Temporal and spatial meiofauna patterns in the Nazaré Submarine Canyon, Northeast Atlantic.

Sofia Ramalho[1,2], Jeroen Ingels[2], Helena Adão[1], Ann Vanreusel[2]

[1]CO- Oceonography Center - CIEMAR, Universidade de Évora, c/o NemaLab, apartado 94, 7002-554 Évora Portugal

[2]Marine Biology Department, Ghent University, Krijgslaan 281 S8, 9000 Ghent, Belgium

Abstract. Submarine canyons are characterized by highly heterogeneous habitats, topography and hydrography with enhanced organic matter input. These factors have a profound effect on canyon faunal communities in time and space. As part of the HERMES project, one of the largest European canyons, the Nazaré canyon was sampled in spring-summer in three consecutive years (2005, 2006, 2007), permitting the study of inter-annual patterns in meiofaunal communities at two contrasting habitats at 3500 and 4300 m water depth. Meiofauna standing stocks and structural and functional diversity were investigated in relation to biogeochemical sediment data. Substantially increased sediment sand content in 2006 and consistent phytodetritus levels indicated the occurrence of one or more deposition events between the 2005 and 2006 sampling events. Nematode standing stocks and trophic diversity decreased in the 2006 samples, seemingly followed by a recovery period as observed by community patterns in 2007, when communities were strongly correlated with the increase of quality and bioavailability of the organic matter supplied. Nevertheless, inter-annual variations were not the main driver for the faunal communities; the depth effect on the faunal communities was greater. The community differences between the sampled habitats were markedly greater than what was caused by inter-annual variation, likely because of the contrasting hydrodynamic and food supply conditions. The higher meiofauna/nematode abundances, biomass, and trophic complexity at the 3500 m station, compared to the 4300 m station, was related to the higher food supply, and greater quality and bioavailability at the 3500 m site.