

Flös R Swell

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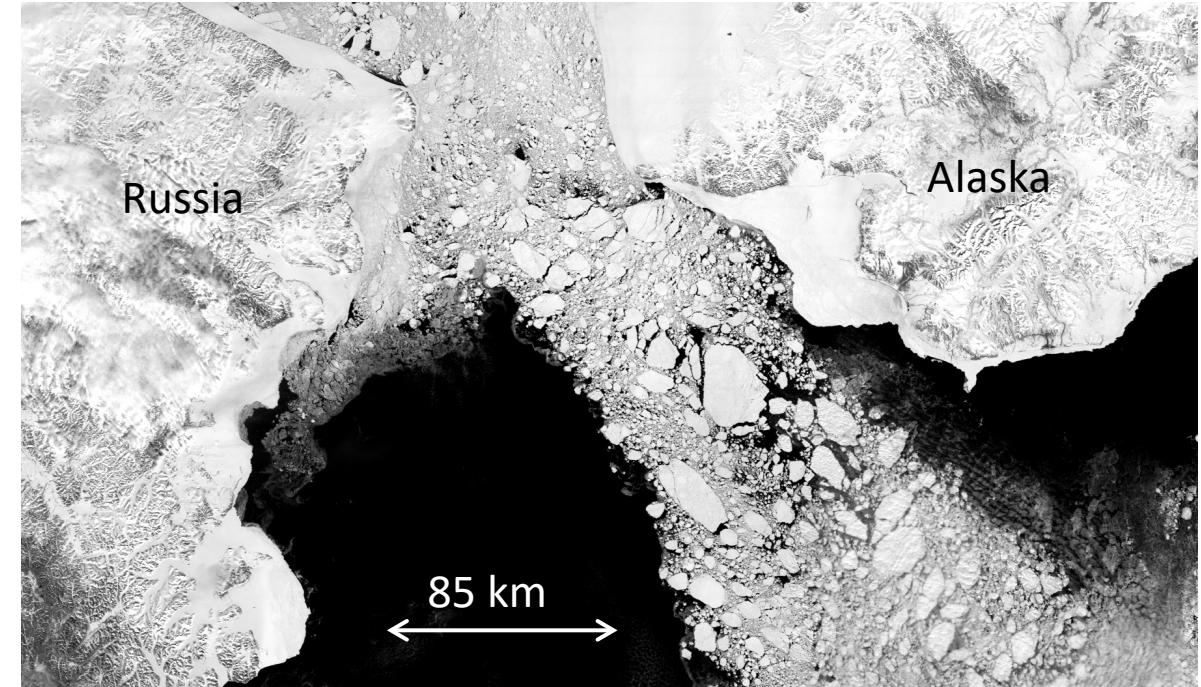


The Sea Ice Cover Is Made Up Of Floes and Swell

- Sea ice is composed of distinct pieces, known as floes.
- Floes span a wide range, both above and below the climate model grid scale. Waves propagate through them. Their properties change depending on their age, too.



Floes surrounding the Nathaniel Palmer in Antarctica



Floes in the Bering Sea (NASA)

