ROLE OF THE MEIOBENTHOS IN THE ANTARCTIC ECOSYSTEM

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All levels of the Southern Ocean food web — benthos included — are influenced profoundly by the seasonality of the primary production. Benthic production is coupled to the overlying water column production by a downward flux of cells, concentrations of organic matter into larger particles and faecal pellets from herbivorous plankton. In some areas in the Southern Ocean with a tremendous amount of carbon influx of cells, it seems that carbon does not accumulate despite the fact that bacterial growth rates in the sediments may be low. The difference might be made up by protozoans and meiofaunal production, but such data have not been collected yet. Certainly this discrepancy between high water column productivity and apparently low benthic utilization represents a fertile topic for this programme and is related to the topic 'fluxes and biogeochemical cycles in the most important trophic compartments' of the national programme.

The energy balance in the benthic layer is the result of a very complex set of interactions which all have their own speed ; fluxes of particulate matter through the nepheloid layer and sedimentation processes near the bottom are quite well investigated even in the Antarctic region. However, the metabolic activities of the benthic organisms and the chemical fluxes (oxygen, CO_2, nutrients,..) through the interface sediment-water are not known and are a major topic of this project.

References

Herman R. and Dahms H.U. 1992. Meiofauna communities along a depth transect off Halley Bay (Weddell Sea-Antarctica). Polar Biology 12 : 313-320.