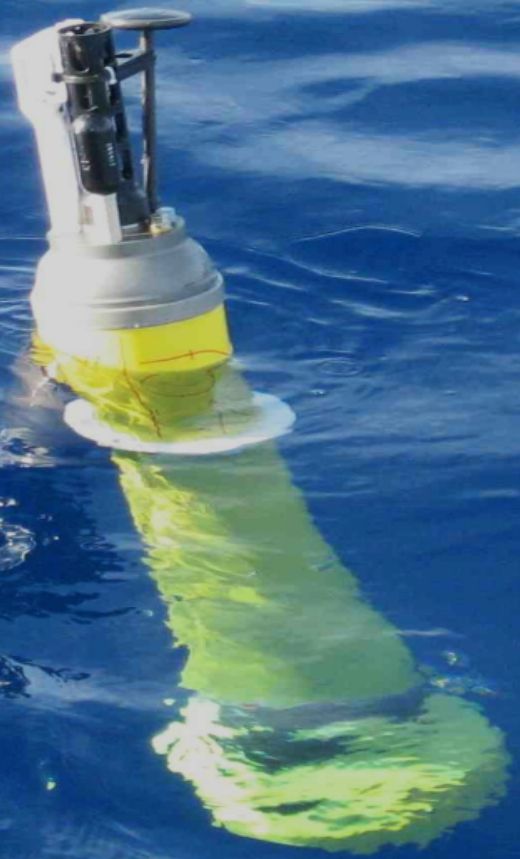
Analysis of STS/PAL float data in SPURS-2 study area



Golobal Ocean Salinity and the Water Cycle Workshop

22-26 May 2017

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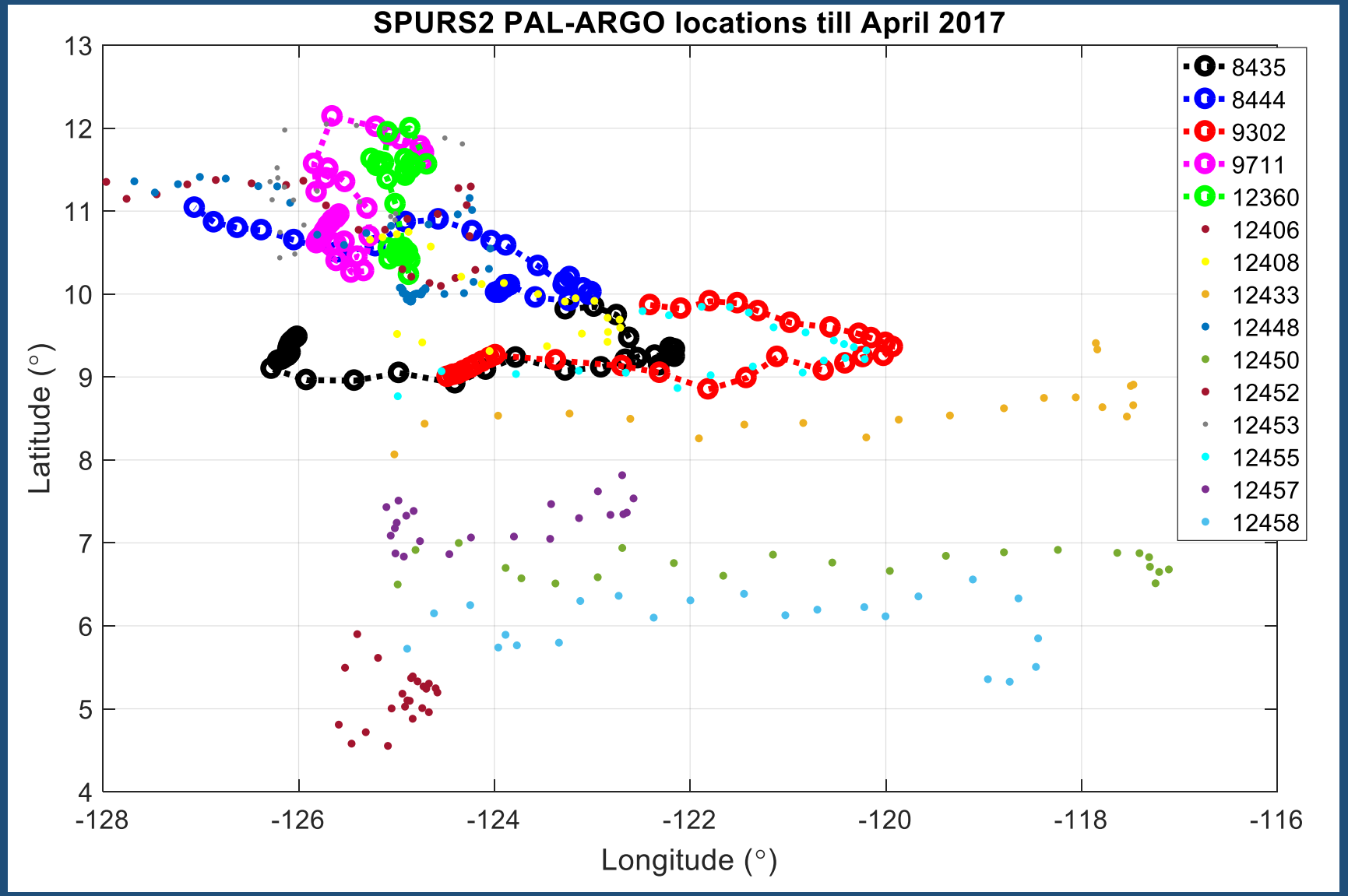
NOAA

Outline

- SPURS2 Argo-PAL operations:
  1. Argo temperature and salinity data
  2. PAL estimated rain and wind (Passive Aquatic Listener)
- Cross-comparison between Argo-PAL and the central mooring on rain, wind and salinity

