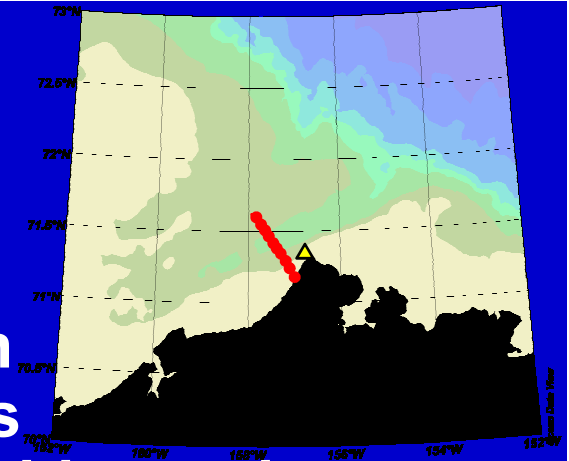


**Interannual variabilities of fluxes
in Barrow Canyon from 2010-2014 :
results from the DBO-5 repeat section**

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Yasushi Fukamachi (Hokkaido Univ.), Robert Pickart (WHOI)
and collaborators**

Motivation

Itoh et al., (DSR, 2015) have examined volume and heat fluxes in Barrow Canyon during summer 2010, using 6 occupations DBO-5 (Barrow Canyon) repeat hydrographic section, mooring and wind data nearby the section.



Now, there are 35 occupations DBO-5 until 2015.

In our previous studies, we have focused on intra seasonal variabilities of fluxes during summer 2010. Now there is enough data to show interannul variabilities of fluxes.

We extend the period to 2010-2014 and examine interannul variabilities of fluxes of DBO-5 section.

DBO-5 Barrow Canyon repeat hydrography

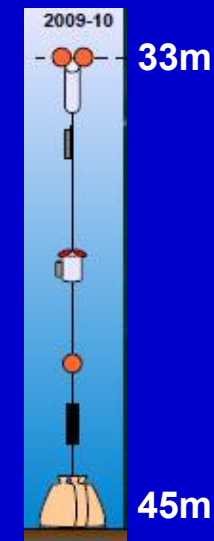
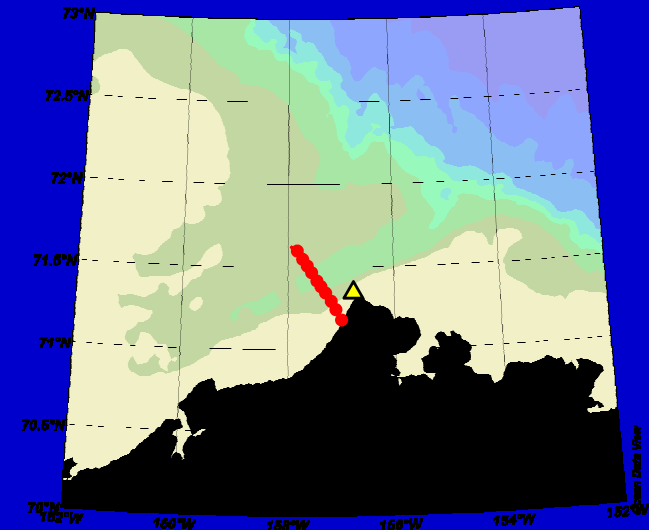
23 CTD and ADCP section from 2010–2014.

Advantage: capturing detail structures of flow fields and water properties.

