

# Supercooling and Sub-Ice Platelet Layers in McMurdo Sound



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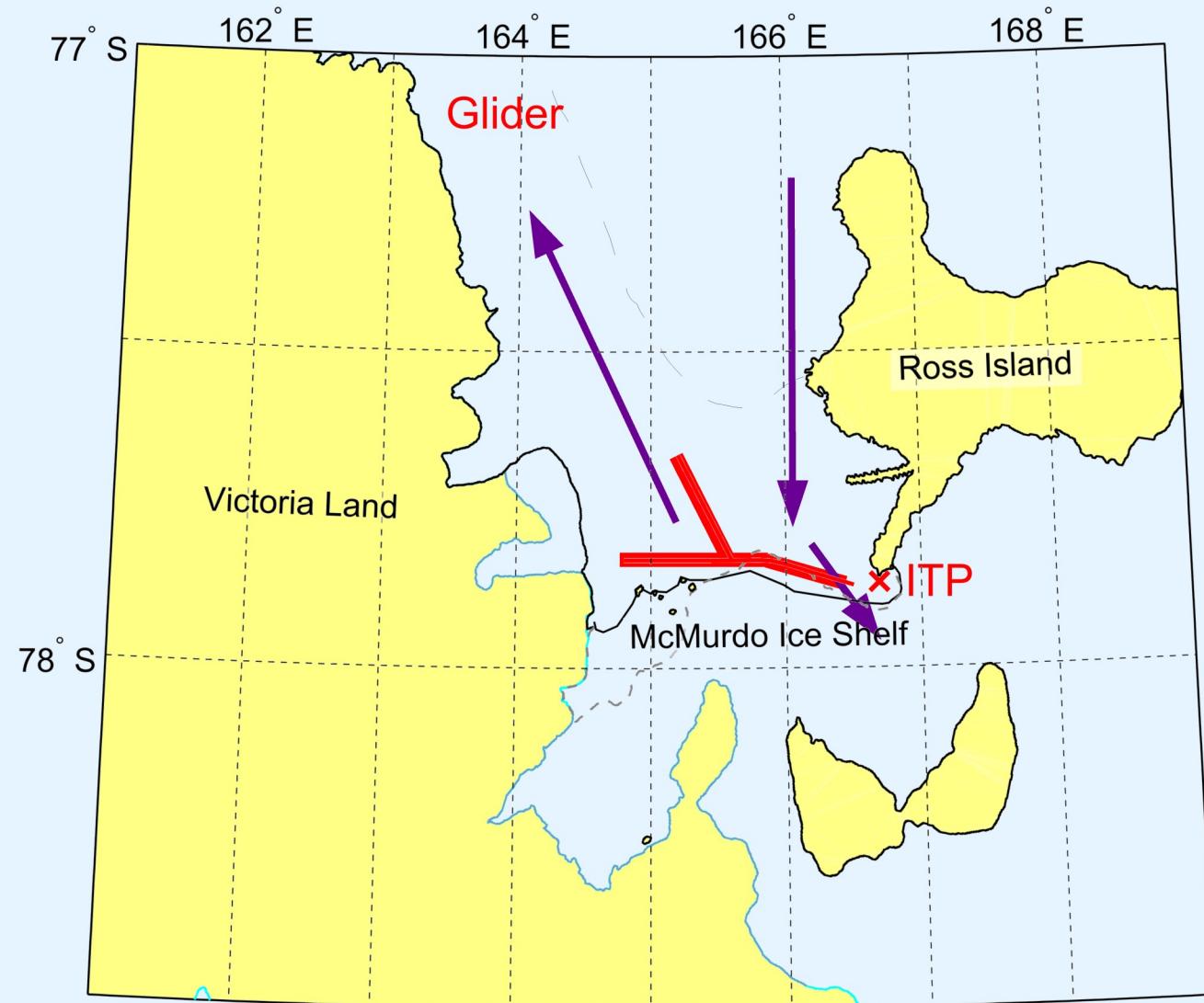
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# Data Sets

- Field Study Nov/Dec 2011
  - CTD casts
  - Sea ice cores
  - Sub-ice platelet layer thickness
- Ice-Tethered Profiler
  - Nov 2010 → Feb 2011
- Glider
  - Nov 2010 → Jan 2011