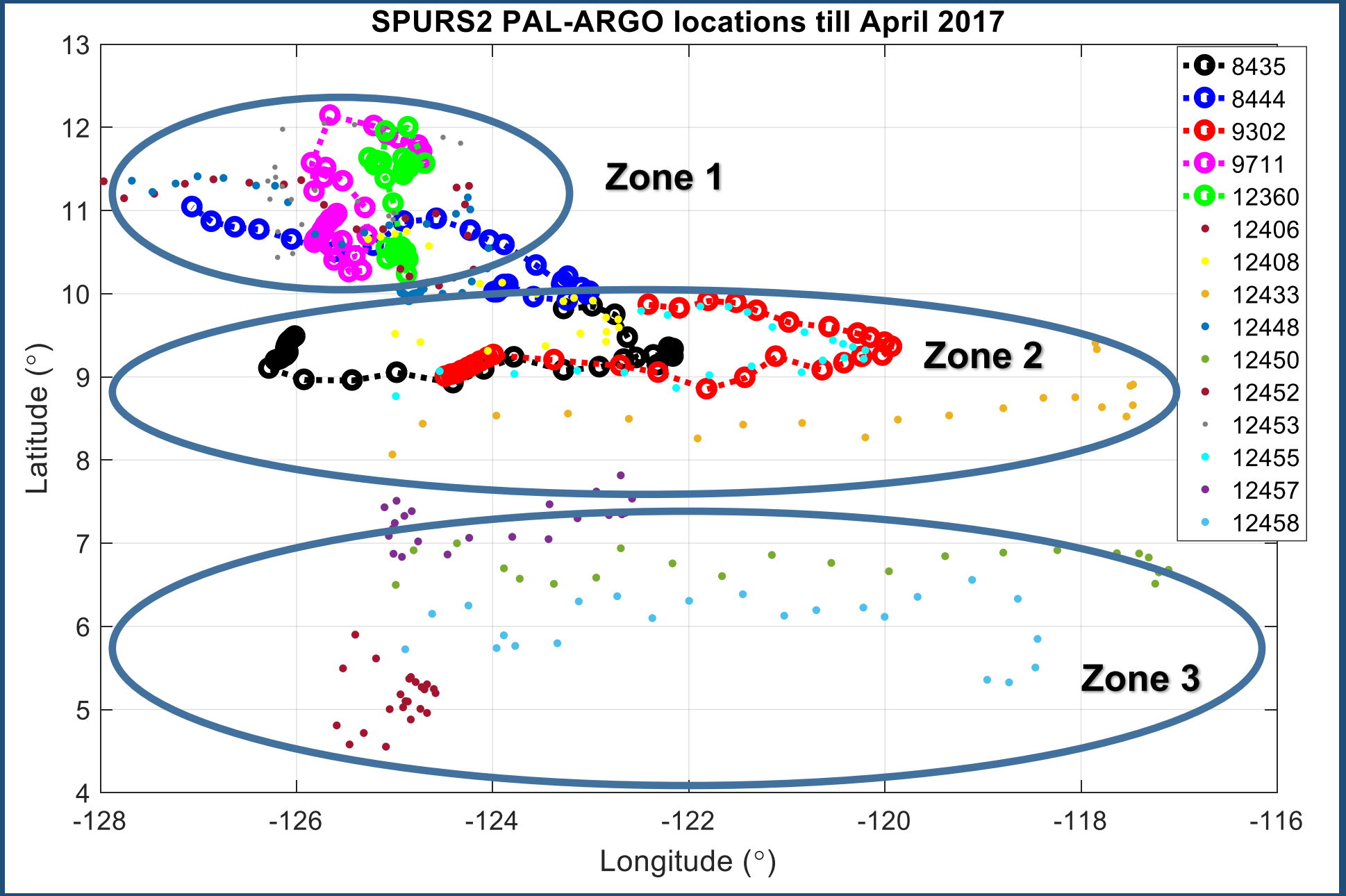
STS/PAL float trajectories



STS/PAL Floats

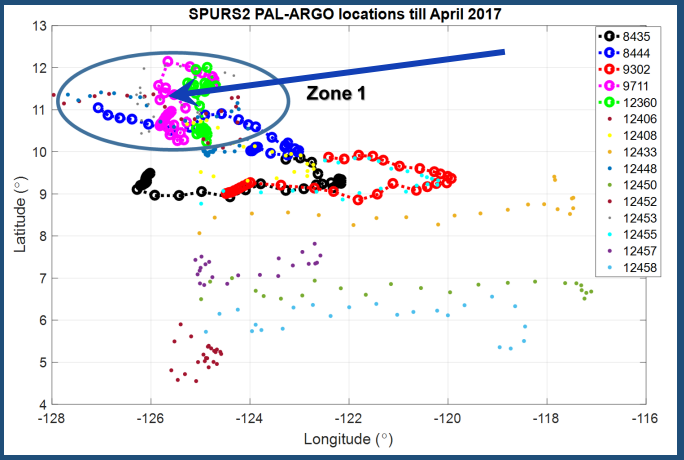
Normal Argo Floats

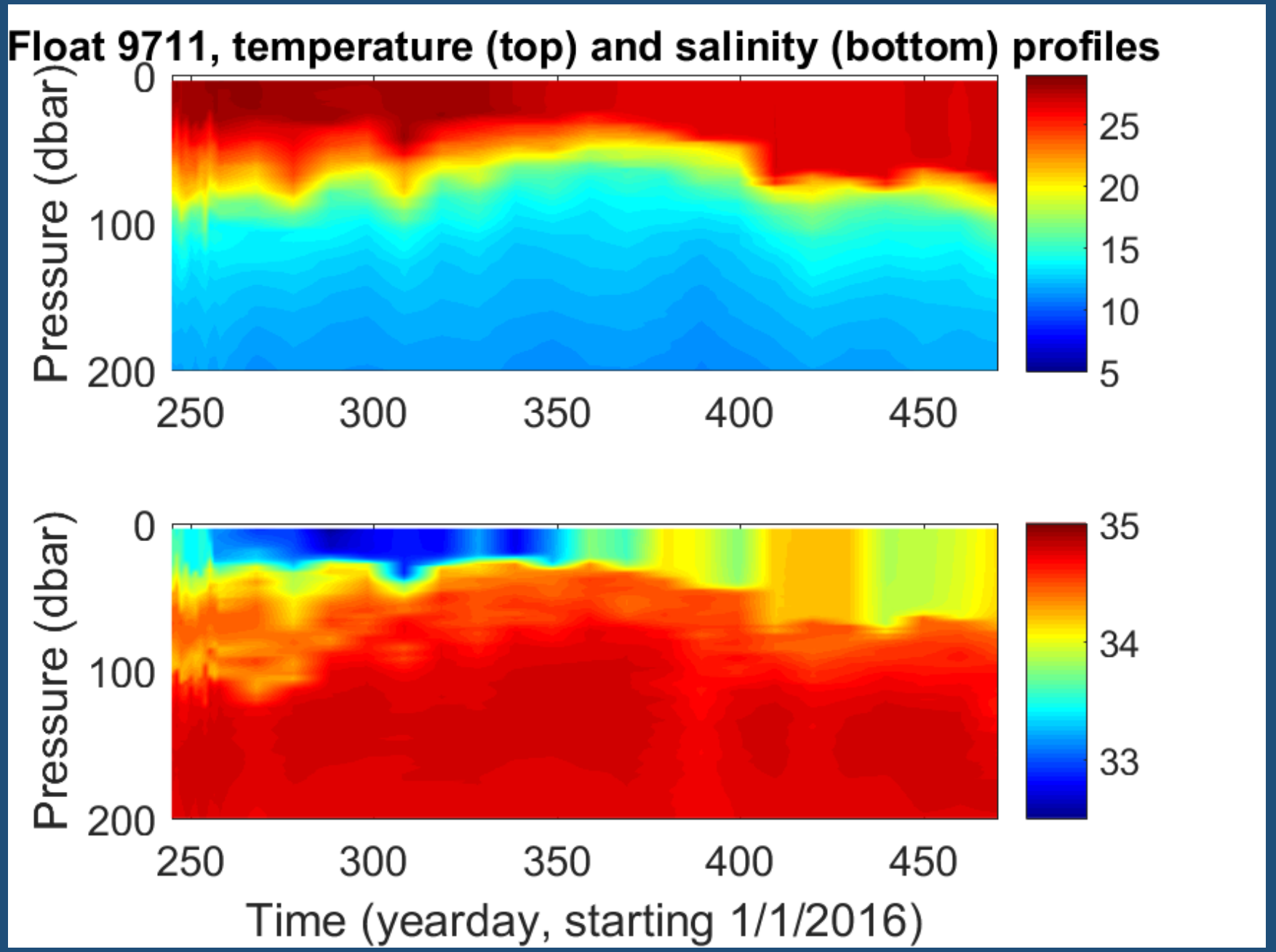
