

## **Poster: Benthic multidisciplinary time-series at the Arctic deep-sea observatory HAUSGARTEN**

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The past decades have seen remarkable changes in key arctic variables, including a decrease in sea-ice extent and sea-ice thickness, changes in temperature and salinity of arctic waters, and associated shifts in nutrient distributions. To detect and track the impact of large-scale environmental changes in the transition zone between the northern North Atlantic and the central Arctic Ocean, the Alfred Wegener Institute for Polar and Marine Research (AWI) established in 1999 about 150 km west of Svalbard the deep-sea long-term observatory HAUSGARTEN, which constitutes the first, and until now only open-ocean long-term station in a polar region. 16 permanent sampling sites along a depth transect between 1000 – 5500 m, and along a latitudinal transect following the 2500 m water depth isobath are revisited yearly. Multidisciplinary research activities at HAUSGARTEN comprise biochemical analyses to estimate the input of organic matter from phytodetritus sedimentation and activities and biomasses of the small sediment-inhabiting biota as well as assessments of distribution patterns of benthic organisms (covering size classes from bacteria to meiofauna as well as megafauna) and their temporal development and food web structure. Preliminary results of our time-series data reveal first trends. Over recent years the Arctic has seen a decrease in sea ice cover, correspondingly, we have seen an increase in bottom-water temperatures. There was also a decrease in phytodetritus at the seafloor until 2006. But the input has increased at most depths since then. For meiofauna densities, we observe no consistent trends for all stations, however, we see decreasing densities during 2000-2004 at five out of nine stations. Increasing meiofauna densities at 2500 and 5500 m water depth coincides with a slight increase in phytodetrital matter at those stations. We also observe a decrease in megafaunal densities between 2002 and 2004, but analysis of new samples is required to verify this. There has been a decrease in the trophic level of demersal fish. This indicates that there have been some changes at lower trophic levels or the quality of the baseline.