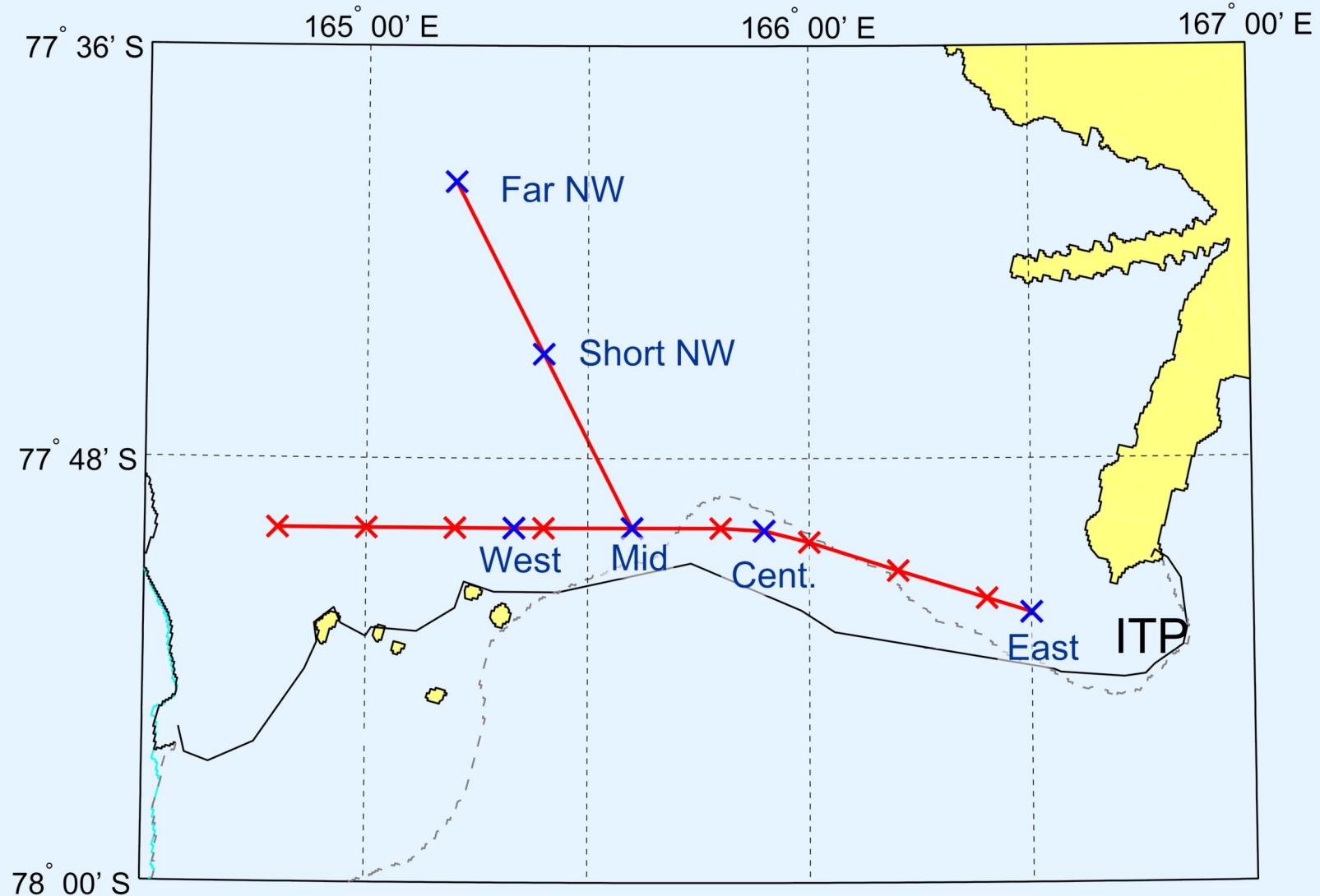
# Study Region



Circulation from Robinson et al. (2010)

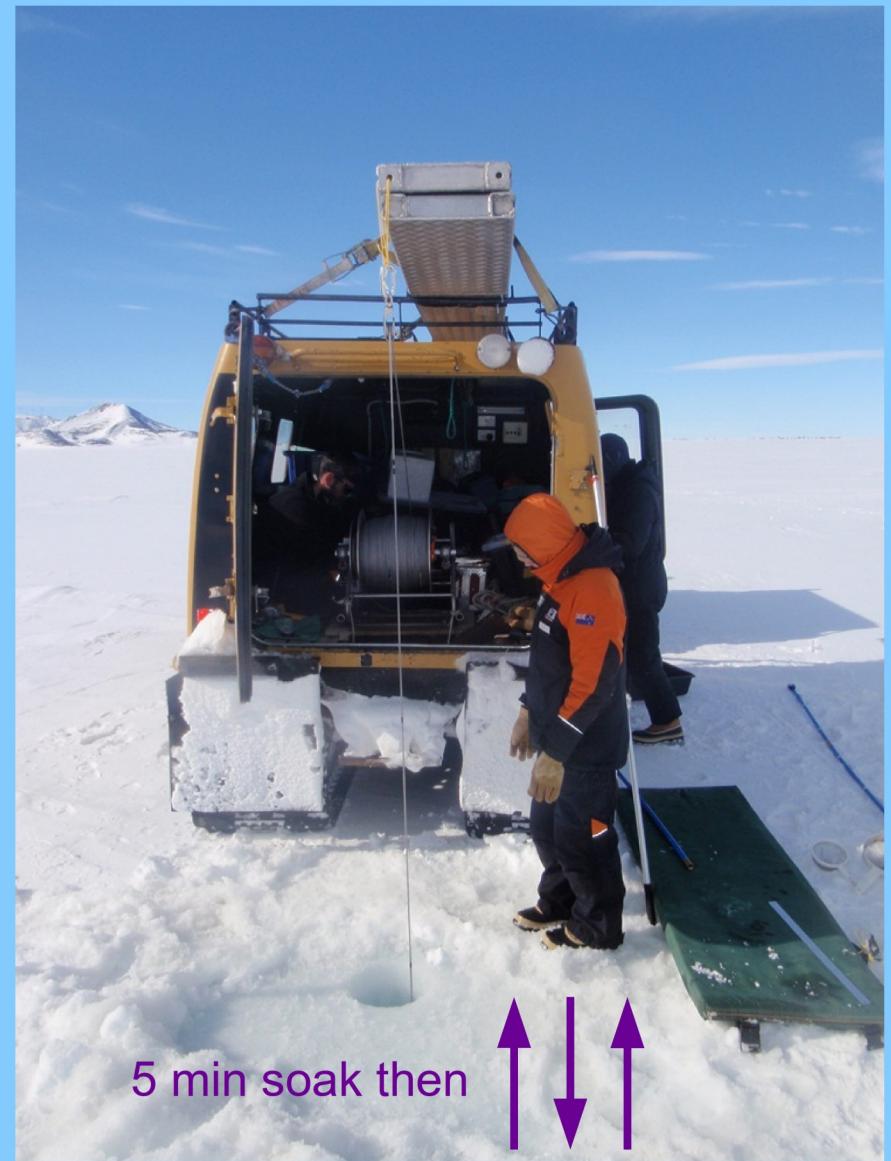
Map data - NSIDC (2006)

