

# PACEO: KOPRI's PO Activity in 2017



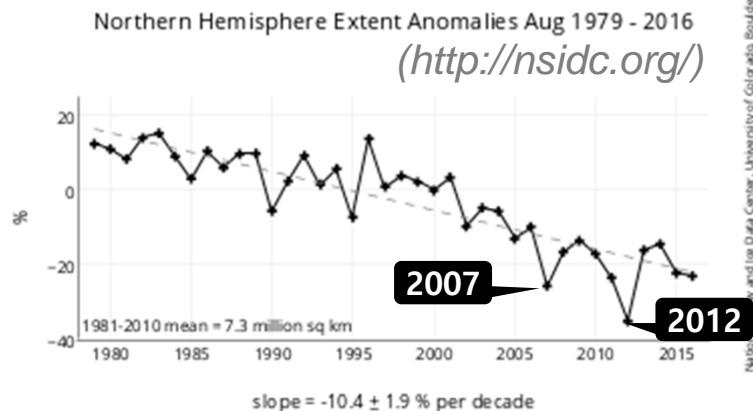
**Presenter: Kyoung-Ho Cho**

**Division of Polar Ocean Sciences  
Korea Polar Research Institute, Korea**

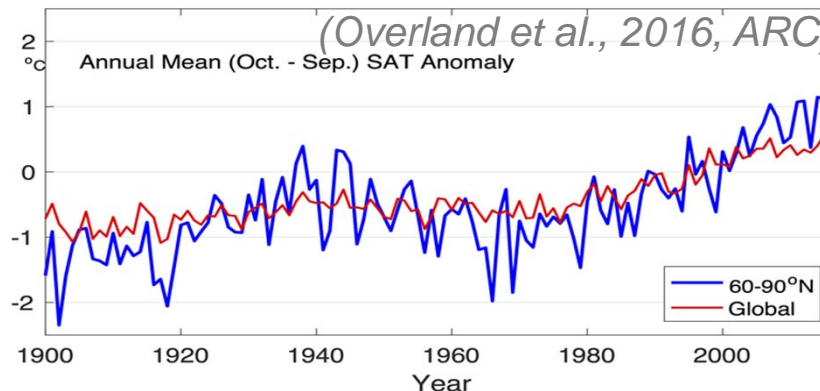


# Background & Objective

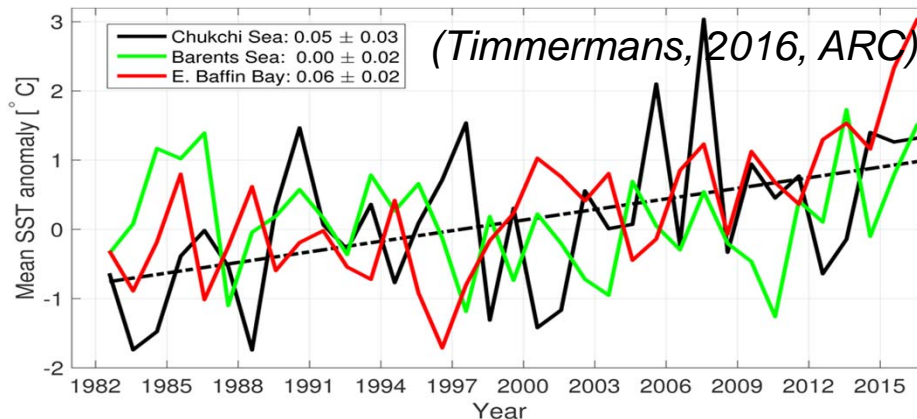
## Sea Ice Extent (%)



