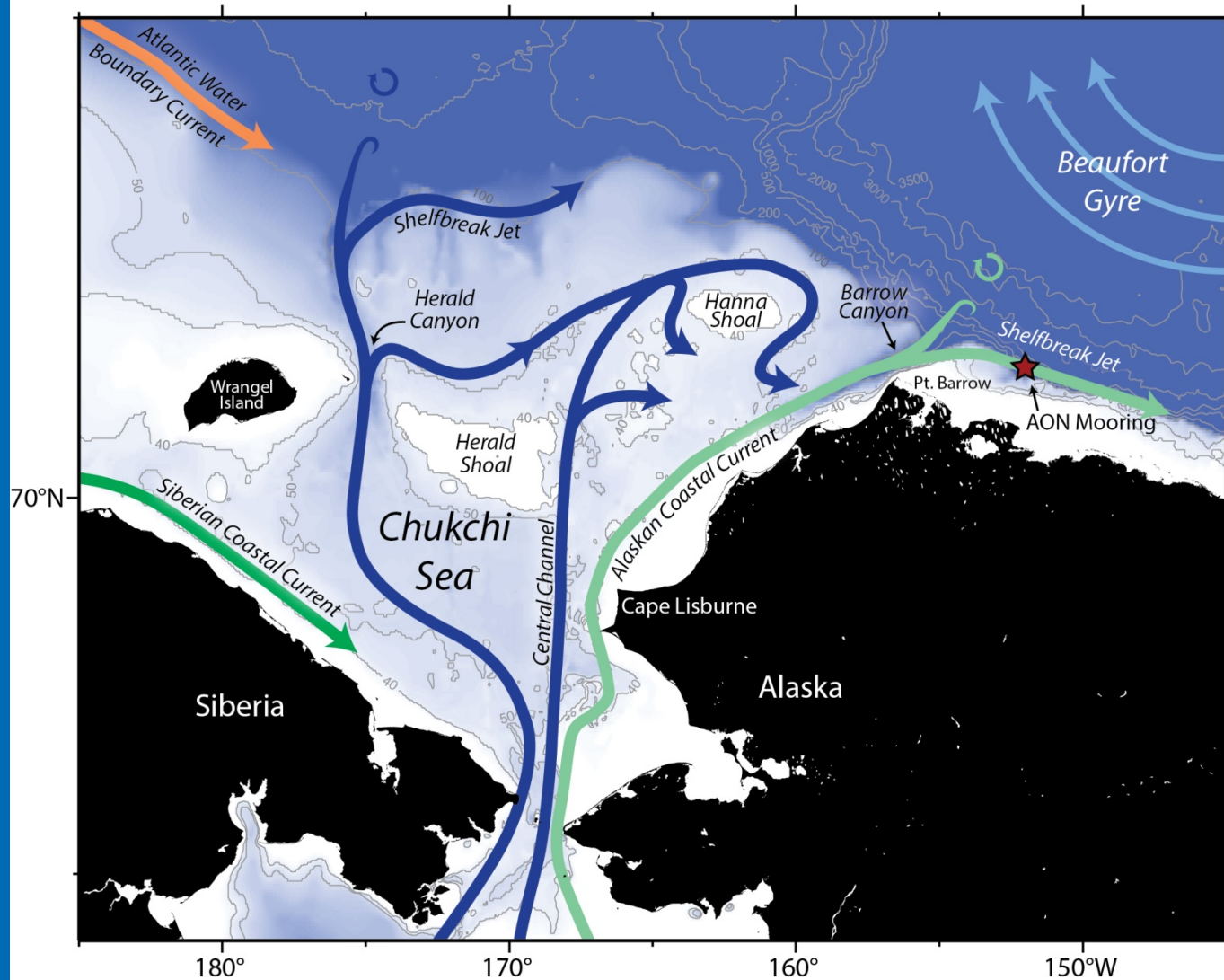


AON: Assessing the western Arctic boundary current in a warming climate