# Oceanographic Sites

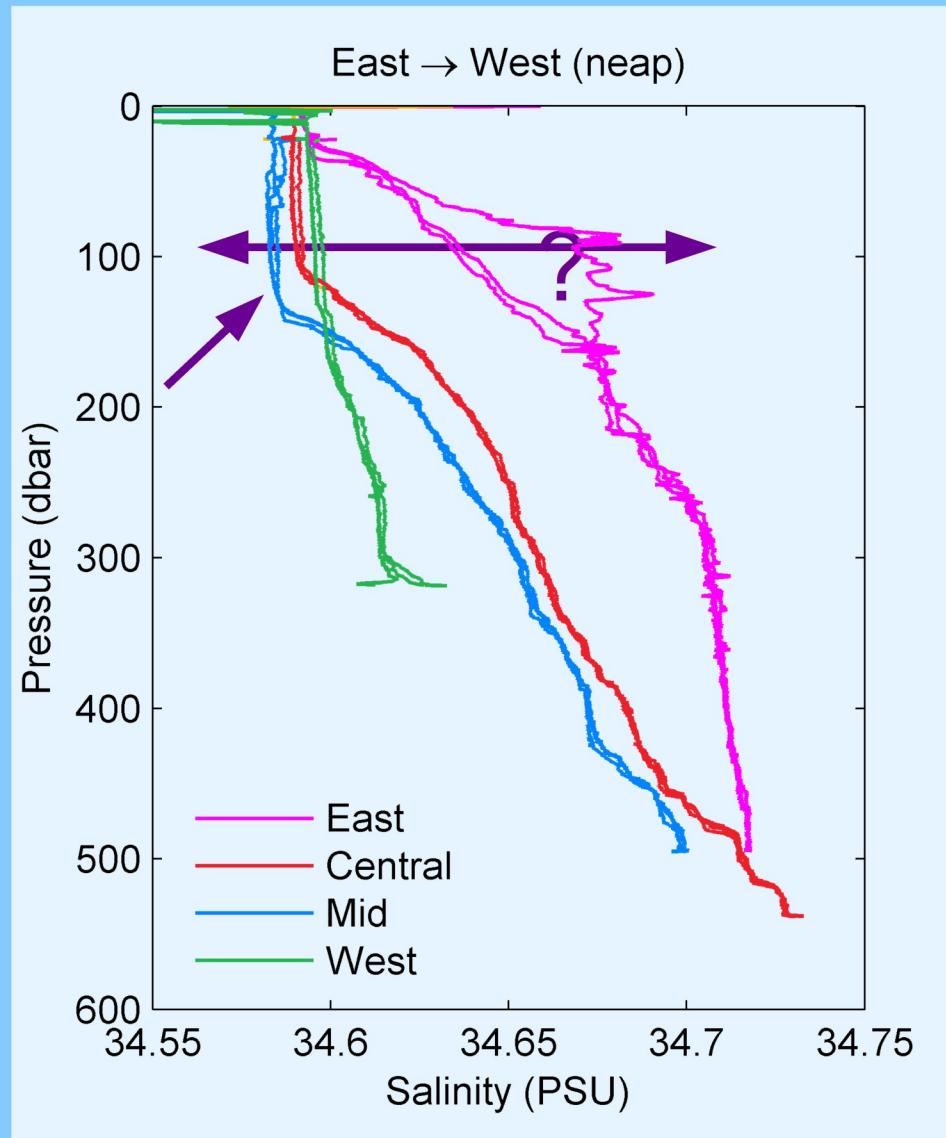
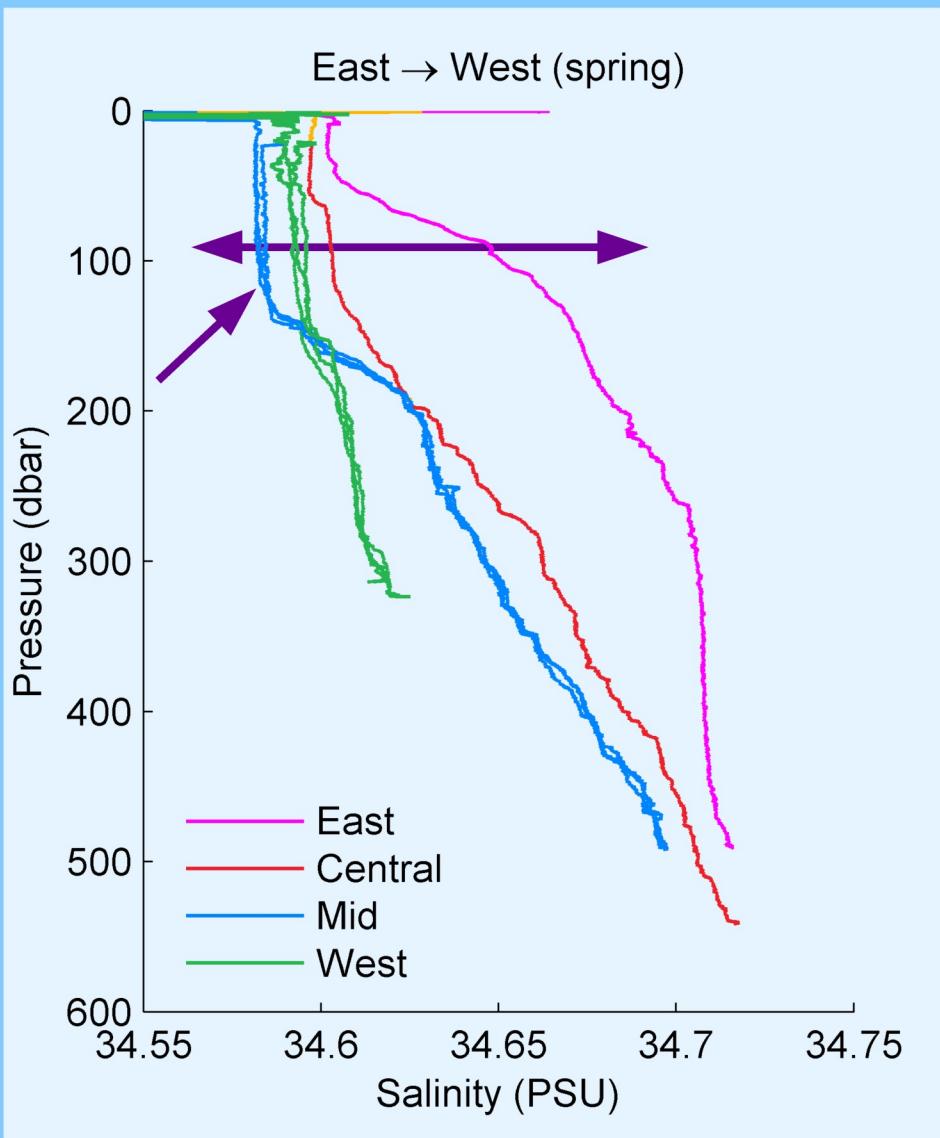


Map data - NSIDC (2006)

