

Physical Oceanography



Supervision: Dr. Benjamin Rabe

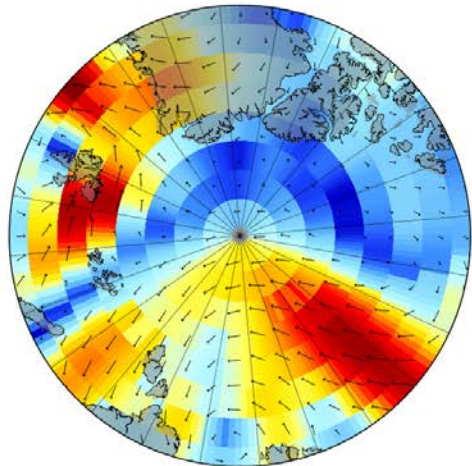
Horizontal velocity in the central Arctic from in-situ observations

Main question:
What is the vertical atmosphere-ice-ocean coupling and Arctic Ocean regional upper ocean circulation?

Data:
In-situ velocity
(Acoustic Doppler Current Profiler)

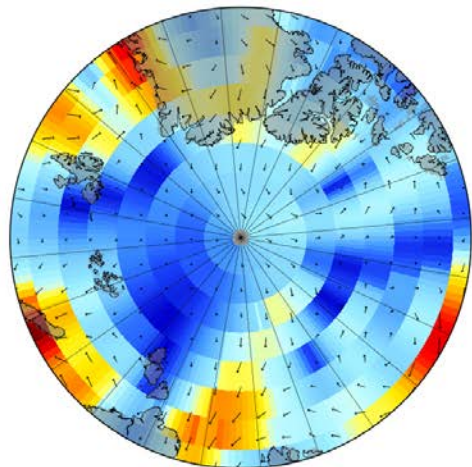
- vessel-mounted (ships, various years)
- autonomous buoy (ITAC, 2007)

a) Wind vectors 07/10/2007

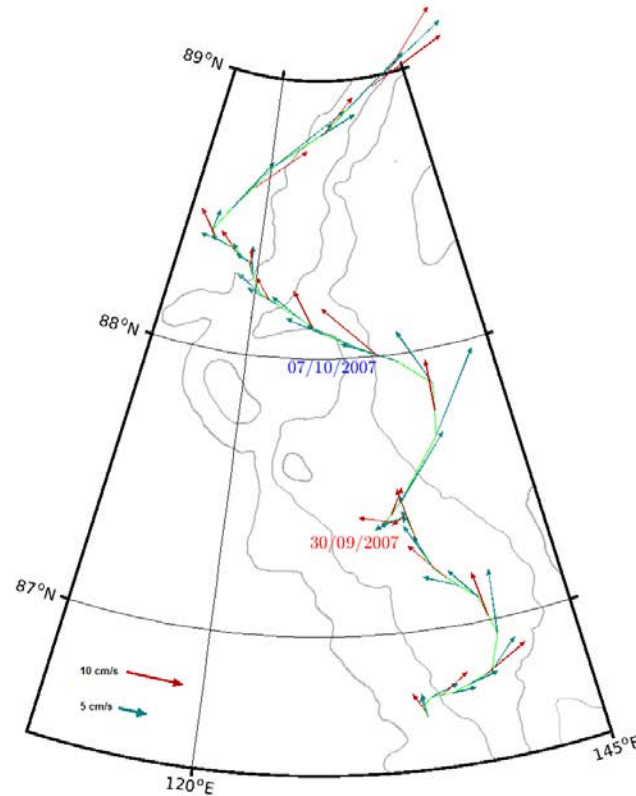


$\sqrt{(\text{mean Daily u-wind at } 10 \text{ m})^2 + (\text{mean Daily v-wind at } 10 \text{ m})^2}$ (m/s)
0.4 3.1 5.8 8.5 11.1 13.8 14.7
Data Min = 0.4, Max = 13.8

b) Wind vectors 30/09/2007



$\sqrt{(\text{mean Daily u-wind at } 10 \text{ m})^2 + (\text{mean Daily v-wind at } 10 \text{ m})^2}$ (m/s)
0.2 2.4 4.6 6.8 9.0 11.2 14.7
Data Min = 0.2, Max = 11.2



c) Ice velocities and surface water velocities (23m) averaged daily

Ice drift track
Ice velocity
Ocean velocity (23 m)