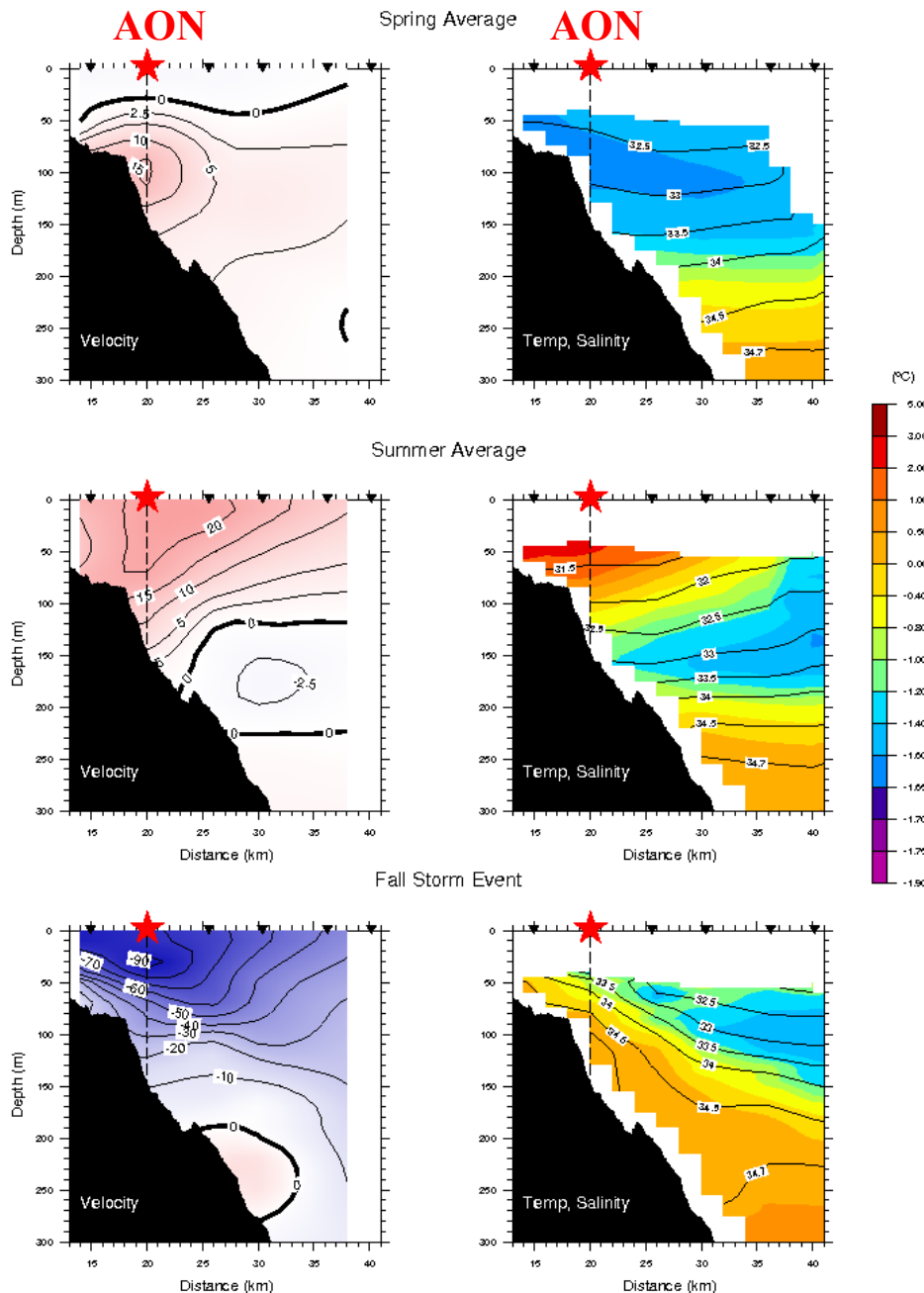
Robert S. Pickart, Woods Hole Oceanographic Institution