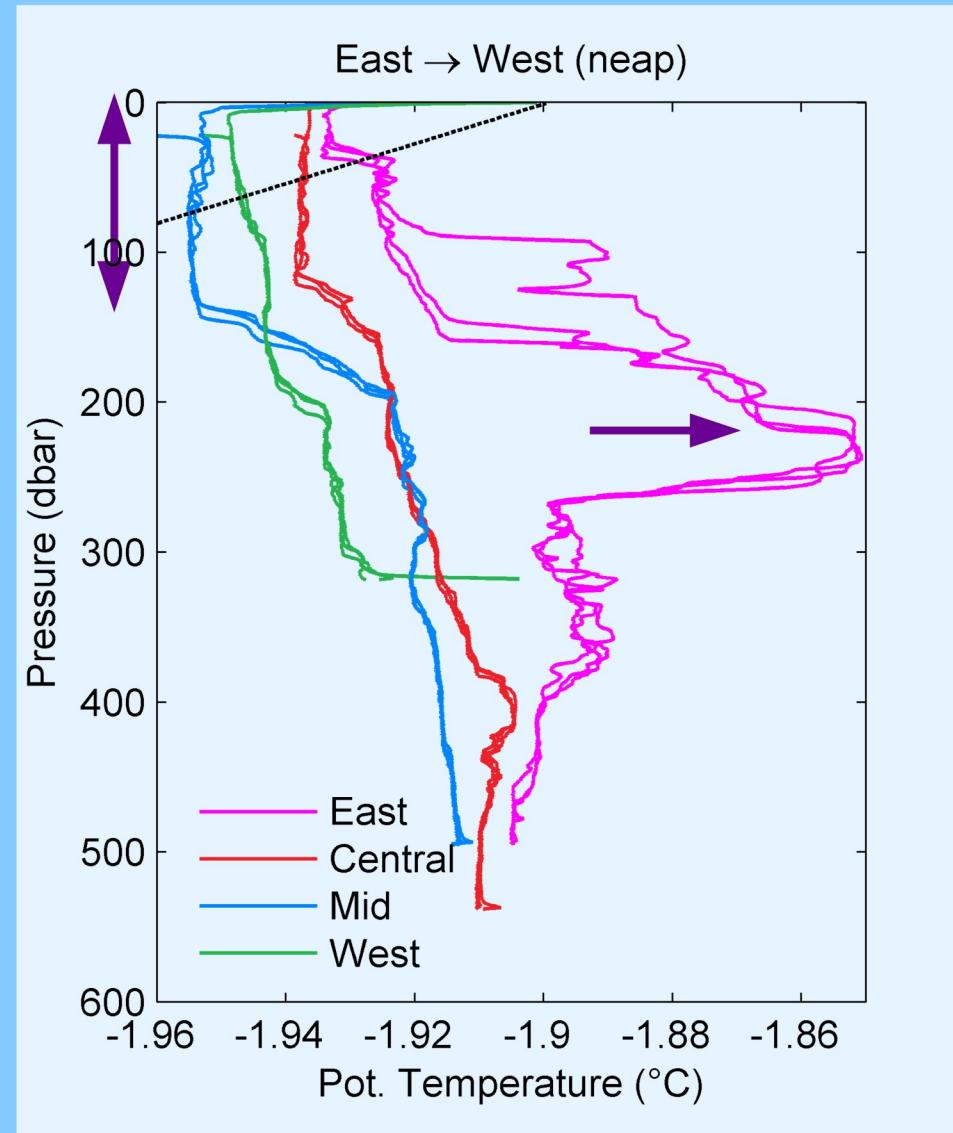
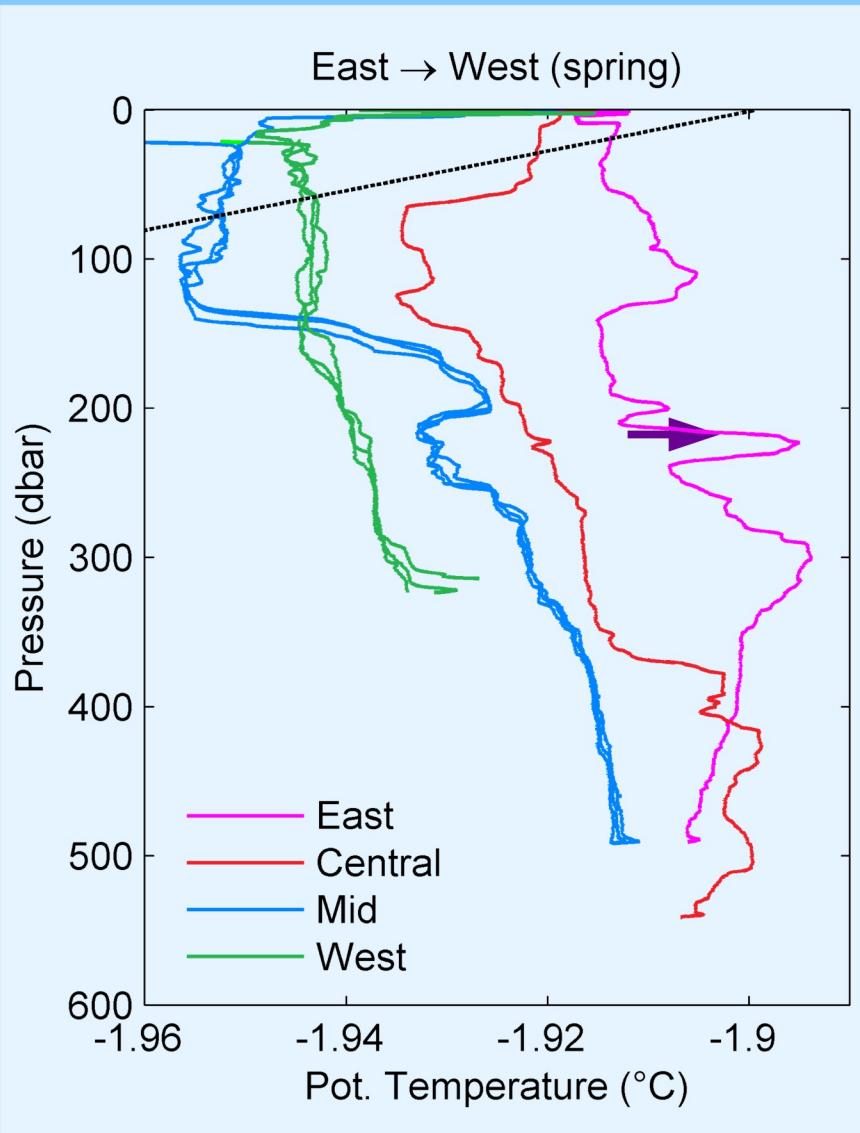
# Method



