



FRAM - FRontiers in Arctic marine Monitoring: Permanent Observations in a Gateway to the Arctic Ocean

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Our ability to understand the complex interactions of biological, chemical, physical, and geological processes in the ocean is still limited by the lack of integrative and interdisciplinary observation infrastructures. The main purpose of the open-ocean infrastructure FRAM (FRontiers in Arctic marine Monitoring) is permanent presence at sea, from surface to depth, for the provision of near real-time data on climate variability and ecosystem change in an Arctic marine environment. The Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung (AWI), together with partner institutes in Germany and Europe, aims at providing such infrastructure for the polar ocean as a major contribution to international efforts towards comprehensive Global Earth Observation. The FRAM Ocean Observing System targets the gateway between the North Atlantic and the Central Arctic, representing a highly climate-sensitive and rapidly changing region of the Earth system. It will serve national and international tasks towards a better understanding of the effects of change in ocean circulation, water mass properties and sea-ice retreat on Arctic marine ecosystems and their main functions and services. FRAM integrates and develops already existing observatories, i.e. the oceanographic mooring array HAFOS (Hybrid Arctic/Antarctic Float Observing System) and the Long-Term Ecological Research (LTER) site HAUSGARTEN. It will implement existing and next-generation sensors and observatory platforms, allowing synchronous observation of relevant ocean variables, as well as the study of physical, chemical and biological processes in the water column and at the seafloor. Experimental and event-triggered platforms will complement observational platforms. Products of the infrastructure are continuous long-term data with appropriate resolution in space and time, as well as ground-truthing information for ocean models and remote sensing.