

# Validating Simulations of Sea Ice Brine Dynamics with Field Observations

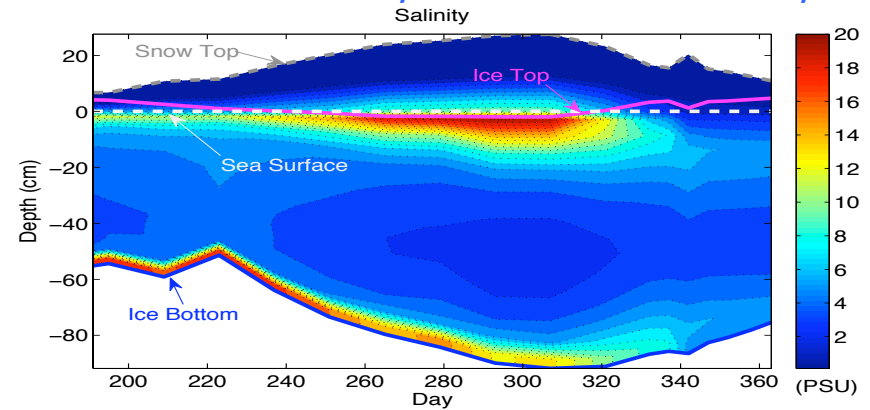
## Objective

Developing a model of brine dynamics that reproduces field observations of sea ice paves the way for biogeochemical ice modeling in coupled climate model applications. Here we use transport parameterizations in a dynamic salinity model to simulate sea ice in the Weddell Sea.

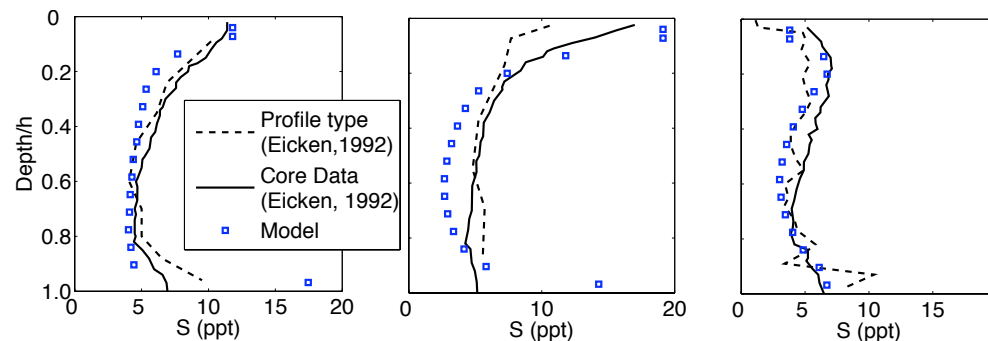
## Research

- In sea ice, salt (and chemical compounds) are expelled during ice growth and melt processes.
- We parameterize these processes in the Los Alamos sea ice model (CICE)
- Using field observations from ISPOL (Ice Station *POLarstern*), we simulate sea ice and compare with ice core data

## Simulated ice salinity contours over 180 Days



## Modeled Salinity (blue) and observations (black)



## Impact

Salinity profiles are a good match for field observations over all three dynamical regimes: growth, snow-ice formation (snow loading) and melt. Results validate the “physics” of ice biogeochemical modeling.