



# Unintentional (but useful) measurements of ice keel thickness in Lake Superior

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Physics/Astro, LLO  
RVTEC, Fall 2017



LARGE LAKES  
OBSERVATORY



R/V Elakha



R/V Endeavor

R/V Fay Slover



R/V New Horizon



R/V Cape Hatteras



R/V Savannah



R/V Elakha



R/V Endeavor

R/V Fay Slover



R/V Cape Hatteras



R/V Blue Heron



R/V New Horizon



R/V Savannah



R/V Elakha



R/V Endeavor

R/V Fay Slover



R/V Cape Hatteras



R/V Savannah



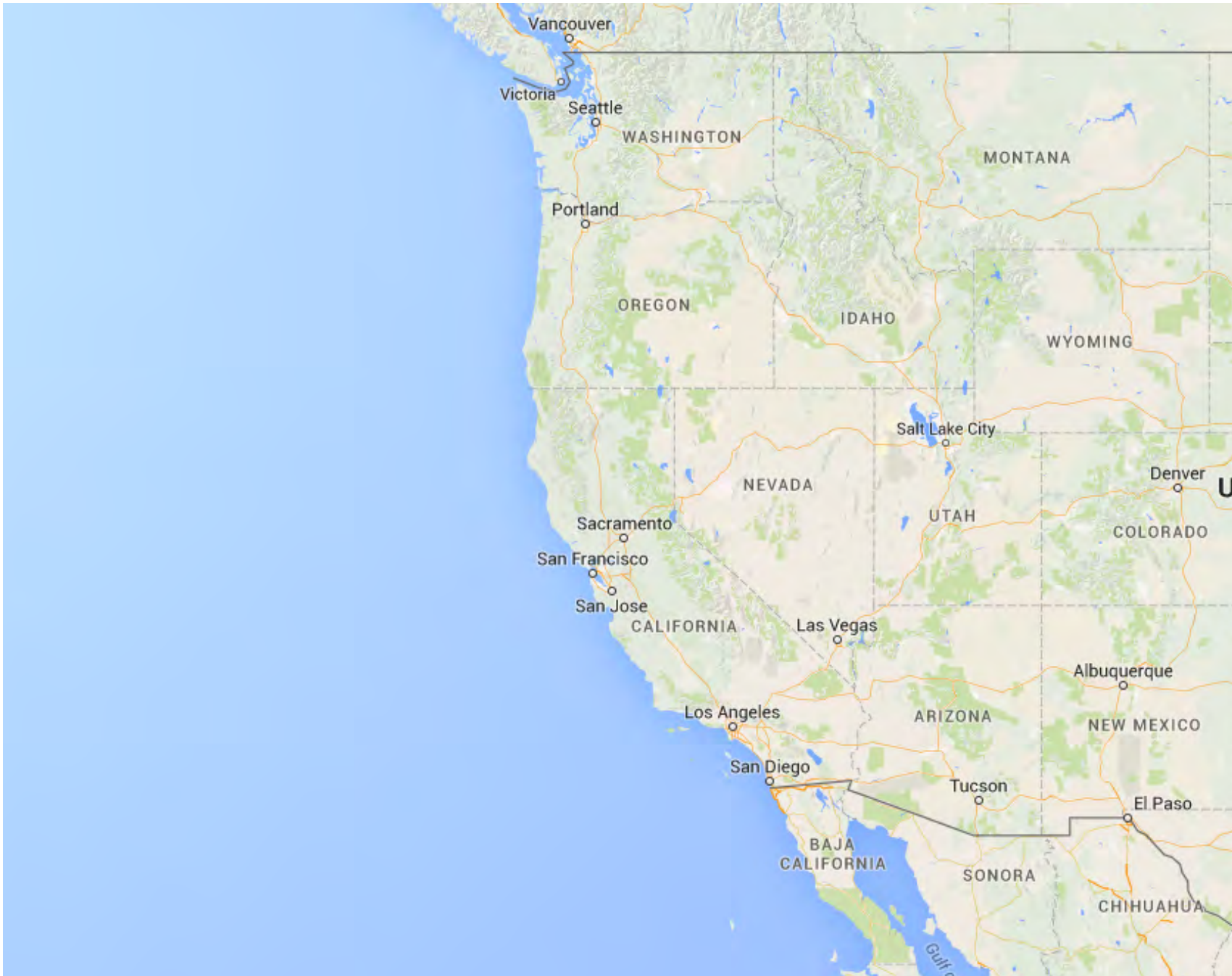
R/V Blue Heron

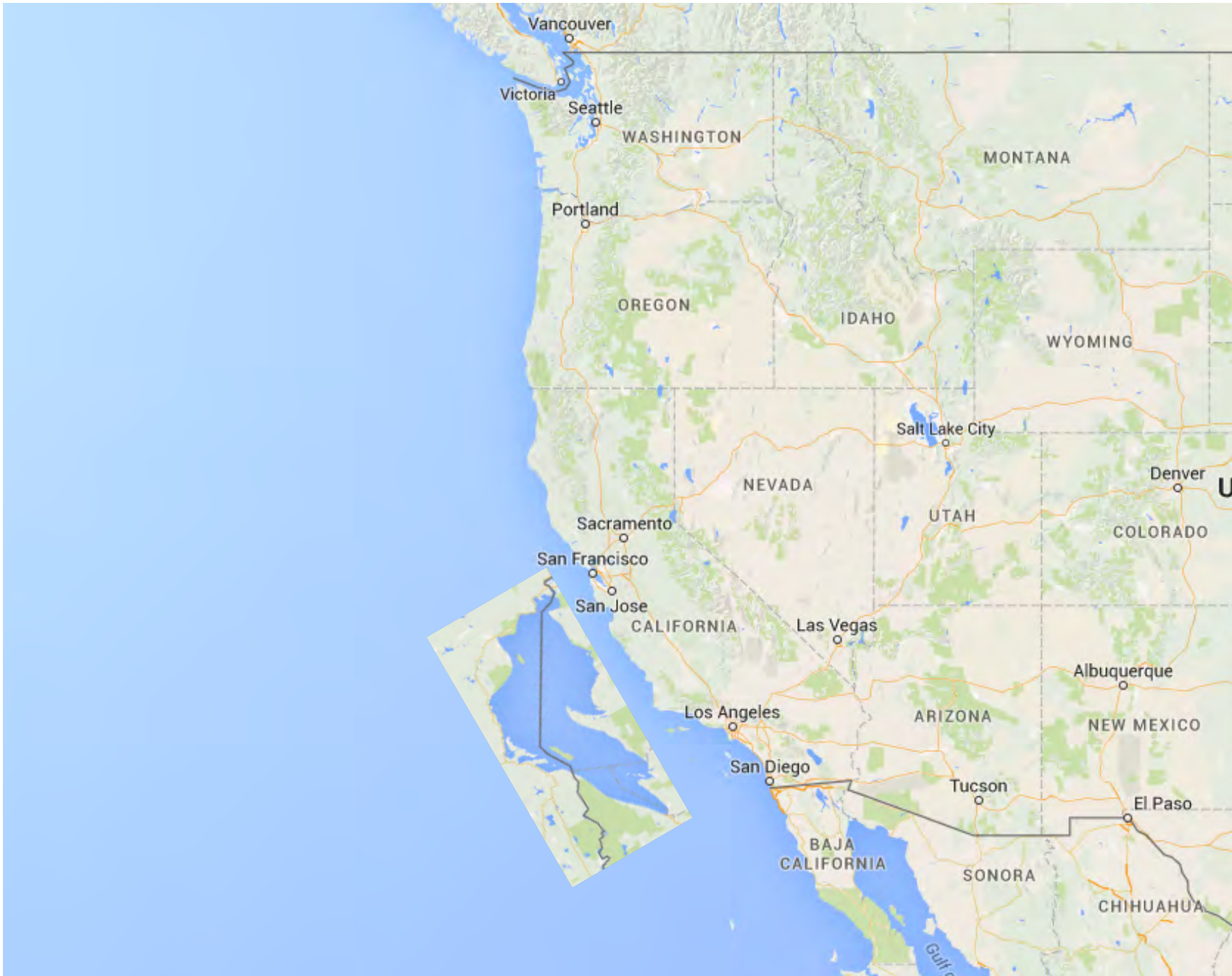


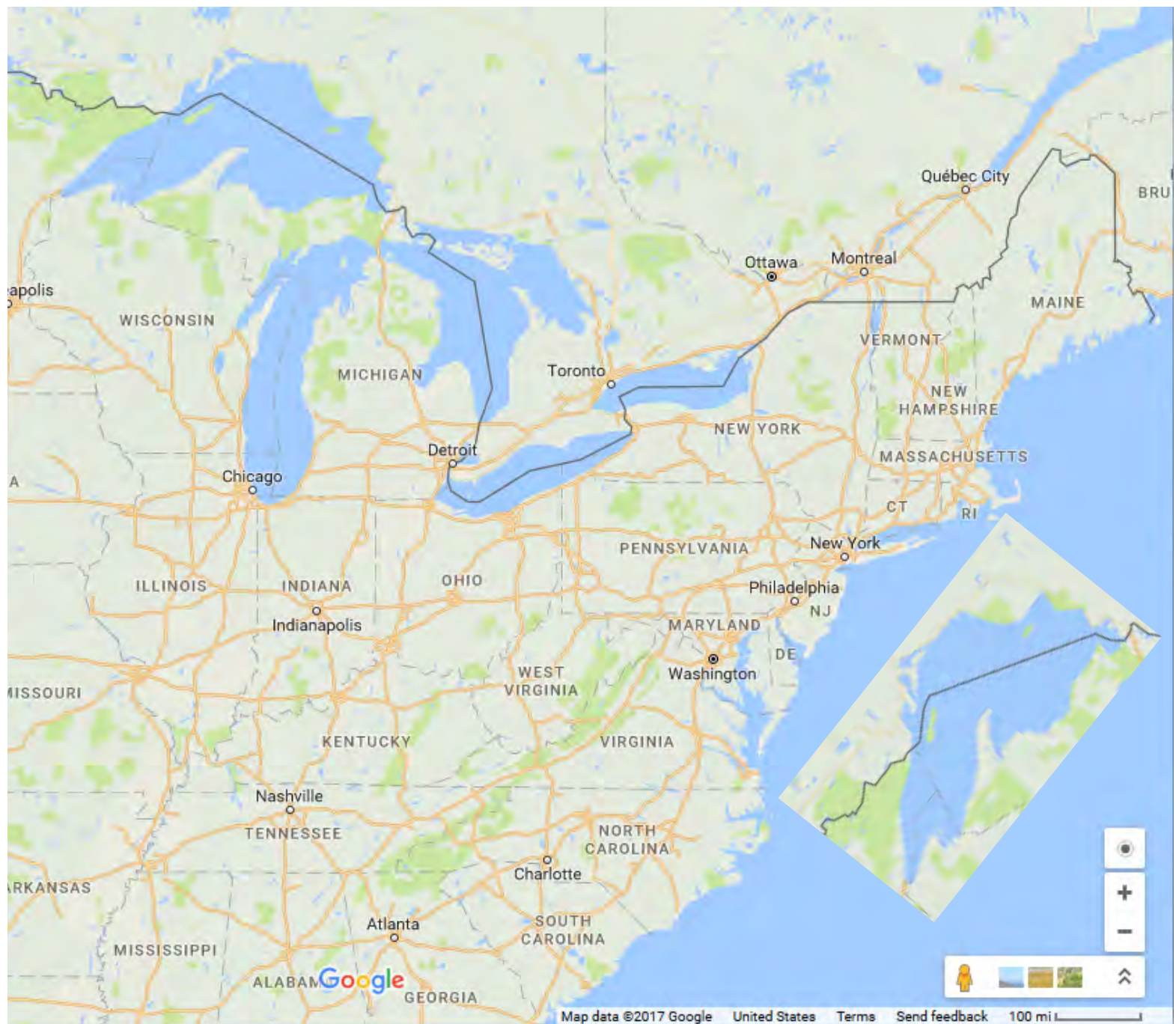
R/V Ndunduma



R/V New Horizon

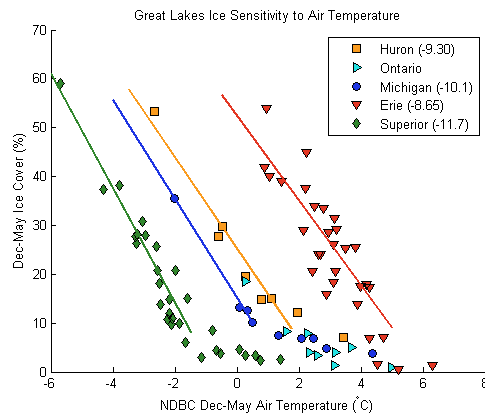
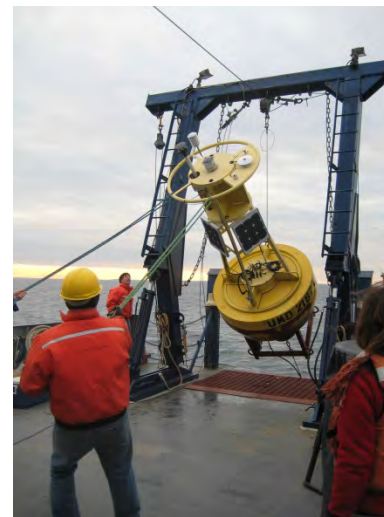
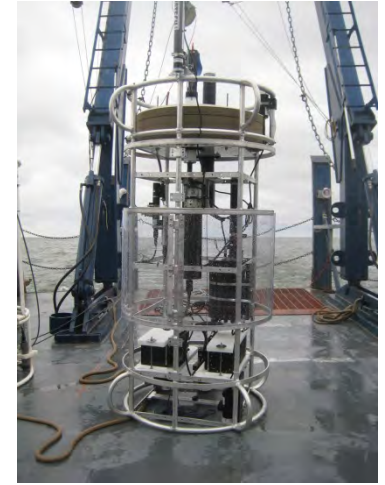




