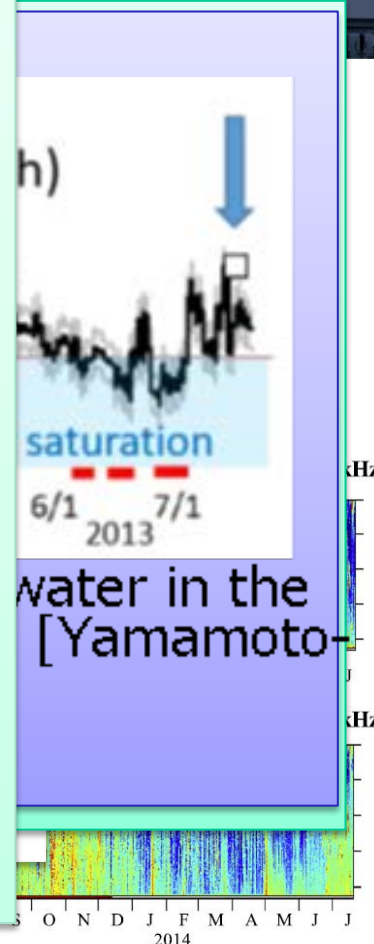
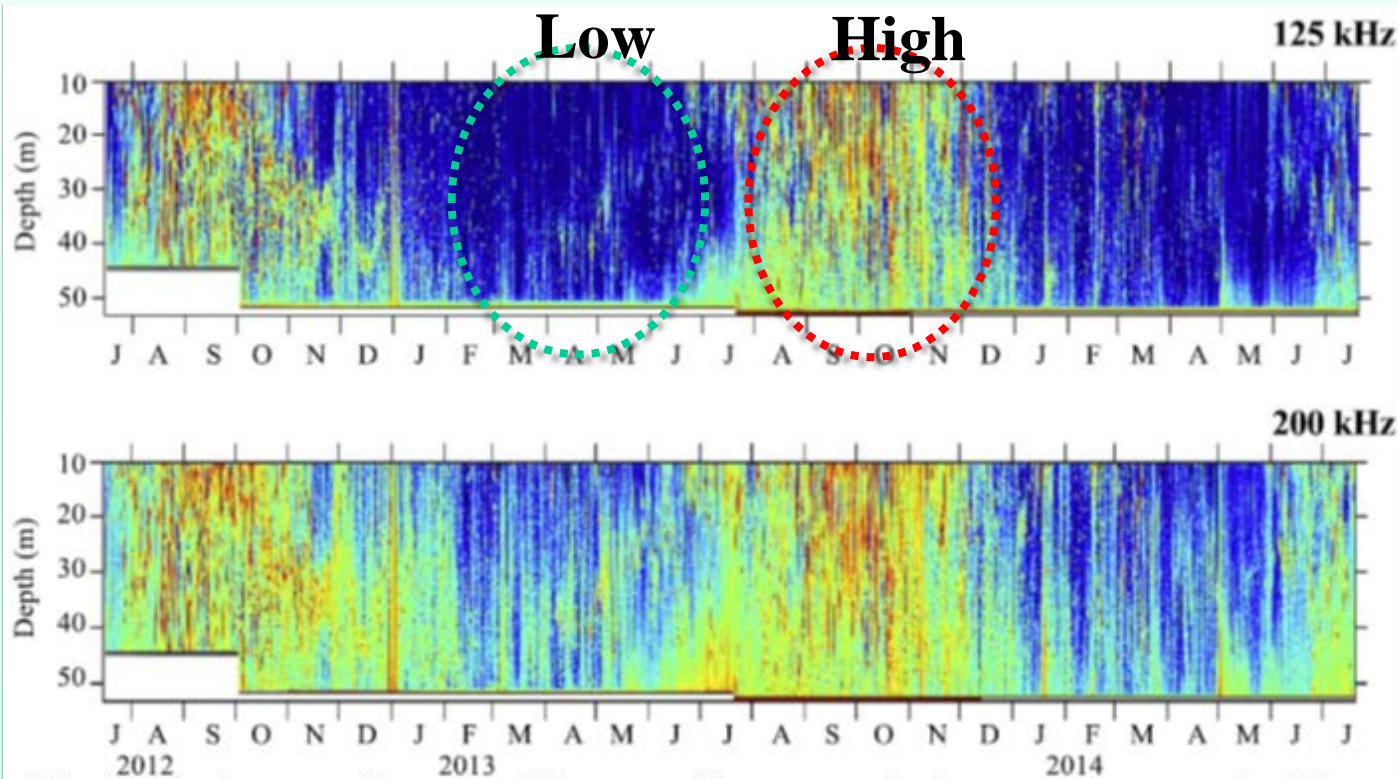