STS/PAL float trajectories



STS/PAL float temperature and salinity profiles

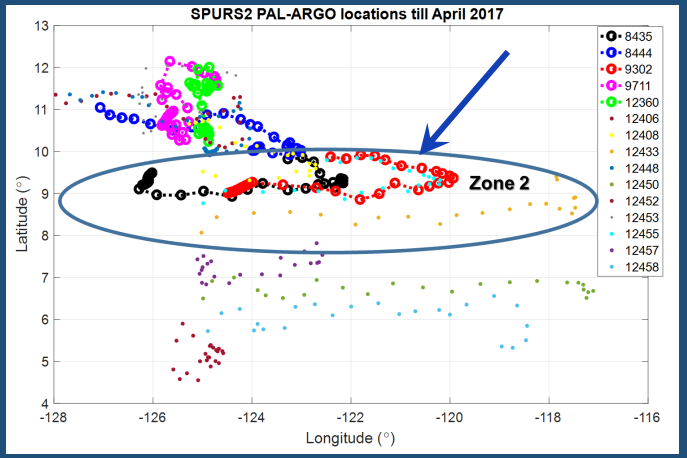
Zone 1

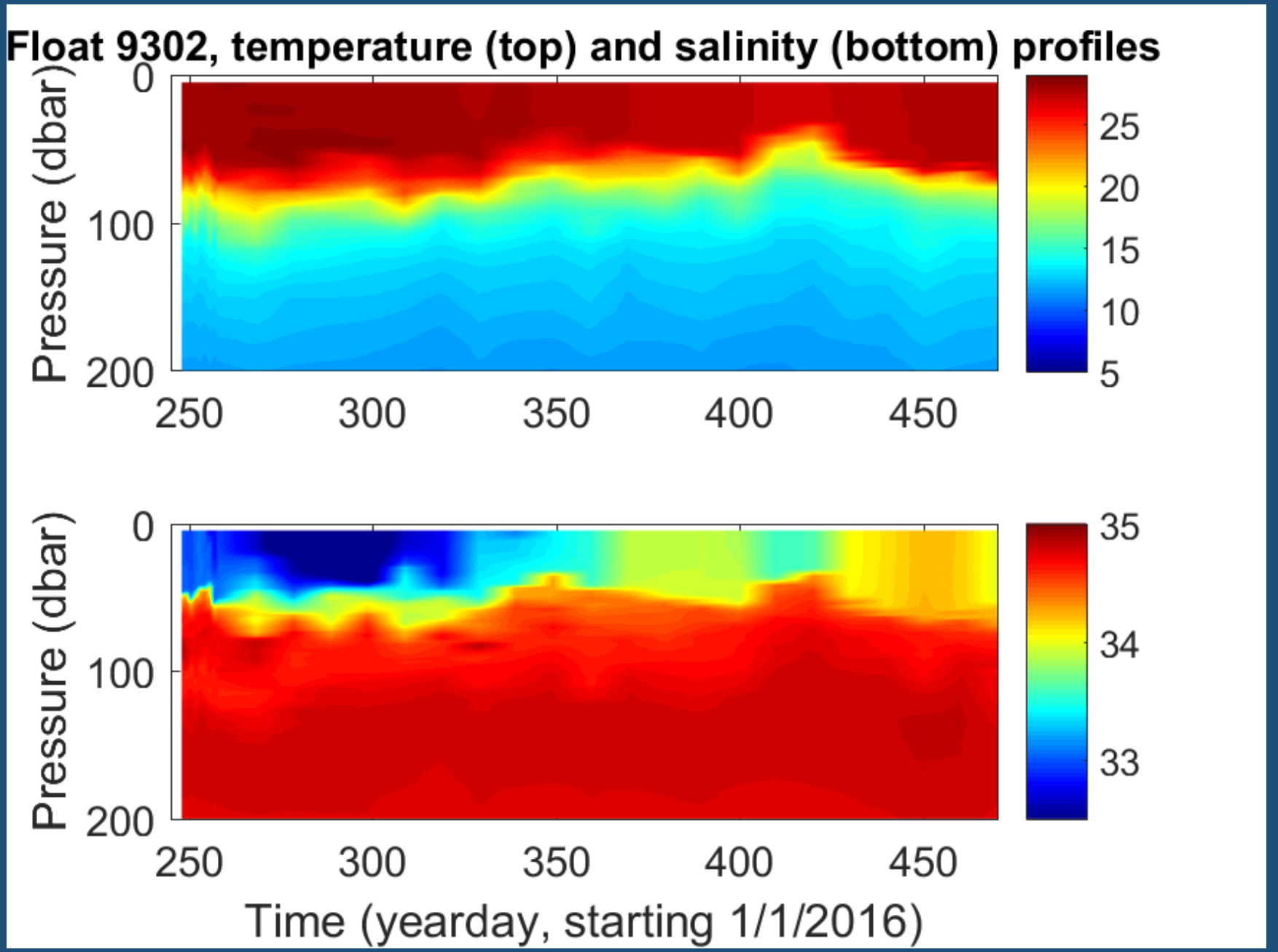




STS/PAL float temperature and salinity profiles