Chukchi Sea July 2014
Photo by Tim Sullivan

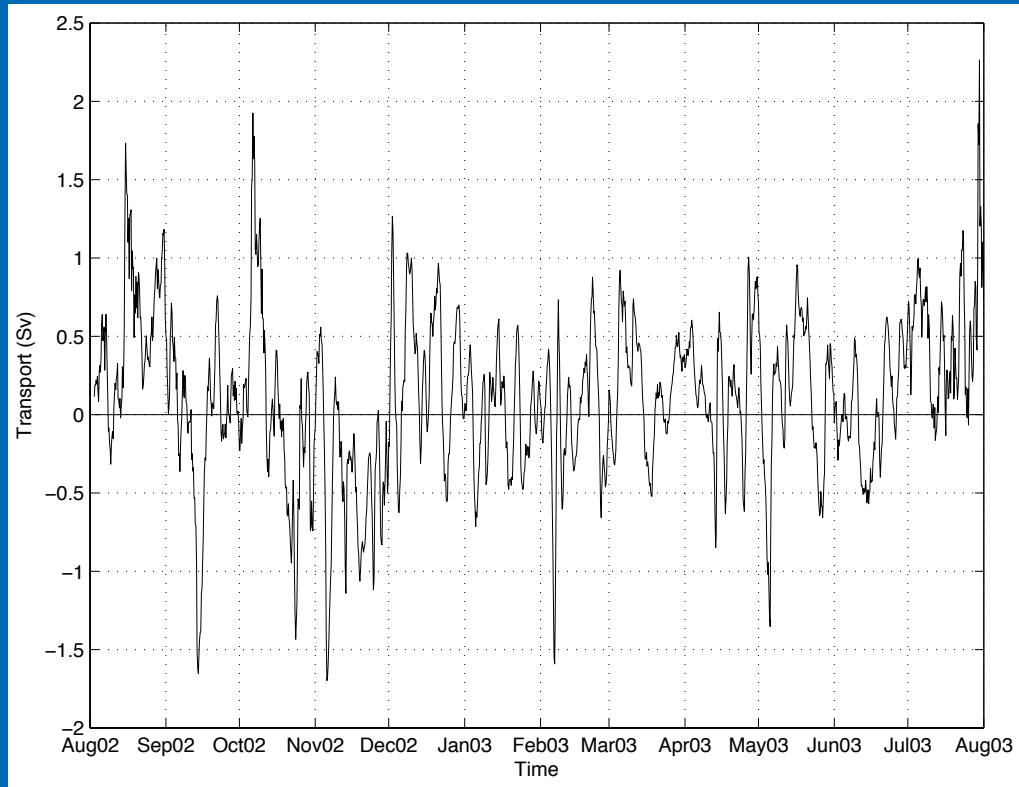
Beaufort slope mooring: 2002-2016



The AON Beaufort Slope Mooring

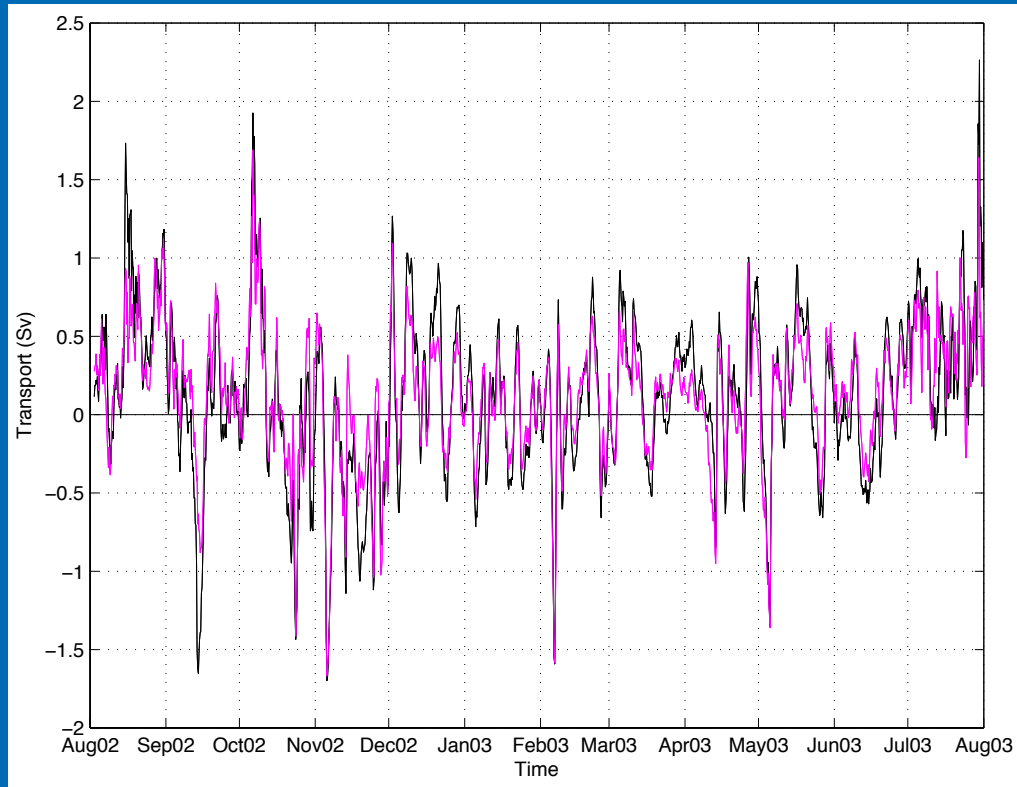