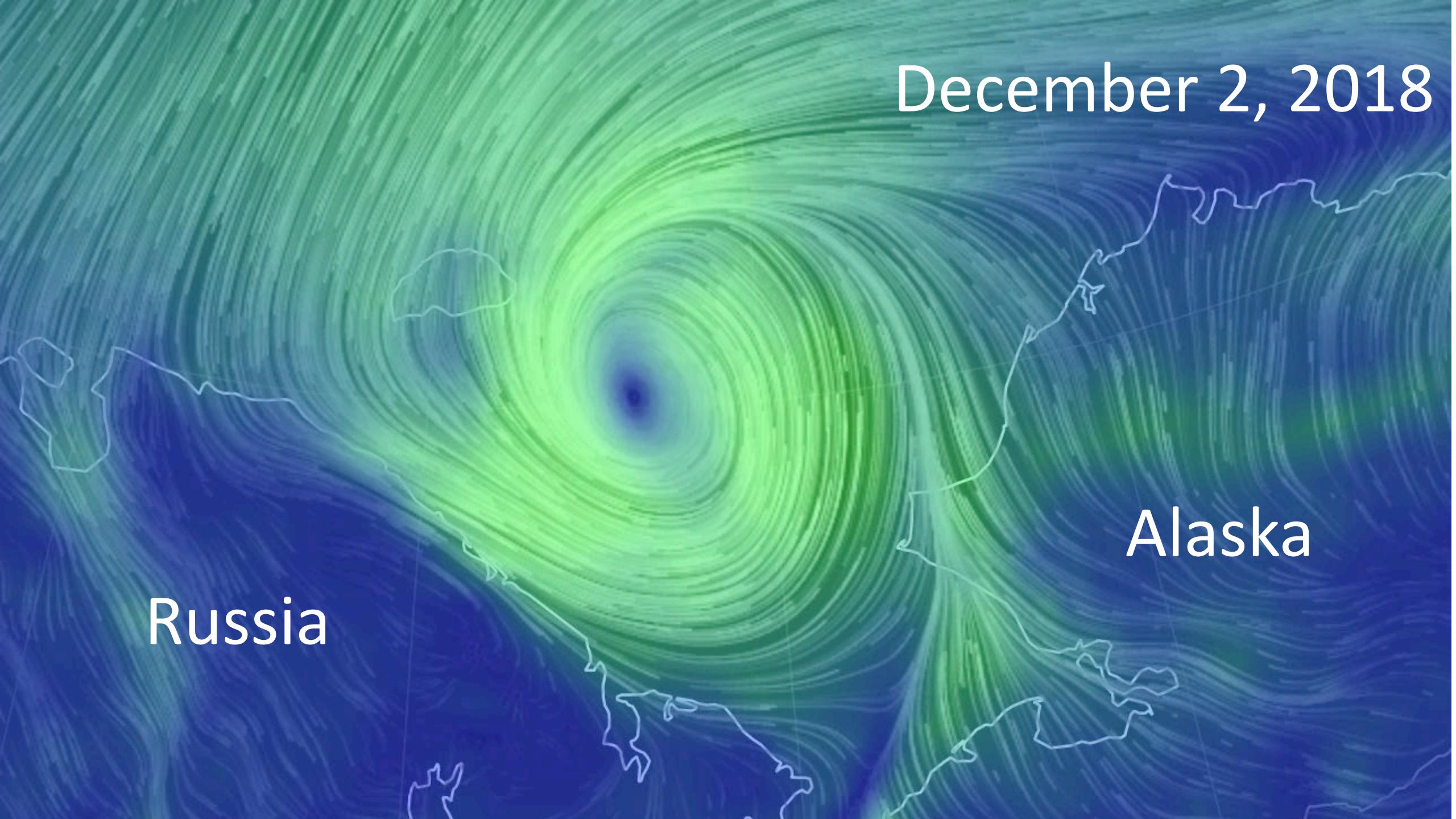
The Sea Ice Cover Is Made Up Of Flöz

What do we want to learn? How to use computers.

- How to use python, git, jupyter
- How to download track data for ATL07/10

We'd also like to learn some science too:

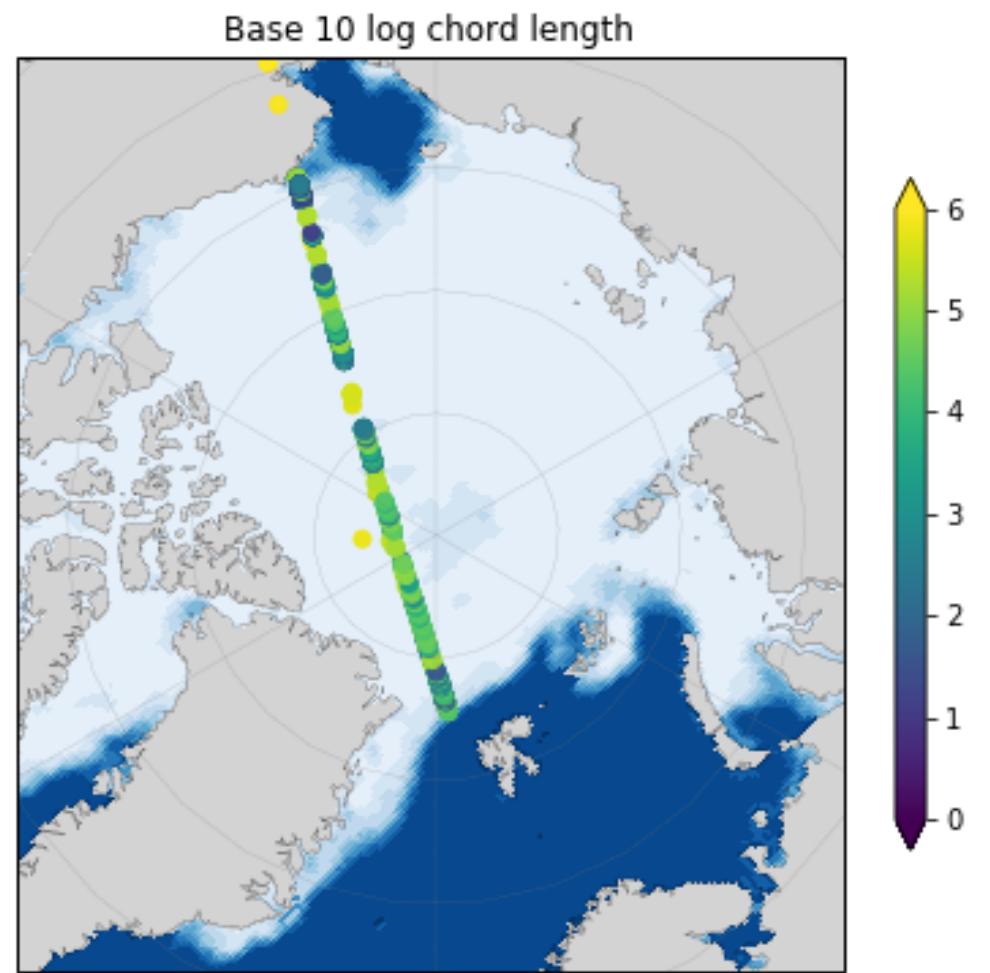
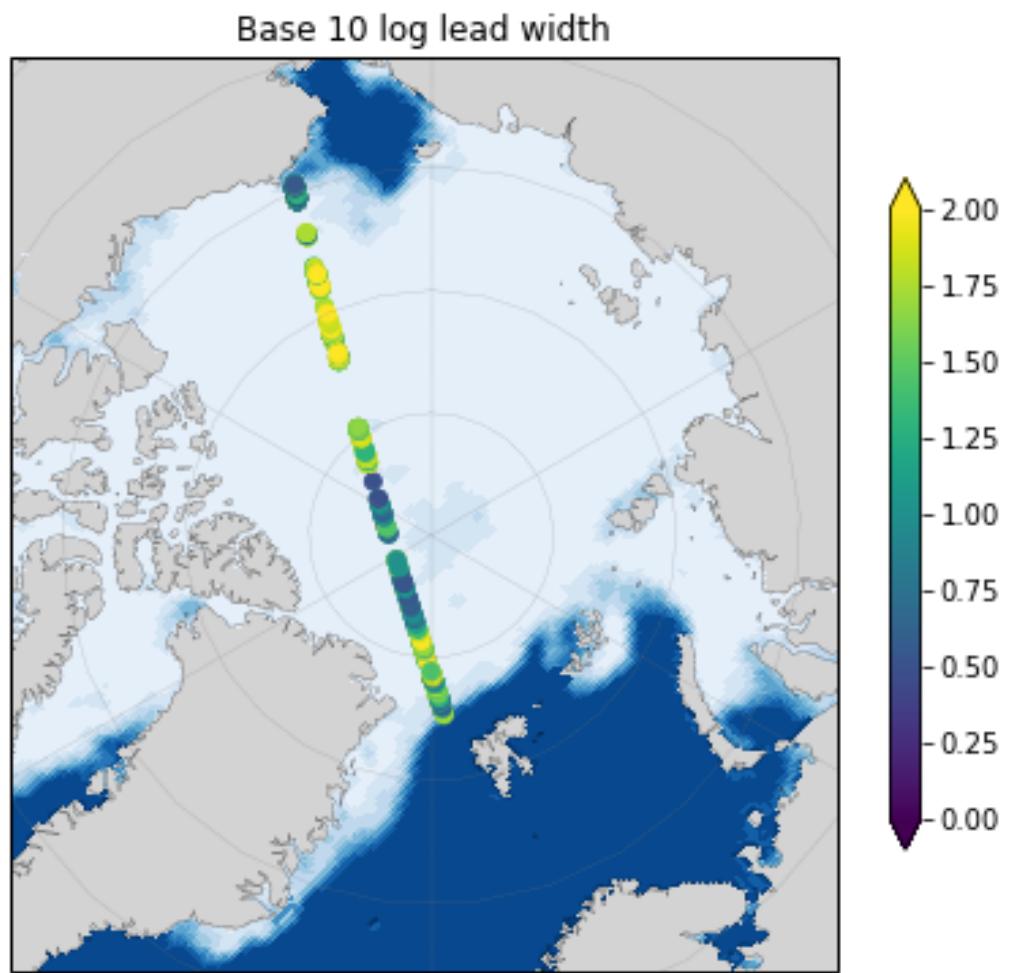
- Can we see differences in wave-affected and wave-free regions?
- Can we learn about the spatial scales of sea ice variability?
- Can we use the ATL07 fitting data to learn about sea ice type?