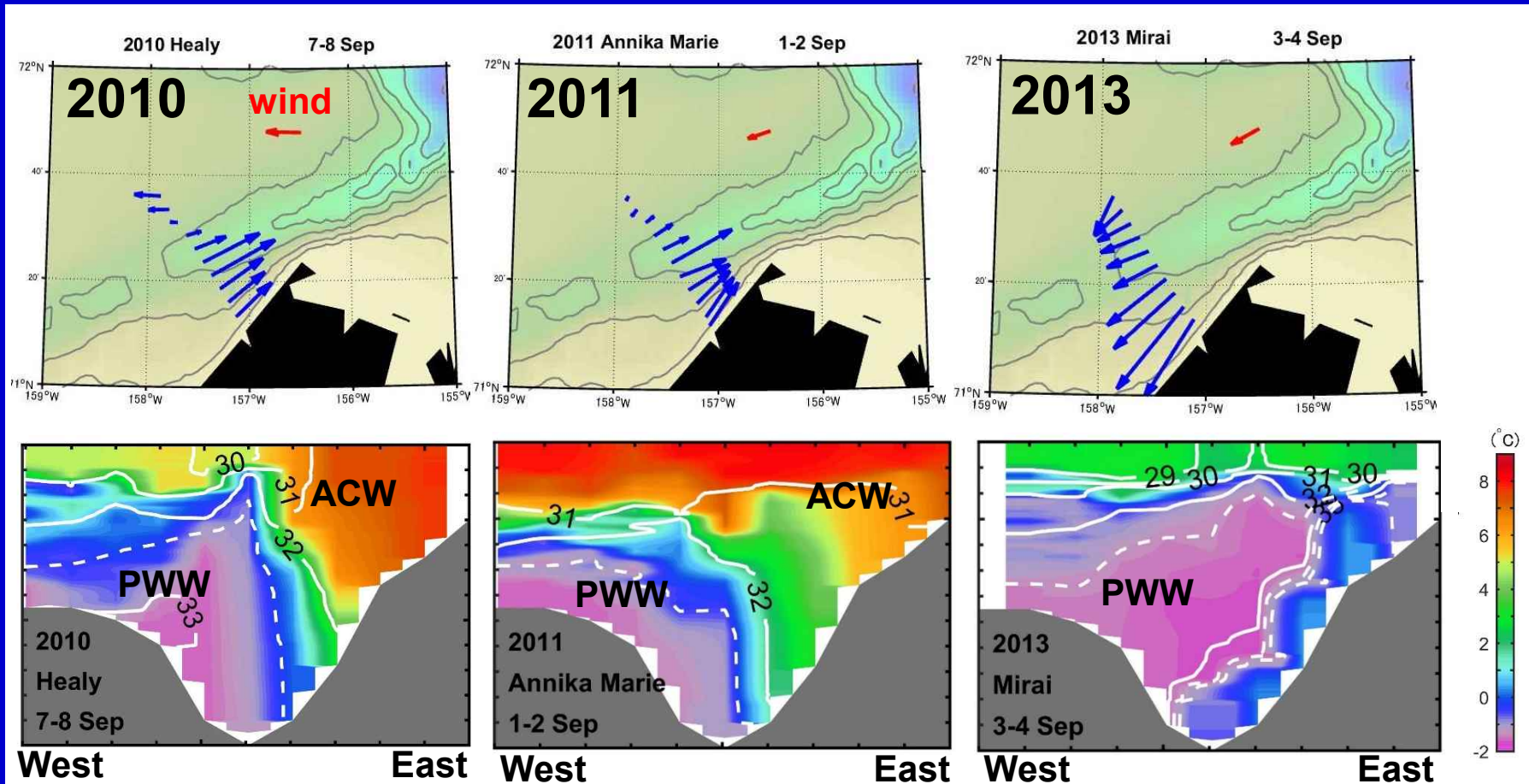
Mooring nearby DBO-5 line

Temperature, salinity and velocity time series since 2009, which is operated by Hokkaido Univ., Japan and UAF, USA. Mooring sites is located at the core of Alaskan Coastal Water.

Advantage: measuring time series between the repeat hydrographys.