Transport of Pacific Water: 2002–3



full array —————

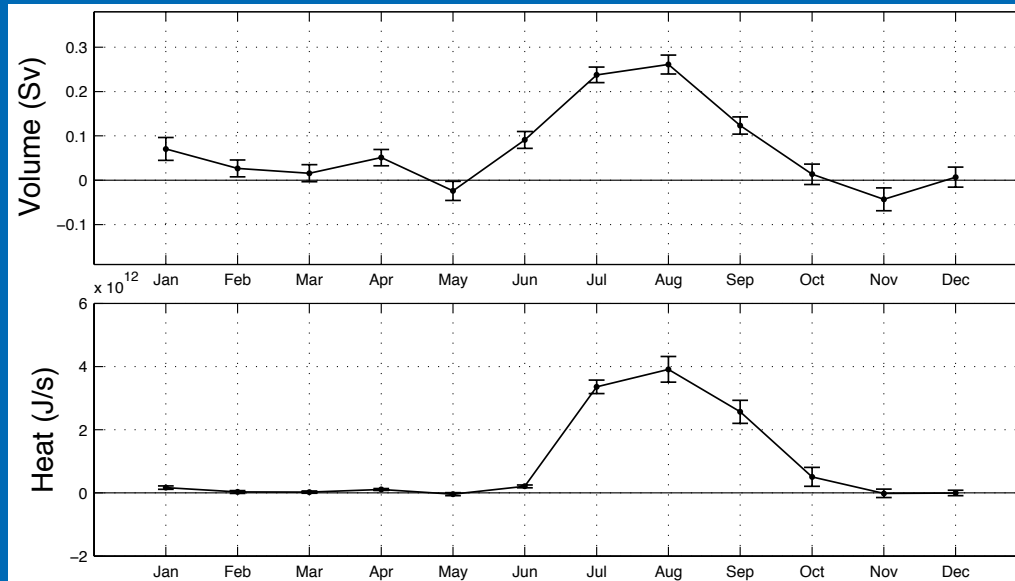
Transport of Pacific Water: 2002–3



full array —

single mooring proxy —

Seasonal variation in transport