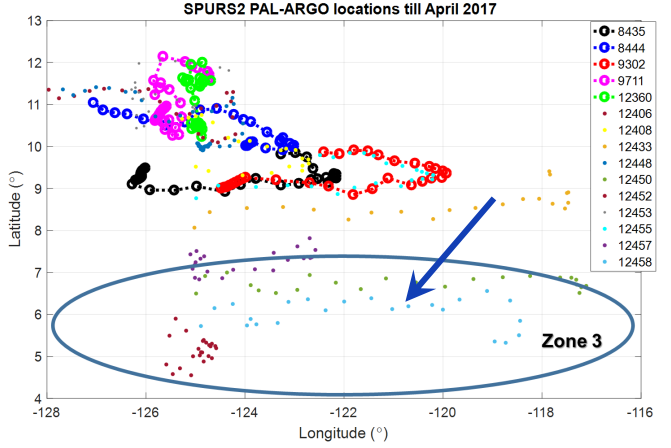
Zone 2

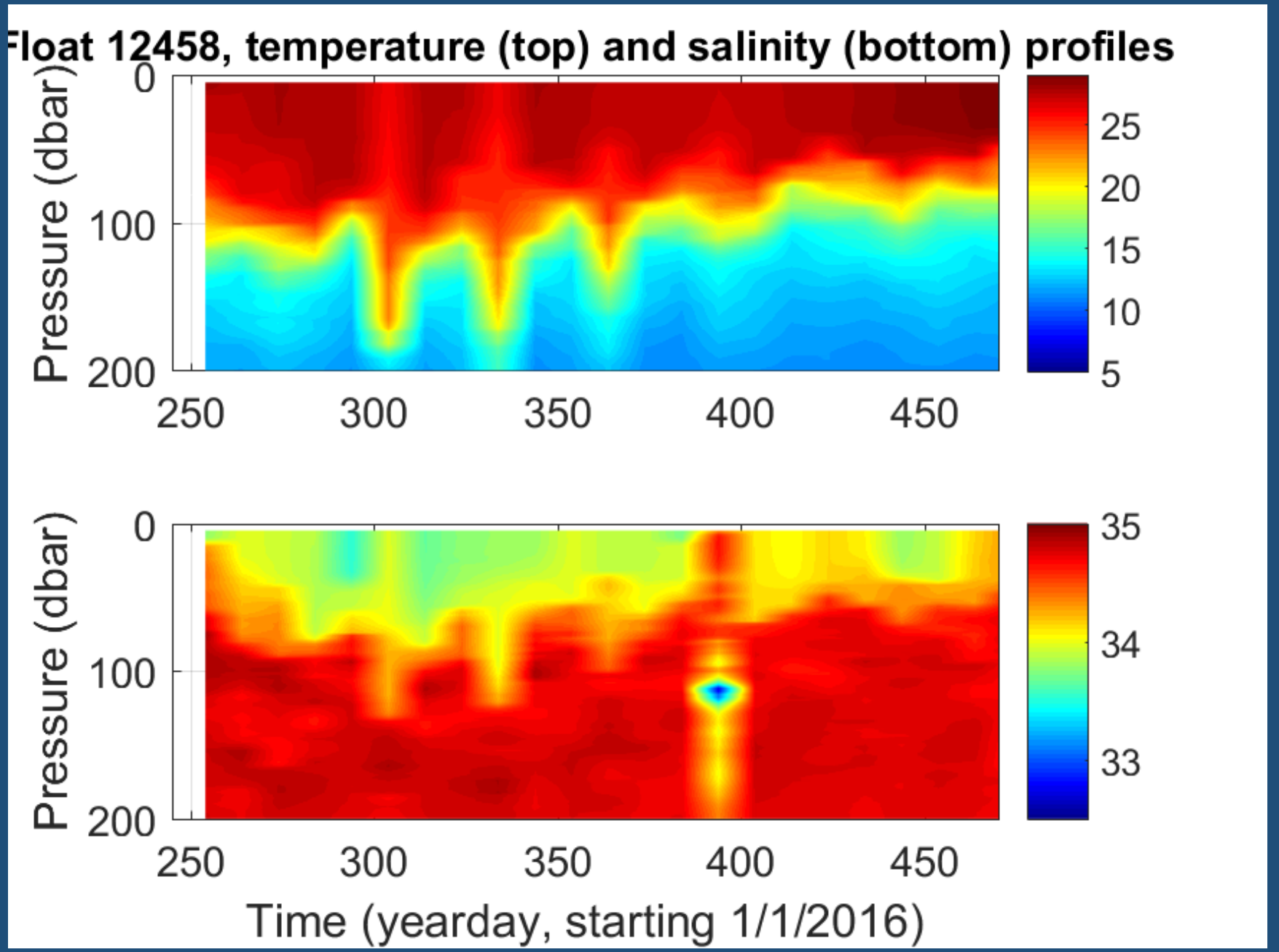




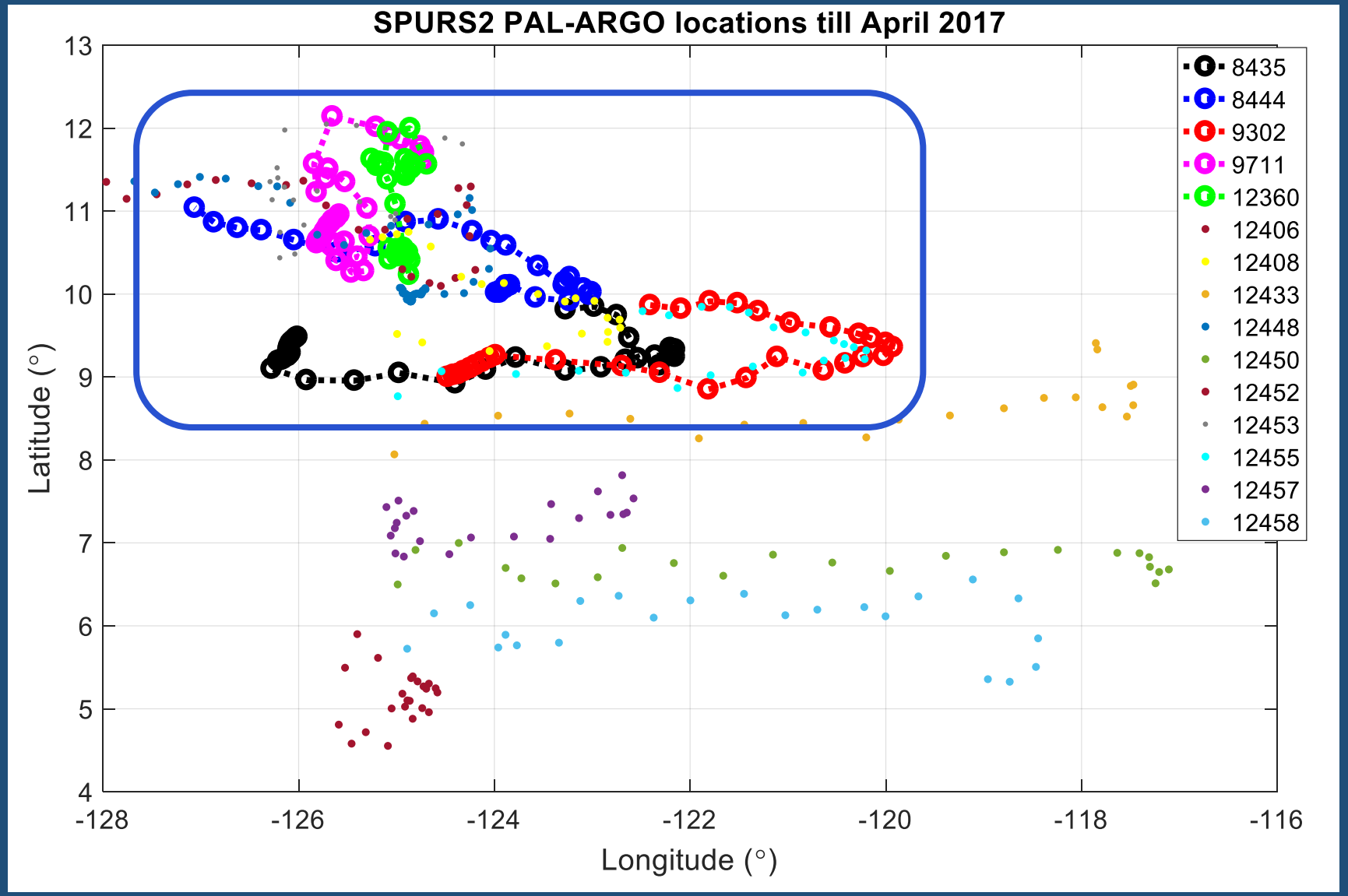
STS/PAL float temperature and salinity profiles