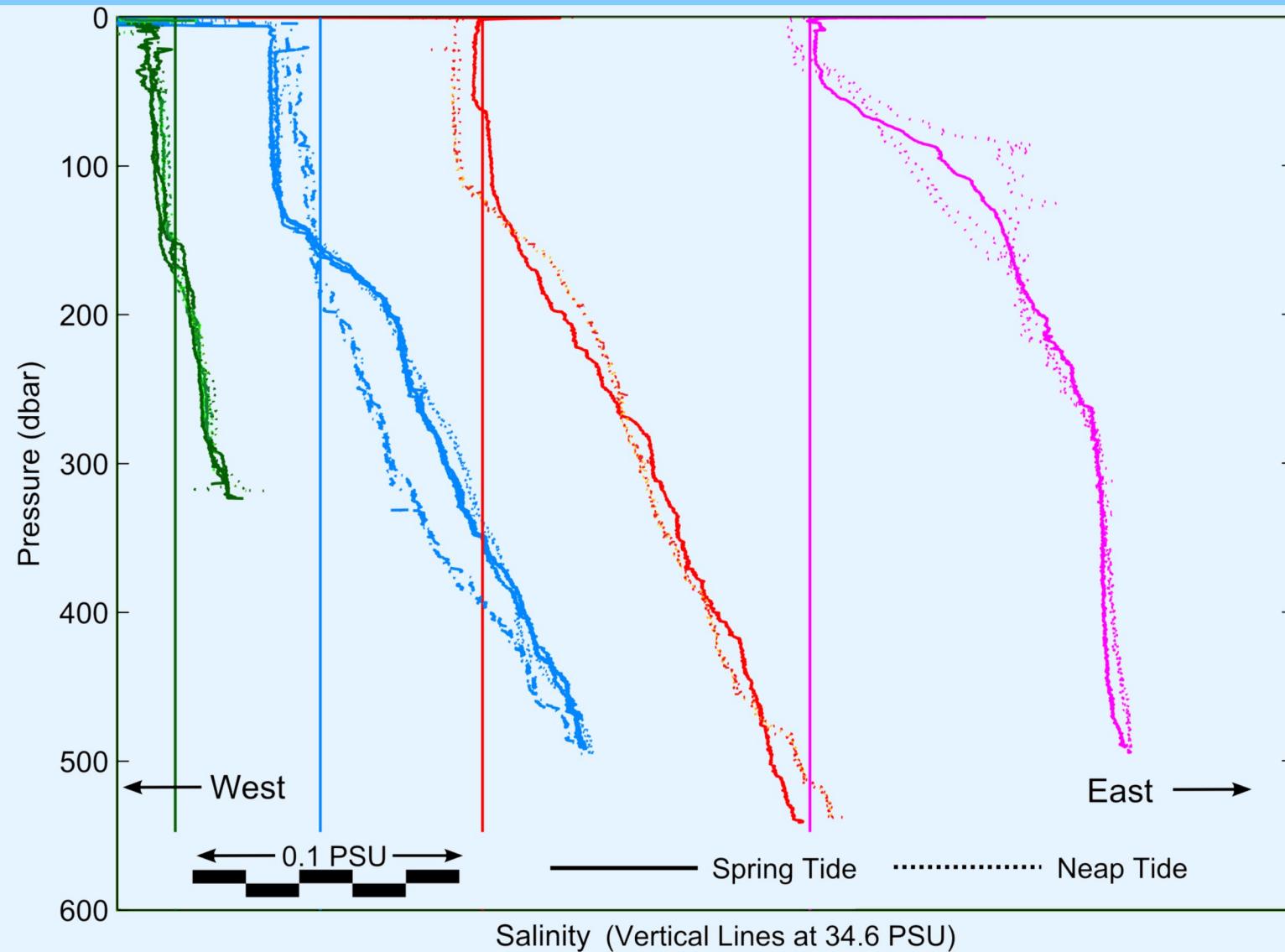
# Salinity Casts



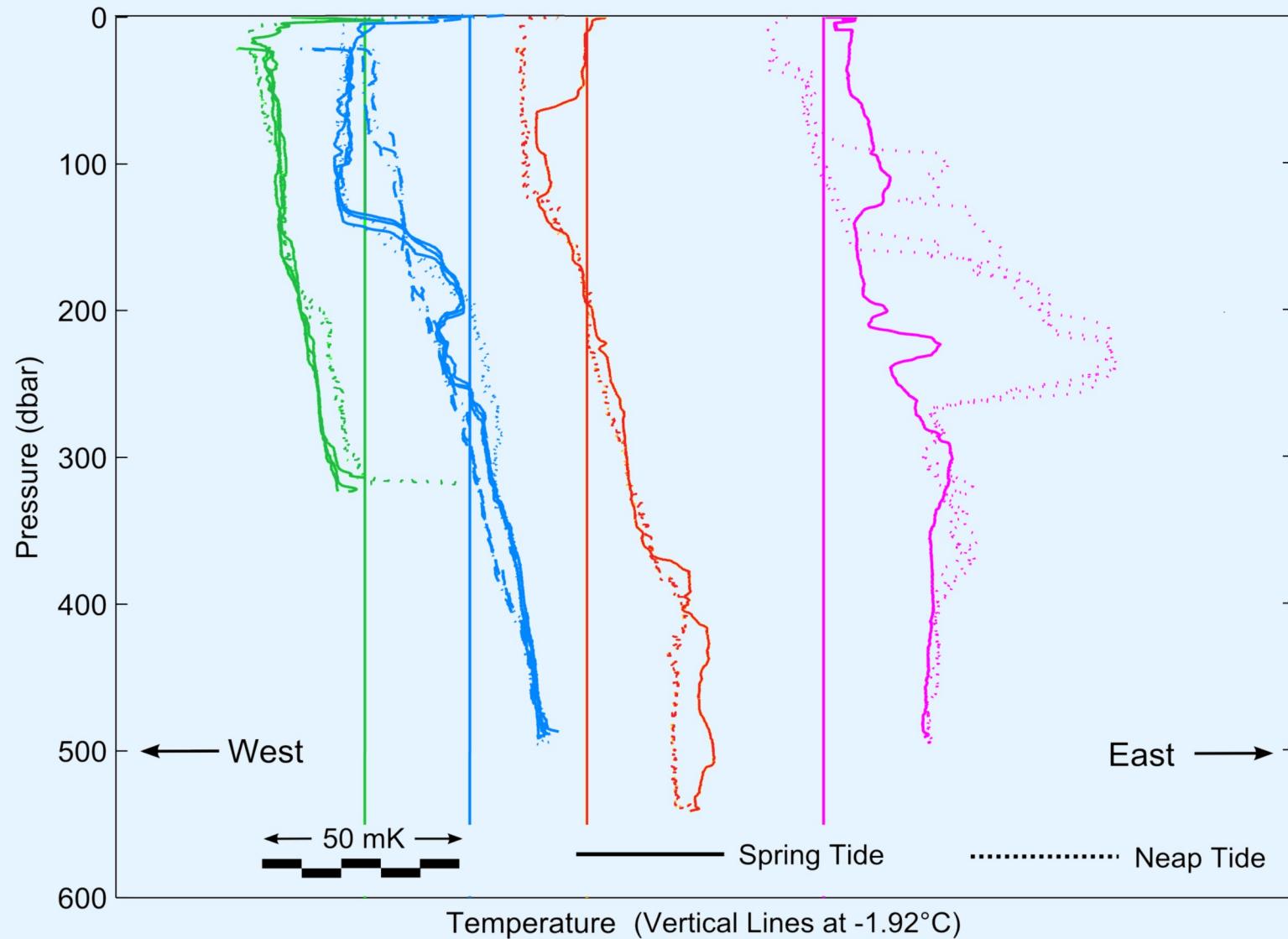
# Temperature Casts