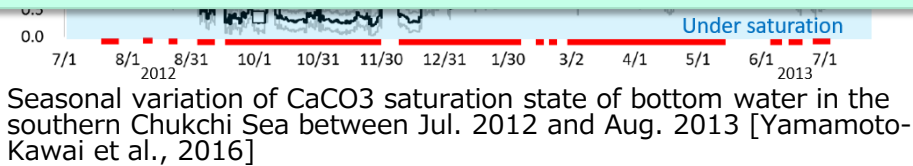
DBO 3 mootng results on fall blooms, ocean acidification and zooplankton dynamics

1. Nishino et al. *Biogeosciences*, 2016 (Press released)



World's first observational evidence of seasonal change on zooplankton dynamics in the Hope Valley of the southern Chukchi Sea revealed by Acoustic Zooplankton Fish Profiler [Kitamura et al., 2016]

World's first observational evidence of seasonal change on zooplankton dynamics in the Hope Valley of the southern Chukchi Sea revealed by Acoustic Zooplankton Fish Profiler [Kitamura et al., 2016]



Seasonal variation of CaCO₃ saturation state of bottom water in the southern Chukchi Sea between Jul. 2012 and Aug. 2013 [Yamamoto-Kawai et al., 2016]

Interannual variabilities of fluxes in Barrow Canyon for 2010-2015 : results from the DBO-5 repeat section

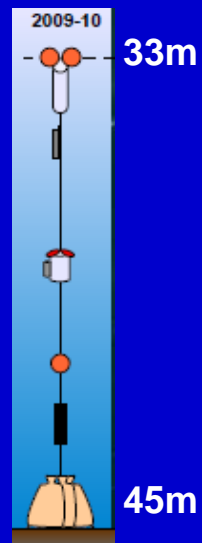
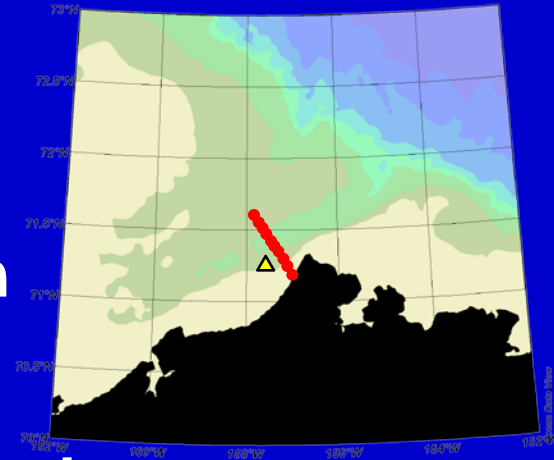
M. Itoh, T. Kikuchi, S. Nishino (JAMSTEC), Y. Fukamachi (Hokkaido Univ.),
K. I. Oshima (Hokkaido Univ.), R. Pickart, C. Ashjian (WHOI), S. Vagle (IOS)

Motivation

Itoh et al. (DSR, 2015) examined volume and heat fluxes in Barrow Canyon during summer 2010 using 6 occupations of DBO-5 repeat hydrographic section. Heat flux was consistent with that estimated from mooring (T) and wind data nearby the section.