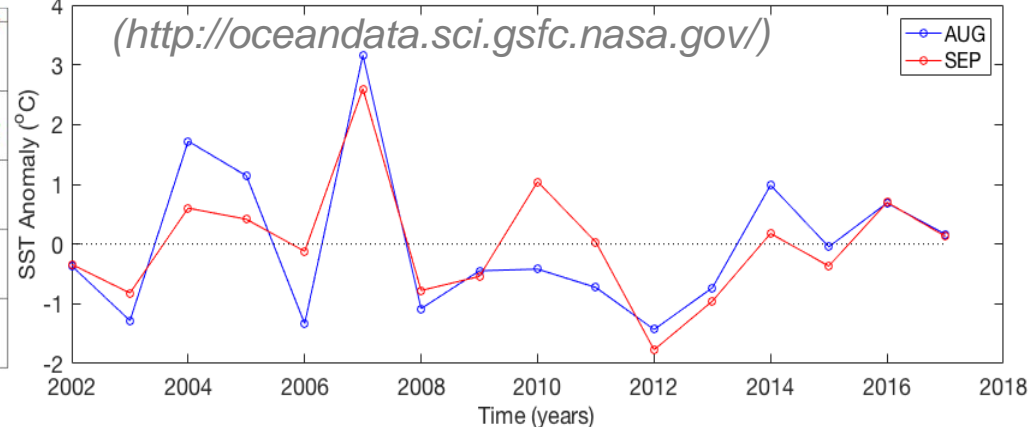
## Land Surface Air Temperature



## Mean SST anomaly (NOAA OI)



## Chukchi Sea SST (MODIS-Aqua: 4km)

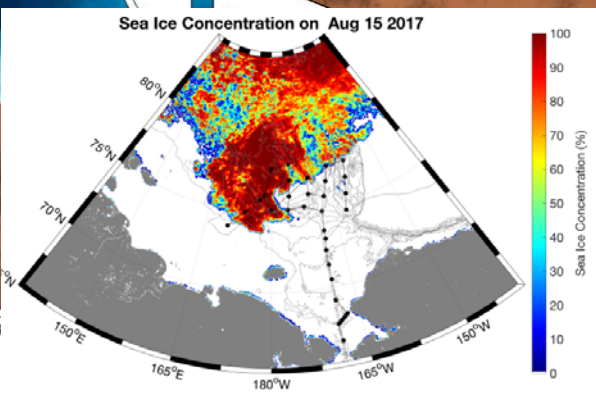
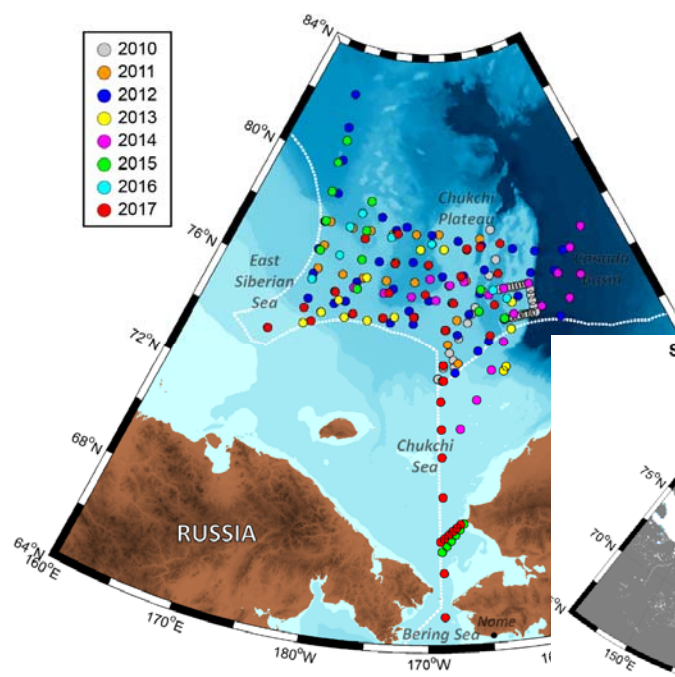
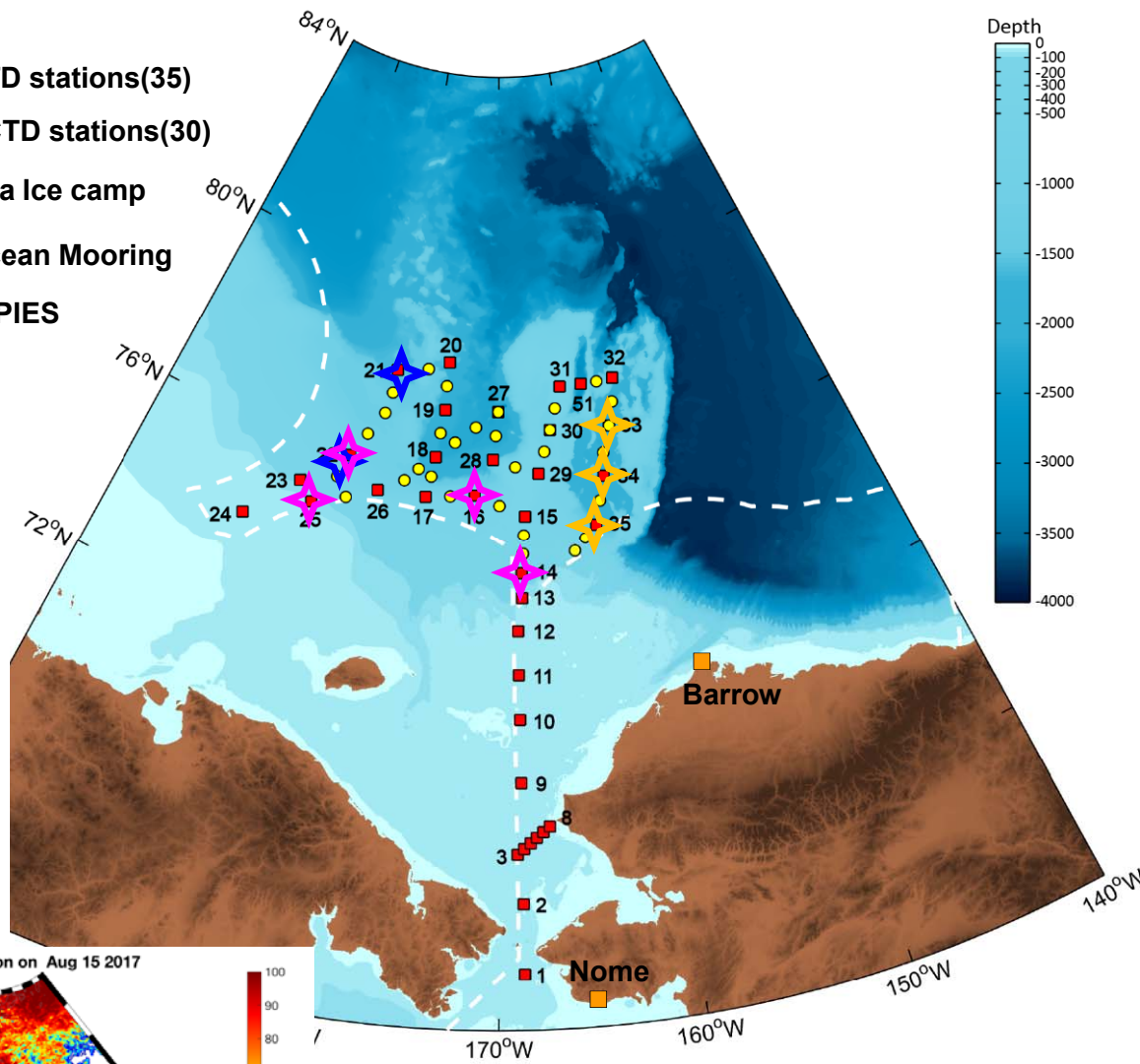


**Under such an environmental change in western Arctic Ocean, we would like to understand water mass distribution and its variability in northern Chukchi regions (i.e., Chukchi Borderland, etc.)**

# IB R/V ARAON Arctic Cruises (2017)

- ◆ CTD: 35 stations
- ◆ XCTD: 30 stations
- ◆ Ocean Mooring: 5
- ◆ C-PIES: 3
- ◆ Sea ice camp: 2

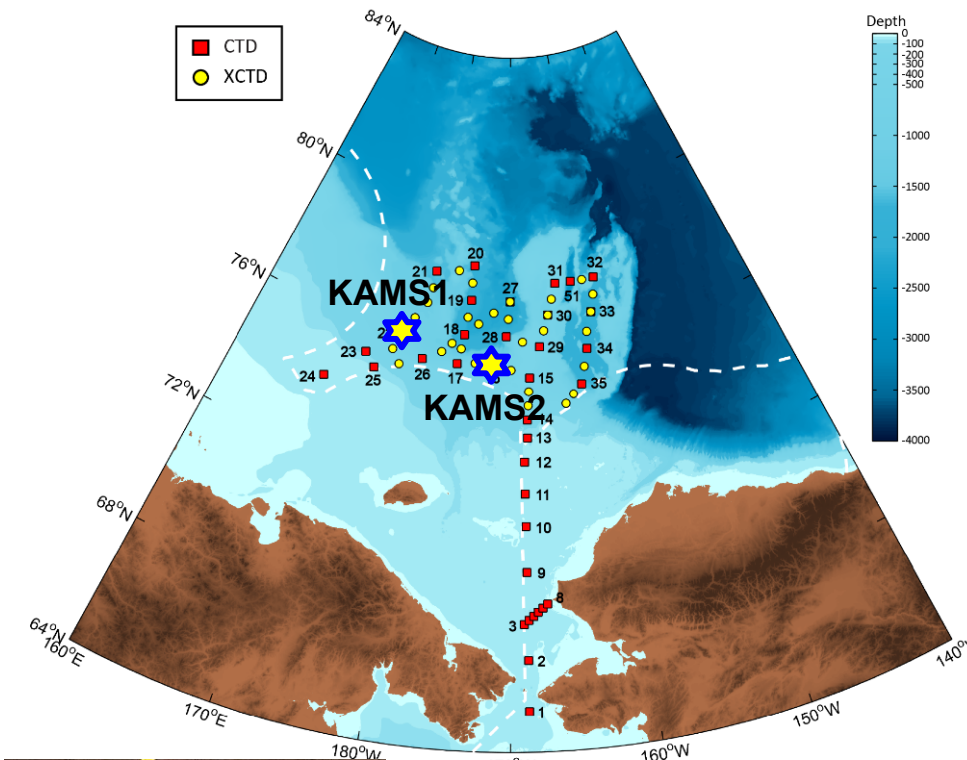
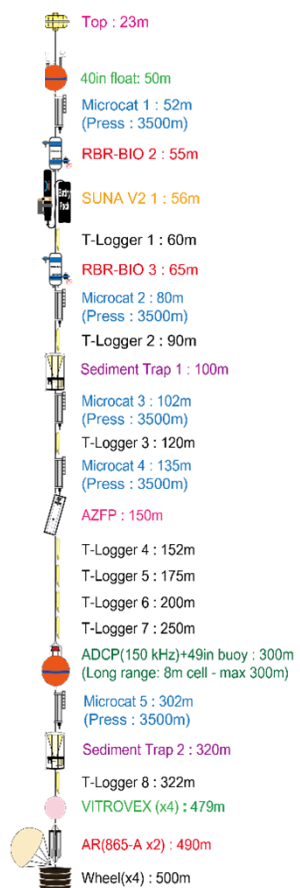
- CTD stations(35)
- XCTD stations(30)
- ◆ Sea Ice camp
- ◆ Ocean Mooring
- ◆ C-PIES



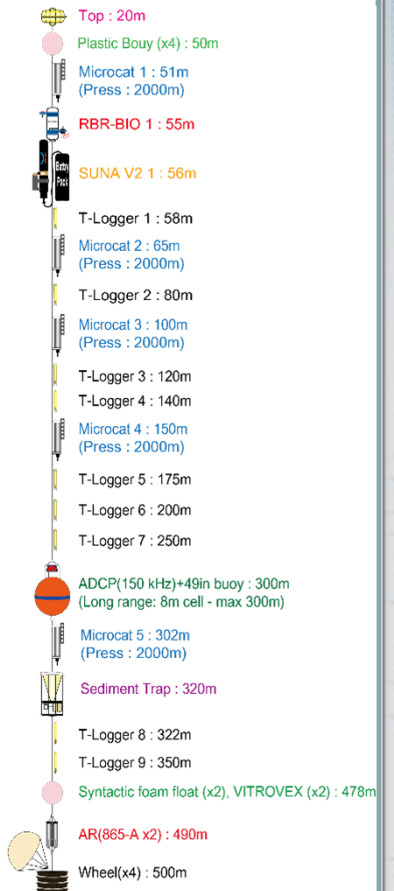
# IB R/V ARAON Arctic Cruises (2017)

- ◆ KOPRI Ocean Mooring: KAMS1 (ESS), KAMS2 (CHS)
- ◆ TUMSAT Ocean Mooring: ESS, CHS
- Equipment: ADCP (150, 300 kHz), microCAT CTD, temperature logger, sediment trap, AZFP, UV nitrate sensor (SUNA V2), Fluorescence & PAR sensors, ULS, hydrophone