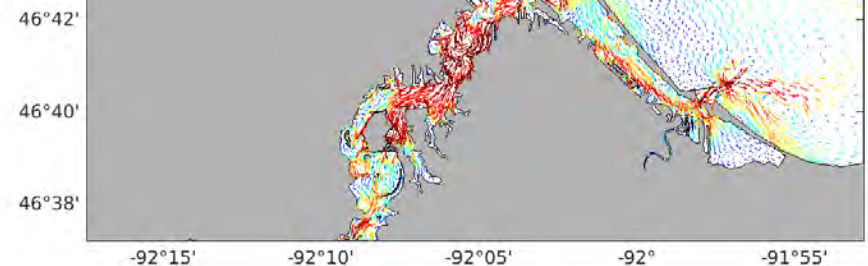


# Research approaches

- Observations
  - Moored arrays; sfc met
  - Autonomous platforms
- Historical analysis
- Numerical modeling
  - Sensitivity analysis
  - Real-time

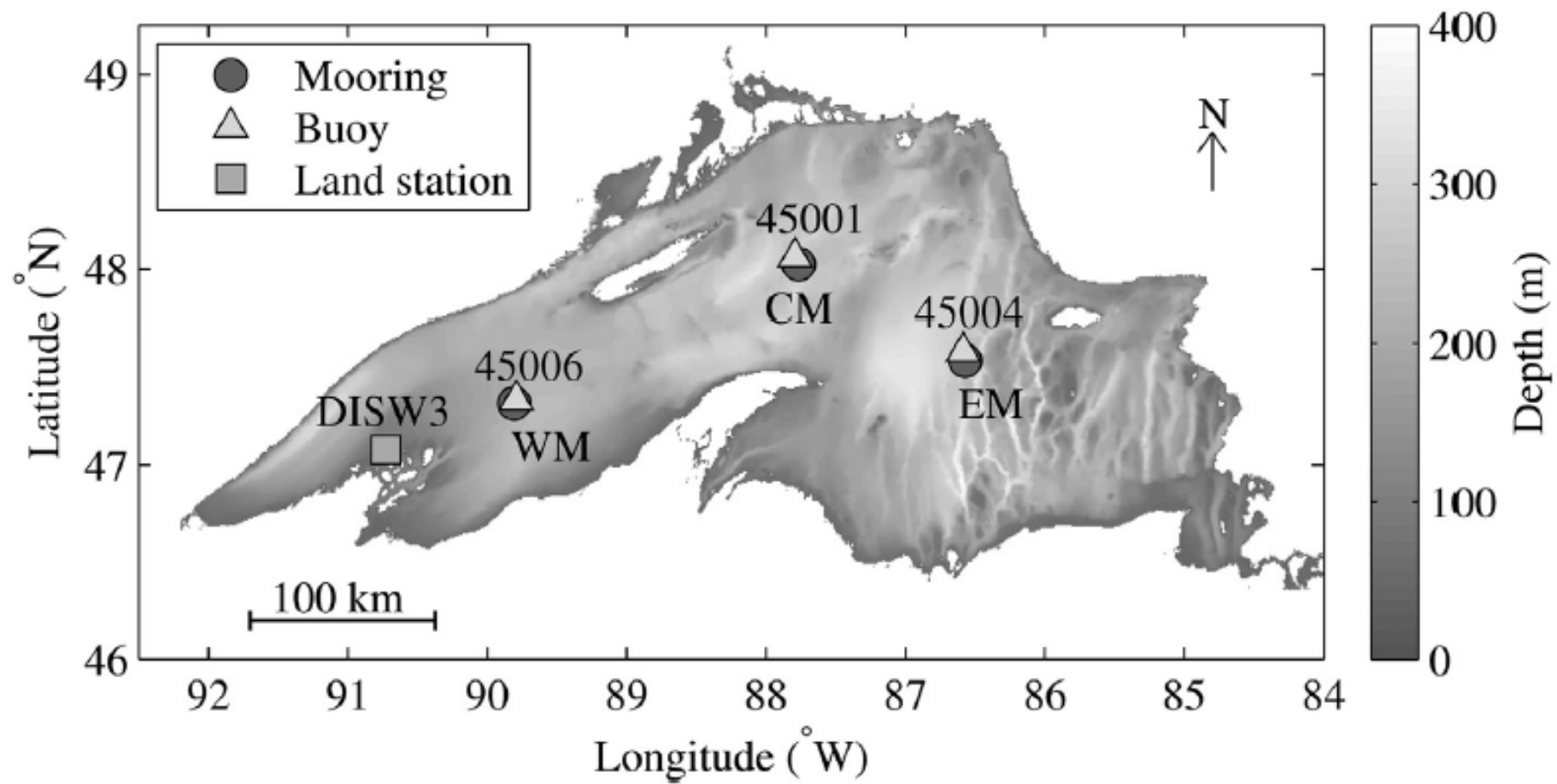


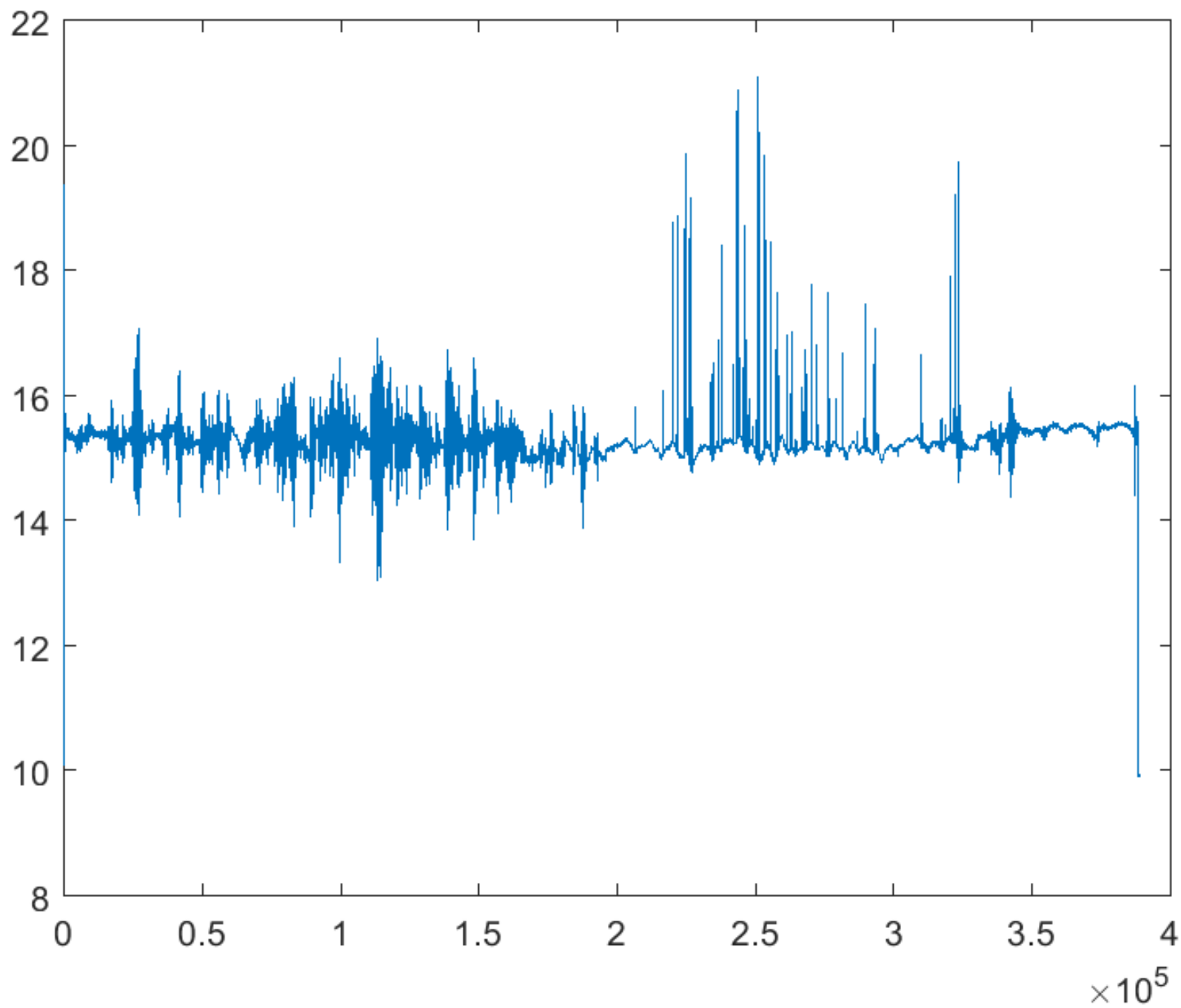
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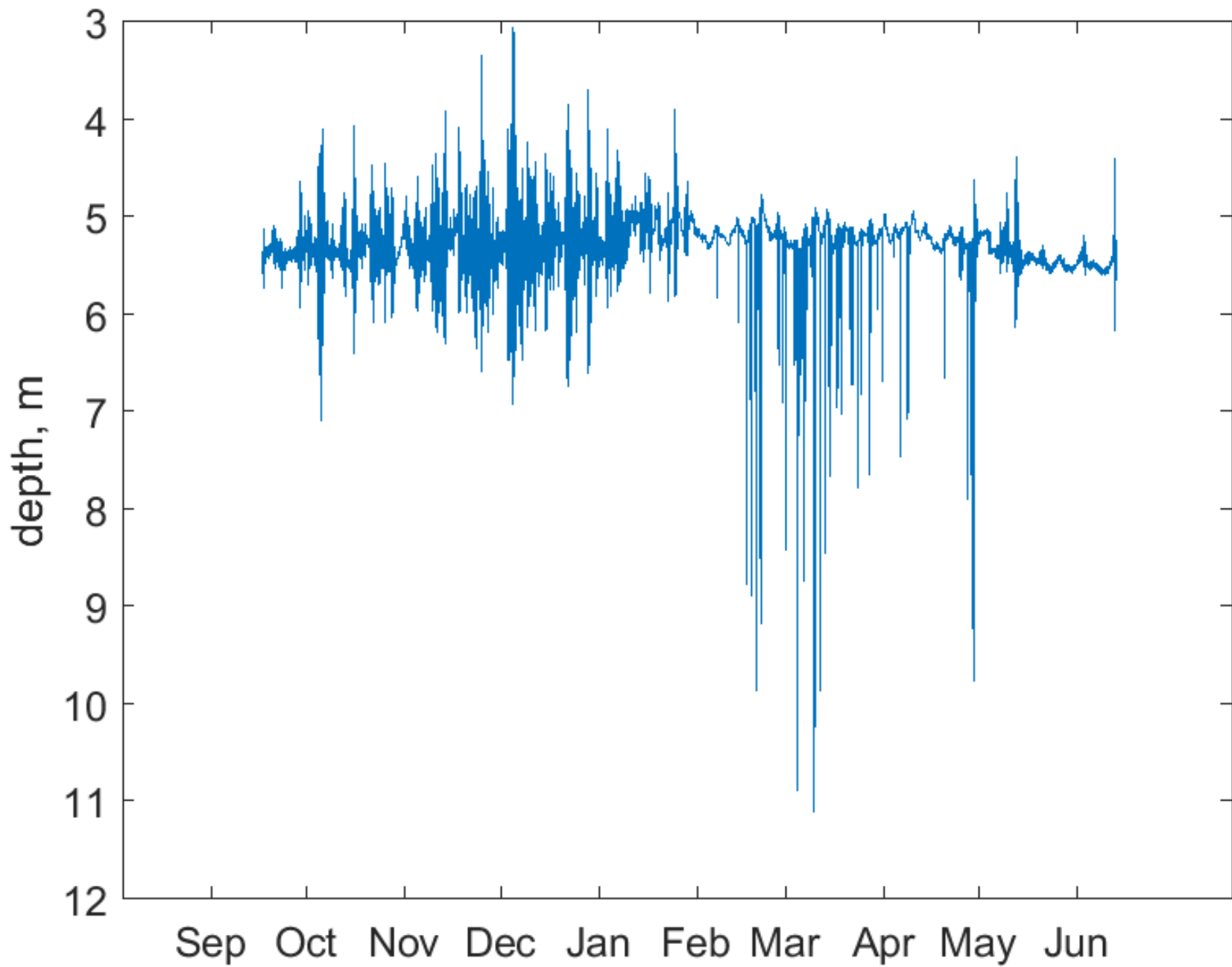