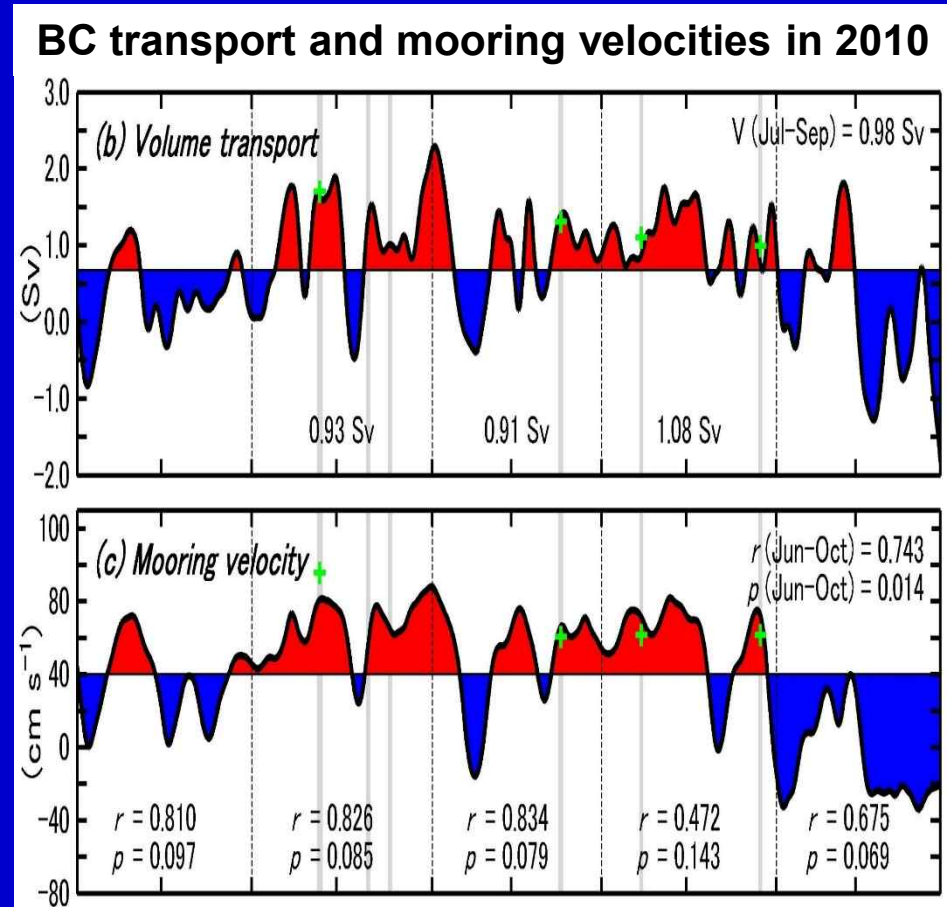
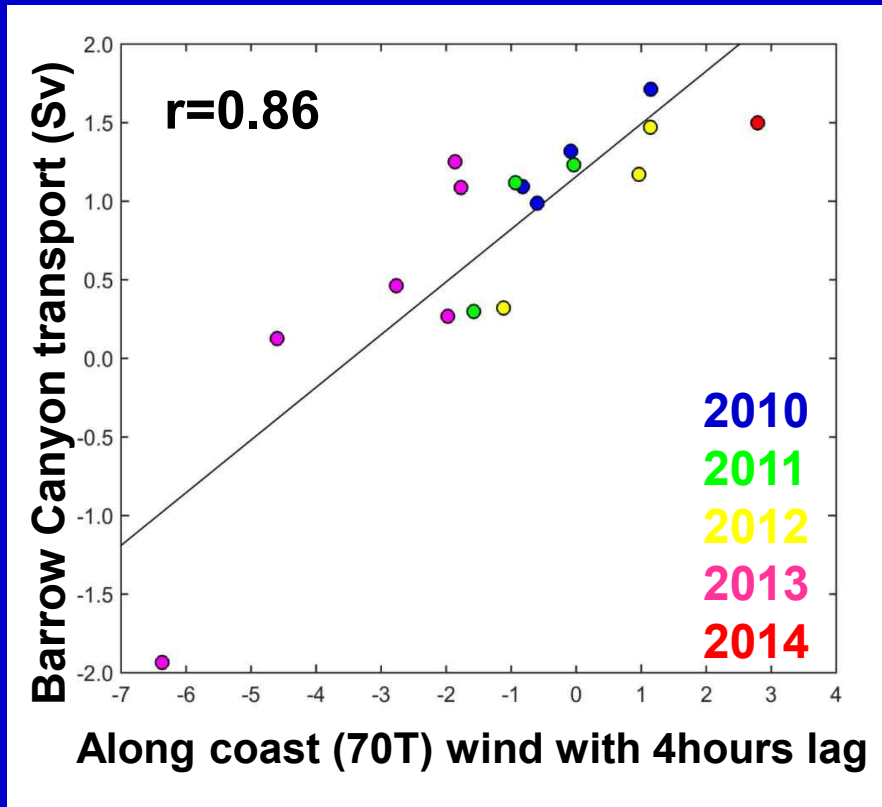


Year to year variations of flow fields in early Sep.