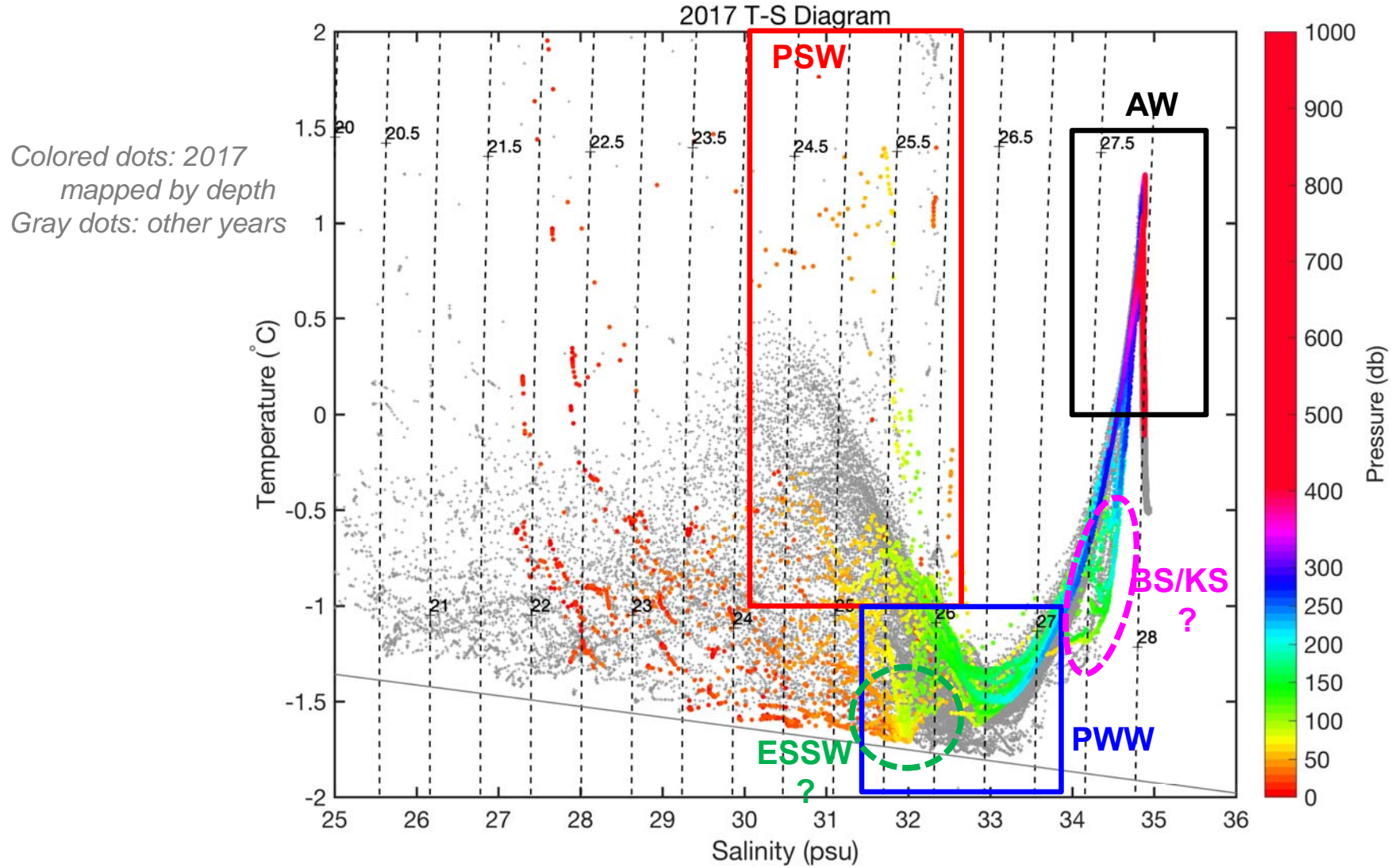
## KAMS1-17



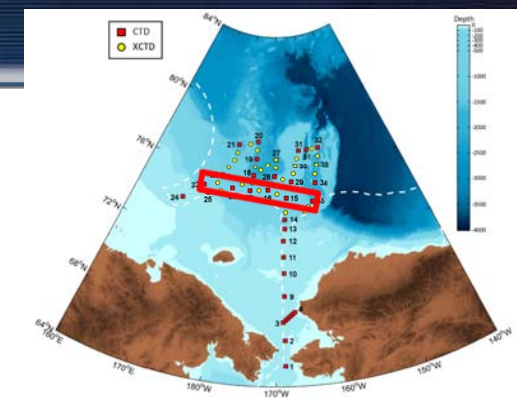
## KAMS2-17



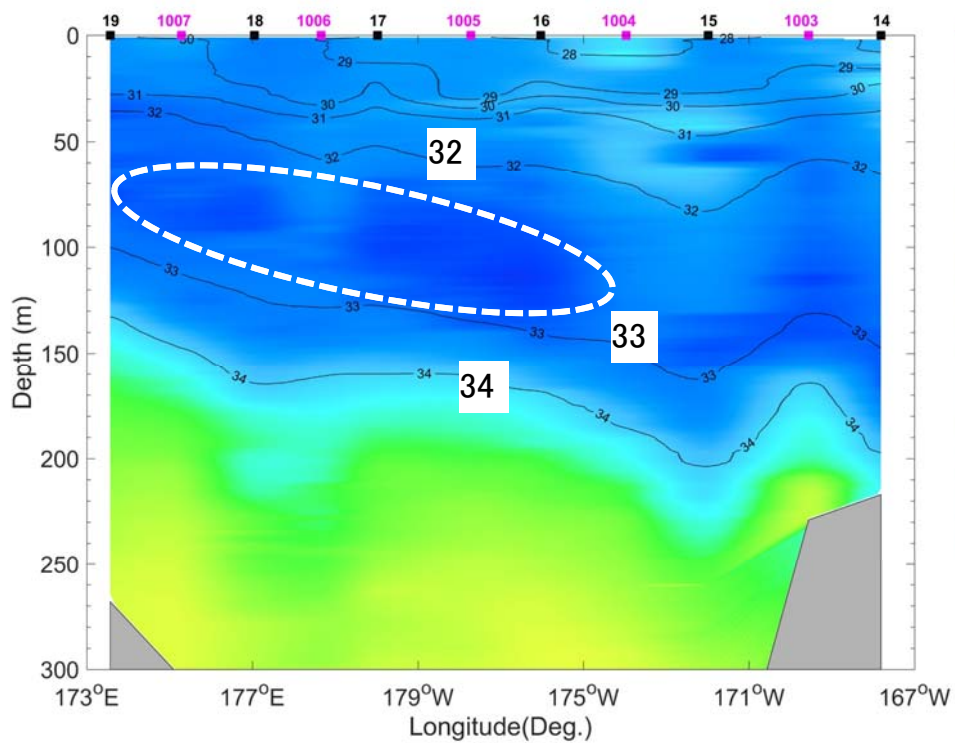
# Results: T-S Diagram



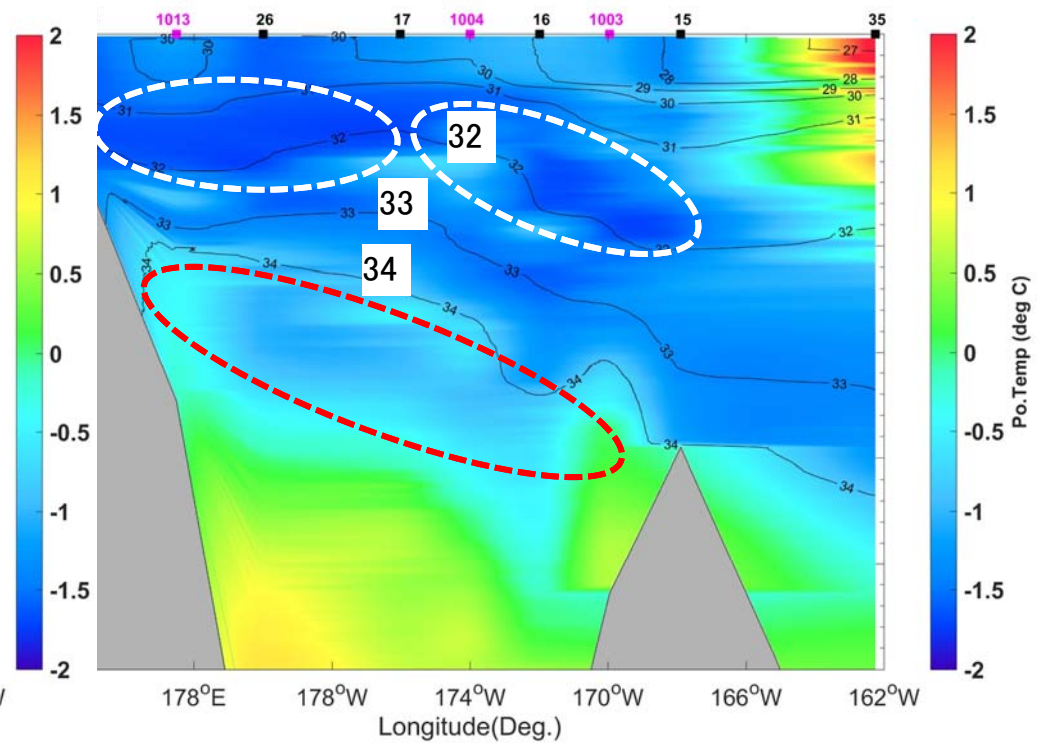
# CBL Observation (CTD-T, S) : ~75 N



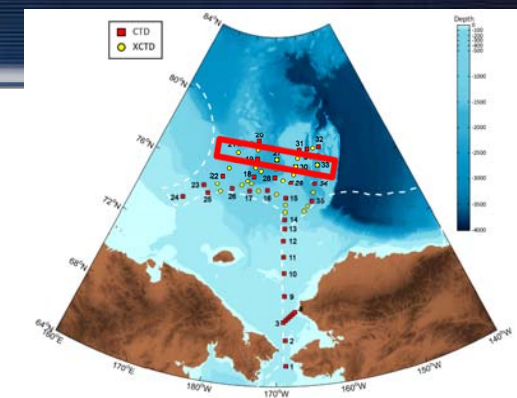
2016



