

Oceanographic processes in and around Baffin Bay impacting or being impacted by Greenland

Paul G. Myers, Mads H. Ribergaard, Xianmin Hu and
Laura Gillard

(Department of Earth and Atmospheric Sciences, University of Alberta)

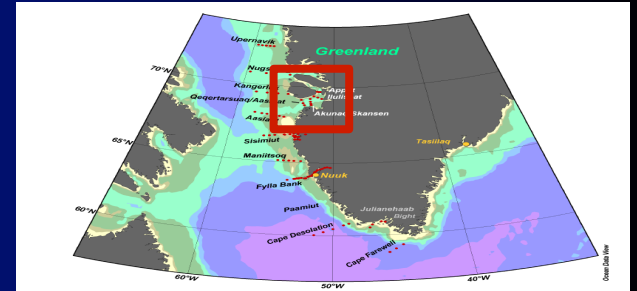
Funding
support by:



People. Discovery. Innovation.

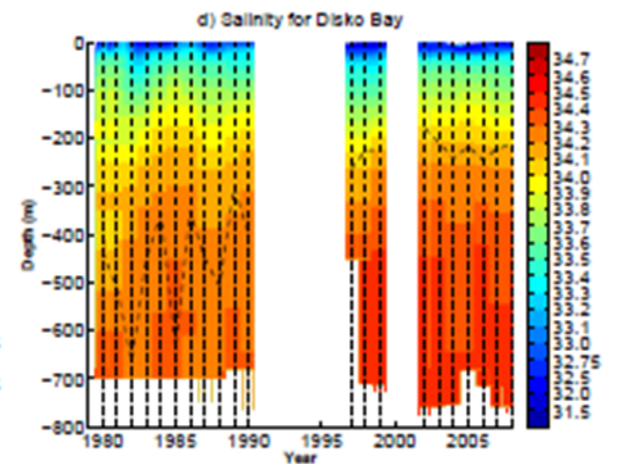
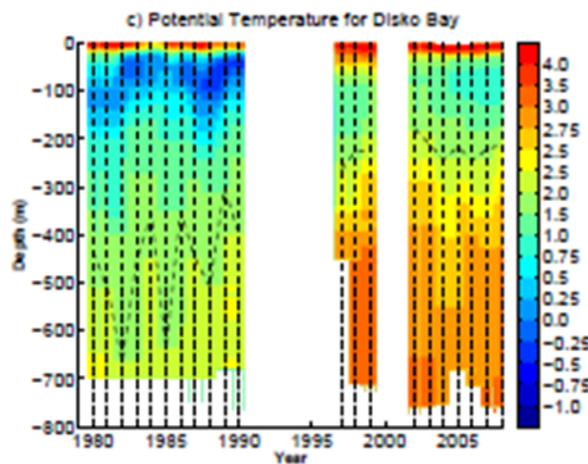
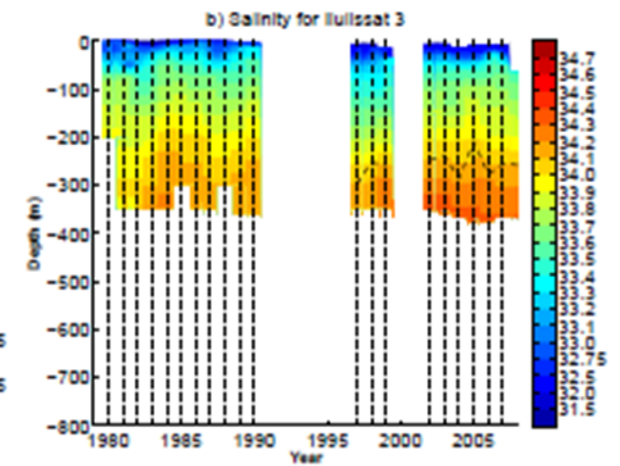
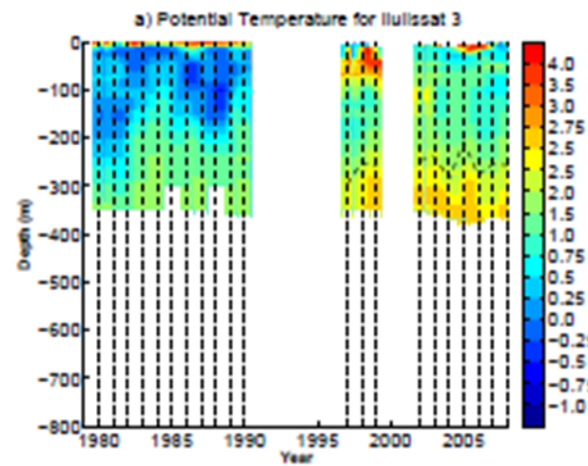