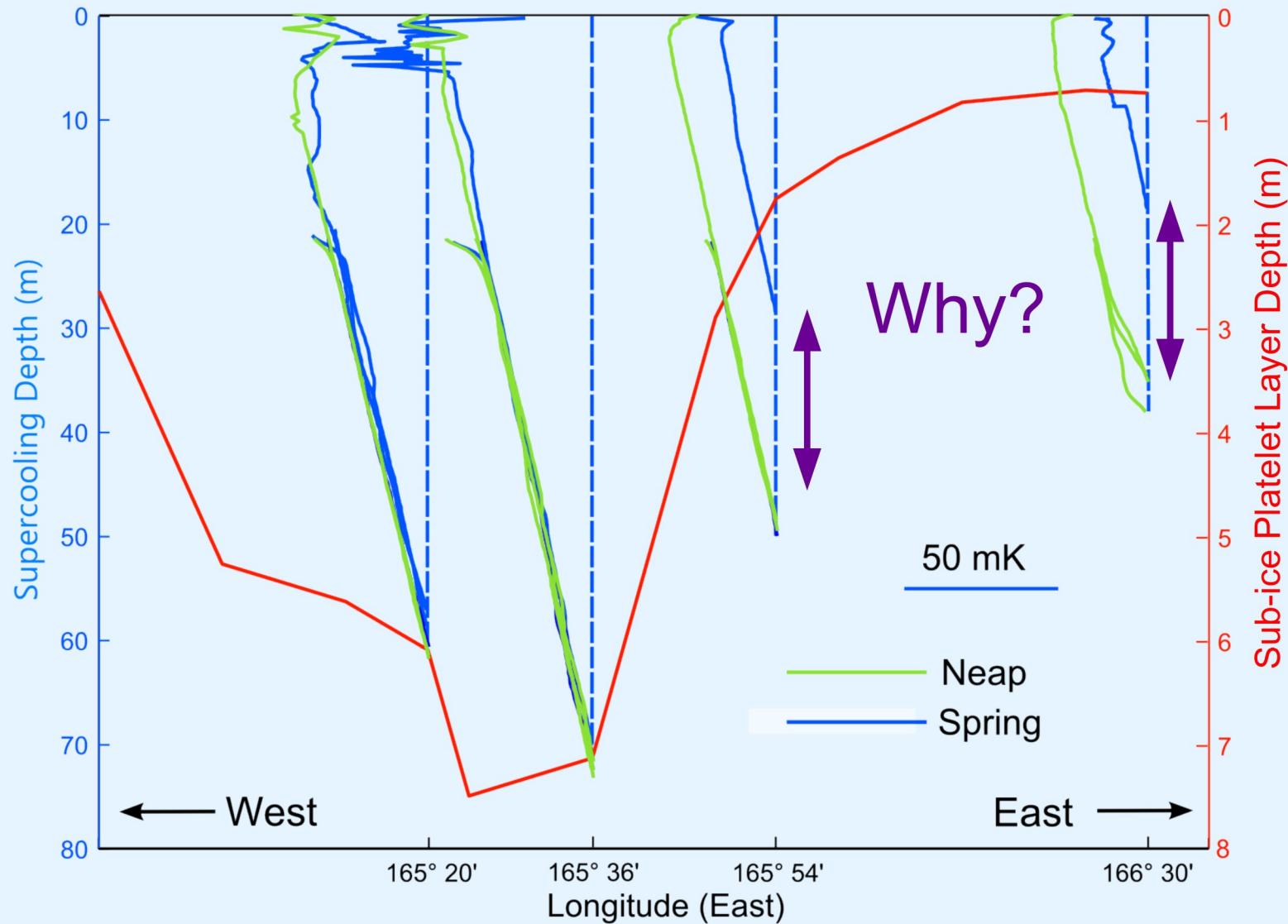
# Salinity across the Sound



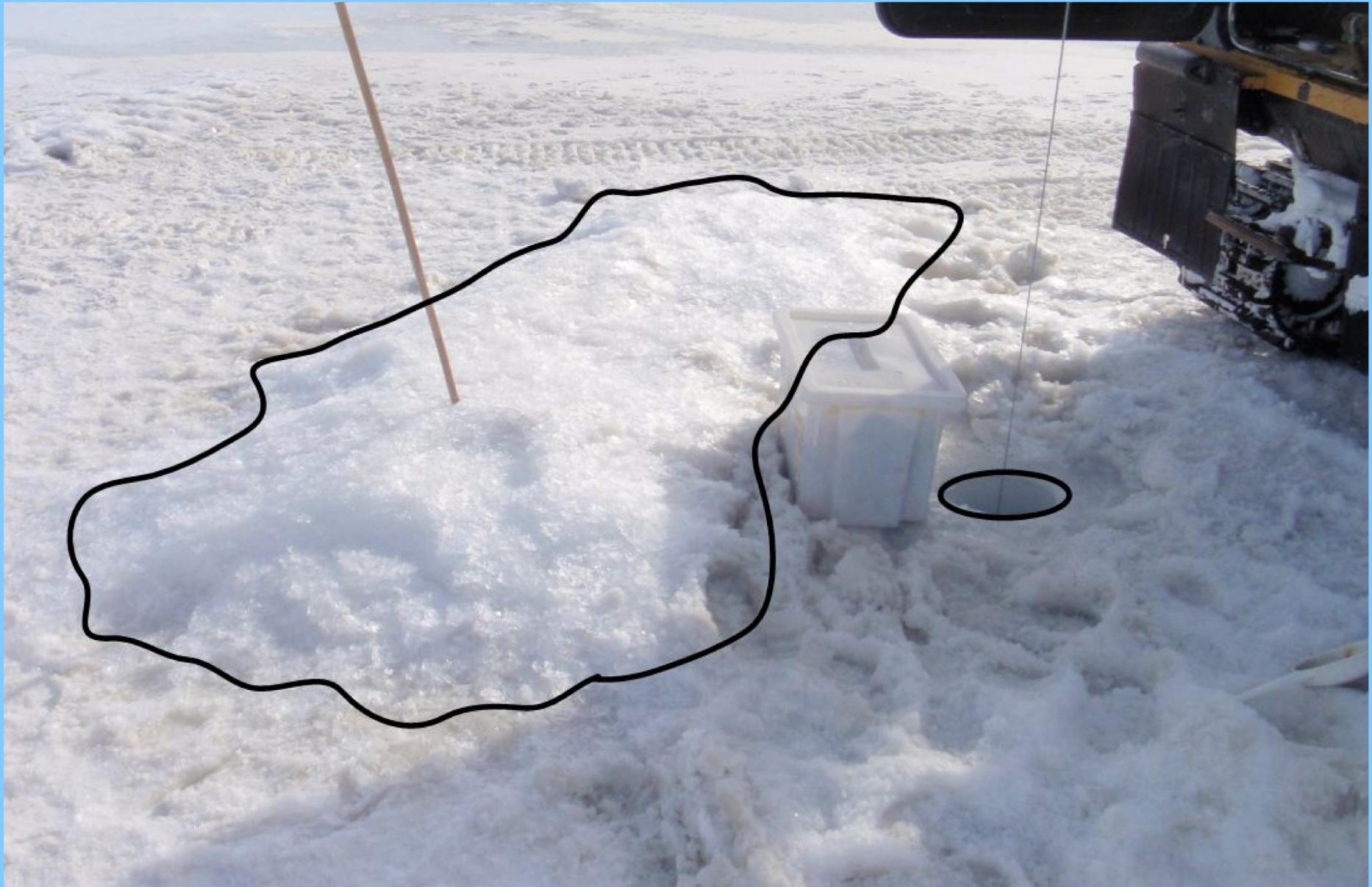
# Temperature across the