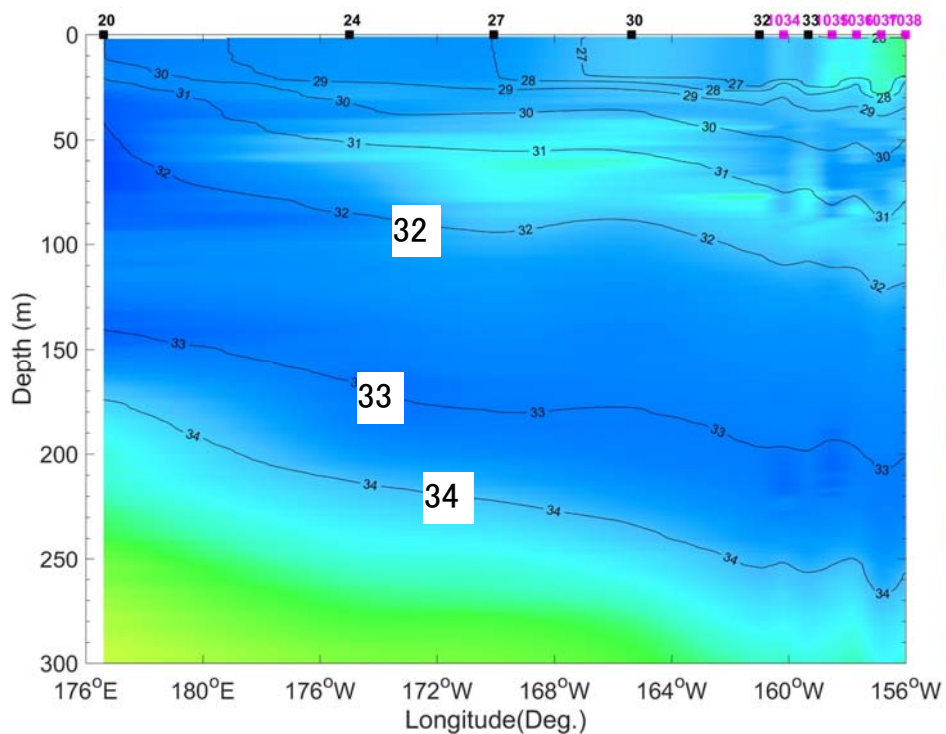
2017



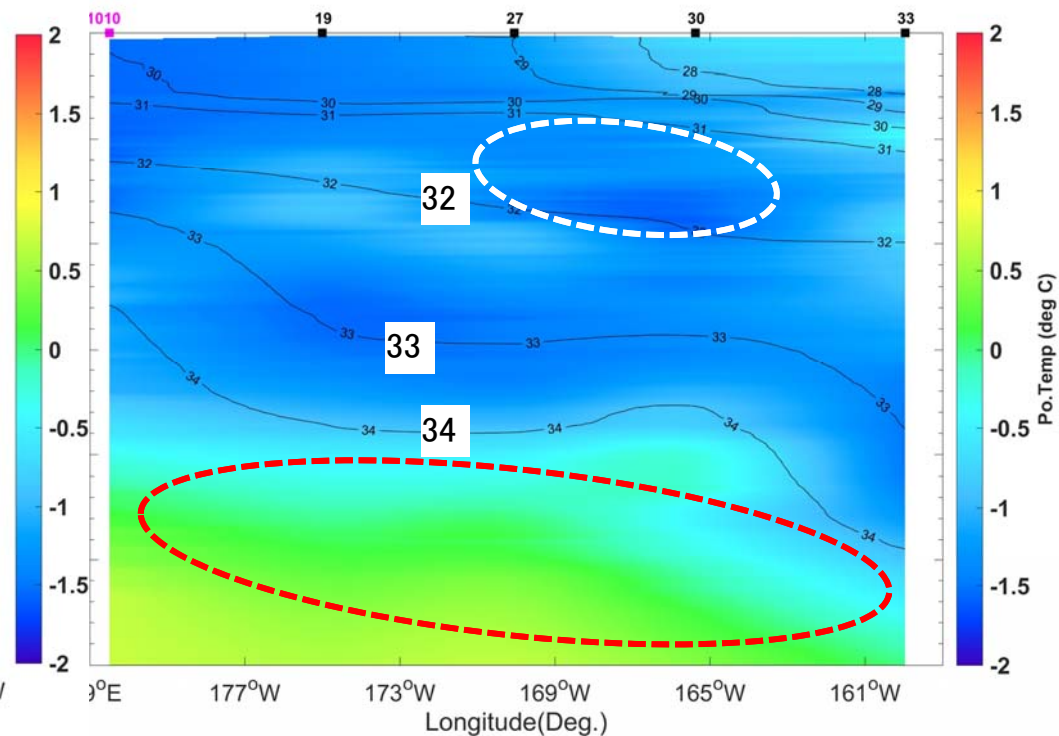
# CBL Observation (CTD-T, S) : ~77 N



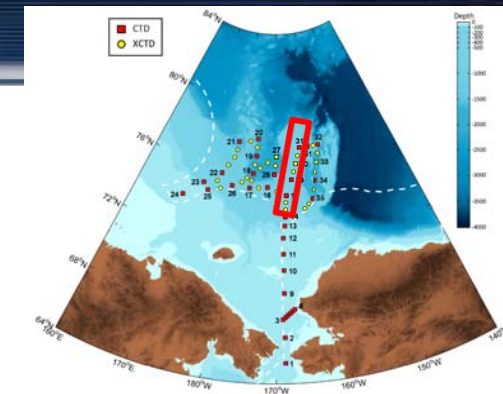
2016



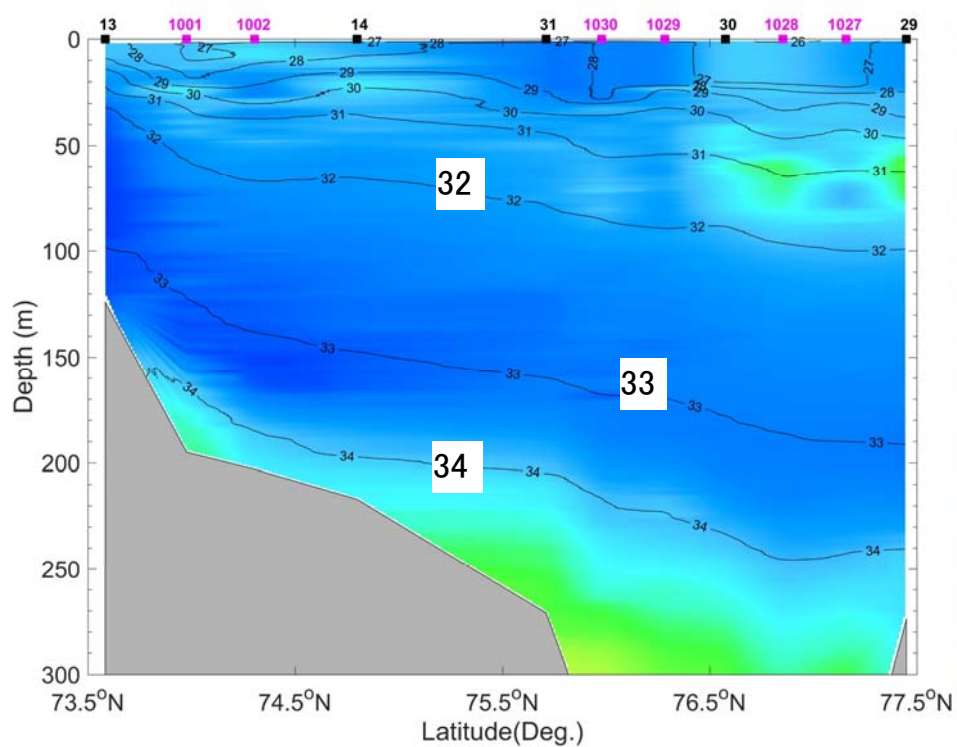
2017



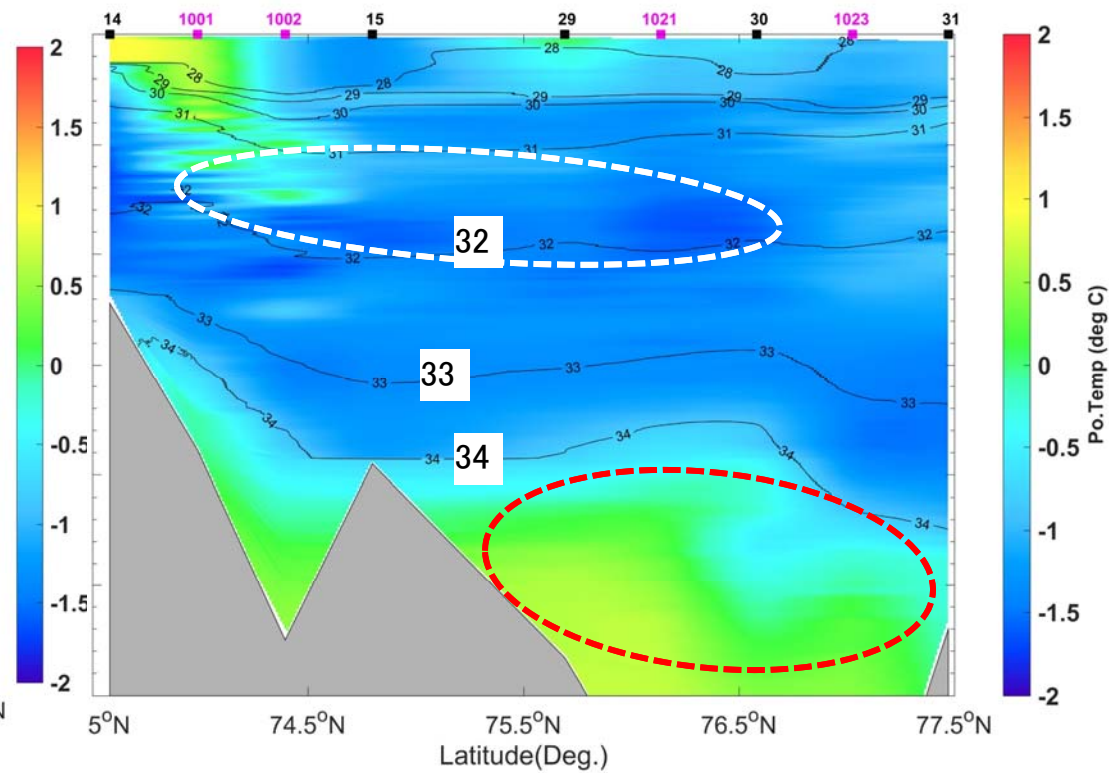
# CP Observation (CTD-T, S): $\sim 168^{\circ}\text{W}$