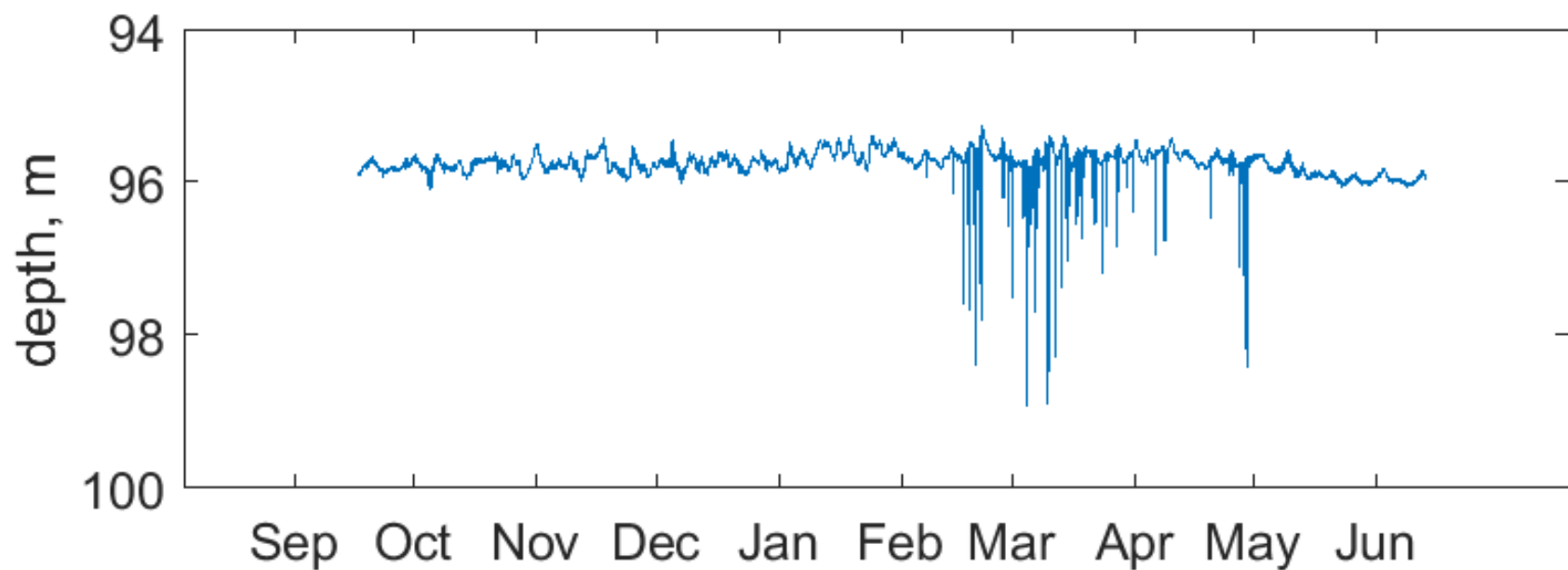
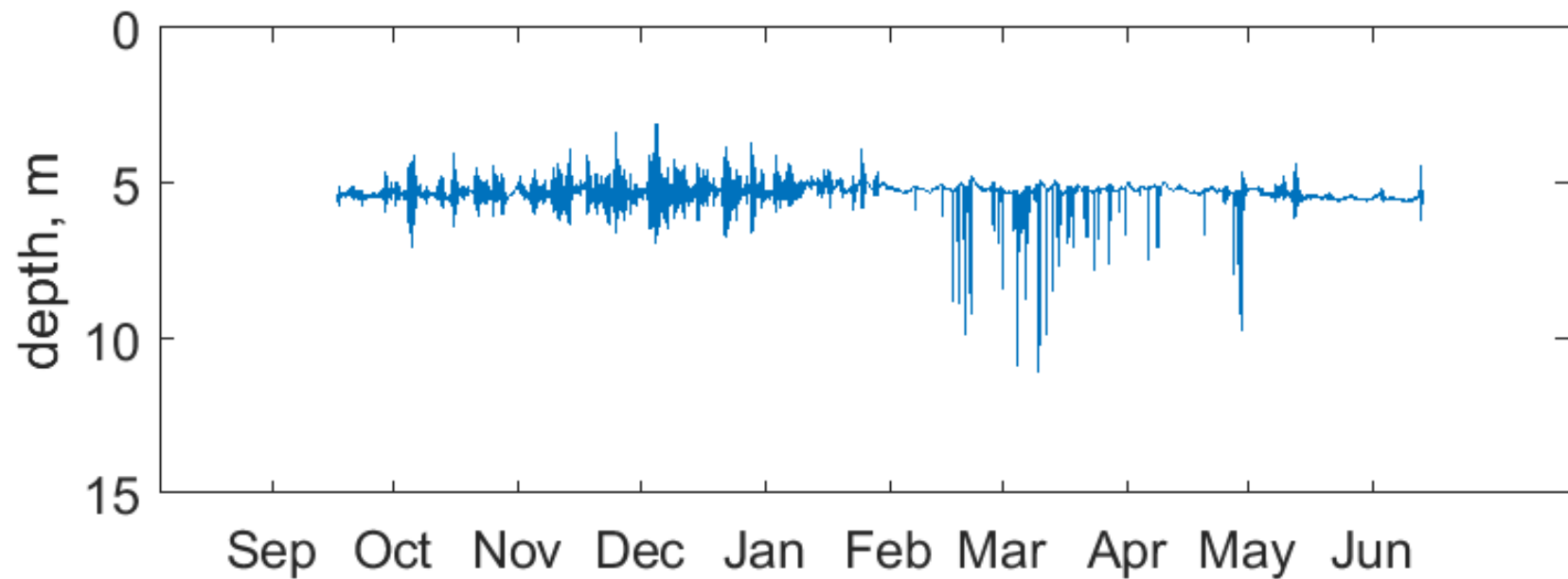