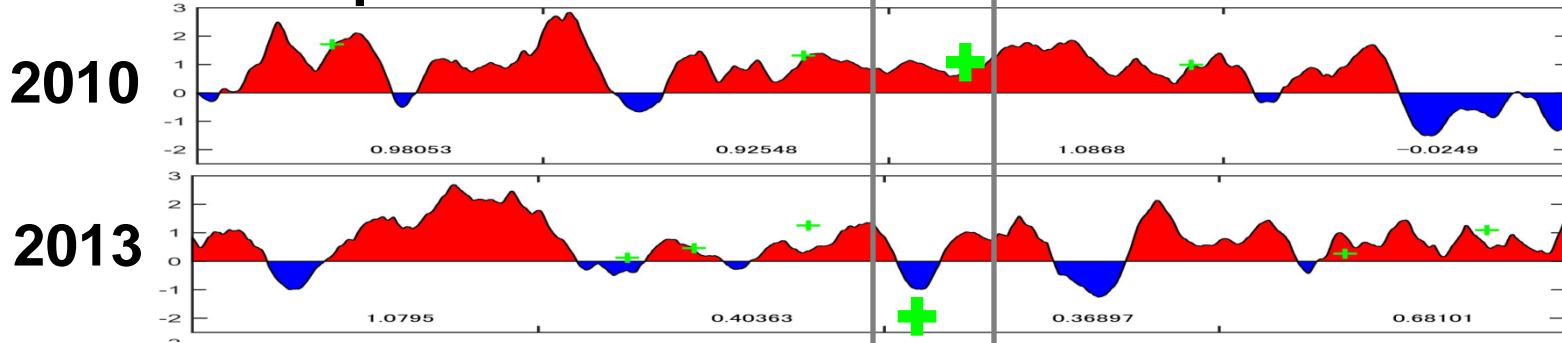
Now, there are 22 CTD and ADCP occupations for 2010-2015.

We can extend the period to 2010-2015 and examine interannual variabilities of fluxes of DBO-5 section.

