Ocean observatories for understanding and monitoring Arctic change

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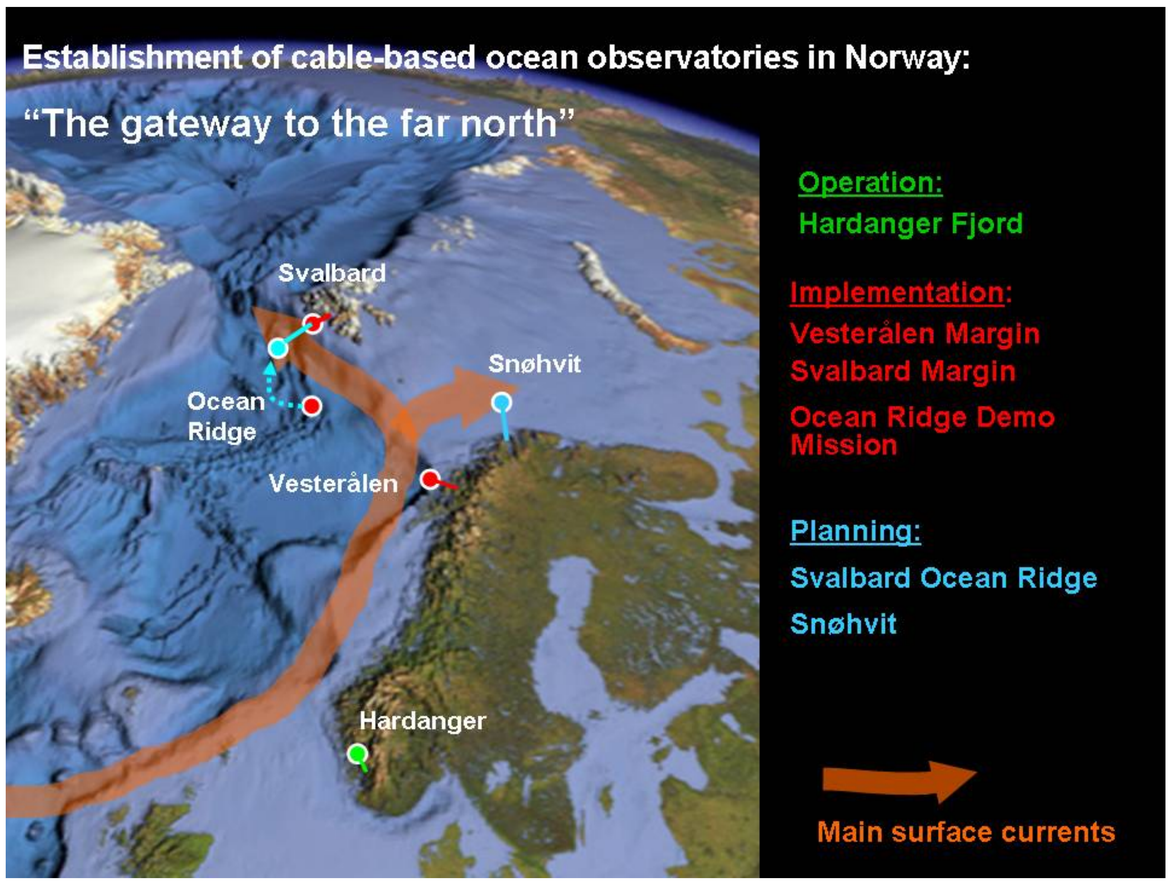
Cabled Observatories for Monitoring of the Ocean System (COSMOS)



The Fram Strait between Svalbard and Greenland is the major oceanic pathway between the Arctic Ocean and lower latitudes. Moorings, repeat sections and stations constitute the backbone of the traditional observing system in the area. However the spatial and temporal coverage is limited. An acoustic tomography array and deep sea gliders are presently used in an experimental configuration providing data also from partially sea ice covered regions. In the future, continuous interactive presence from the shelf to the deep sea could be obtained via seafloor cabled observatories such as planned in the Norwegian COSMOS project. Integration with both EMSO and SIOS including national projects offers opportunities for gradual introduction of new observation technology from the Svalbard area into the deep Arctic Ocean. This opportunity should not be missed if we want to document the ongoing and expected changes in the physical, chemical and biological environment as climate change and regional human activities develop.

In combination with gliders and drifters with acoustic communication and instrumentation, seafloor cabled moorings and multidisciplinary observatories represent the future of Arctic Ocean monitoring for improved understanding (Haugan, 2010). The Arctic Regional Ocean Observation System (Arctic ROOS, http://arctic-roos.org/) constitutes a framework for contributing to GOOS (IOC/UNESCO, 2010, Dickson, 2011).