Sound



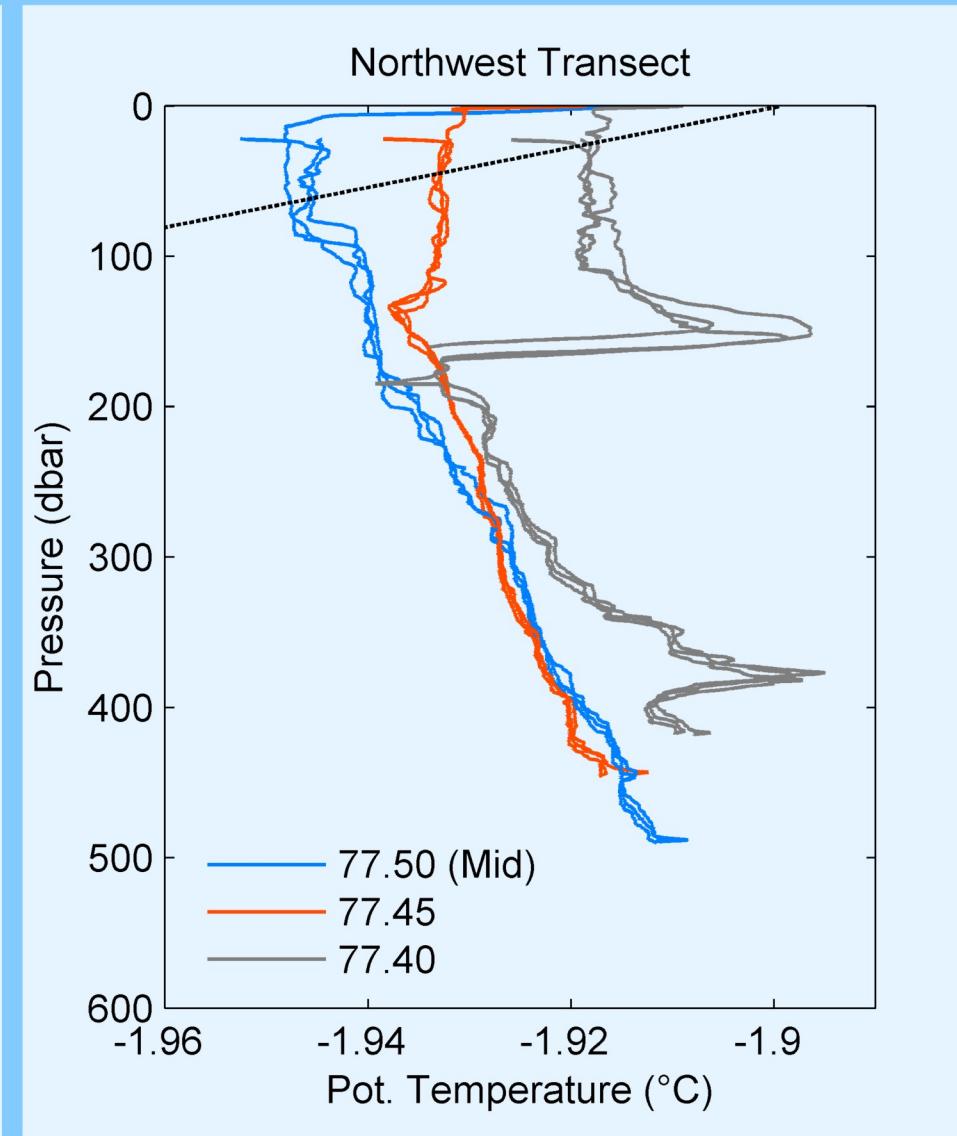
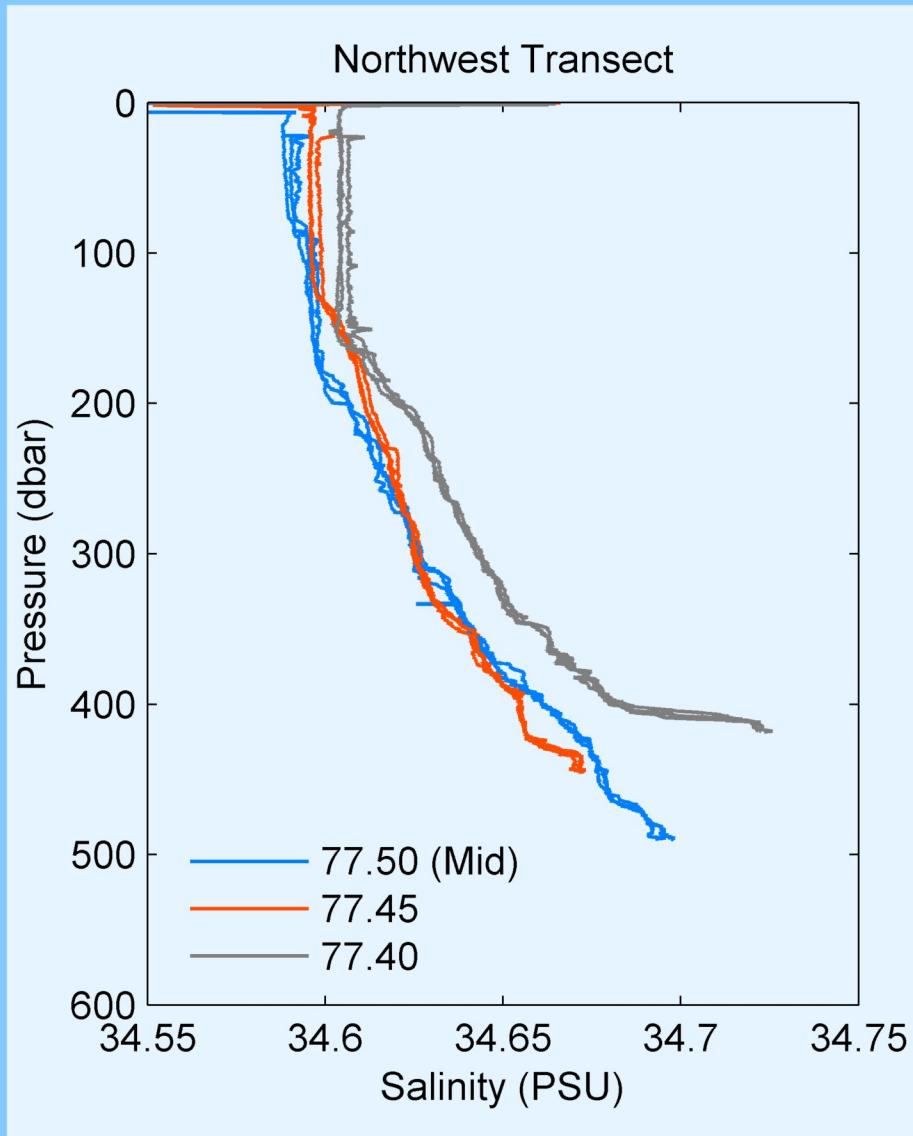
# Supercooling and Platelet Layers