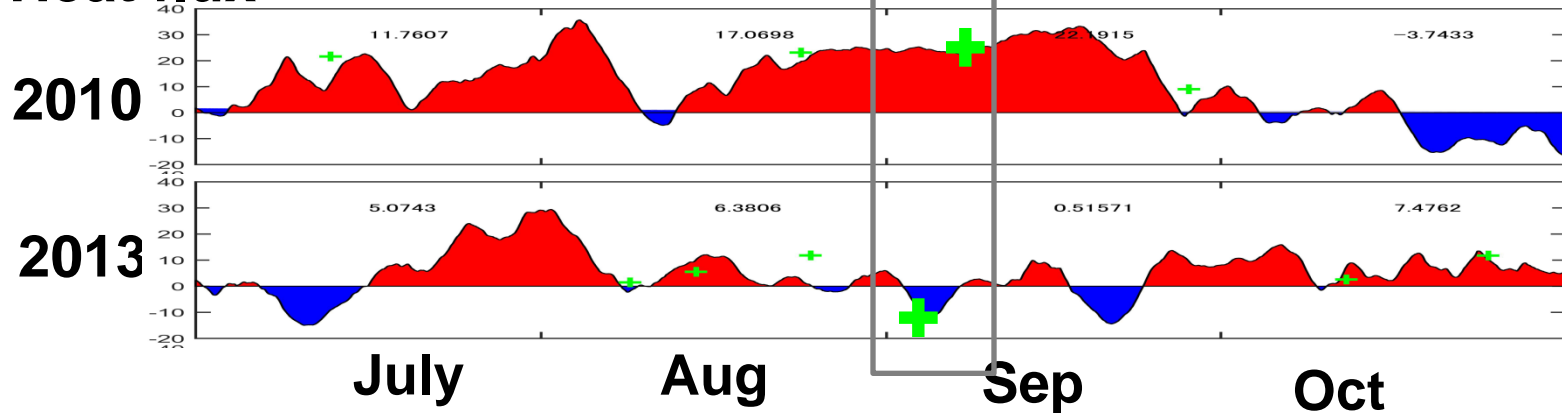


Time series of volume and heat flux

Volume transport



Heat flux

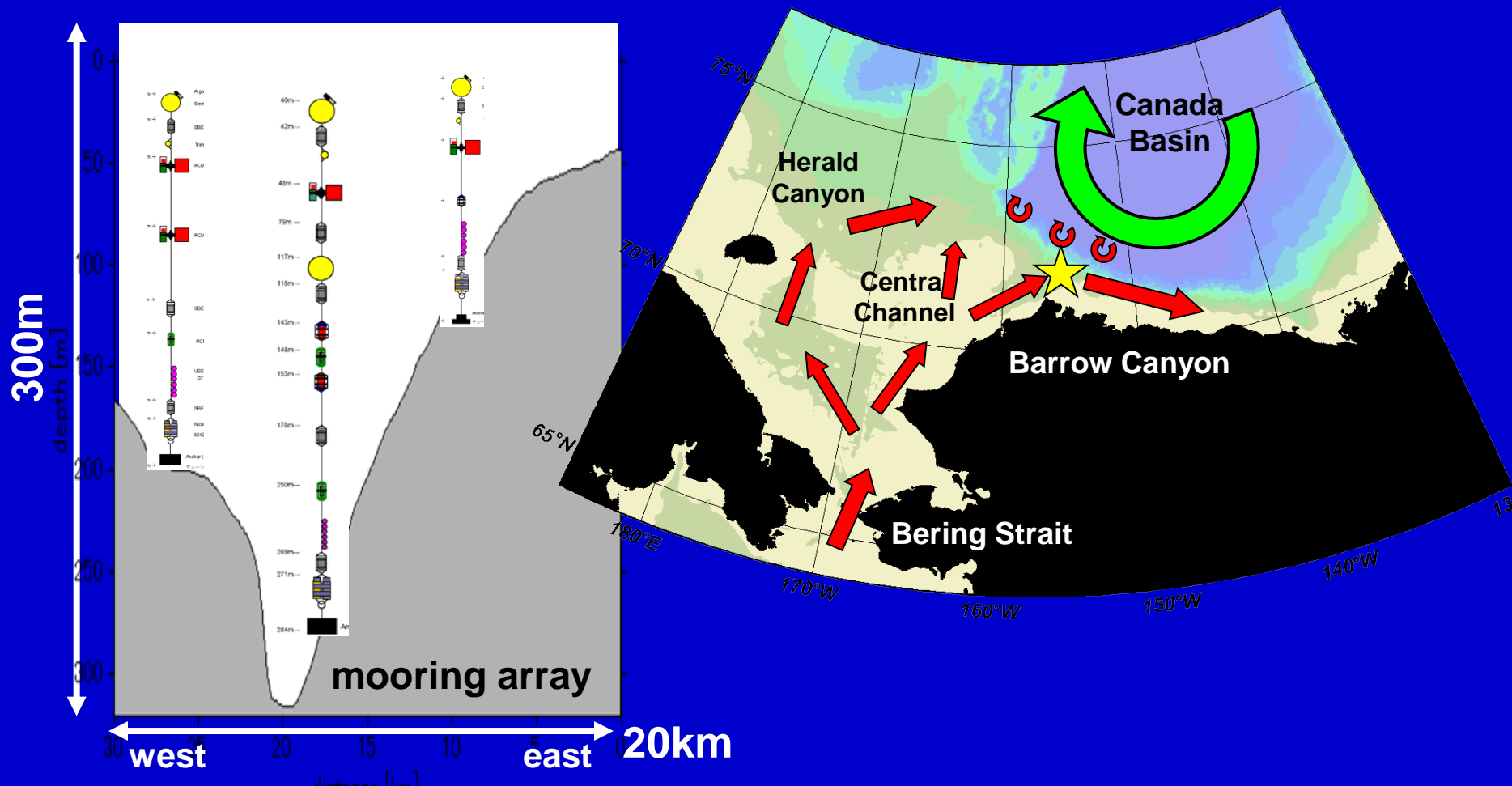


+ Data from DBO-5 transect.