December 2, 2018

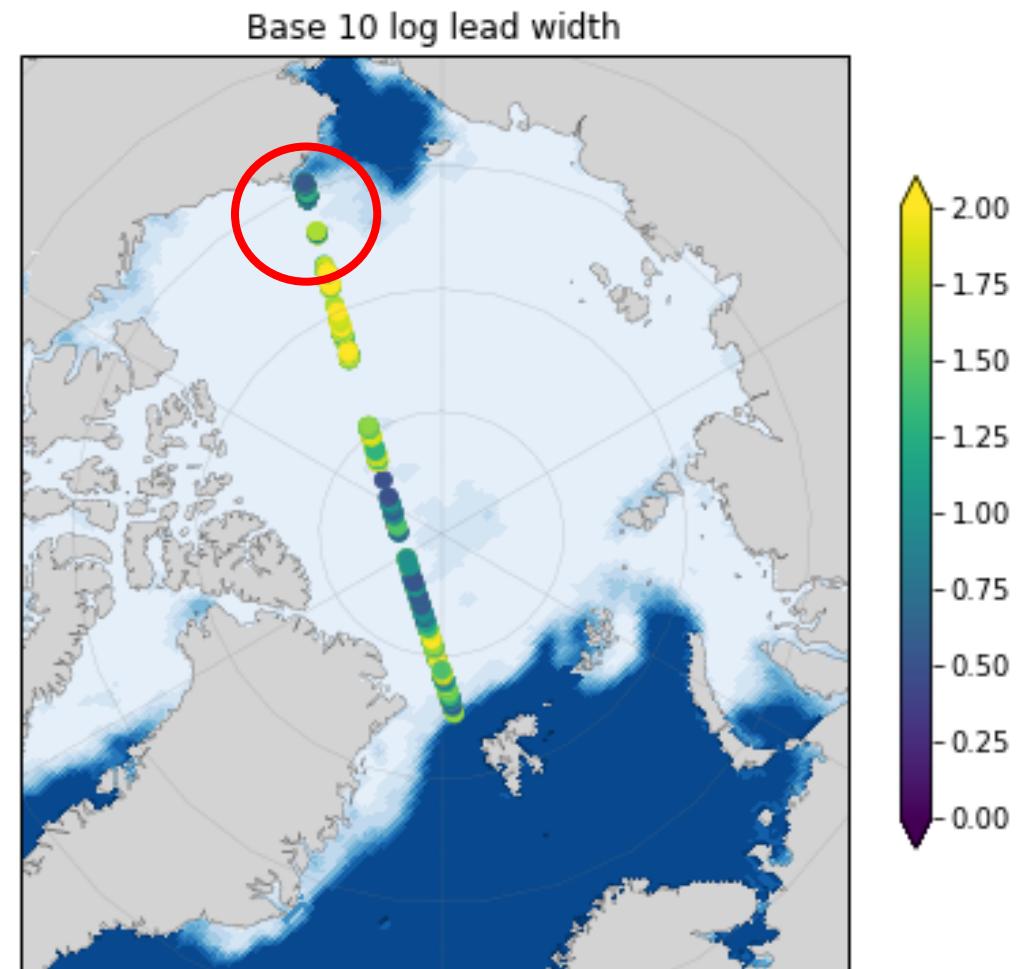
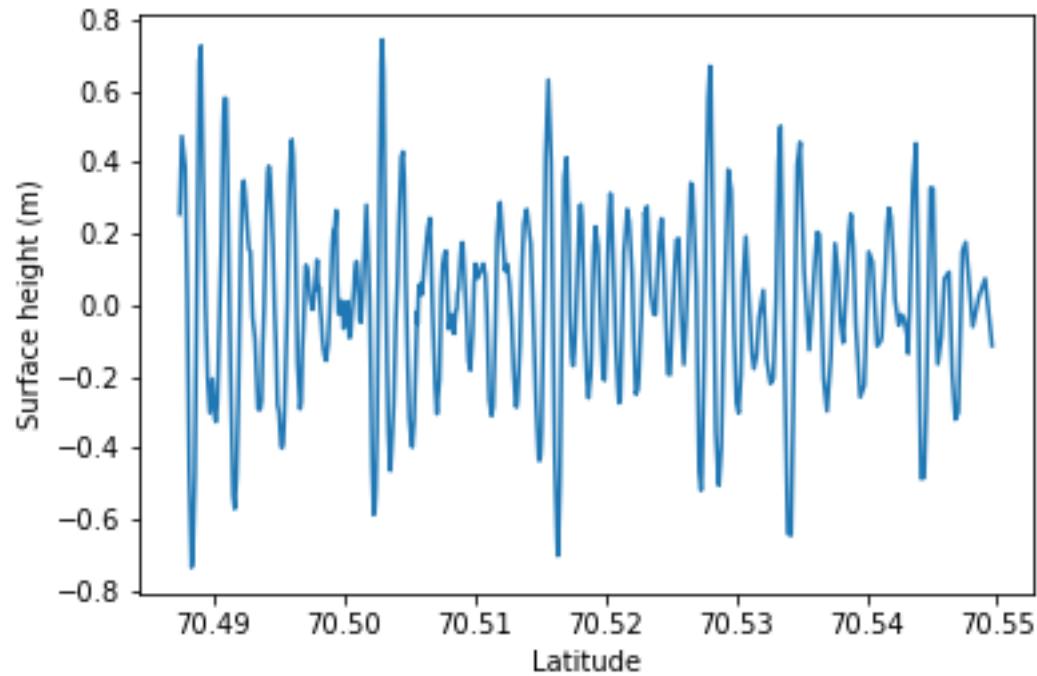
Russia