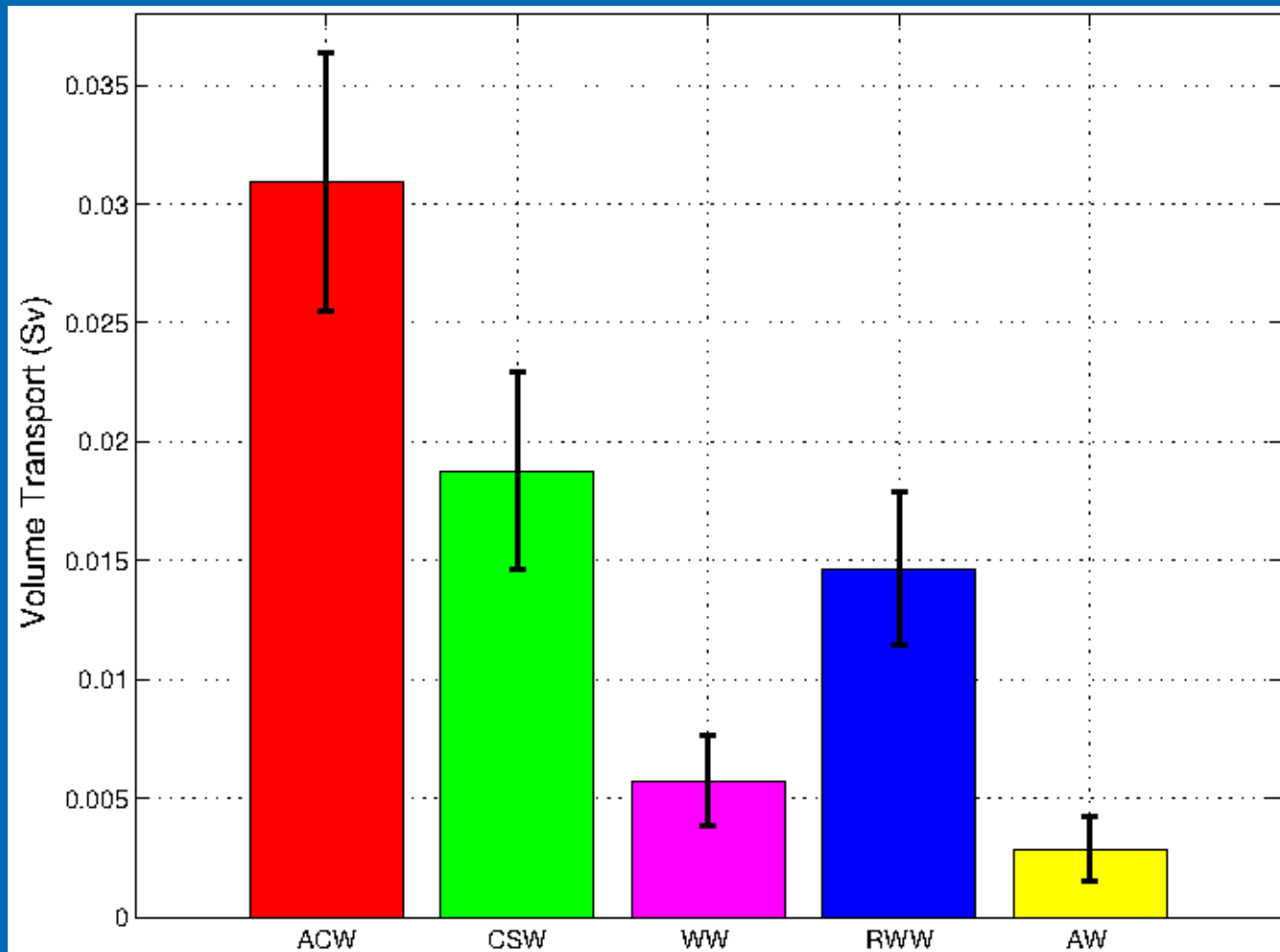
volume transport

heat transport

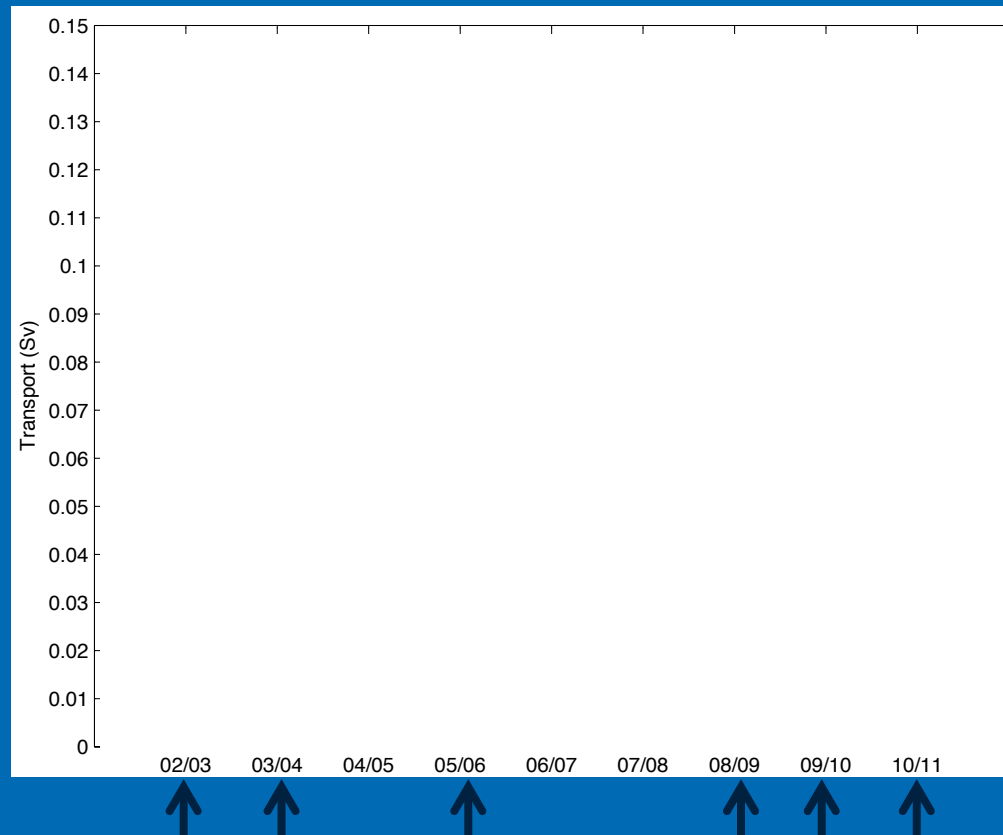
Most of the transport of the current, and nearly all of the heat flux, occurs in the summer months