Question: Historical Ocean Variability in Baffin and Disko Bay



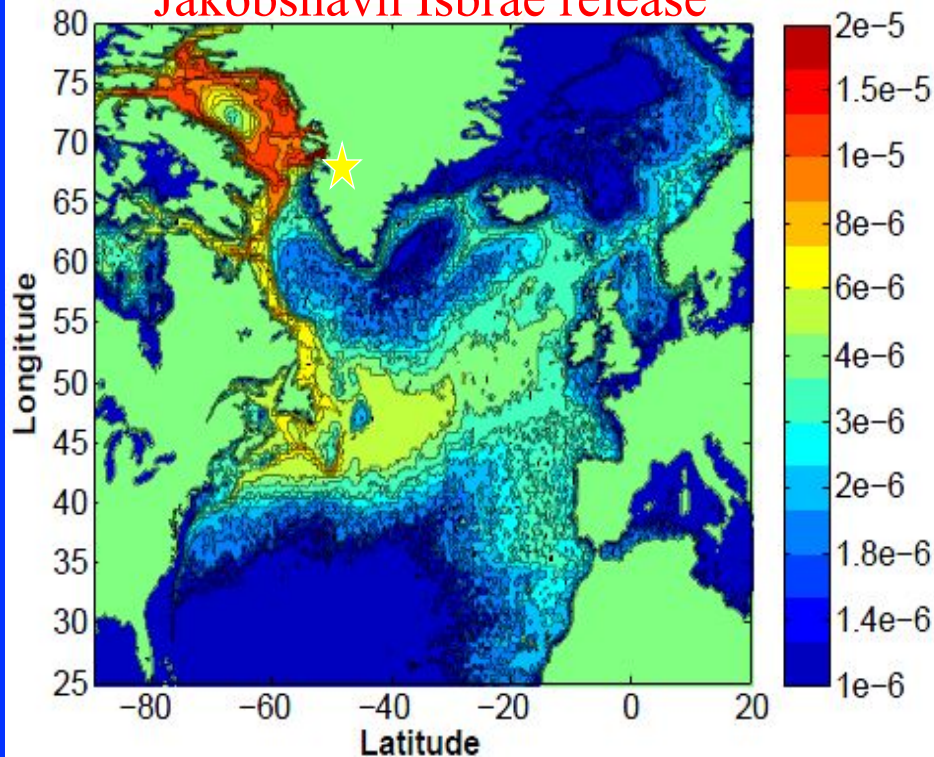
Method: Analysis of historical Summer TS sections

Key Idea: Significant changes in heat input to West Greenland due to BOTH Irminger Water and Arctic Water changes

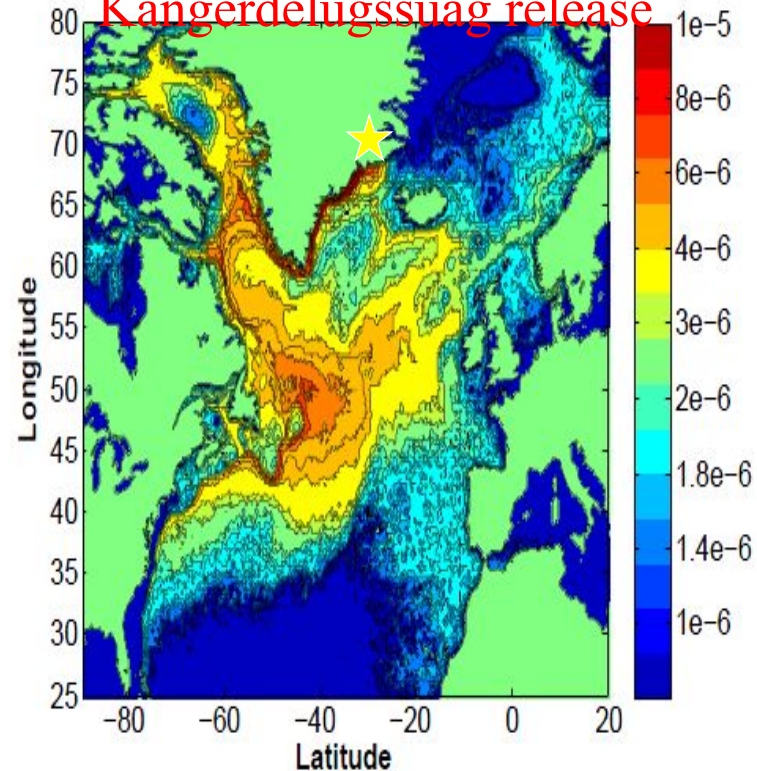


Question: Will Melt From All Coastal Glaciers be Similarly Taken up by the Sub-Polar Ocean

Jakobshavn Isbrae release



Kangerdelugssuag release



Method: Ariane Lagrangian tool to
release virtual floats in $\frac{1}{4}$ degree
NEMO hindcast, for 10 years

Key Idea: Freshwater from
different glaciers will be taken
up by ocean quite differently

Question: Does Enhanced Melt from the GrIS impact FW Transport in the CAA and at Davis Strait

Method: Sensitivity experiments with 10-15 km resolution Pan-Arctic NEMO model configuration

Key Idea: FW from Greenland stored in Baffin Bay, changing steric heights, reducing CAA transport (routing more Arctic export through Fram Strait) and delays signature of enhanced Greenland melt at Davis Strait

$$FWC = \iiint_V \frac{S_{ref} - S(x,y,z)}{S_{ref}} dz dy dx, \quad S_{ref} = 34.8$$