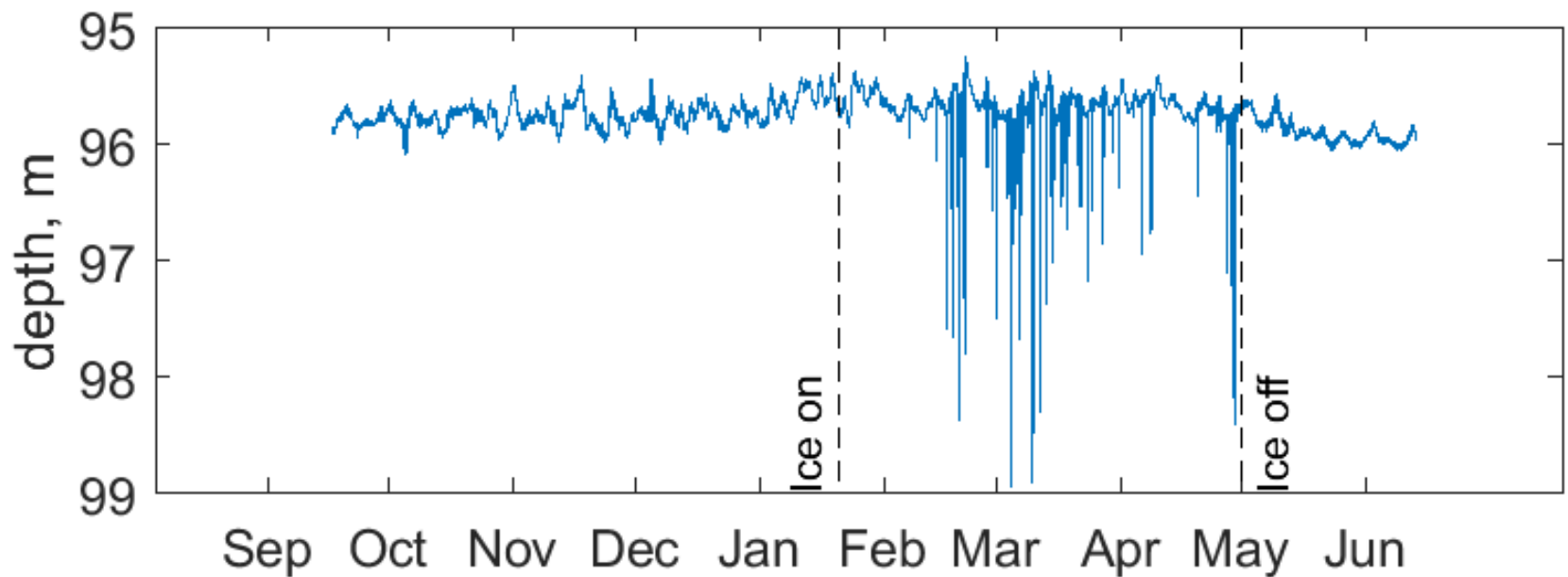
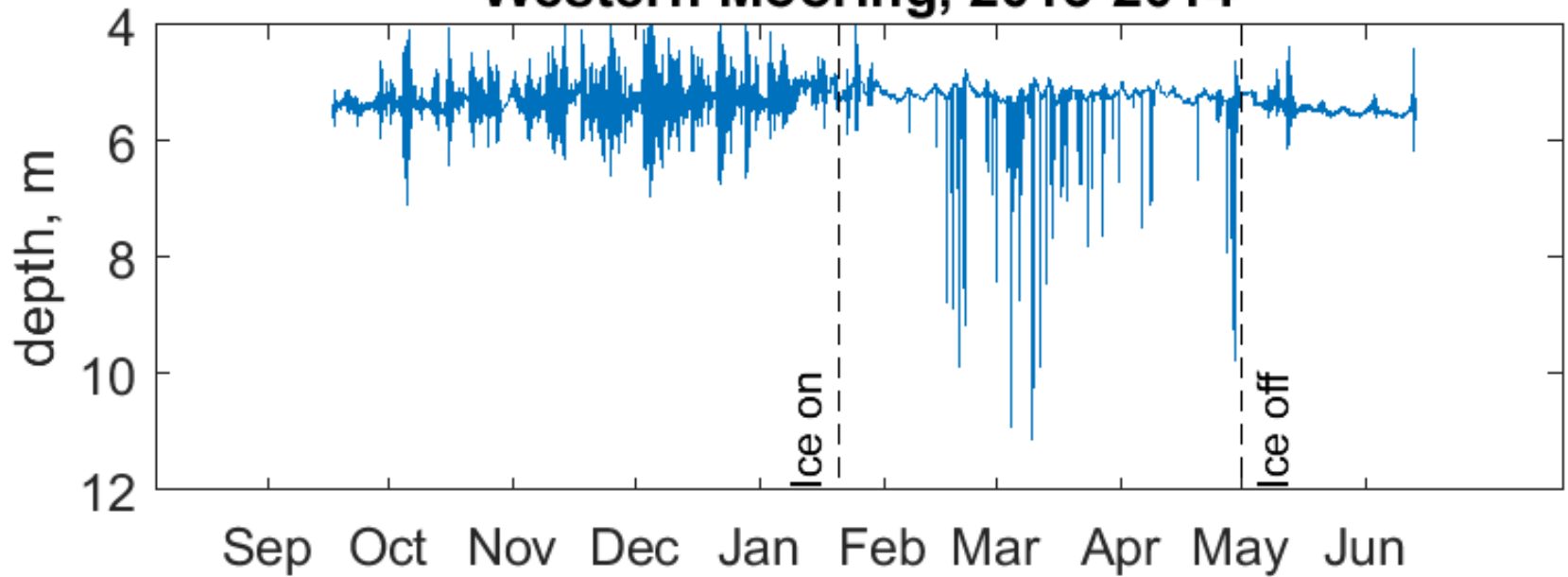