See Brugler et al. (2014) for details

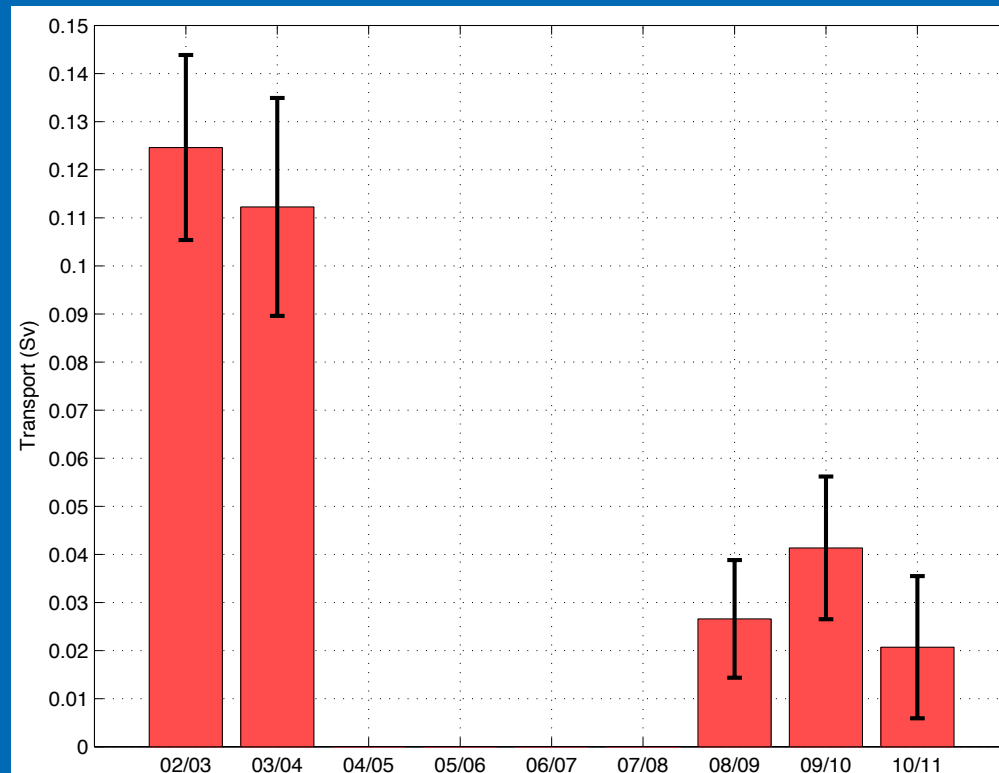
Breakdown of transport by water mass



Interannual variation in transport

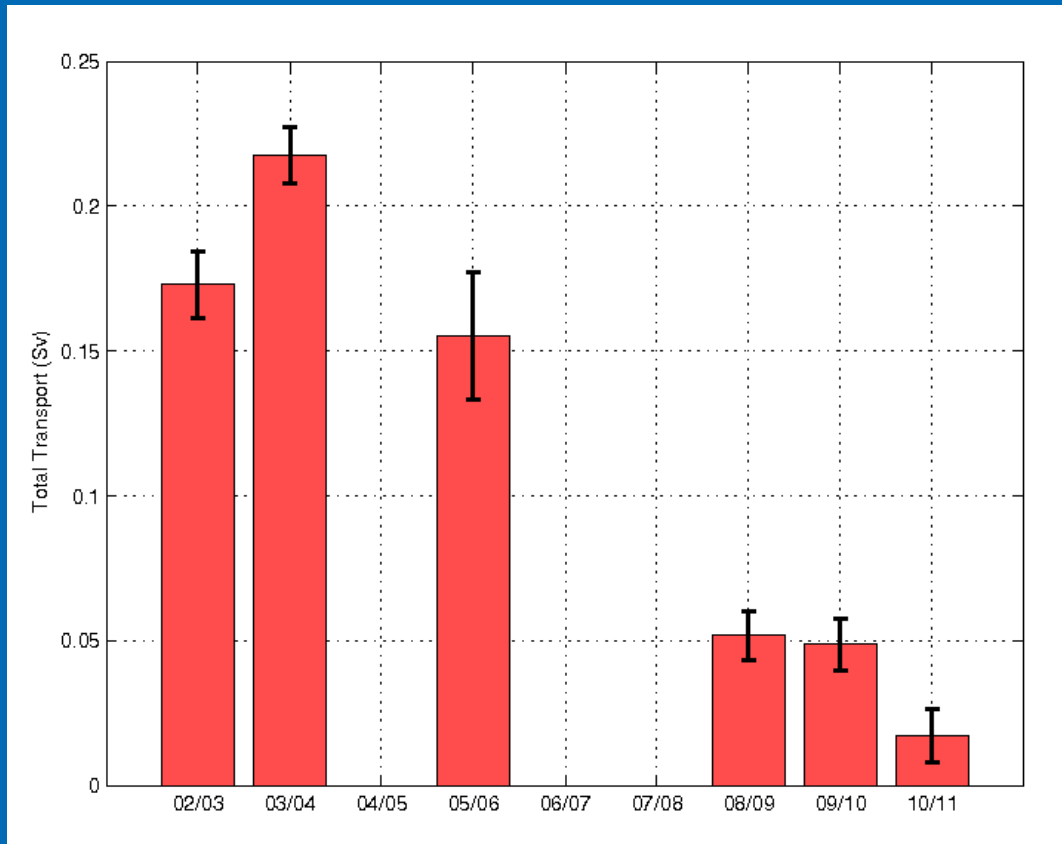


Interannual variation in transport

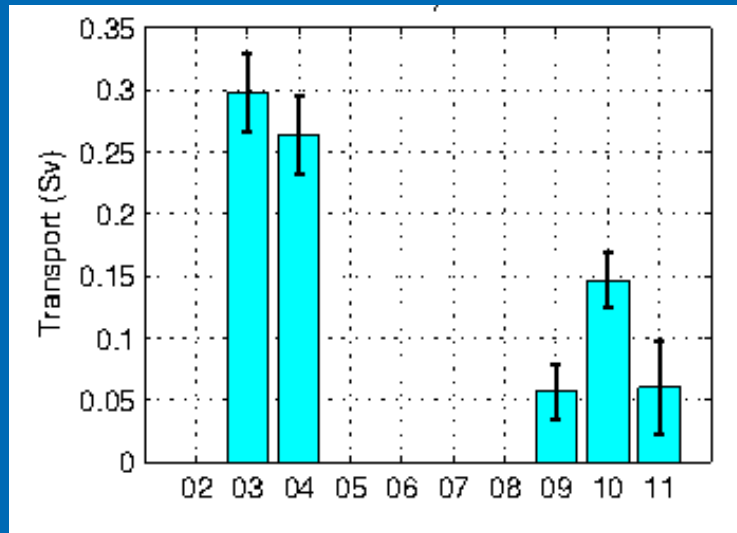


The boundary current has diminished in transport by >80% over the last decade

Interannual variation in transport (partial record)

