



# **CPT: Ocean mixing processes associated with high spatial heterogeneity in sea ice and the implications for climate models**

PIs: Meibing Jin, Jenny Hutchings, Igor Polyakov (IARC)

Marika Holland, Gokhan Danabasoglu (NCAR)

Mike Winton, Bob Hallberg (GFDL)



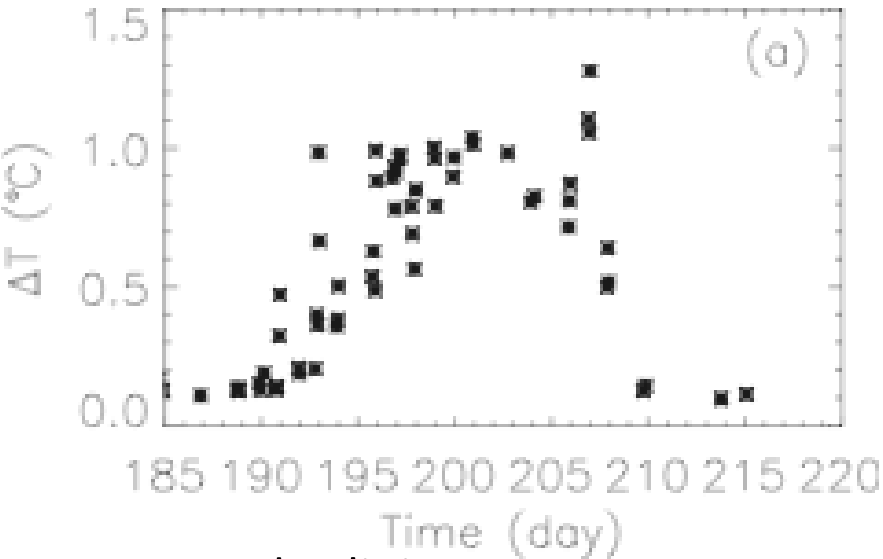
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# Summary

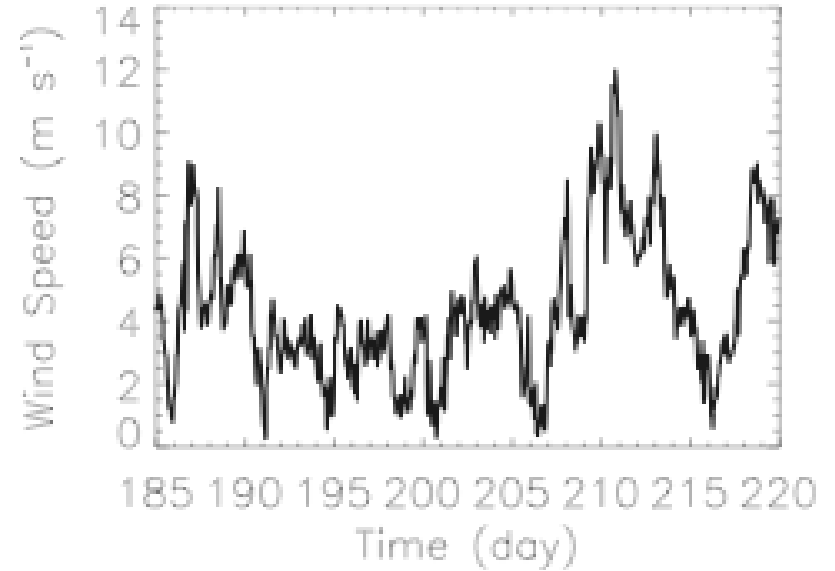
- CCSM uses a multi-category sea ice model which calculates multiple ice-ocean fluxes per gridcell (ice growth/melt rates – FW exchange)
- Currently this exchange is aggregated across ice categories and a single flux is provided to ocean model
- This project will examine how resolving the sub-gridscale heterogeneity in ice-ocean brine fluxes can influence ocean mixing, sea ice mass budgets, and climate