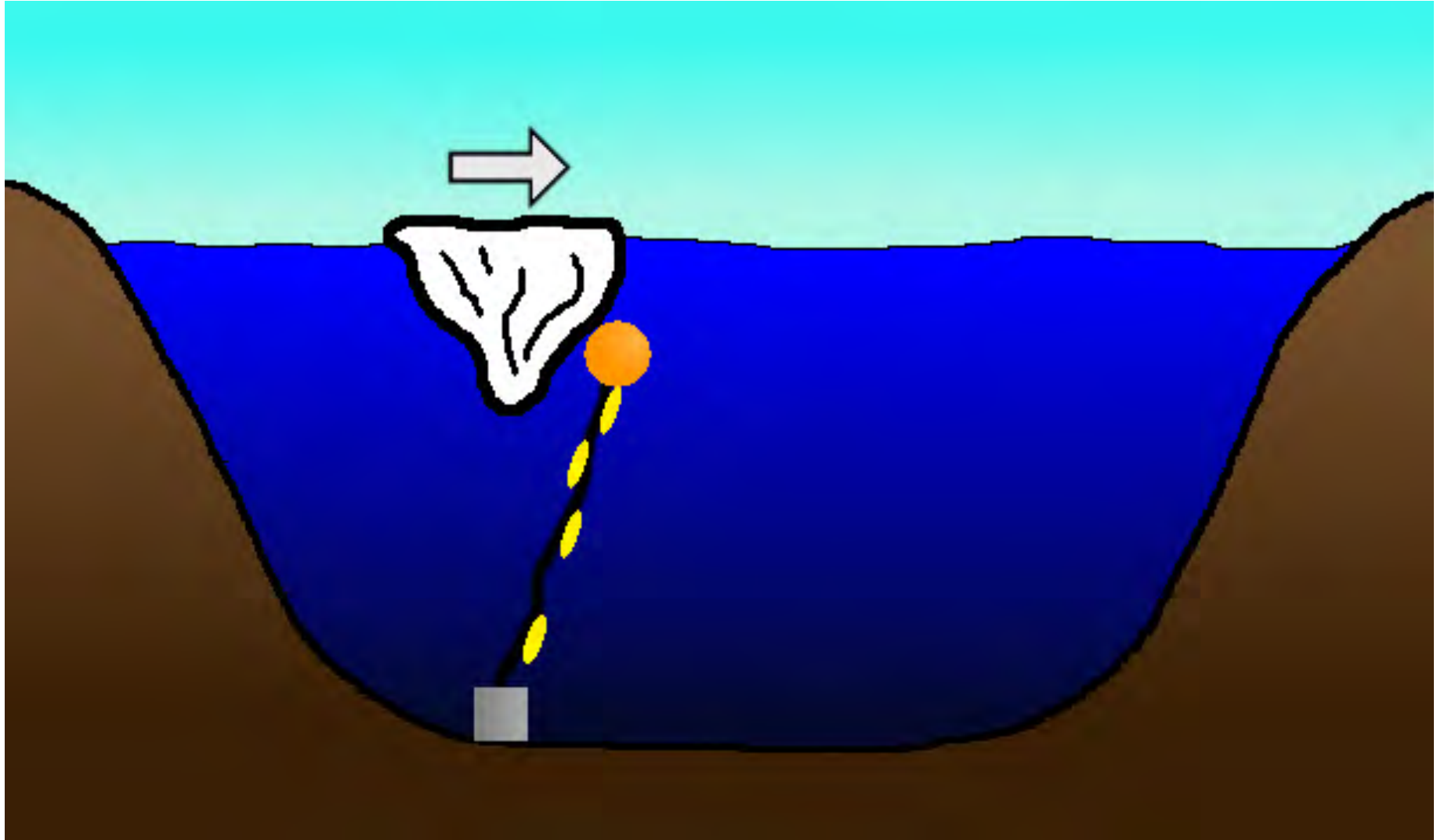




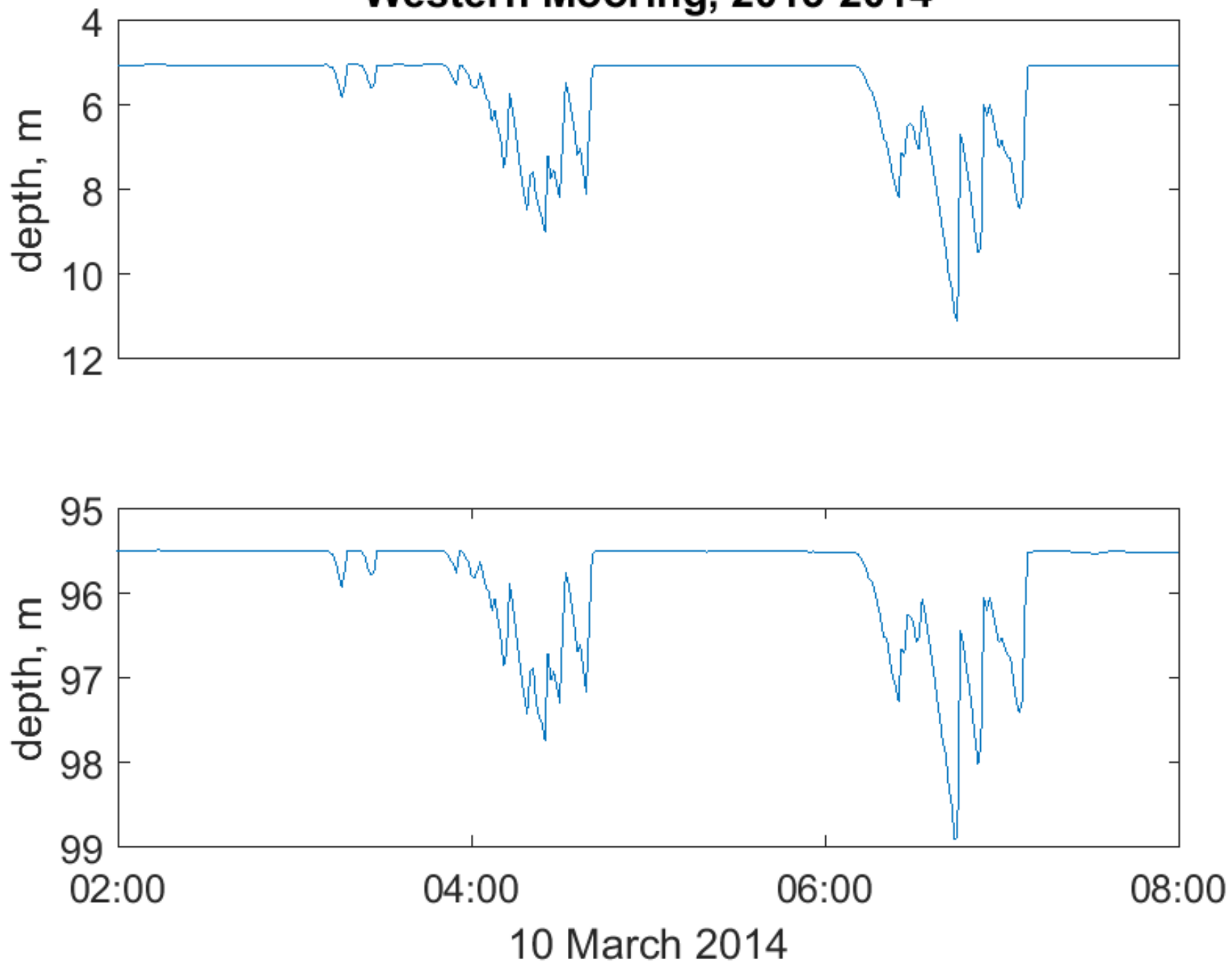


# Western Mooring, 2013-2014



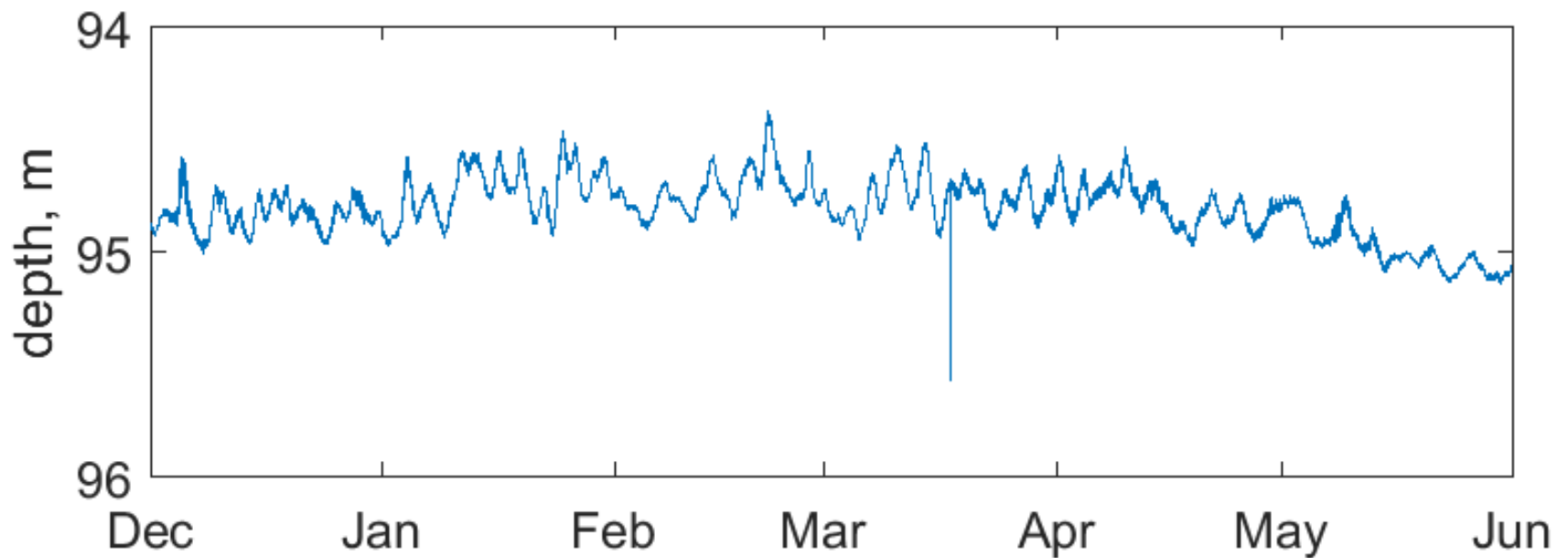
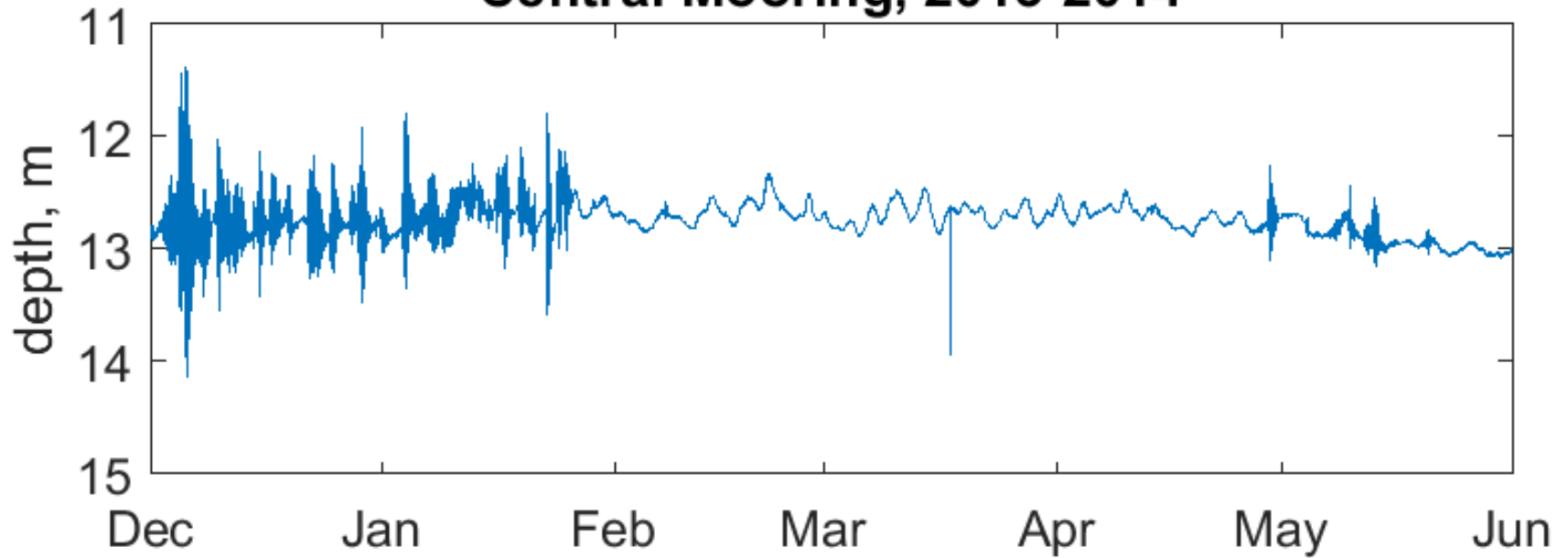