Zone 3





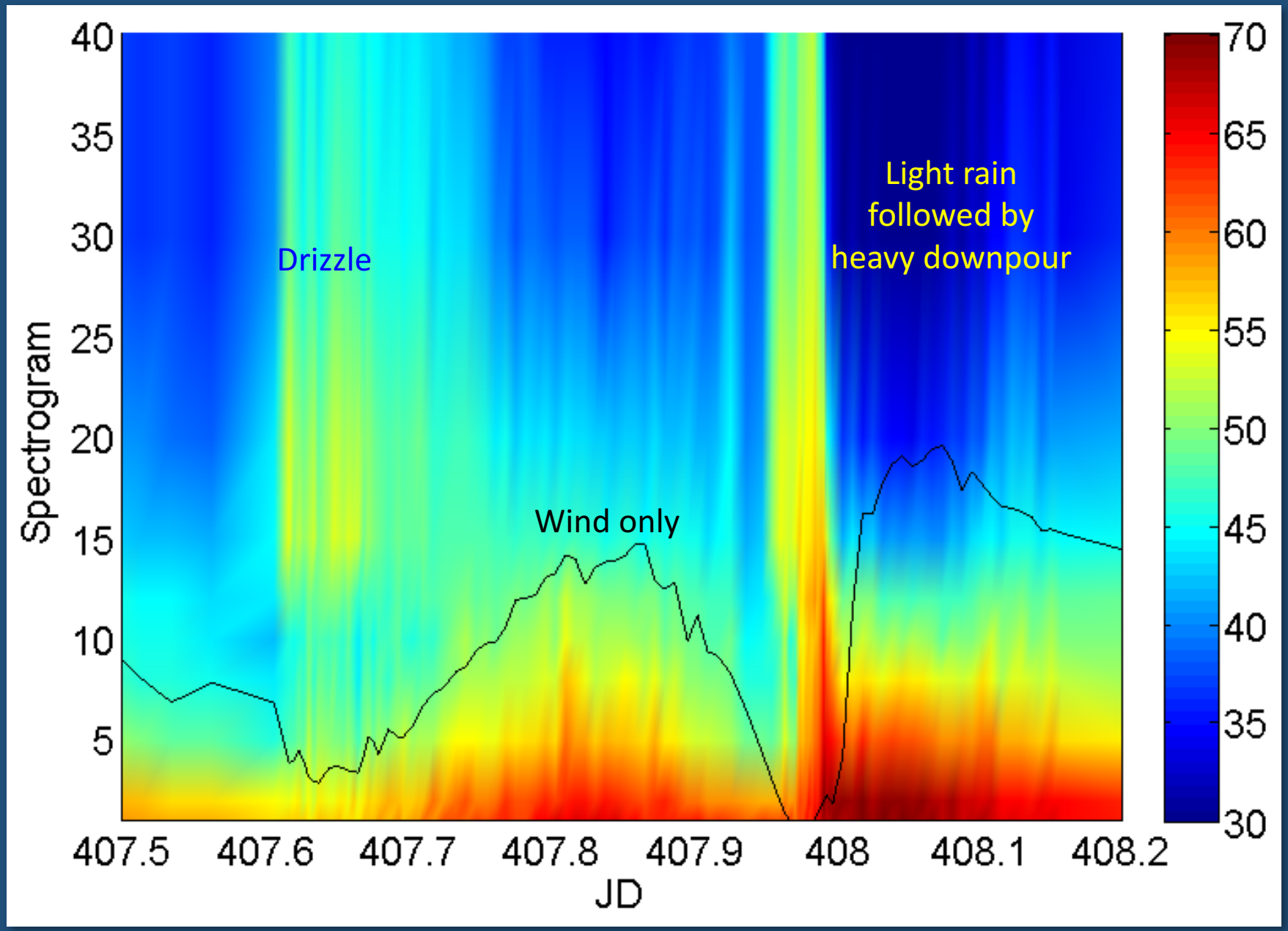
STS/PAL Floats



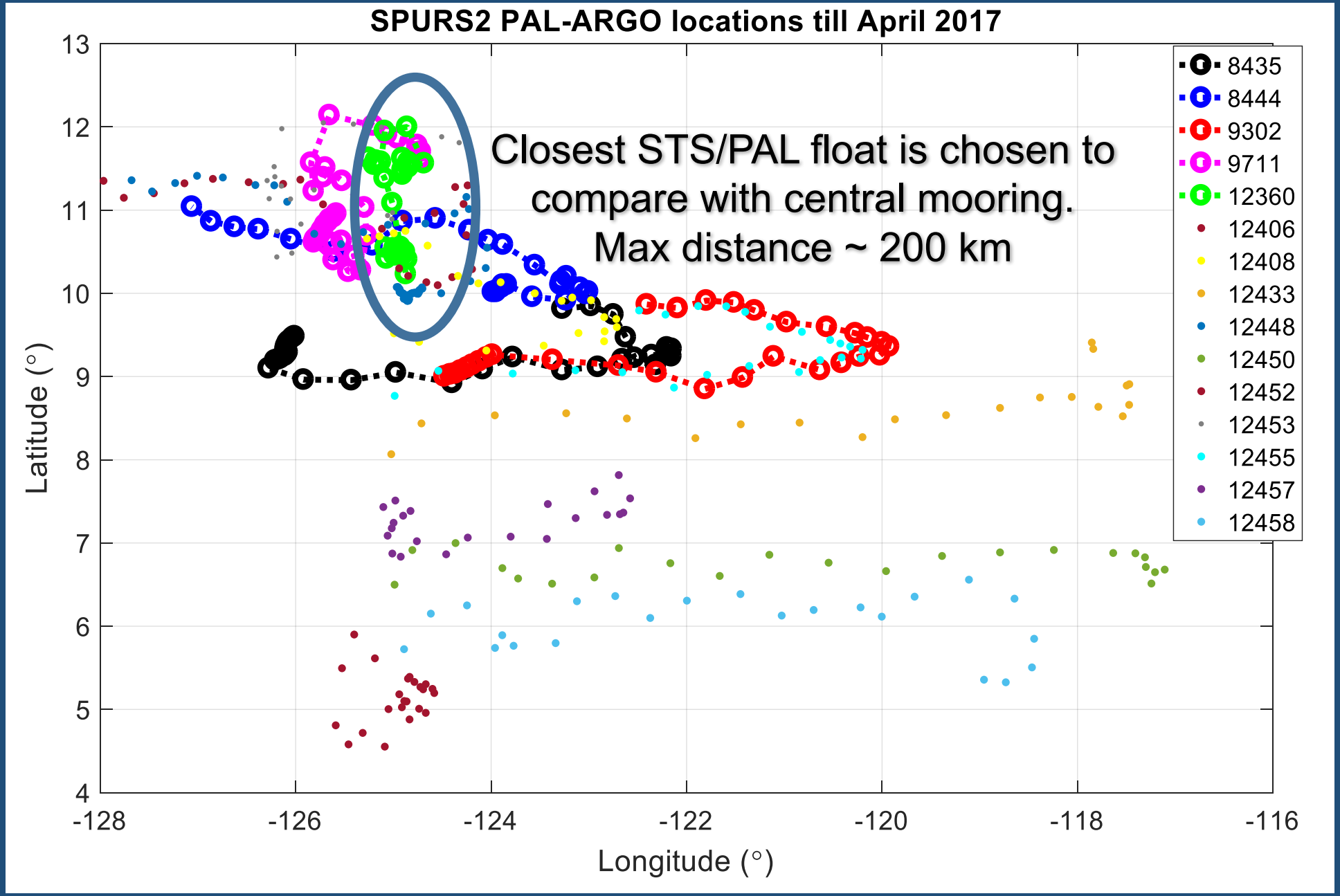
STS/PAL Floats

How does PAL work?

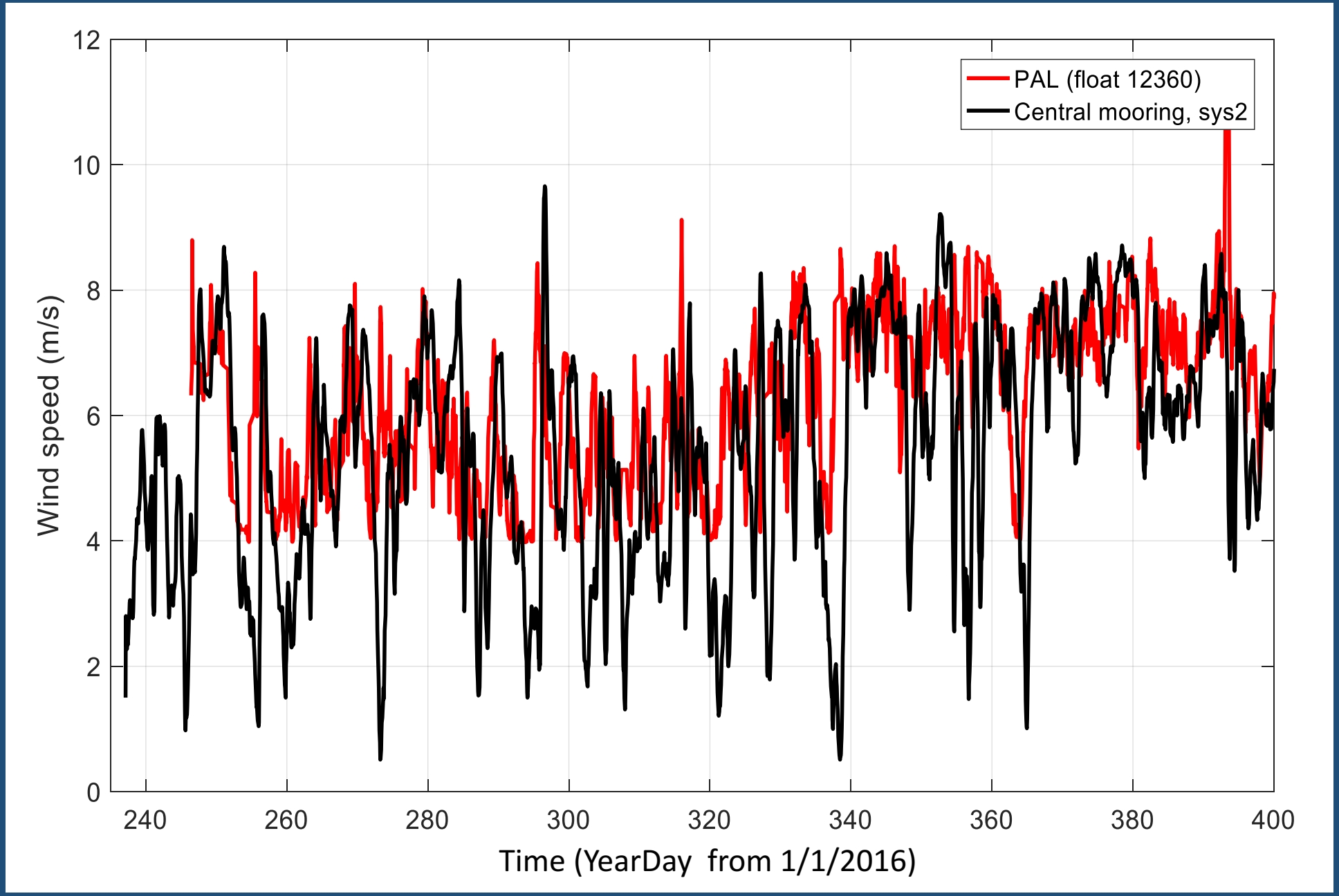
PAL uses ocean ambient sound spectrum in the frequency range of 1 – 40 kHz