# Initial SHEBA Case Study

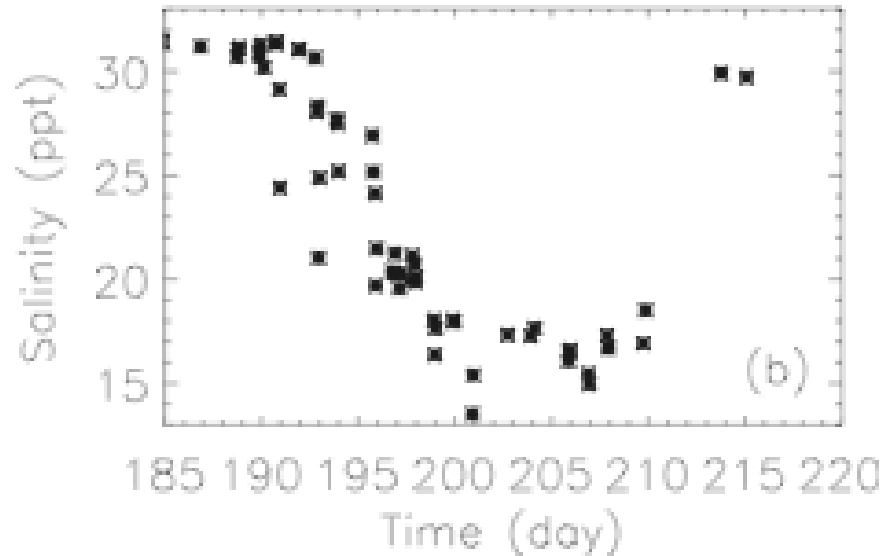
Lead Temperature



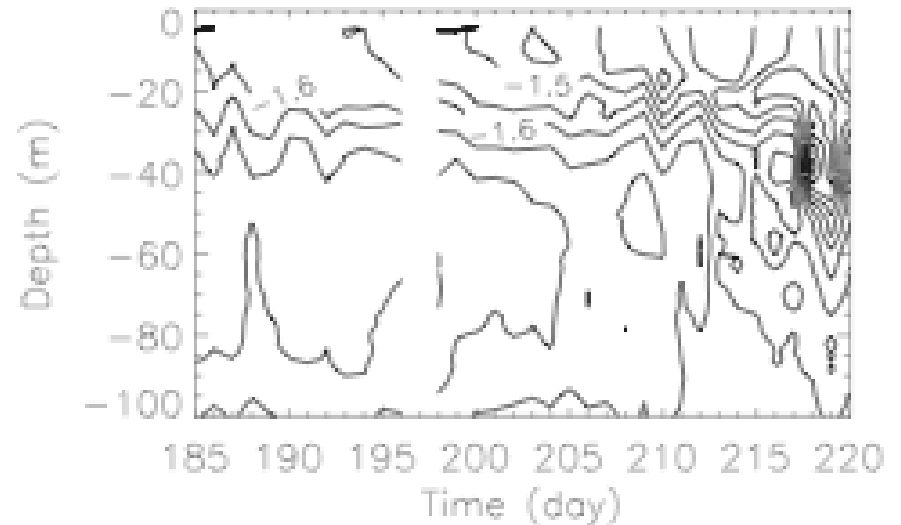
Wind Speed

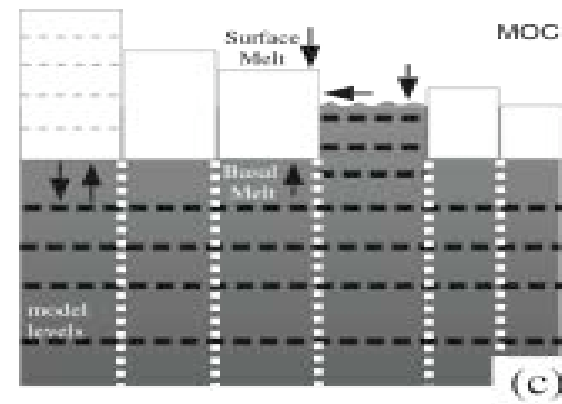
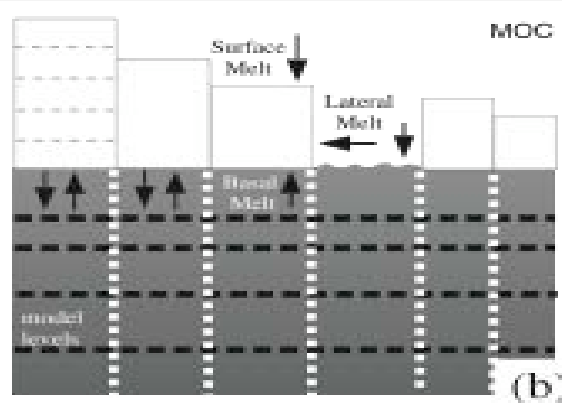
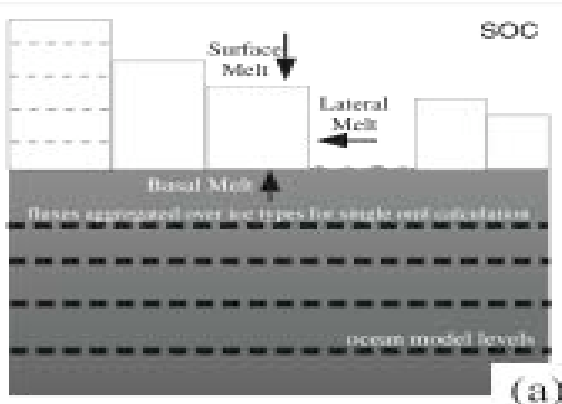


Lead Salinity



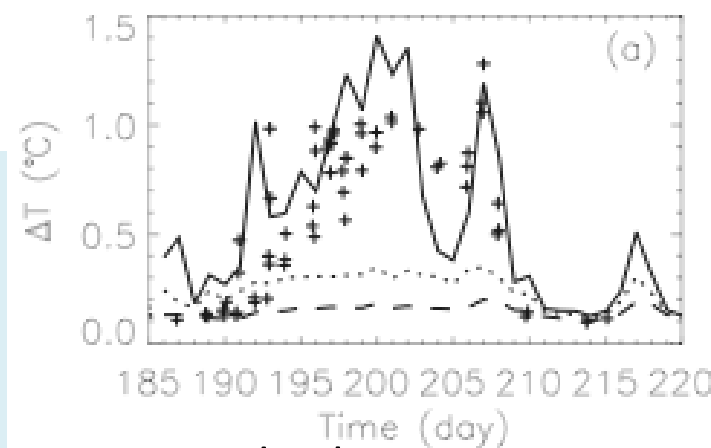
Ocean Temperature



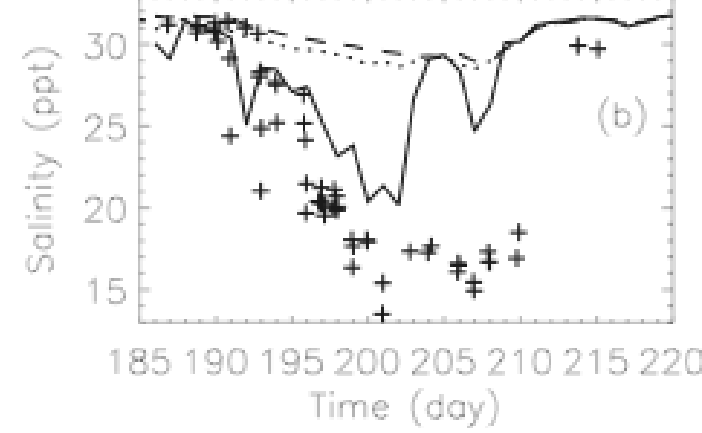


- Single column KPP model
- Simulations with “embedded” leads show much better agreement w/SHEBA
- Influenced lateral melting
- implications for albedo feedback?

Lead Temperature



Lead Salinity



Lateral Melt