- Estimated fluxes are well correlated with DBO-5 data.
- Estimations would be important to understand the mechanism of annual and interannual variations and their effects on water characteristics observed in DBO-5 line.

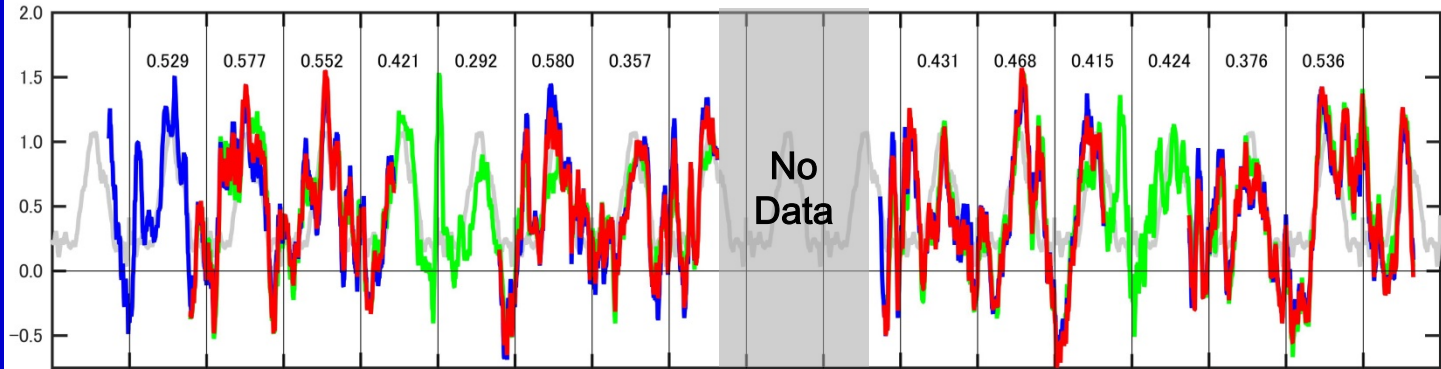
Mooring observations in the Barrow Canyon

Three moorings measuring T, S, V for 2000-2008 and 2010-now. Since 2016, several chemical sensors (DO, Chl-a, pH) are also attached.

