



Live (stained) benthic foraminifera from the Cap-Ferret Canyon (Bay of Biscay, NE Atlantic): A comparison between the canyon axis and the surrounding areas

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Living (Rose Bengal stained) benthic foraminiferal faunas were investigated at 13 deep-sea stations sampled in the Cap-Ferret Canyon area (NE Atlantic). One station (151 m) is located on the continental shelf close to the canyon head. All other stations are located along 2 bathymetric transects: 7 sites along the canyon axis with depths ranging from 300 to 3000 m and 5 stations along the adjacent flank with depths ranging from 300 m to 2000 m. Sedimentological analyses indicate that the Cap-Ferret Canyon is at present inactive in terms of sediment gravity flow. Compared to stations on the adjacent flank, canyon-axis stations are generally characterised by shallow oxygen penetration depths, high diffusive oxygen uptakes (DOU) and high lipid contents. Higher mineralisation rates recorded in the canyon axis are likely due to a preferential focusing of labile organic matter in the canyon axis. Foraminiferal standing stocks do not exhibit any straightforward correlation with the different descriptors of organic matter available in the sediment. However, foraminiferal standing stock and diversity along the canyon axis are generally higher than on the adjacent flank. Canyon axis sites yield dominant species that are similar to those at adjacent flank and open slope stations located at comparable water depths. However, intermediate and deep infaunal species were only recorded in the lower canyon axis, where high amounts of organic matter were observed in deeper sediment layers. Finally, the faunal composition in the Cap-Ferret Canyon is different compared to the nearby Cap-Breton Canyon, where sediment gravity flows are active. The absence of pioneer species and the occurrence of highly specialized taxa are both consistent with the much more stable conditions in terms of hydro-sedimentary conditions prevailing in the Cap-Ferret Canyon.

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