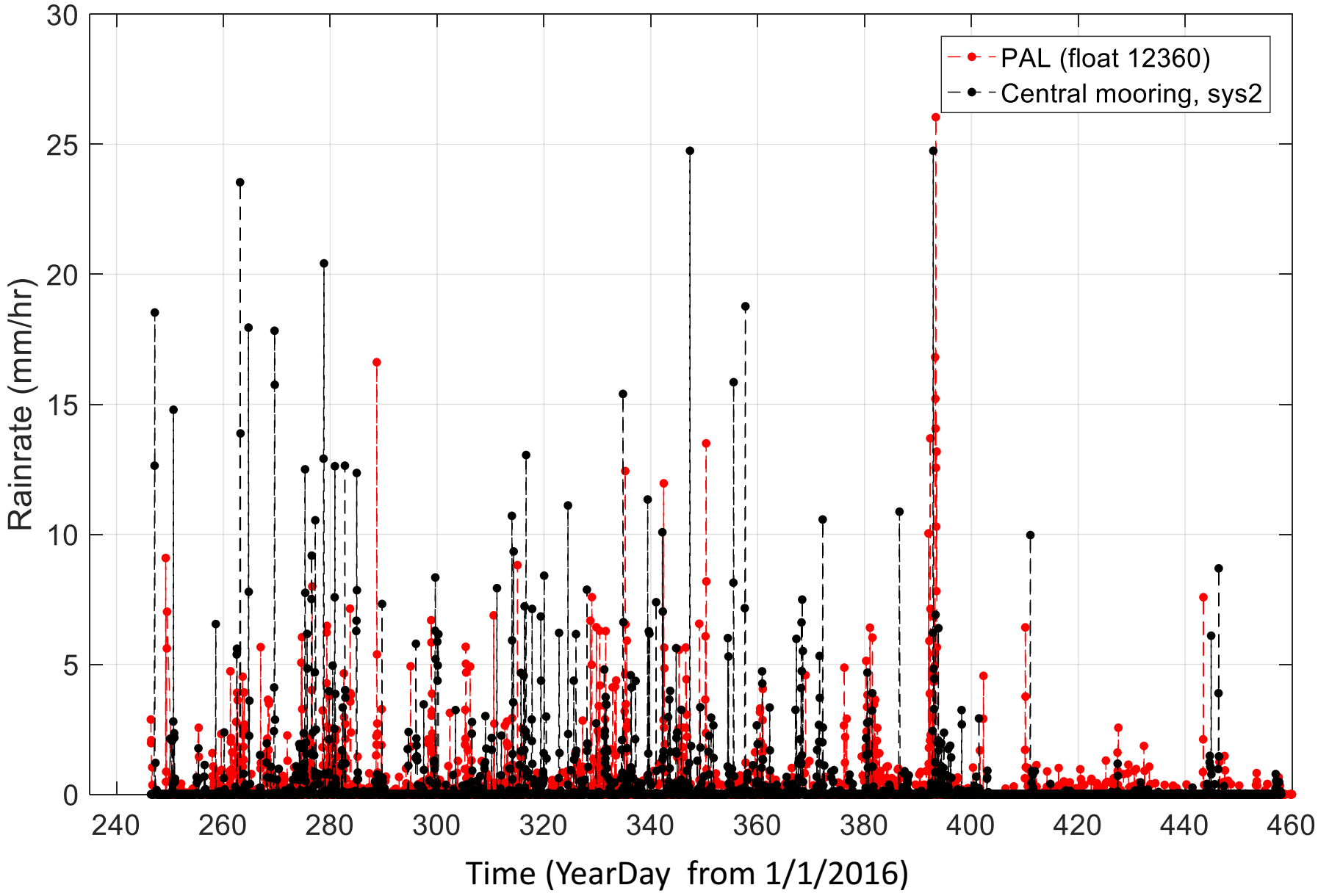
To compare with central mooring



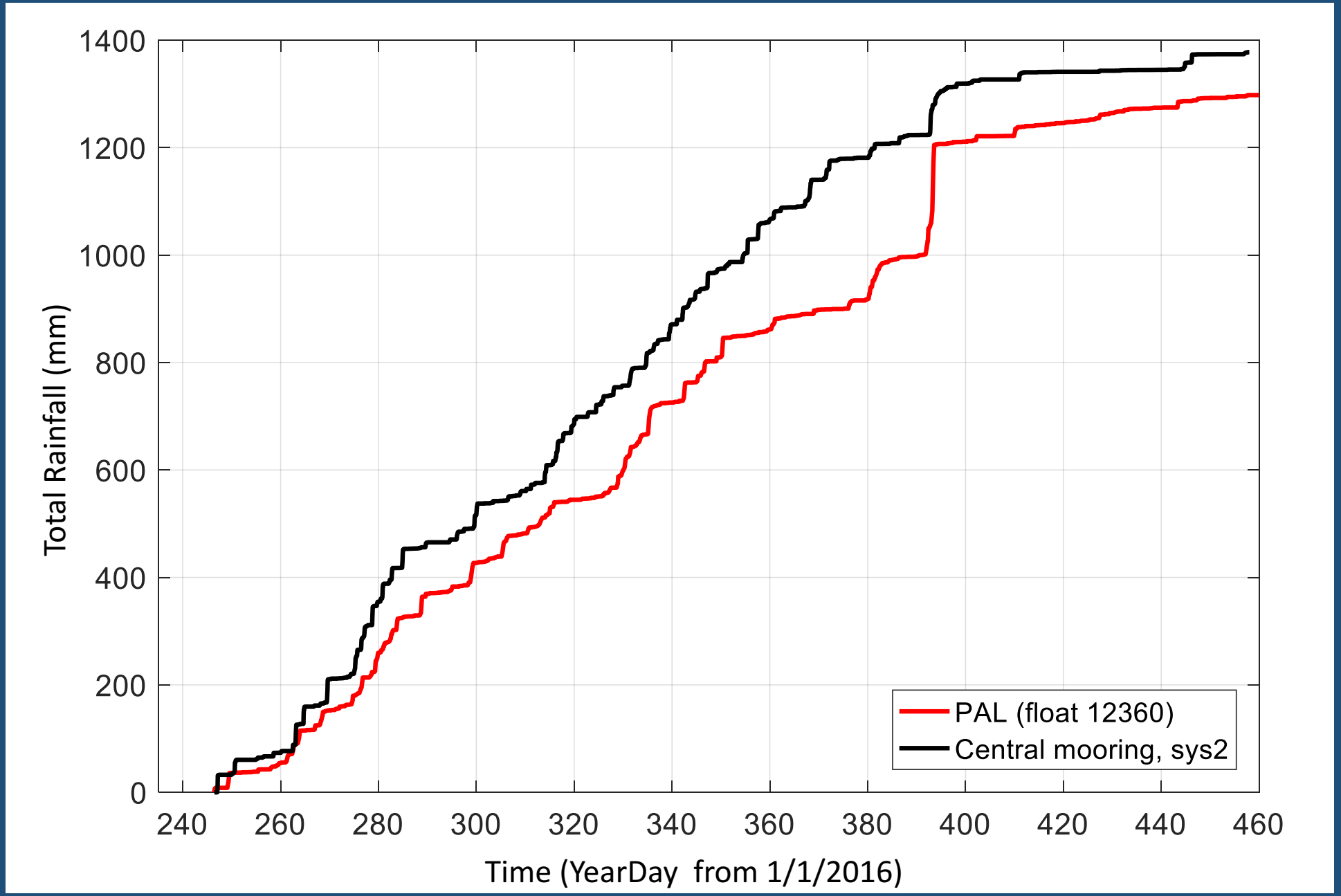
Comparing PAL-estimated wind speed with central mooring