Alaska



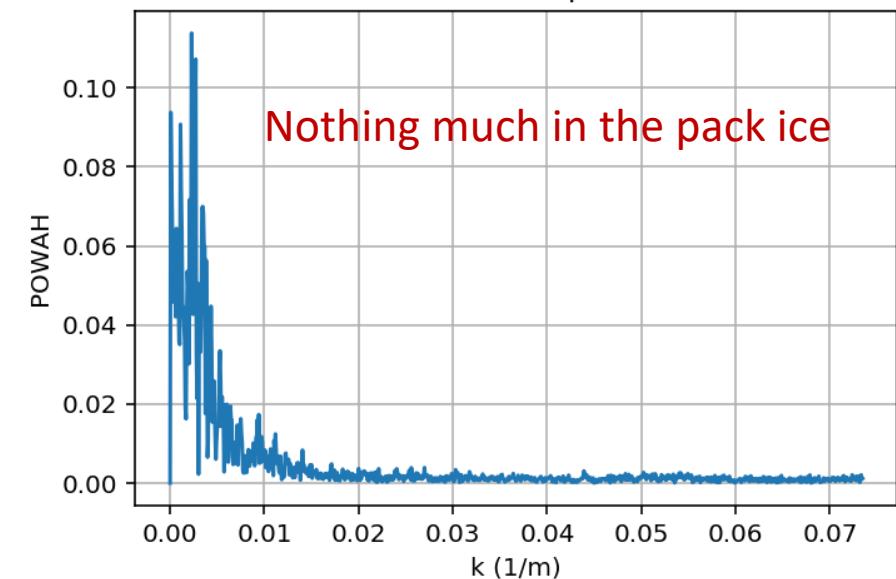
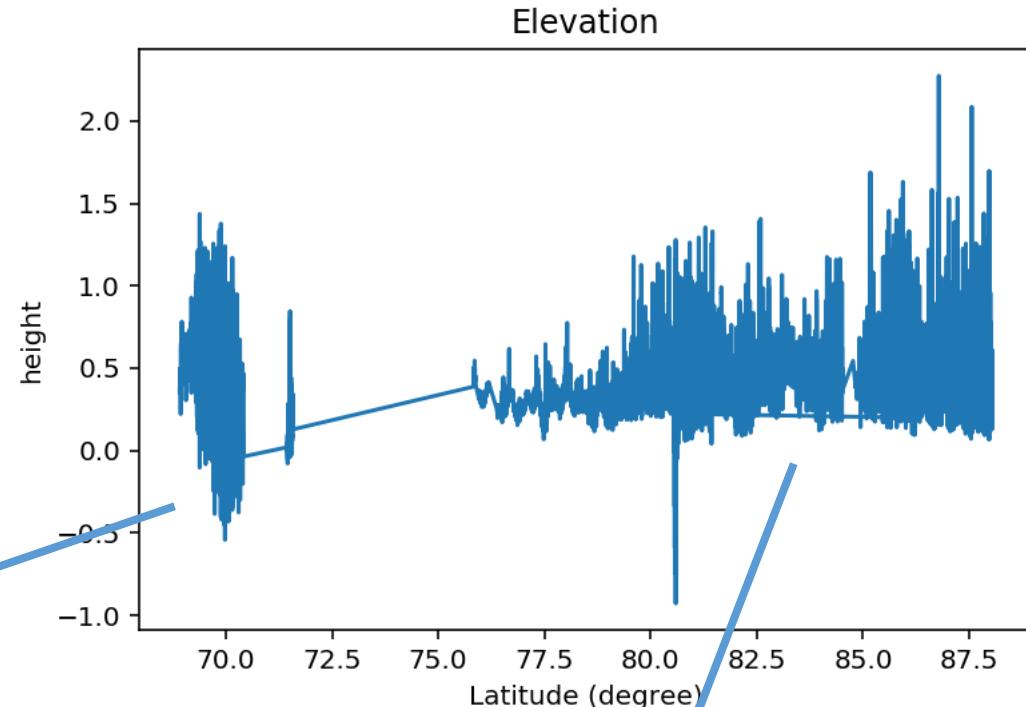
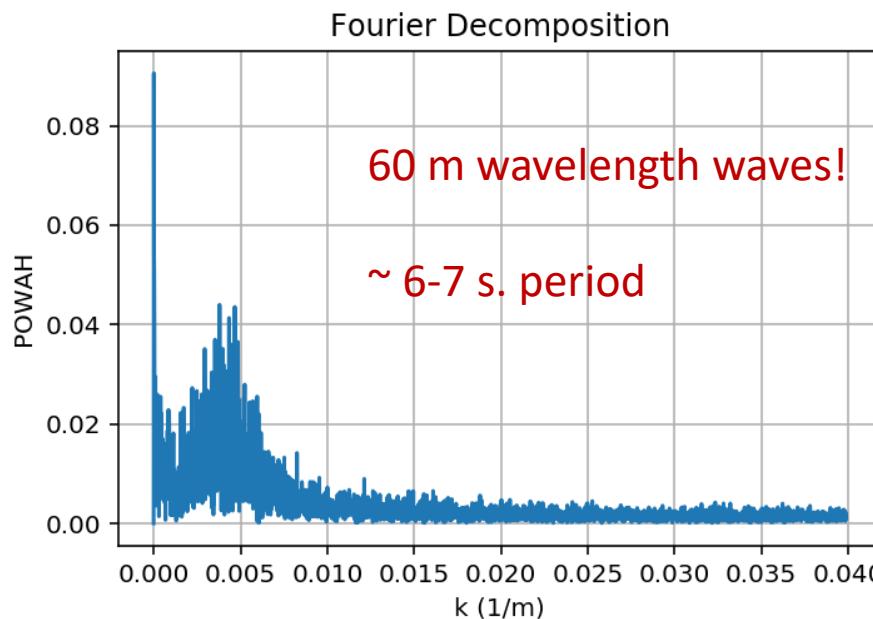
- Ed B-W's beloved track, December 2, 2018

