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Deep-sea benthic foraminifera faunas and stable isotopes from the Portugal margin

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The ecology (faunal density, composition, microhabitats) of benthic foraminifera from three deep stations (1,000 m, 2,000 m and 3,000 m) off the Portugal margin (Northwest Atlantic, 37-38°N) has been studied. Six cores were picked for each station. In order to improve the understanding of factors controlling the spatial distribution of the faunas, the chemistry of the sediment (O₂, NO₃, ...), as well as stable isotopes ($\delta^{18}\text{O}$, $\delta^{13}\text{C}$) have been analysed for species of four key genera that have different microhabitats (*Cibicidoides*/*Fontbotia*, *Uvigerina*, *Melonis* and *Globobulimina*).

Faunal densities decrease with increasing water depth, following the diminishing organic matter flux that reaches the sea floor at greater depths. However, one core at station FP9 (3,000 m) exhibits a surprisingly high density due to the presence of a worm burrow, with the appearance of opportunistic species such as *Pullenia bulloides*, *Fursenkoina* sp., and *Pyrgo elongata*. In each station the deep infaunal *Globobulimina affinis* shows a maximum of abundance at the "oxygen zero" depth, which is in agreement with previous studies.

Interspecific differences in stable isotopic composition are related to the different microhabitats, with the deep infaunal species (*Globobulimina affinis*) having lighter values than shallow infaunal species (*Uvigerina mediterranea*). The *Uvigerina* species, however, show a wide scatter in $\delta^{18}\text{O}$ as well as $\delta^{13}\text{C}$. This may be a function of the size of the specimen measured, but further analyses are needed to confirm this trend.