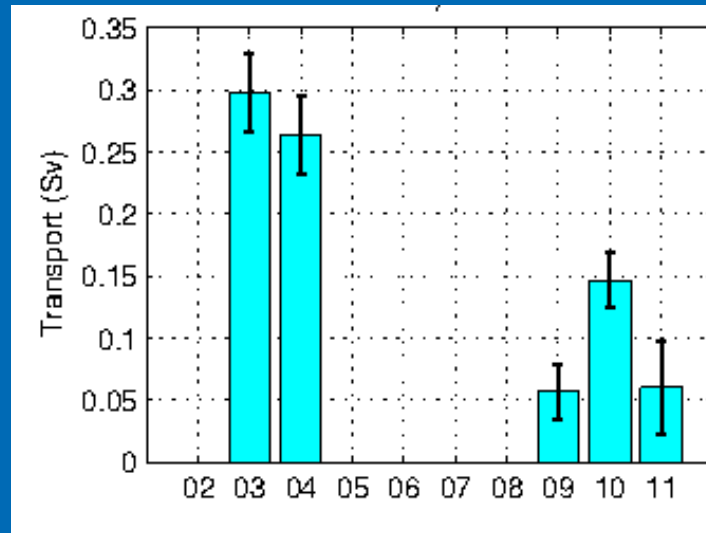


Interannual variation in transport during summer

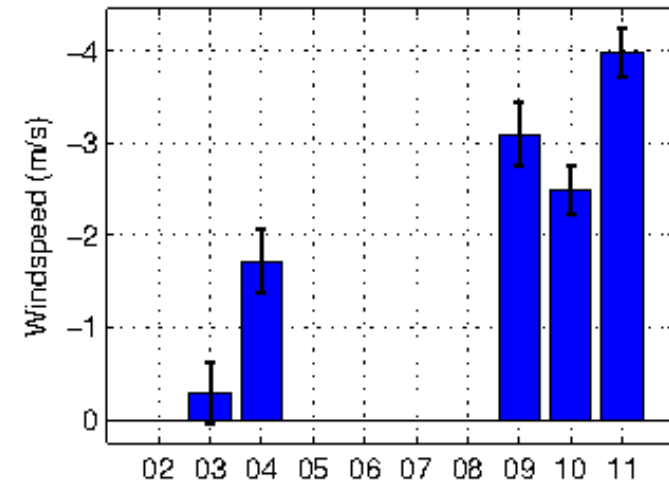


Volume transport in JJA

Interannual variation in transport during summer

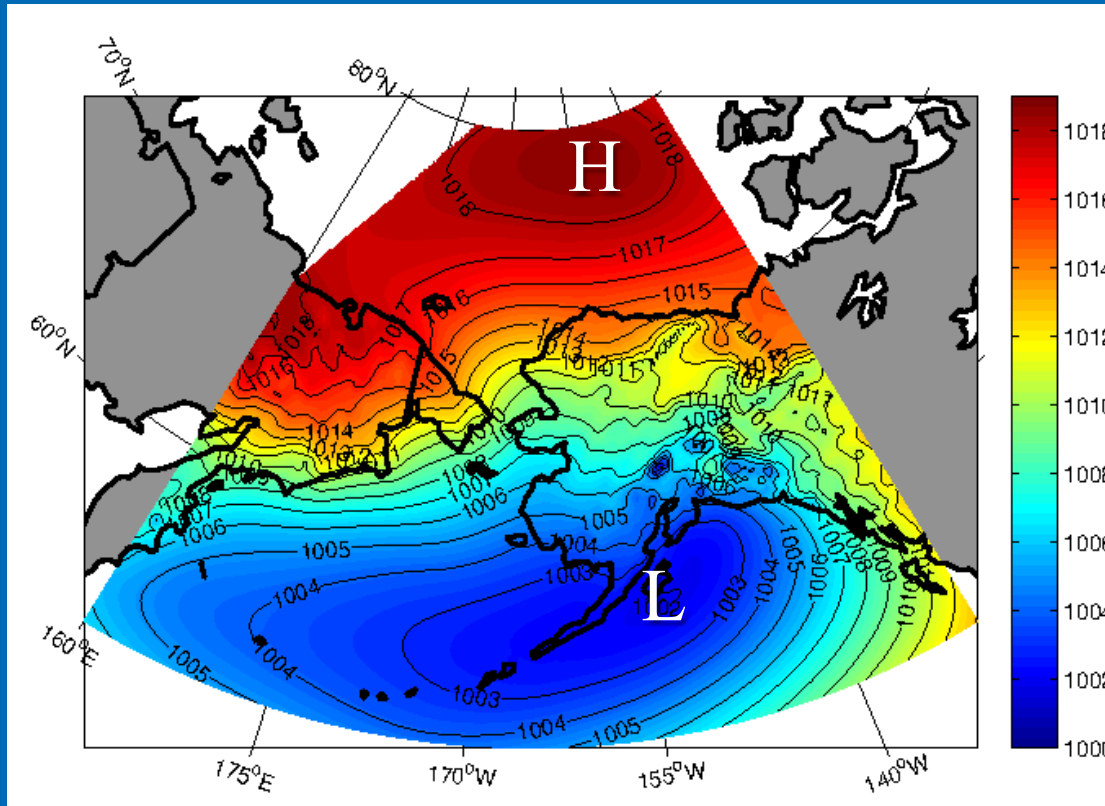


Volume transport in JJA



Alongcoast windspeed in JJA (from Pt. Barrow)

