlap with those of the symbiont-bearing *Morozovella subbotinae* thus implying surface mixed layer habitat (D'Haenens et al. 2012, Austrian Journal of Earth Sciences 105/1). Similar habitat was derived for middle Eocene-Late Oligocene *Chiloguembelna cubensis* (Premec Fucek et al. 2018 and references therein, Cushman Foundation Special Publication 46, chapter 17). Conversely, Sexton et al. (2006, Marine Micropaleontology 60) report *Chiloguembelina ototara* as inhabiting a thermocline habitat on the basis of stable isotope data from Eocene Zone E14 at northwest Atlantic Ocean (ODP Site 1052B). These evidences indicate that planktic biserial taxa may have changed their ecological niches through time and over their geographic distribution. We present here new oxygen and carbon stable isotope data from early Eocene chiloguembelinids with the aim to assessing their habitat during this interval for which stable isotope record is lacking. The early Eocene is a crucial interval of time marked by significant climatic changes when temperatures across Earth's surface rose toward an extended interval of peak Cenozoic global warmth and high pCO_2, the Early Eocene Climatic Optimum (EECO, ∼54-48 Ma). Paleoceanographic reconstructions are essential to understand climatic changes occurred during the EECO interval therefore we need a good knowledge of ecological characters of planktic foraminifera, one of the most widely utilised group for interpreting paleoenvironmental changes. To perform our analysis we select the Ocean Drilling Program (ODP) south Atlantic Site 1263 that has good sedimentary recovery and preserves relatively abundant chiloguembelinids at the EECO beginning. Our analysis was performed at the beginning of the EECO on *Chiloguembelina wilcoxensis* and *C. trinitatensis* and on *Morozovella*, *Acarinina, Subbotina* species and benthic *Oridorsalis umbonatus* belonging to Zone E5 (Wade et al. 2011, Earth Science Review 104). Even though species are slightly recrystalised, results clearly demonstrate that these species lived in sub-surface habitat as they show stable isotope data close to those of the thermocline dweller *Subbotina*. These data reveal therefore a different habitat with respect to north Atlantic earliest Eocene and middle Eocene-Late Oligocene records that designate mixed-layer habitat. Our findings provide critical implications for the paleoceanographic reconstruction of the upper water column and its changes occurred during the EECO at Site 1263.