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# Recent (Rose Bengal stained) benthic foraminifera from Portuguese margin canyons

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Submarine canyons are dynamic environments that transport and trap vast quantities of sediment, nutrients and organic carbon. Excess 210Pb values in sediments from the Nazaré Canyon are found to be an order of magnitude higher than in the adjacent shelf and slope environment, reflecting increased particle settlement fluxes in the canyon (van Weering et al., 2002). In addition, the same study indicates that the sediment accumulation rates over a period of time are by far highest in the canyon and have high C-org values. The combination of these parameters together with the physical disturbance due to functioning of the canyon will result in an extraordinary and adapted ecosystem.

Preliminary results will be presented from a detailed quantitative analysis of living (Rose Bengal stained) benthic foraminiferal assemblages from Nazaré and Lisbon-Setúbal canyons, which are located on the Portuguese continental margin. These canyons have a comparable oceanographic setting, including narrow shelf, summer upwelling regime and exposure to southwesterly storms in winter. However, while the Lisbon-Setúbal canyons are fed by the rivers Sado and Tagus, the Nazaré canyon has no direct river influence. Several stations are investigated from proximal to distal for each of the canyons. In addition, a comparison to the adjacent shelf/slope environment is carried out through reference stations.

The total standing stocks (TSS) appear to be highest at the head of each canyon and decline in general with depth. However, the axis of the Nazaré canyon appears to be nearly barren in contrast to Lisbon-Setúbal canyons. Nevertheless, in a previous study

carried out at royal NIOZ van den Berg and de Stigter (data not published) found abundant foraminifera populations along the axis of the Nazaré canyon. The absence of living benthics may be related to recent disturbance inside the canyon. Agglutinated taxa are present in great numbers at all locations and sometimes dominate the assemblages of the Portuguese margin canyons. This is in contrast with previous canyon studies by Jorissen et al. (1994) and Schmiedl et al. (2000), which revealed that the foraminifera assemblages in canyons off New Jersey and Gulf of Lions are dominated by calcareous foraminifera species such as *Uvigerina* spp. and *Bulimina* spp..

Jorissen F.J., Buzas M.A., Culver S.J., Kuehl S.A., 1994, Vertical distribution of living benthic foraminifera in submarine canyons off New Jersey, *Journal of Foraminiferal Research*, **24**, 28-36

Schmiedl G., de Bovée F., Buscail R., Charrière B., Hemleben C., Medernach L., Picon P., 2000, Trophic control of benthic foraminiferal abundances and microhabitat in the bathyal Gulf of Lions, western Mediterranean Sea, *Marine Micropaleontology*, **40**, 167-188

van Weering T.C.E., de Stigter H.C., Boer W., de Haas H., 2002, Recent sediment transport and accumulation on the NW Iberian margin, *Progress in Oceanography*, **52**, 349-371