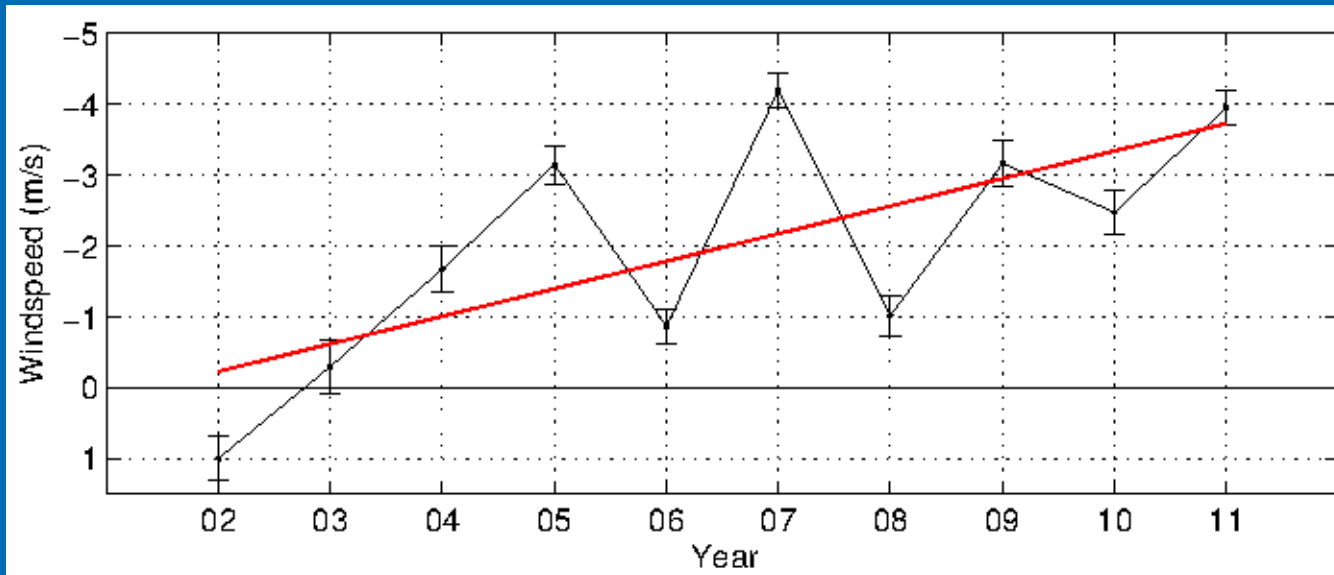
Two atmospheric centers of action: Beaufort High and Aleutian Low



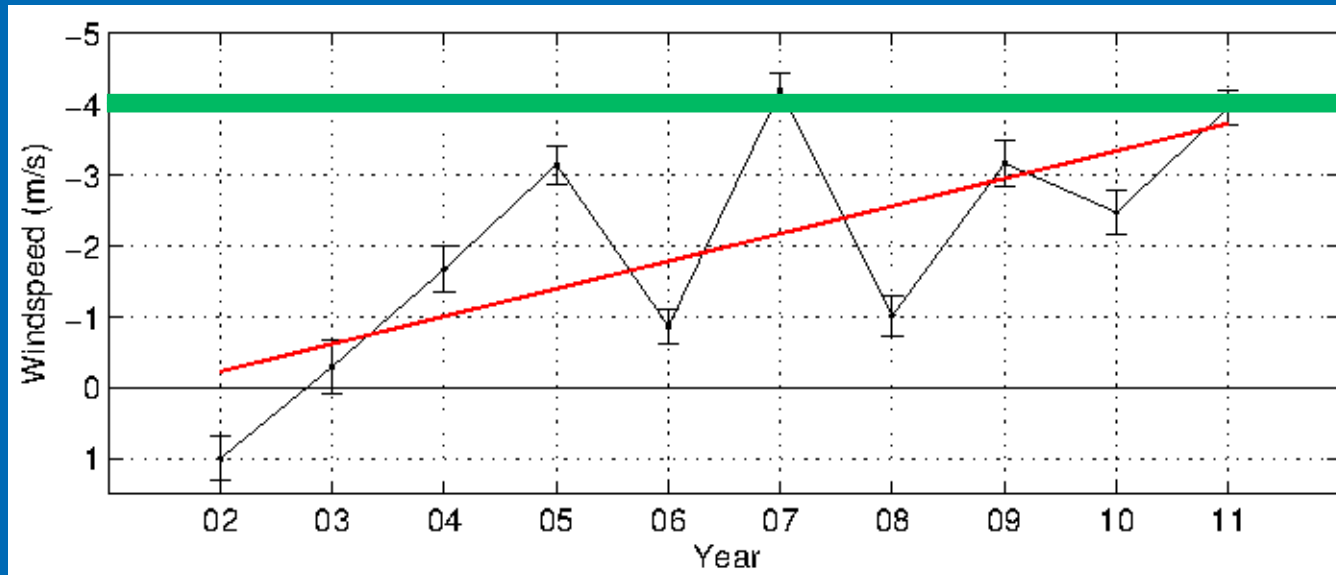
From North American
Regional Reanalysis

Mean sea-level pressure (mb) 2002-12

Mean summer (JJA) wind speed at Pt. Barrow



Mean summer (JJA) wind speed at Pt. Barrow



upwelling
threshold

Climate shift or interannual oscillation?