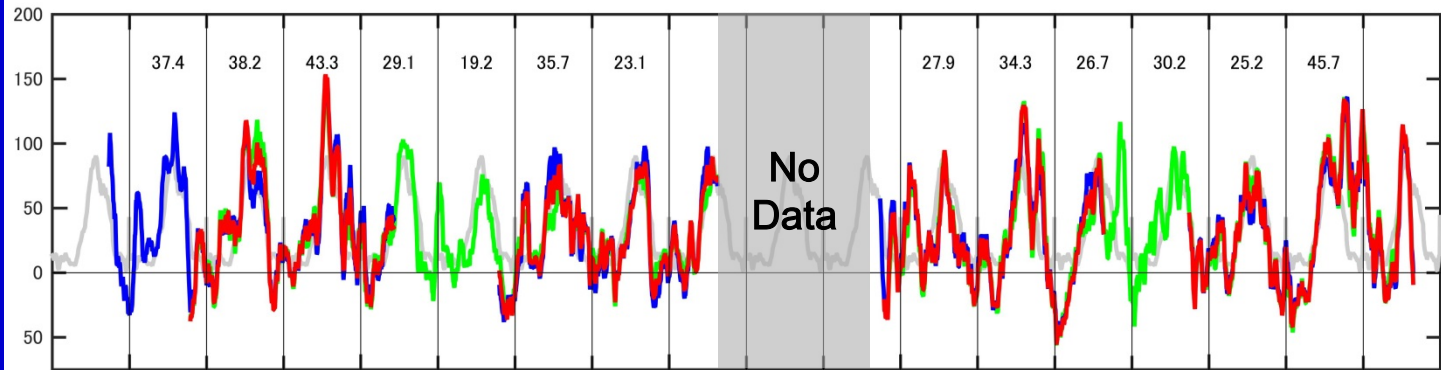


Barrow Canyon volume, fresh water and heat fluxes

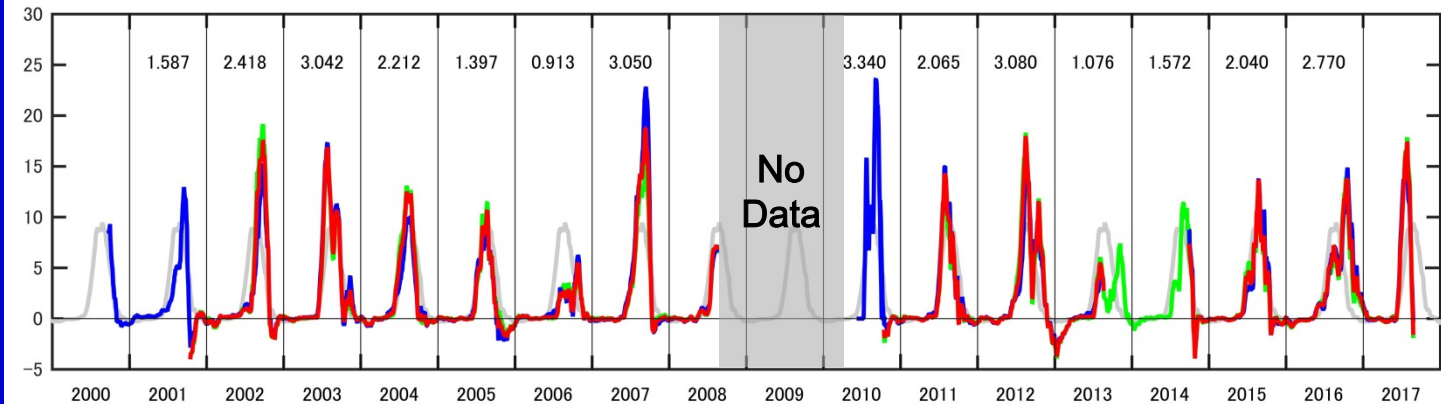
Volume flux
0.44 Sv
(error 13%)



Freshwater flux
(ref. sal = 34.8)
32 mSv
(error 19%)

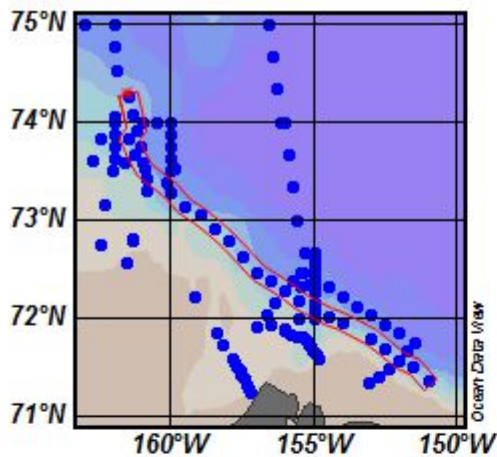


Heat flux
(ref. freezing temp)
2.2 TW
(error 8%)