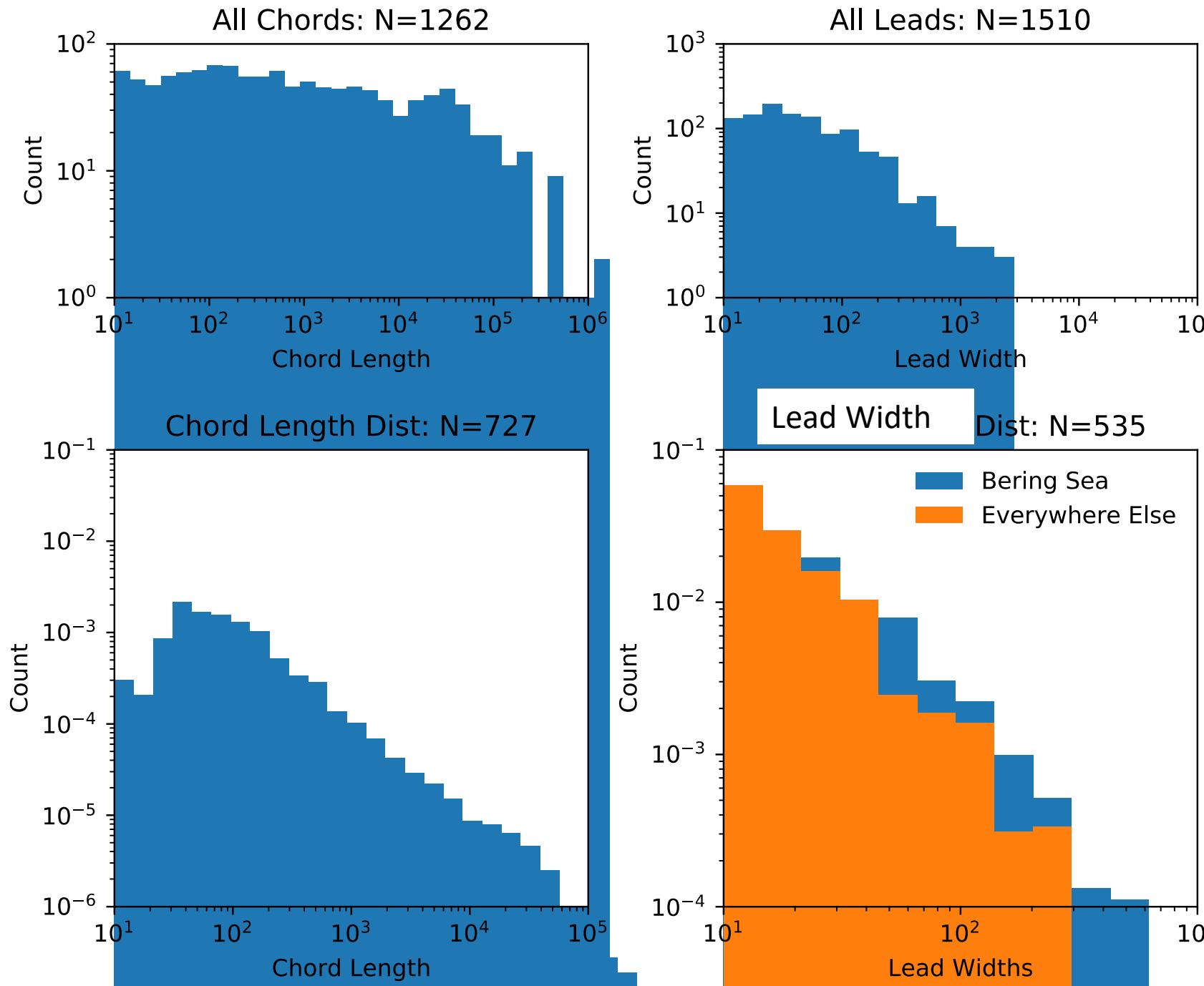
Waves in the sea ice?



Waves in the sea ice?

- From elevation data, can pick out changes in the strength and length scales of variability – clear signal of a swell wave, not sea ice motion!