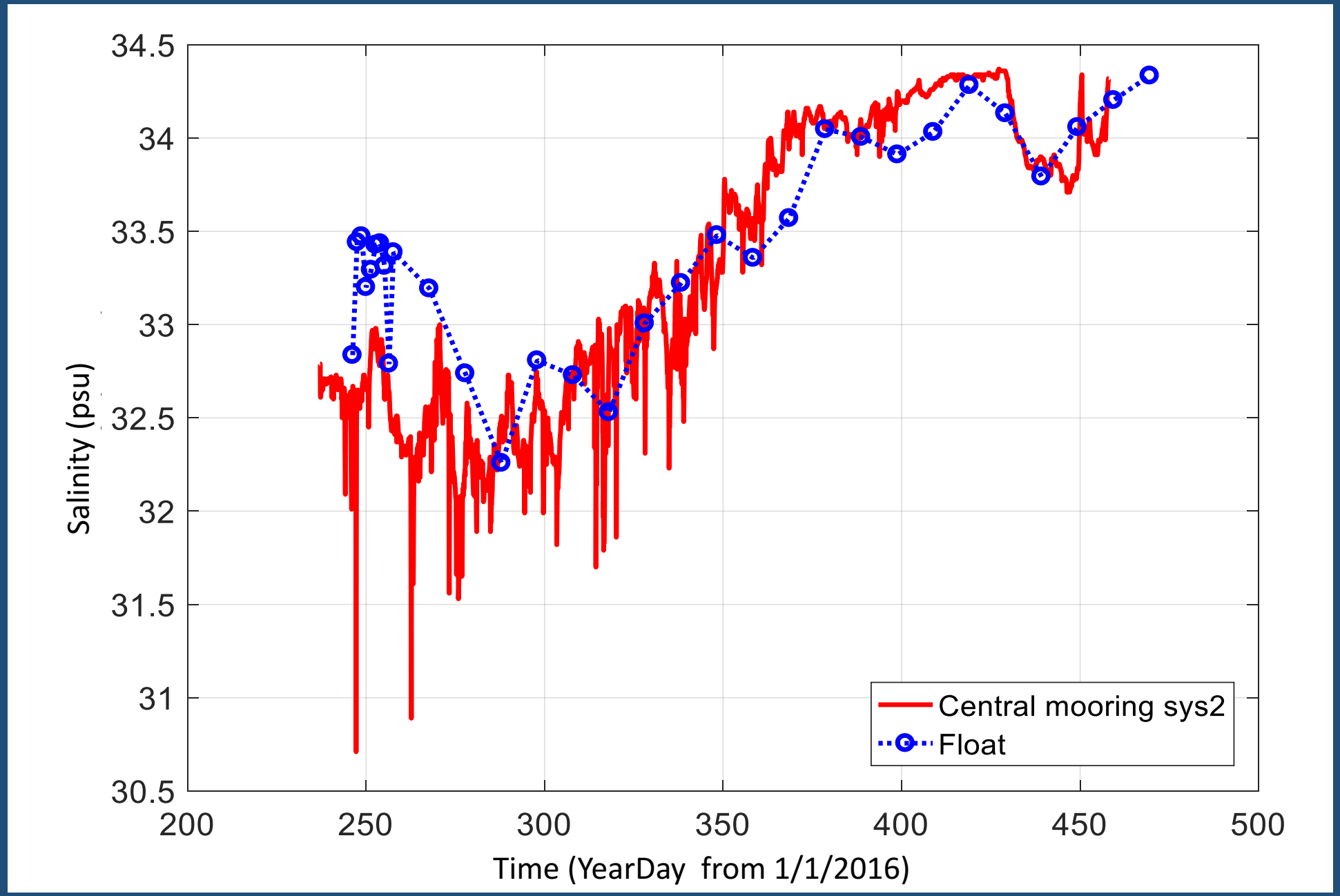
Comparing PAL-estimated rainrate with central mooring



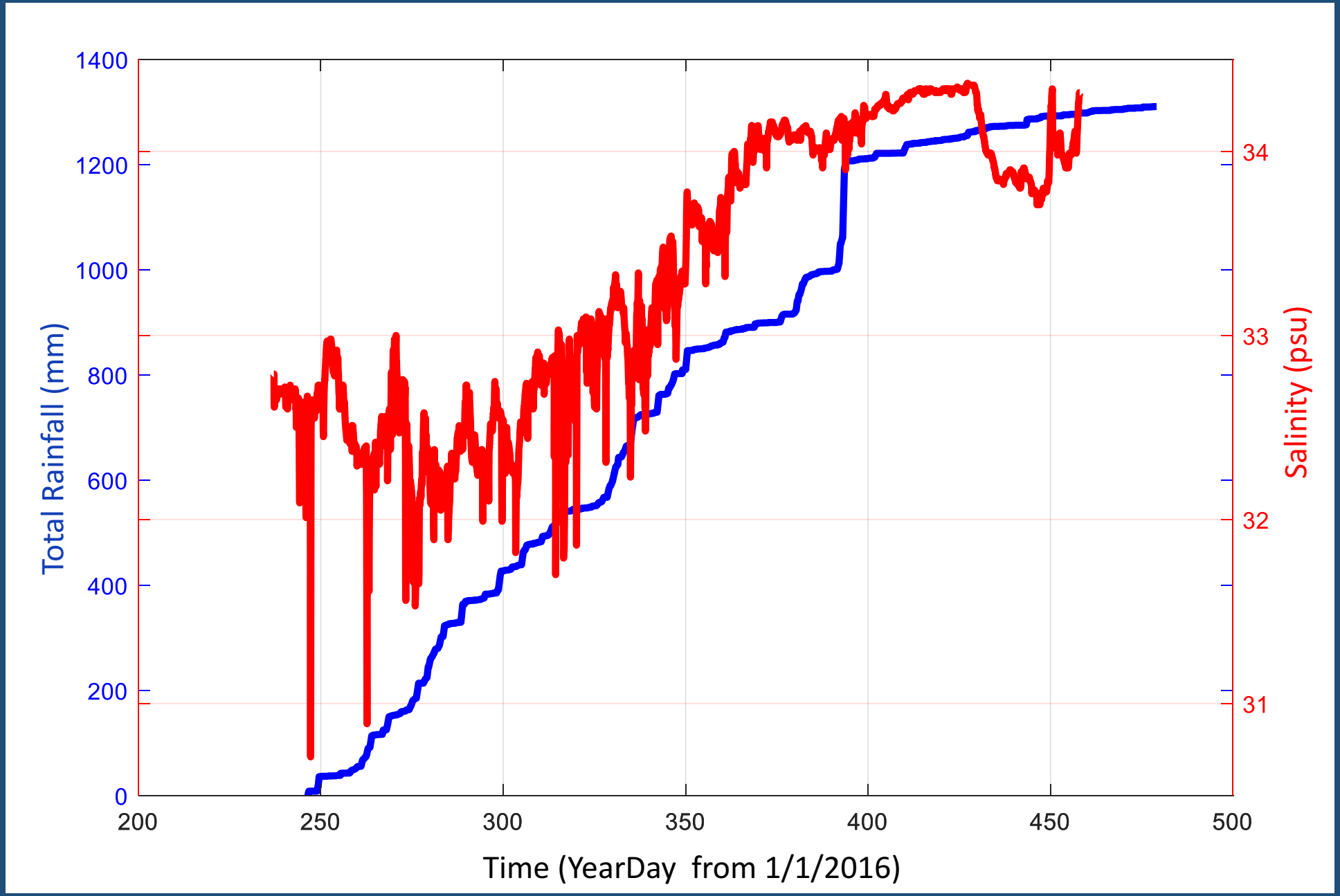
Comparing PAL-estimated total rain with central mooring