Dickson, Bob 2011. iAOOS: An ocean-observing system for Northern Seas during the legacy phase of the International Polar Year. A report of the Arctic Ocean Sciences Board.

Haugan, Peter M. 2010. Observatories for Understanding Arctic Change. In Climate Change and Arctic Sustainable Development, UNESCO Press 2010, p. 303-308.

IOC/UNESCO 2010. Why monitor the Arctic Ocean? Servoces to society from a sustained ocean observing system. IOC/BRO/2010/6

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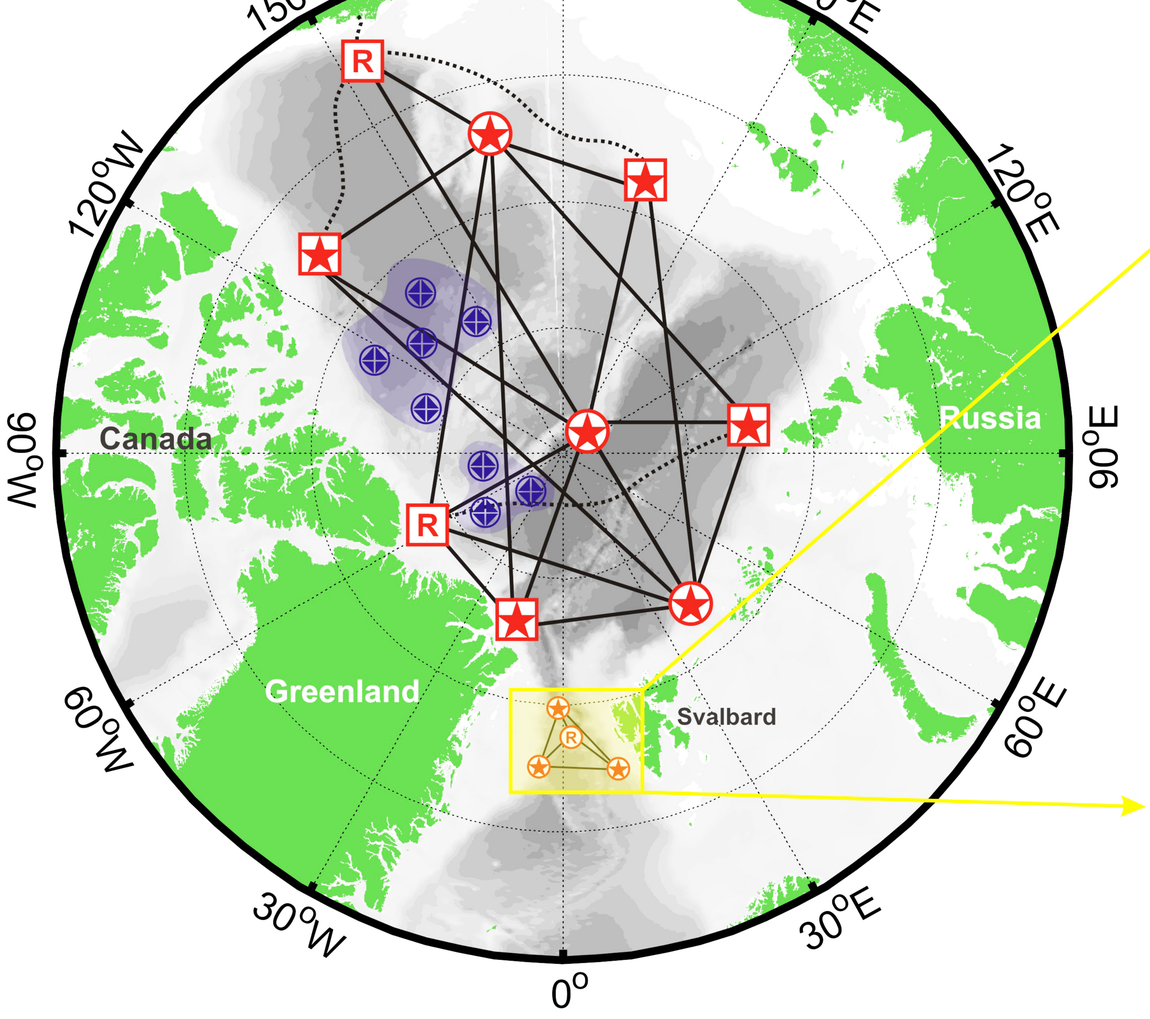
The vision:



The present: