



FRAM (FRontiers in Arctic marine Monitoring: The FRAM Ocean Observing System) planned efforts for integrated water column biogeochemistry

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The Arctic is a region undergoing rapid environmental change and will be subject to multiple stressors in the coming decades. Reductions in sea ice concentration; warming, increased terrigenous inputs and Atlantification are all expected to exert a significant impact on the structure and function of Arctic ecosystems. The Fram Strait is a particularly important region because it acts as a gateway in the exchange of Atlantic and Arctic water masses. The logistical constraints in conducting year round biogeochemical measurements in such areas impose a significant limitation to our understanding of these complicated ecosystems. To address these important challenges the German ministry of research has funded a multi-million Euro infrastructure project (FRAM). Over the next five years FRAM will develop a remote access and autonomous sampling infrastructure to improve the temporal and spatial resolution of biogeochemical measurements in the Fram Strait and central Arctic. Here we present a summary of sampling strategies, technological innovations and biogeochemical parameters that will be addressed over the duration of the project. Specific emphasis will be placed on platforms for monitoring nutrient dynamics, carbonate chemistry, organic carbon flux and the development of a sustained microbial observatory.