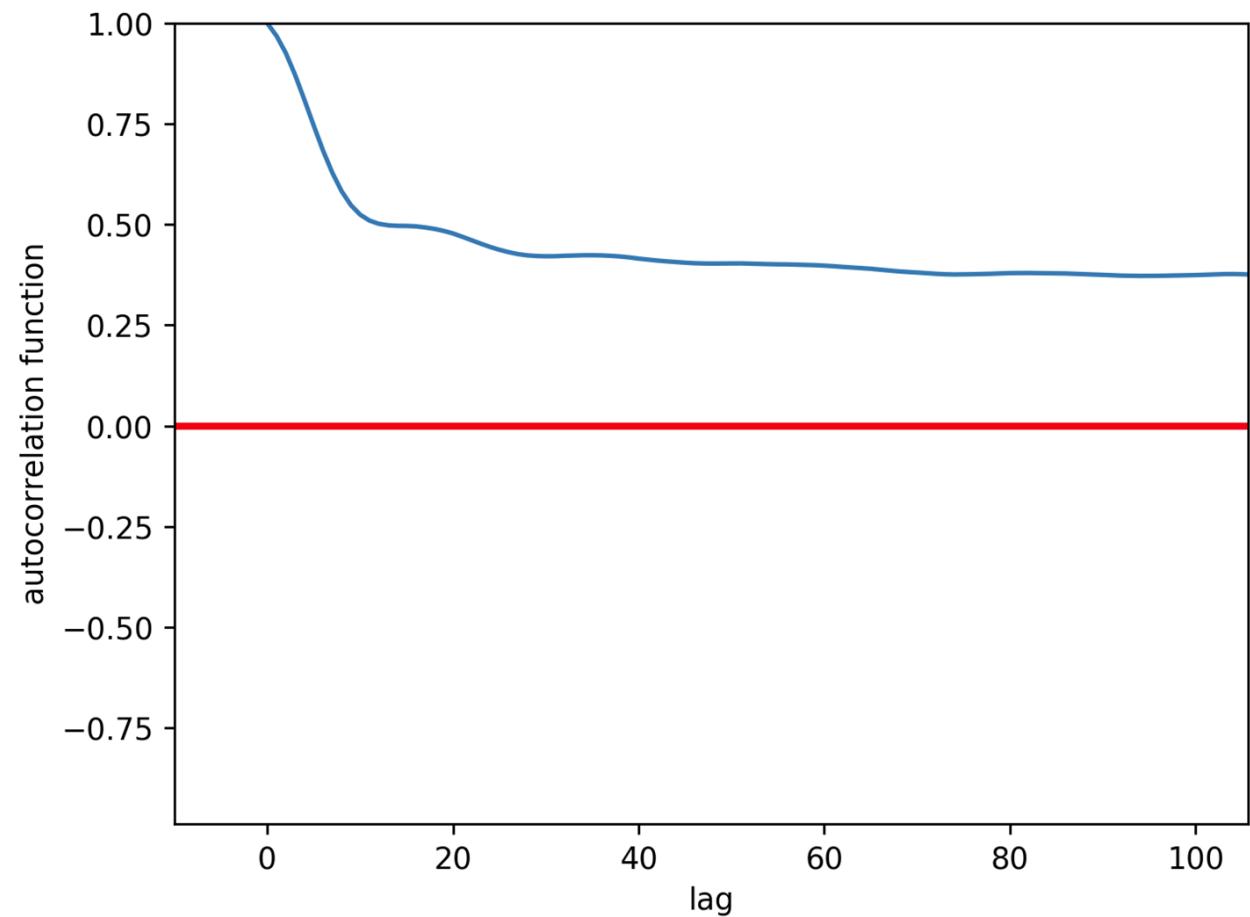
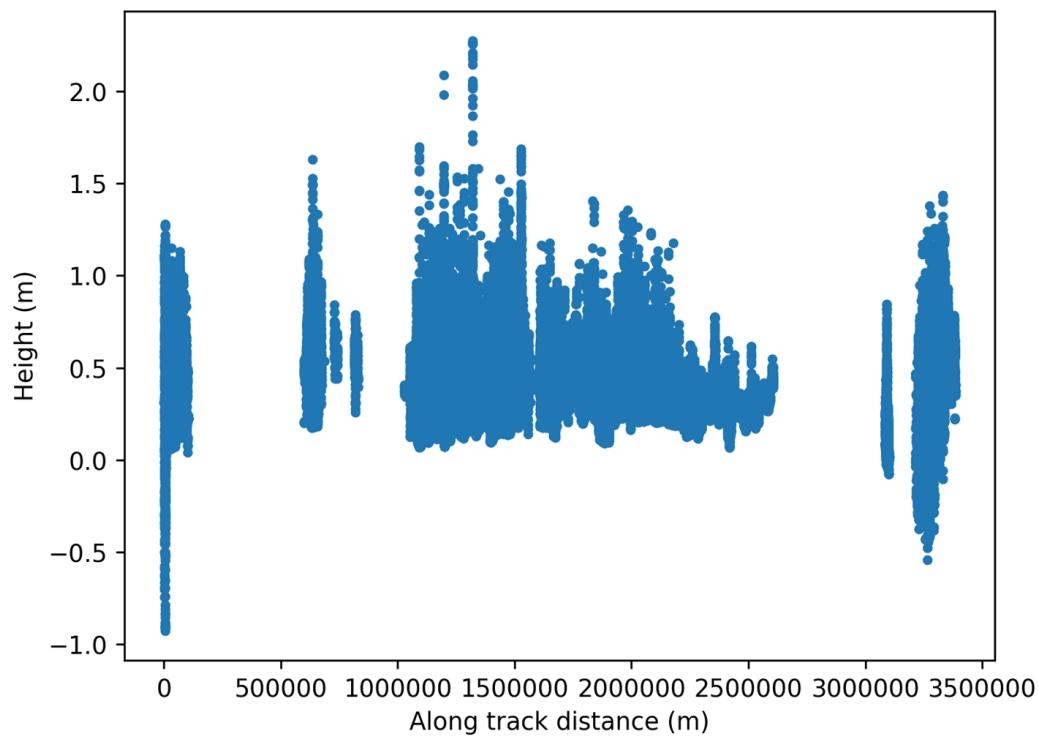




- Can use track data to compute something like a “floe size distribution”
- Clear difference in the FSD in the Bering Sea compared to everywhere else.

