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Demonstration for environmental management in Disko Bay, Greenland

The objective is to demonstrate how an iAOS can improve marine ecosystem modelling in data-poor areas and thereby increase our knowledge on how environmental change will affect local productivity as input to stakeholders

The local fine-scale ecosystem model for Disko Bay, west Greenland, was improved by using:

- Sea ice data (CICE, DMI)
- Regional model data (HYCOM, ERSEM)
- Freshwater discharges (PROMICE, GEUS)
- Remote sensing data (COPERNICUS, DTU)
- Monitoring data (GEM) and other field data



Figure 2. Picture from Disko Bay

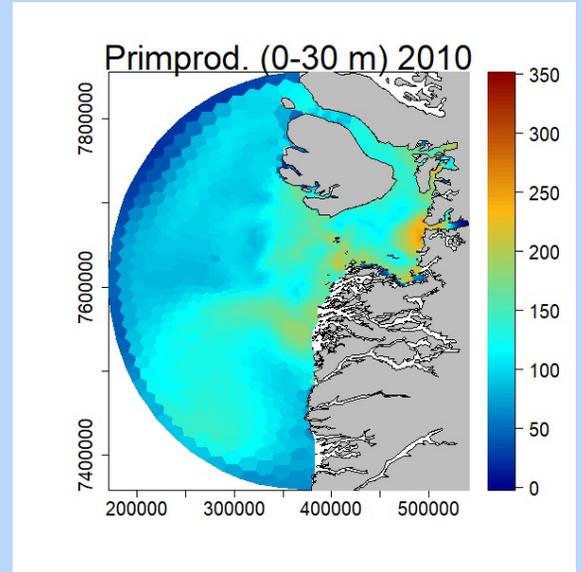


Figure 1. Primary production (mg-C/m²/d) estimated for the Disko Bay in 2010 with early sea ice break-up

On the bay scale, sea ice cover is the most important factor, and decreasing sea ice cover leads to higher primary production

The freshwater discharge has an impact on the timing and level of primary production near the source; more discharge leads to higher primary production

The model results improve our current understanding of the environmental effects on the productivity of Disko Bay that is considered an Arctic biodiversity hot-spot

Correlation between primary production and discharge or sea ice cover

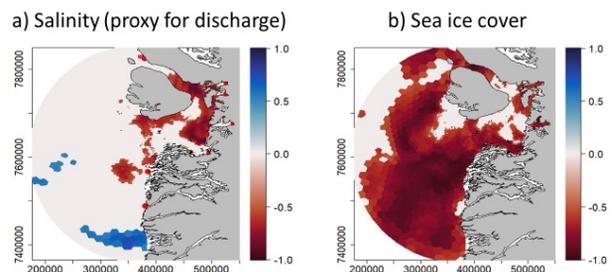


Figure 2. Correlations between primary production and a) salinity and b) sea ice cover from 2004 to 2018.