2016

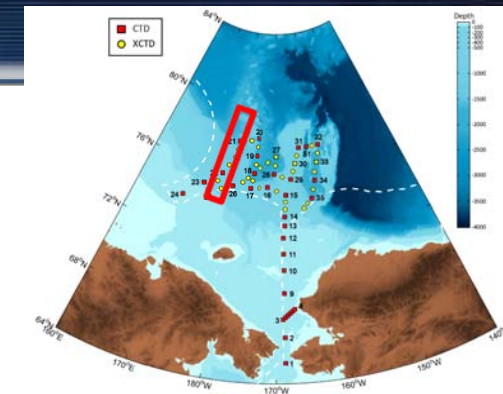


2017

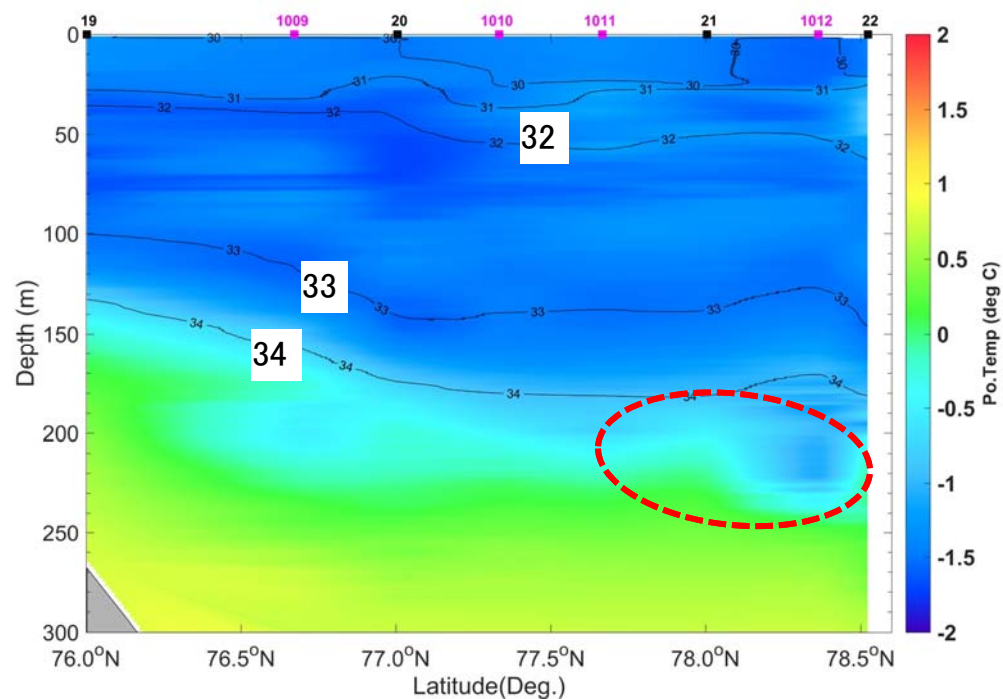




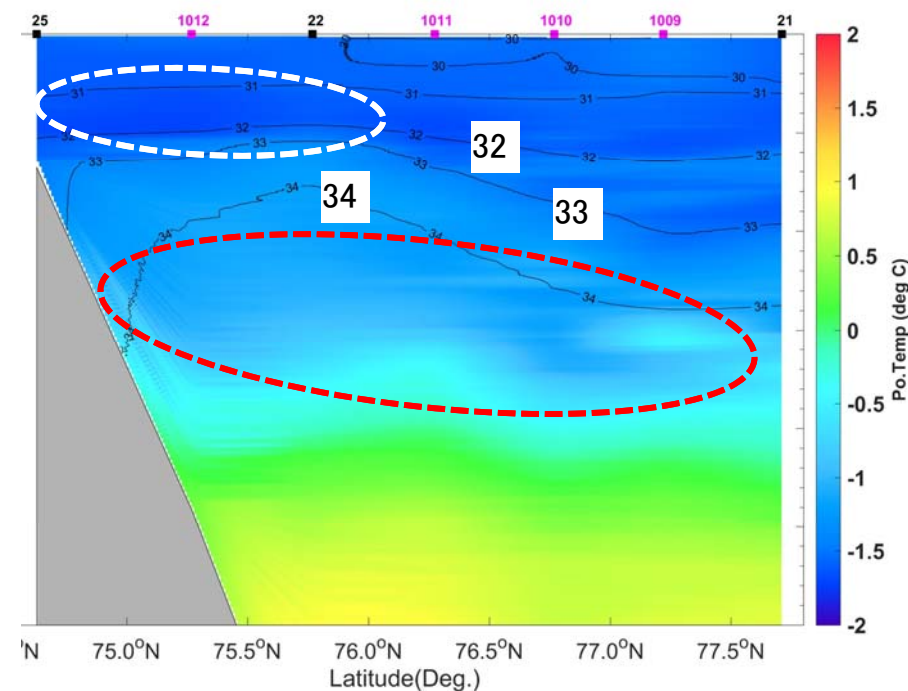
# ESS Observation (CTD-T, S) : ~77 E



2016

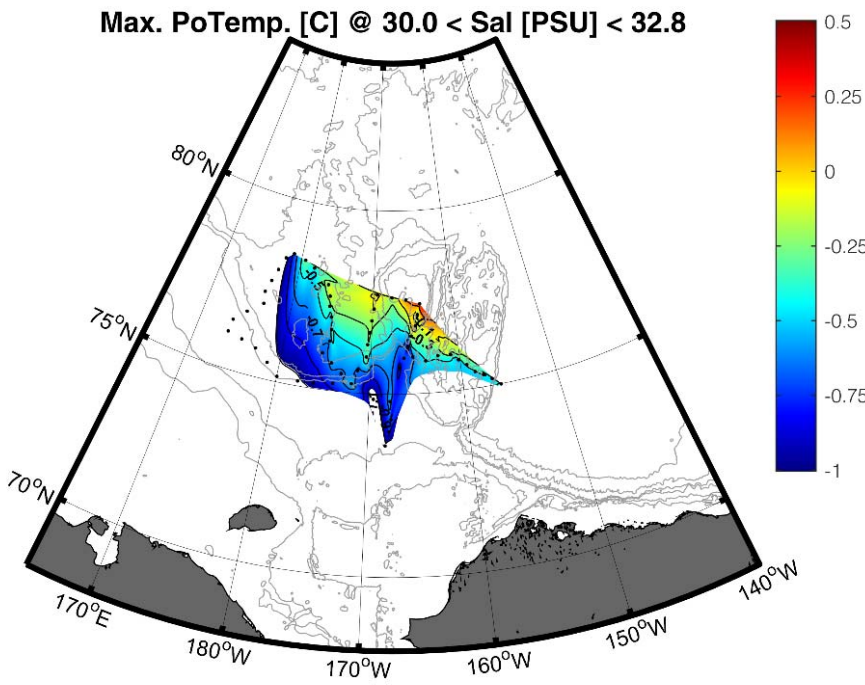


2017

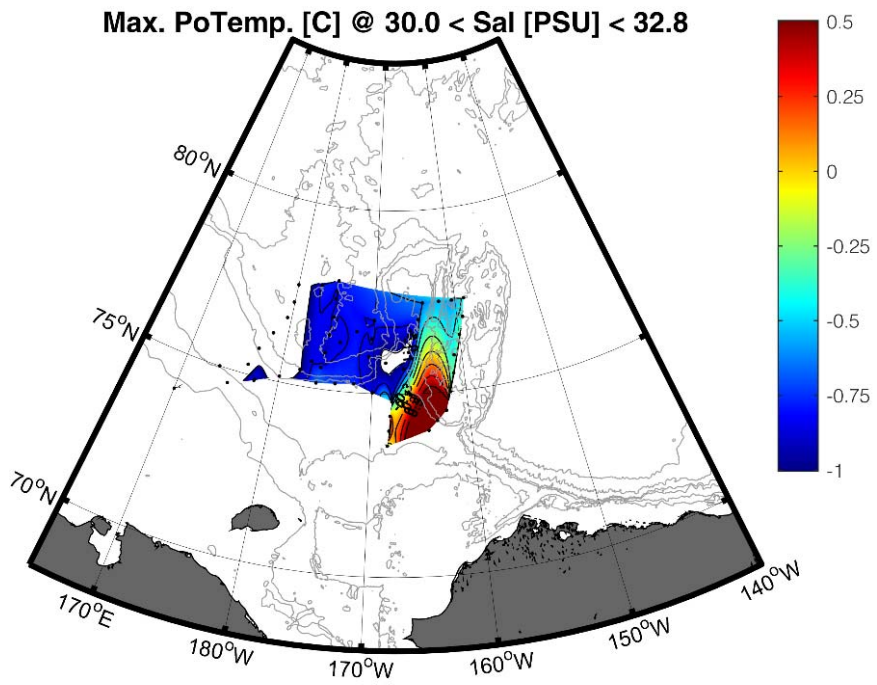