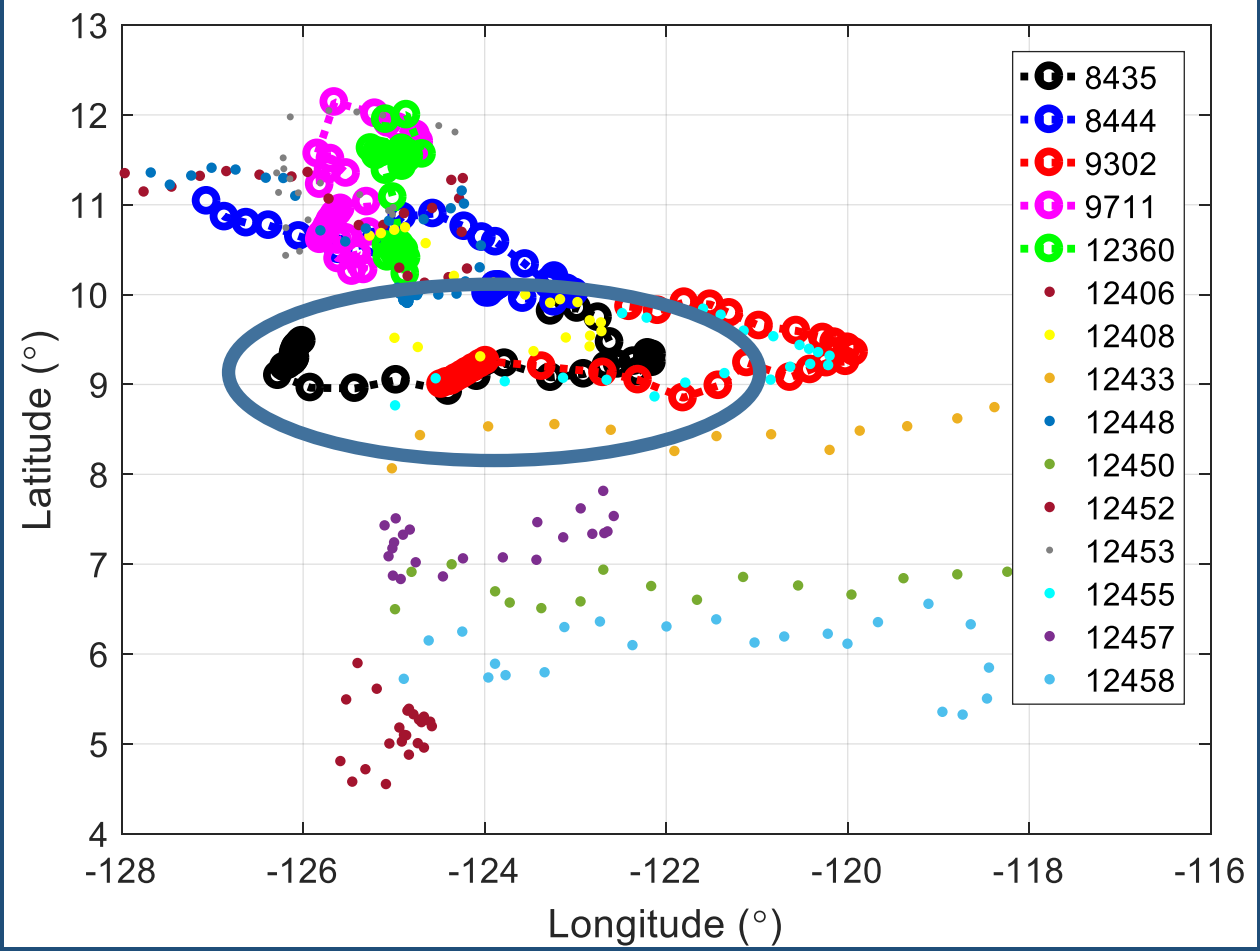
Comparing salinity between float and central mooring

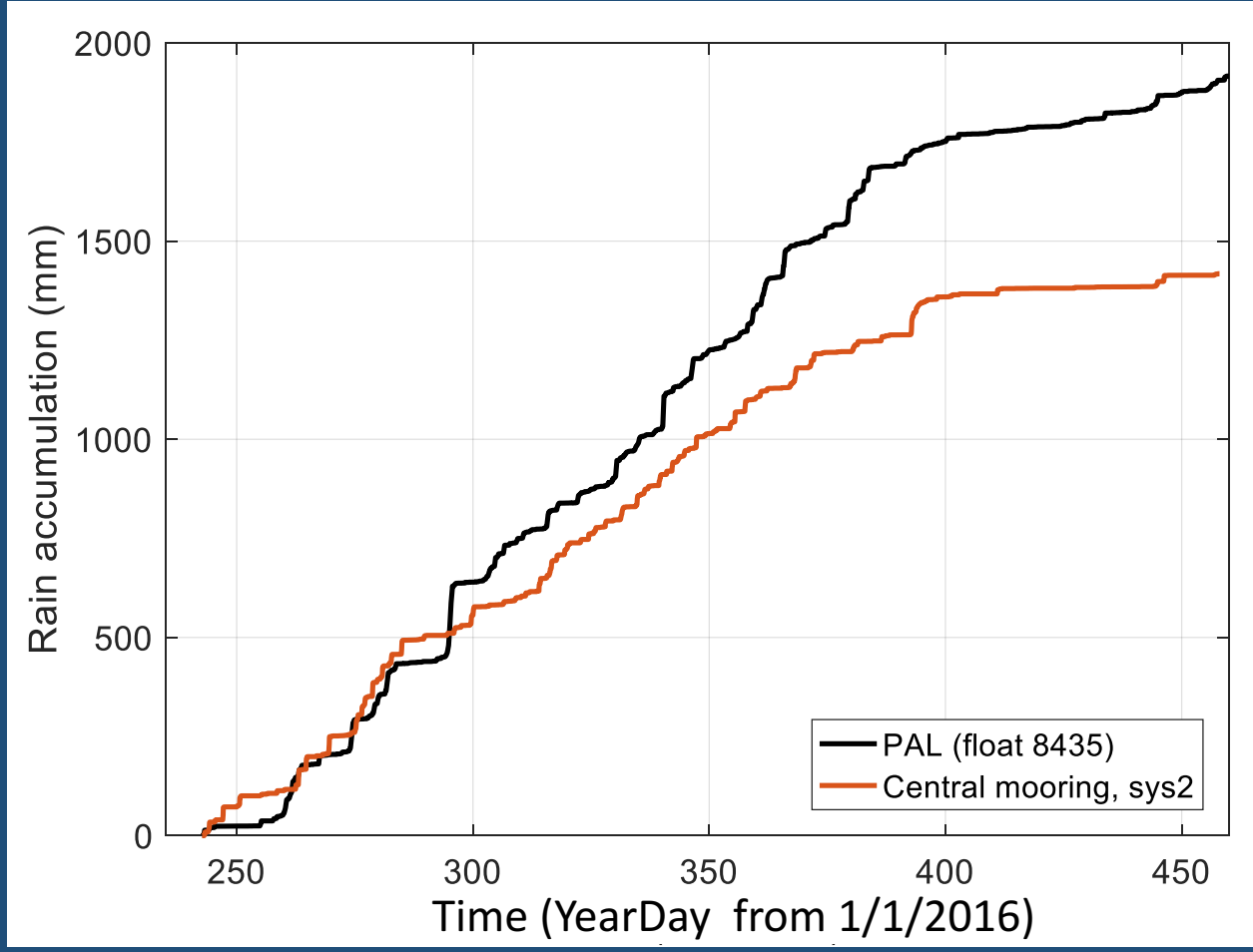


Comparing total rain from PAL with salinity from central mooring



Rain inside the ITCZ





Summary

- A total of 15 floats, 10 regular Argo and five STS/PAL, were deployed in SPURS2 area.
- Both salinity and temperature data from the 15 floats show distinctive latitudinal differences.
- PAL estimated rain and wind results are consistent with the central mooring data.
- Comparison between rain accumulation with salinity on central mooring indicates other mechanisms are accountable for the increase of salinity from Nov – Jan, with the similar rain pattern.