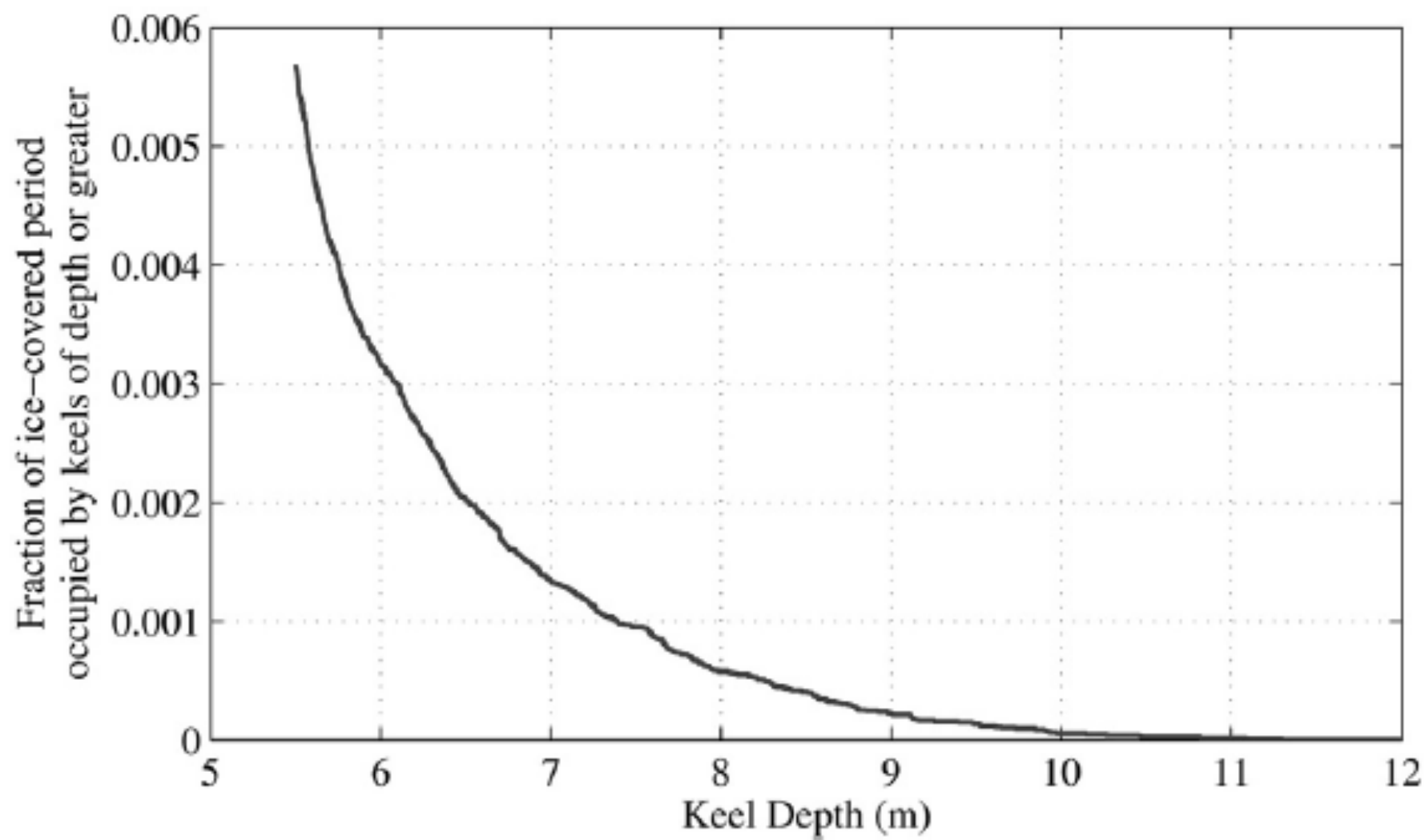
# Western Mooring, 2013-2014





# Central Mooring, 2013-2014





# Conclusions

- Not all bad data is bad data.
- Choose your mistakes carefully.

# Lake Superior Winter '13-'14