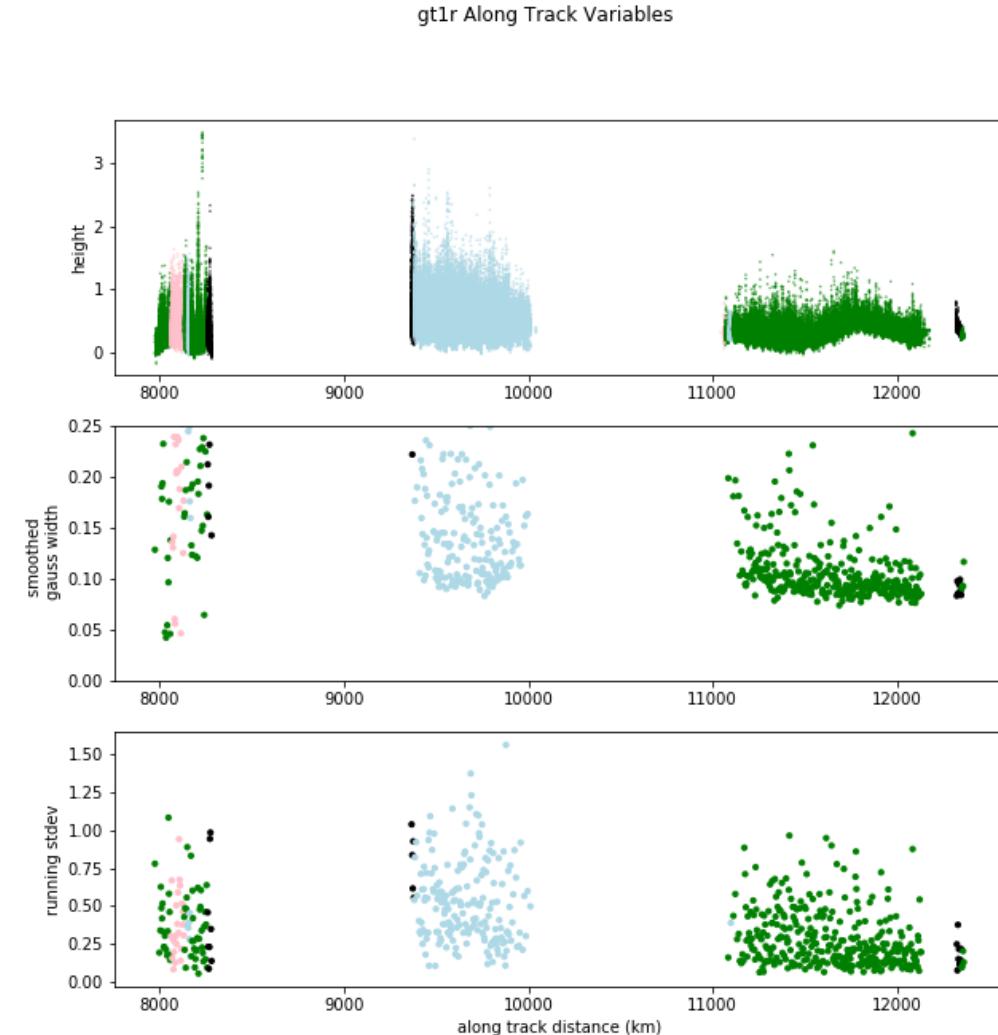
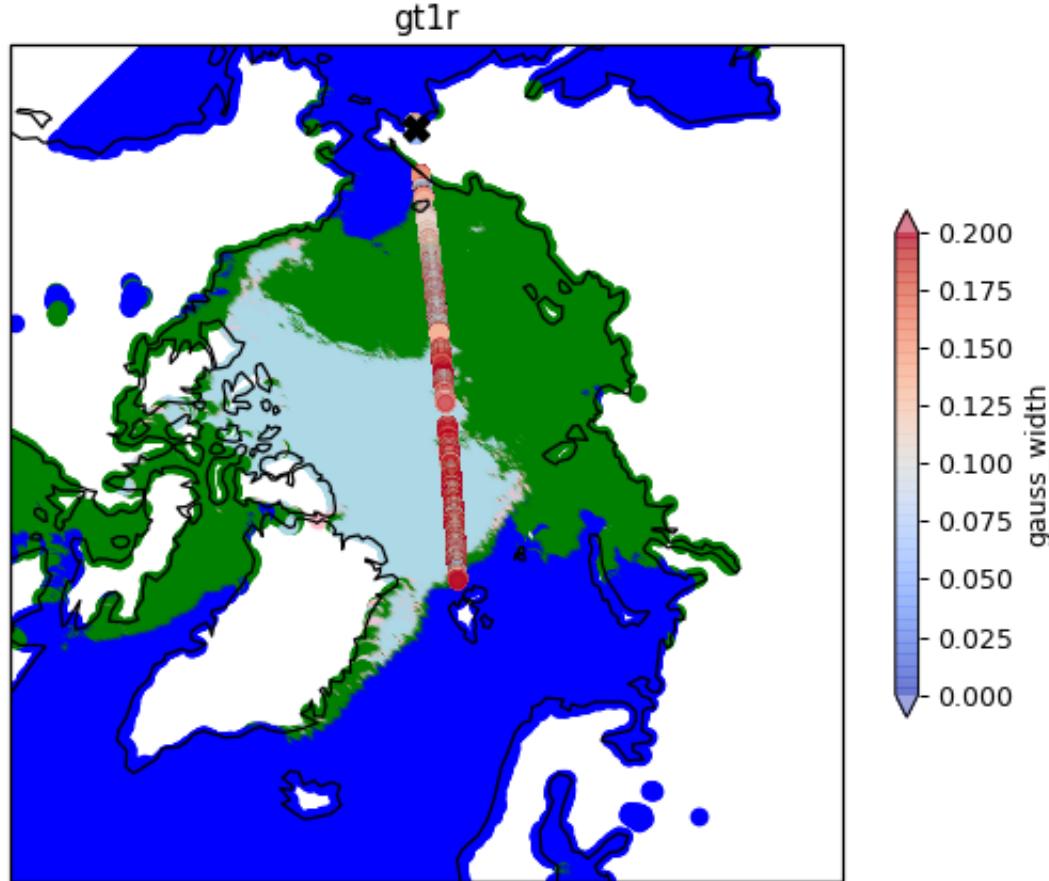
Autocorrelation of sea ice elevation field

- Can we use the elevation data to pick out an autocorrelation length scale?



