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Projekte / DOMINO /

DOMINO



DOMINO

Dynamics of benthic organic matter fluxes in polar deep-ocean environments

Without the uptake of carbon dioxide by the oceans, the atmospheric CO₂ concentrations would increase even more dramatically. The Southern Ocean is supposed to play a key role in this respect. DOMINO investigates the magnitude of organic carbon raining down to the seafloor. Although this is not the end of the marine carbon cycle, the sedimentation of organic matter comprises a long term sink and, thus, is essential to be considered when dealing with the CO₂ problem.



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Being part of the [ICED](#) umbrella project (Integrating Climate and Ecosystem Dynamics) and closely related to the IPY projects [ANDEEP-SYSTCO](#) (ANTarctic benthic DEEP-sea biodiversity: colonization history and recent community patterns - SYSTEM Coupling) and [SCACE](#) (Synoptic Circum-Antarctic Climate-processes and Ecosystem study), DOMINO links water column processes such as particle export and the fate of this food supply to the polar deep-sea communities at the seafloor. The DFG-funded project focuses on the determination of organic carbon fluxes onto deep-sea sediments of the Southern Ocean, their spatial distribution as well as their temporal dynamics. Such fluxes to the seafloor comprise a carbon sink at the lower end of the ocean's biological pump which binds atmospheric CO₂ to biomass and partly exports it to the deep. Although playing a key role in this respect, there is still a very limited data set for the Southern Ocean. DOMINO not only aims to improve the data coverage by high quality in situ measurements but also will foster the multidisciplinary linkage to planktology, oceanography, and benthos biology: During the Polarstern cruise ANT XXIV/2 (27.11.2007-5.2.2008), additional investigations on the benthic-pelagic coupling as well as on the interactions between geochemical microgradients and benthic organisms will be conducted. Doing so, ocean regions can be differentiated in terms of deep carbon export under consideration of seasonal conditions, whereas the ANDEEP bioregionalization approach is complemented by the allocation of geochemical provinces.



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[Alfred Wegener Institute \(AWI\)](#), Bremerhaven
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Cooperating projects in the IPY:

[ANDEEP-SYSTCO](#) (Antarct. benthic Deep-sea biodiversity - System Coupling)
[CoML](#) (Census of the Marine Life)
[GEOTRACES](#) (biogeochemical cycles of trace elements and isotopes)
[SCACE](#) (Synoptic Circum-Antarctic Climate-processes and Ecosystem study)