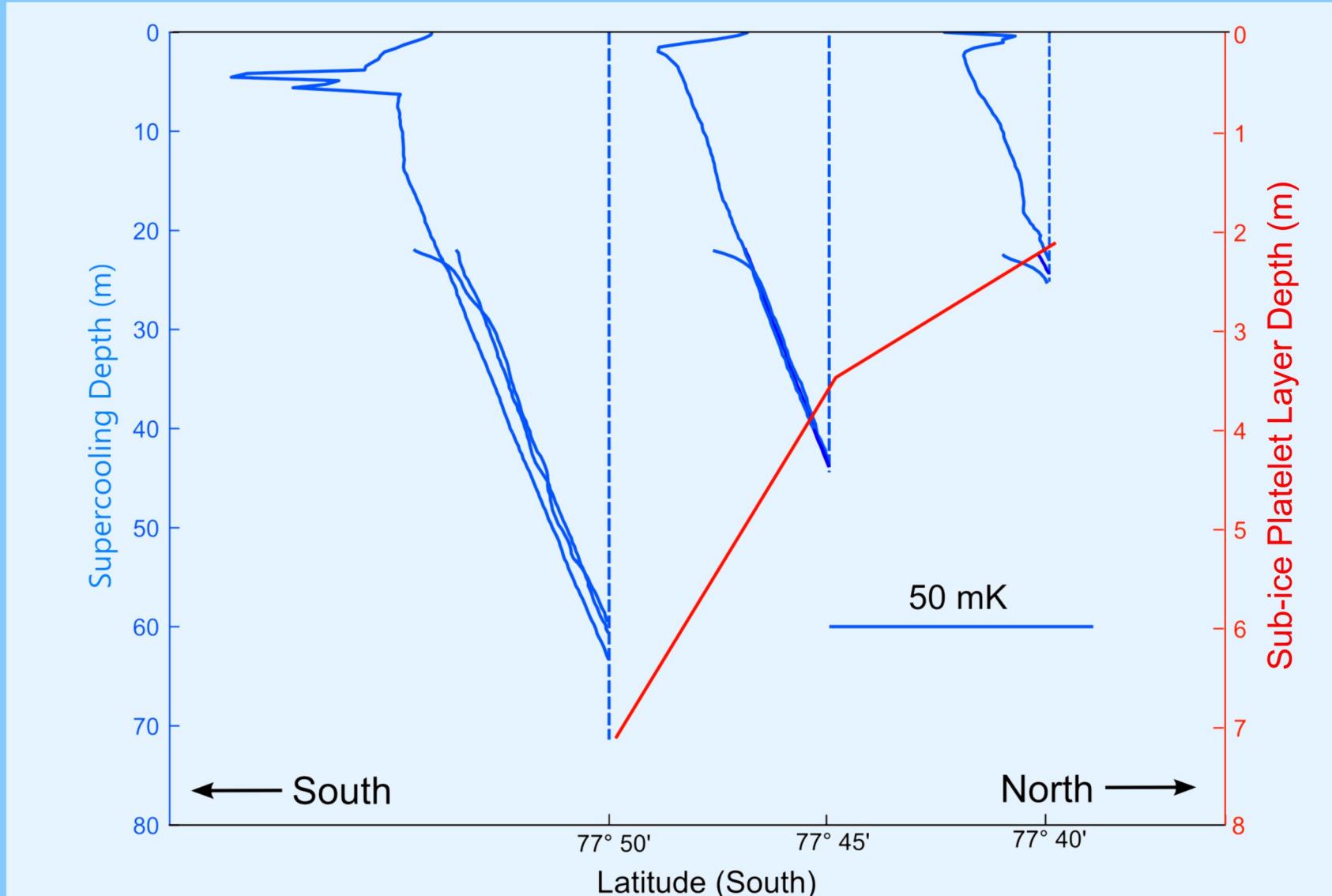
# A lot of Platelets



# North-West Transect

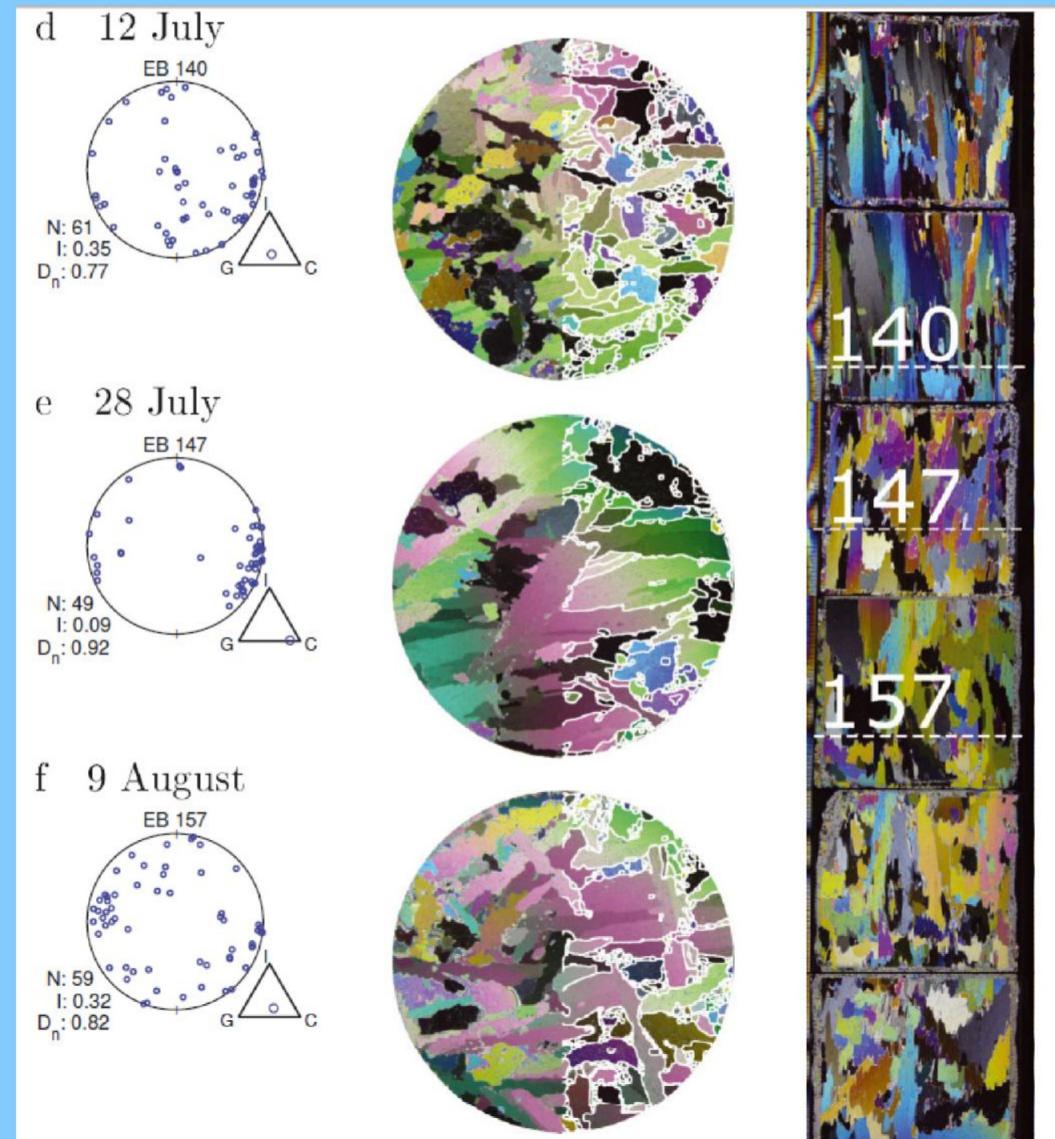


# Supercooling and Platelet Layers



# Sea Ice Cores

- East – West Transect
- Look for columnar to platelet transition
- Time history of supercooled water over winter



# Conclusions

- Merging of a number of data sets
- Very thick sub-ice platelet layers found
- Ice break-out in early 2011 allows investigation of first year ice cores close to the McMurdo Ice Shelf

# Acknowledgements

- NIWA oceanographers
  - Loan of CTD profiler
  - Comments regarding planning of our measurements
  - Use of glider and ITP data
- Scott Base team
  - Logistical help in Antarctica