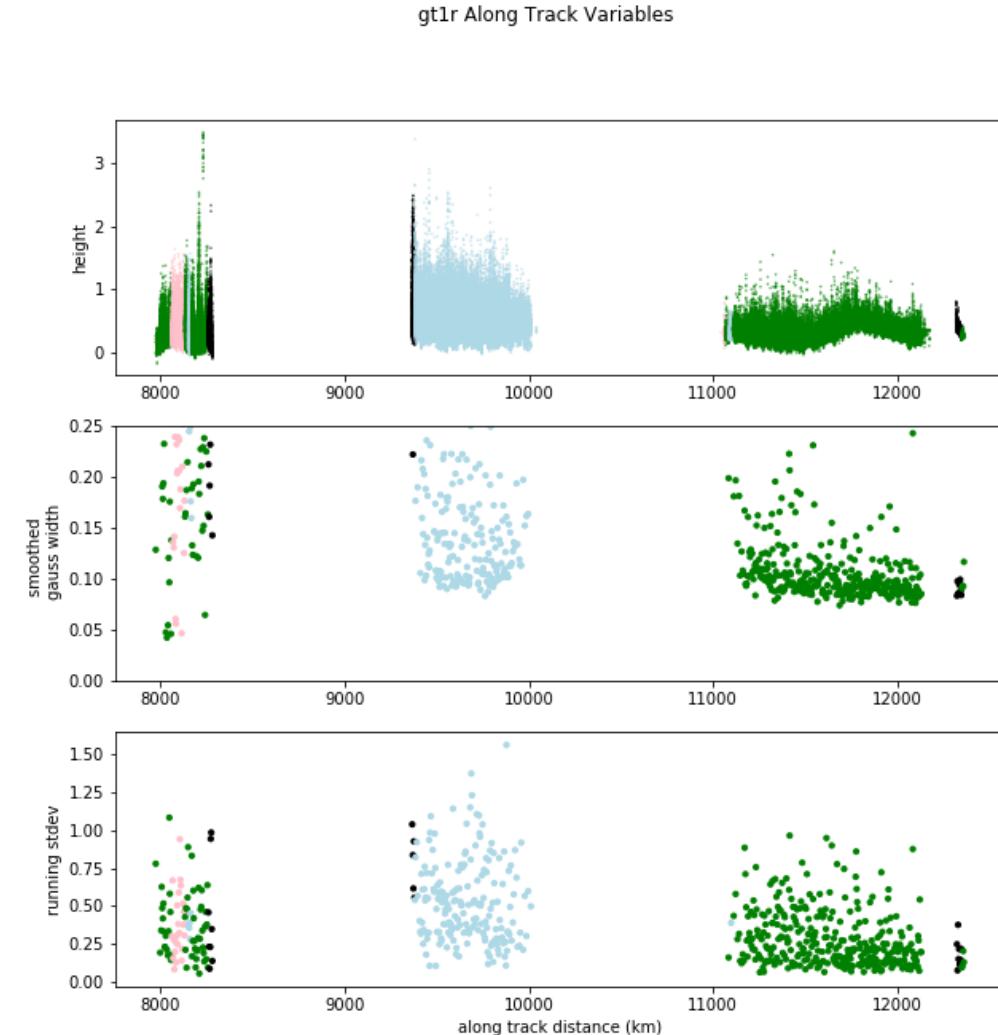
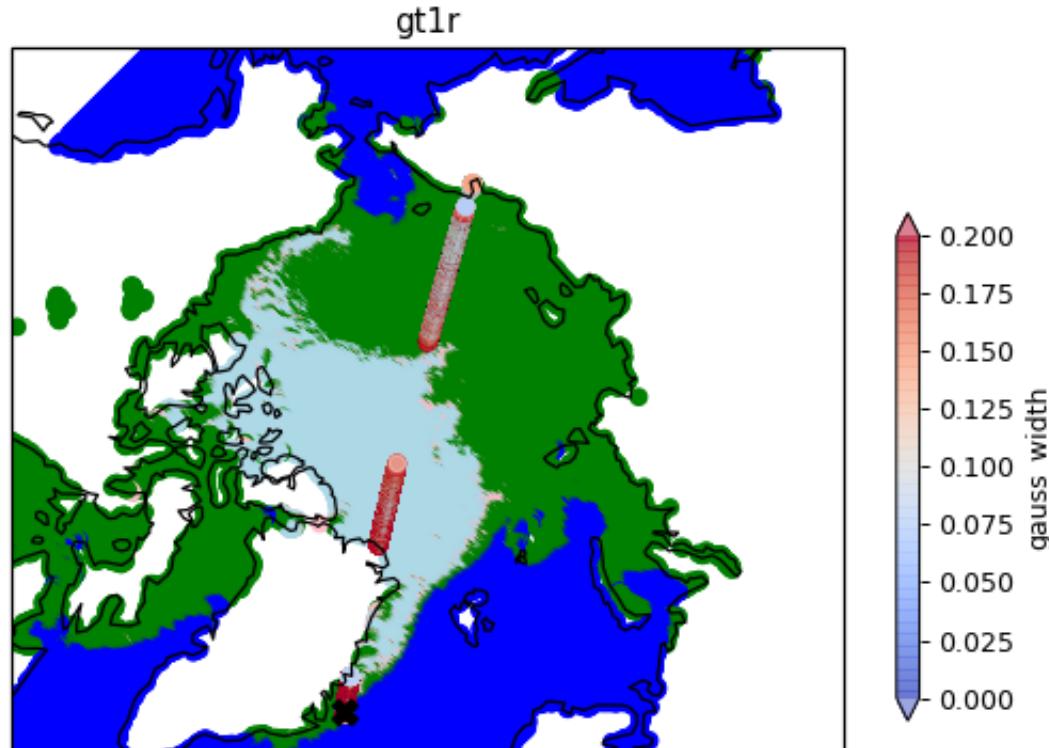
Correlating Surface Roughness and Gaussian Width

- Can we use the ATL07 fitting parameters to learn about the sea ice surface and type?



Correlating Surface Roughness and Gaussian Width

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What did we learn?

- Python is kind of hard.
- Bounding boxes are not bboxes.
- We can use ICESAT-2 sea ice data to pick out floes, waves, ice age, roughness, and all sorts of stuff. It is pretty cool.