# Distribution of Summer Water ( $\theta_{\max}$ )

2016

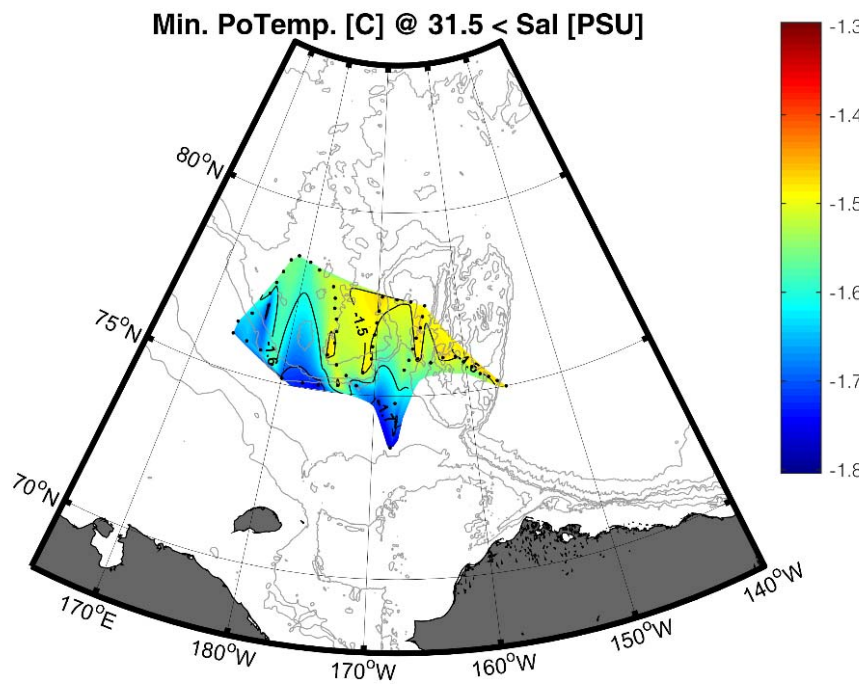


2017

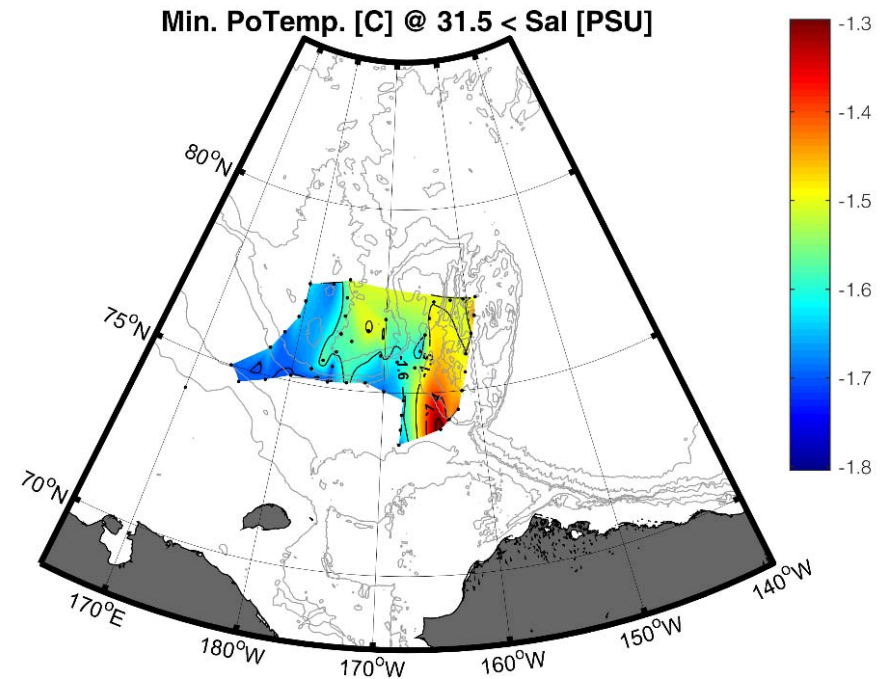


# Distribution of Winter Water ( $\theta_{\min}$ )

2016



2017

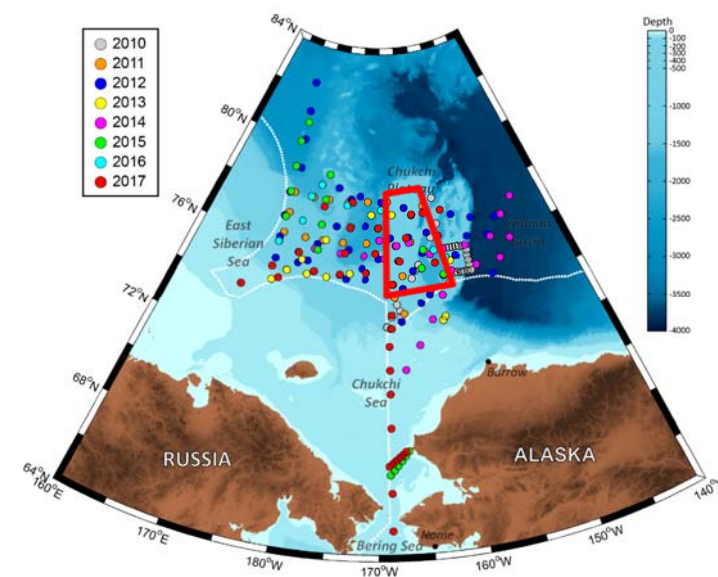
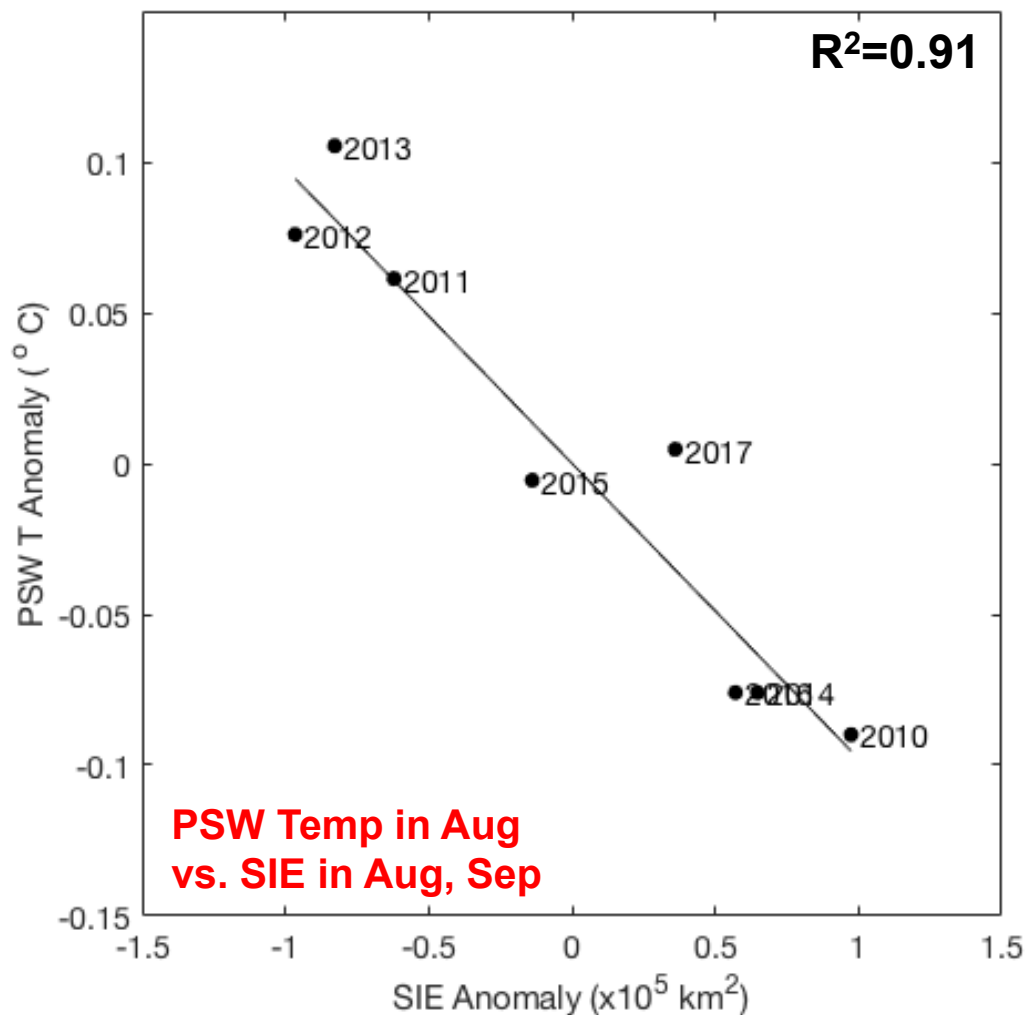