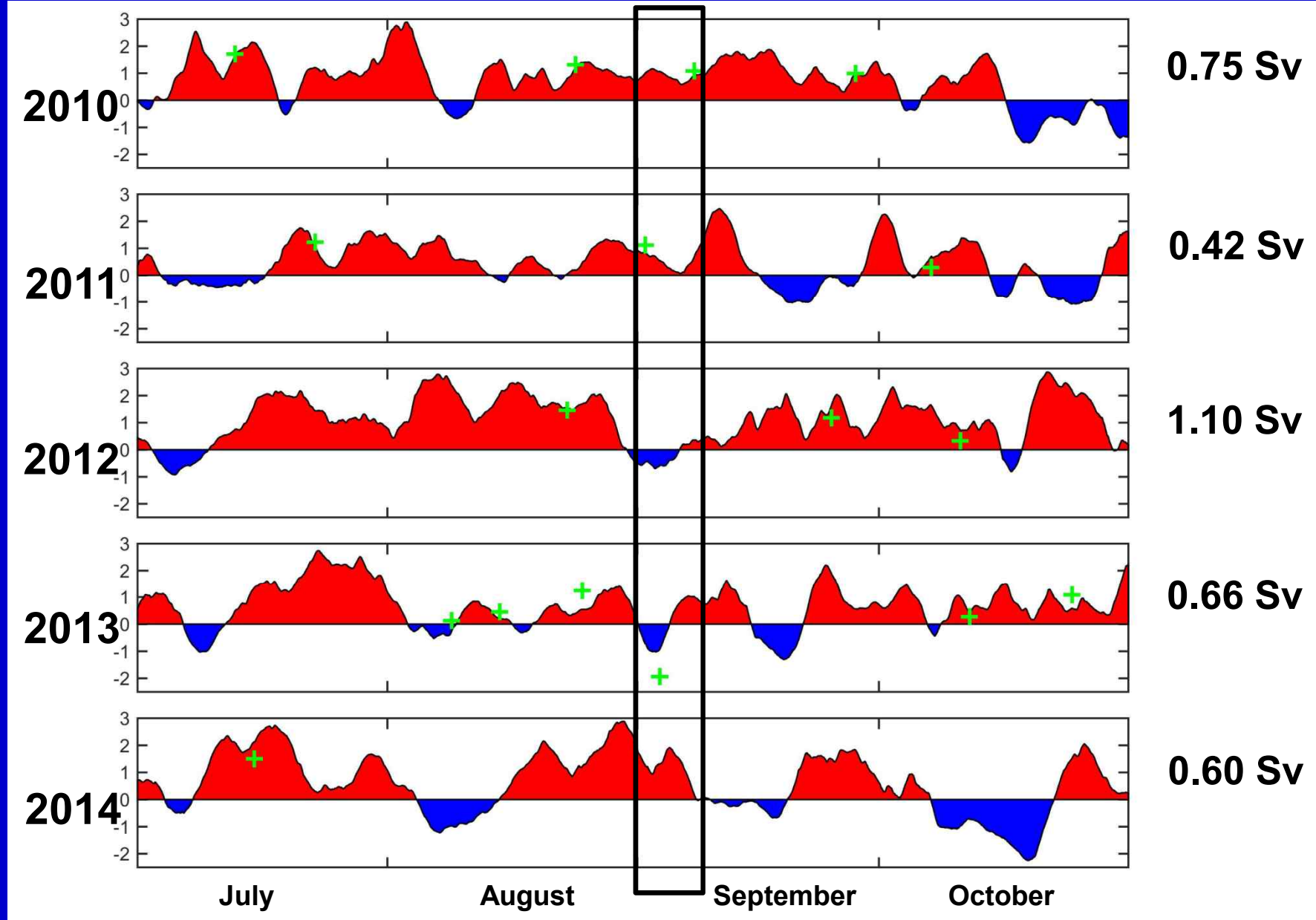
- Flow fields and water properties in 2013 is completely different from those in 2010 and 2011. This difference is probably due to wind.

Relation between transport and along-canyon wind



- Barrow Canyon transport and along-coast wind are well correlated.
- The transport estimated from wind and velocity observed by mooring are significantly correlated ($>98\%$). Mooring data supports our estimation of transport from the wind.

Volume transport estimation from wind



+ Data from DBO-5 transect.

Summary and future works

- ✓ **Based on the repeat section of DBO-5 and local along-coast winds from 2010–2014, interannual variabilities of Barrow Canyon transport was examined.**
- ✓ **The averaged transport estimated from the wind data for July-October is 0.42- 1.1 Sv.**
- ✓ **Estimation of heat flux from 2010–2014, using repeat section of DBO-5, winds and timeseries of ACW temperature observed by mooring nearby the section, will be our future work.**