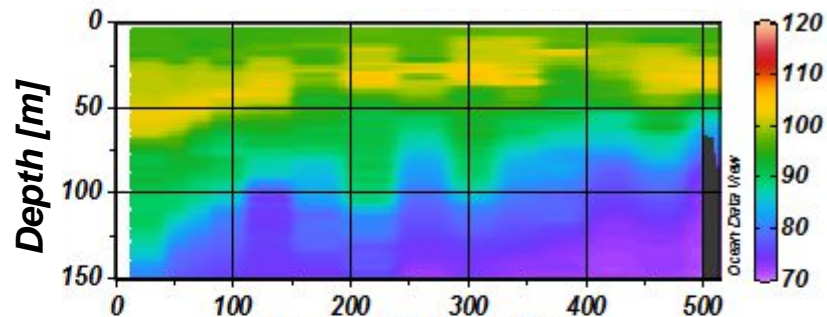
Updated from Itoh et al., (JGR, 2013) and Itoh et al., (DSR I, 2015)

<2017 field results> Vertical sections along a 500 m depth isobath

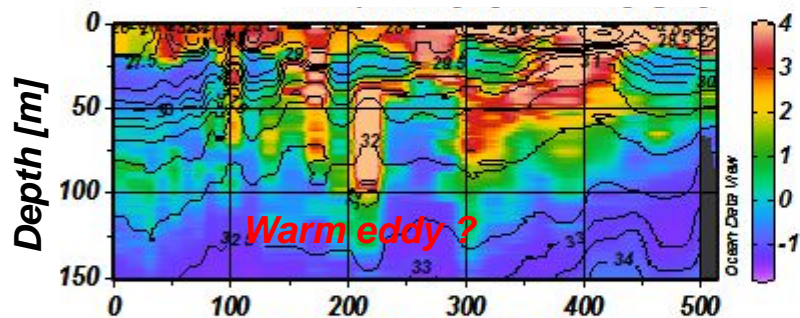


Along 500m isobath

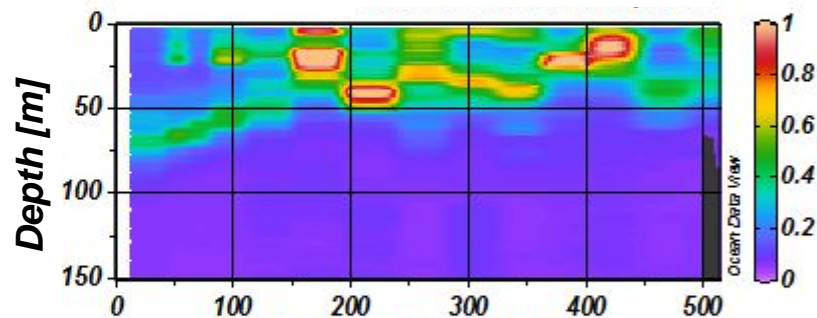
Oxygen saturation [%]



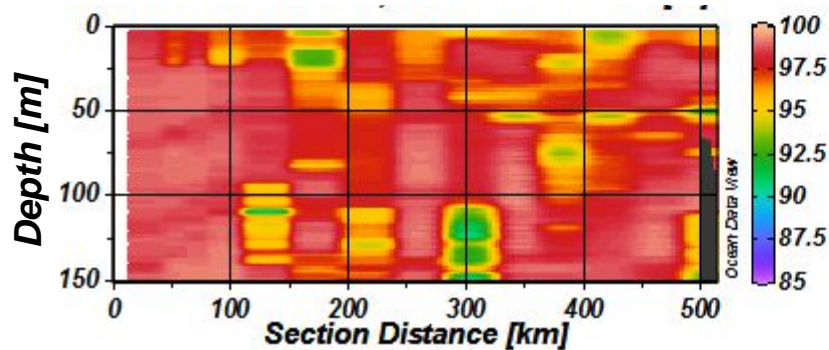
Temperature [°C]



Fluorescence



Beam Transmission [%]



Nitrate (SUNA)