# Anomaly correlation

2011, 2012,  
2013



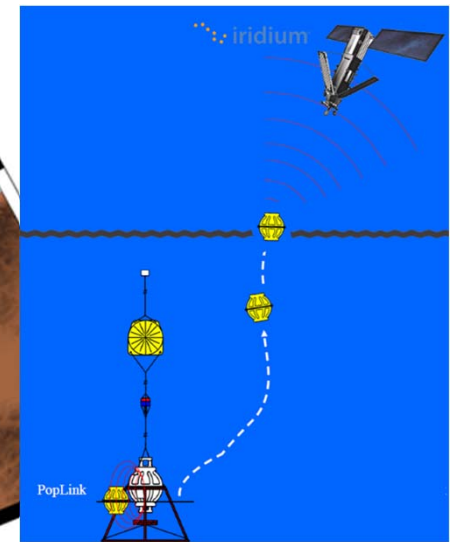
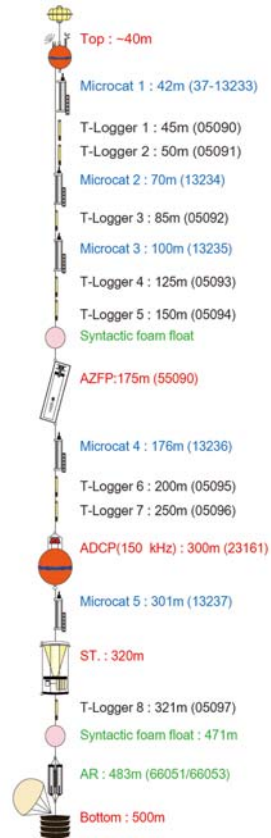
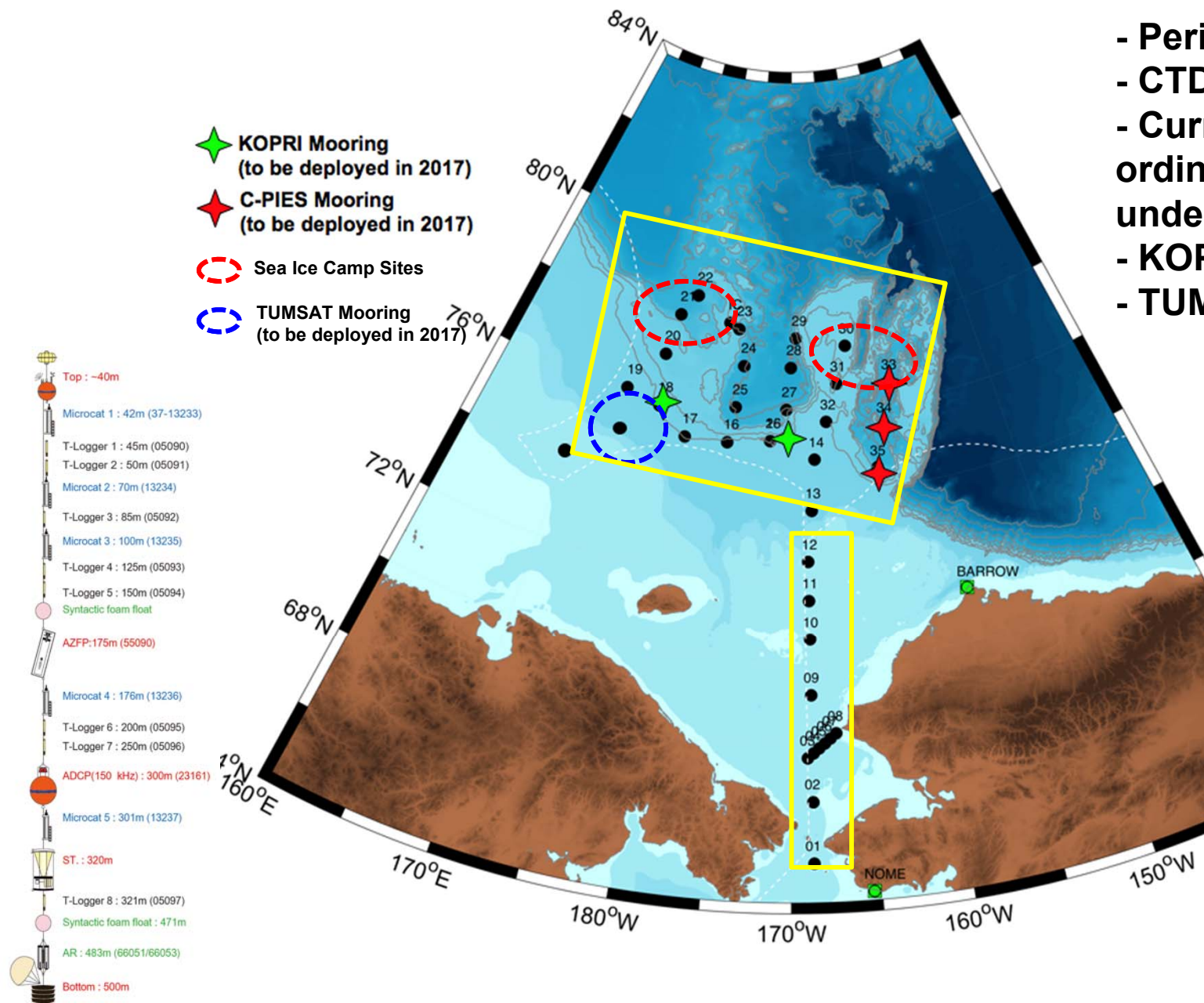
2010, 2014,  
2016



- PSW selected from the area of [170°W~160°W, 74°N~78°N]
- SIE calculated from the areas of central Arctic and Chukchi Sea
- ECMWF wind (monthly) selected from the shelf areas of [150°E~160°W]

# 2018 ARAON Cruise Plan: Station Map

- Period: Aug to Sep
- CTD stations: 35~40
- Current & Pressure-recording Inverted Echo So under (C-PIES): 3
- KOPRI mooring: 4-5
- TUMSAT mooring: 2



**Thank you!**