# Effect of a warm air masses in April on the snowpack properties of the MOSAiC floe

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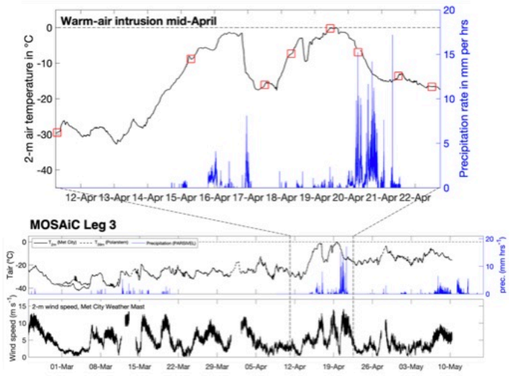
## Summary

The **warm air adcection events in mid-April** was associated with **near-surface temperatures near freezing** at the MOSAiC floe causing numerous changes in the snowpack:

- Increasing layering of snowpack
- Decreasing snow grain size
- Temporary inversed temperature gradient and water vapour transport in the snowpack
- Temporary negative vertical heat flux indicating potential surface melt

Such a temporary warm spell event has **decisive impacts on the sea-ice energy and mass budget** of the MOSAiC floe.

## Meteorological conditions

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## Snow sampling

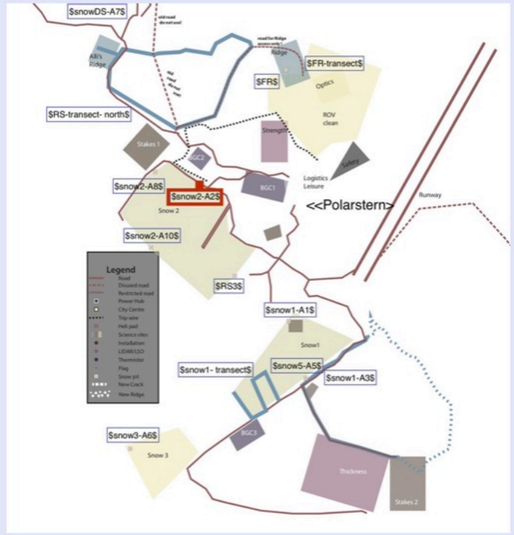


**Figure 2:** Simplified floe map from February 25, 2020 showing all snowpit sites until that date. Snowpit site **Snow2-A2** is highlighted in red as our main sampling site for that poster.


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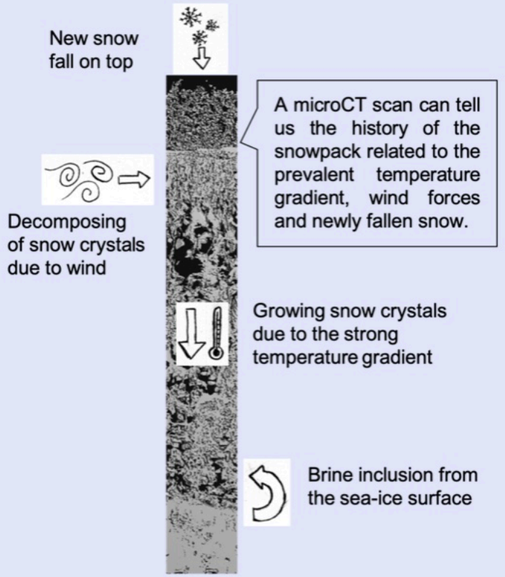
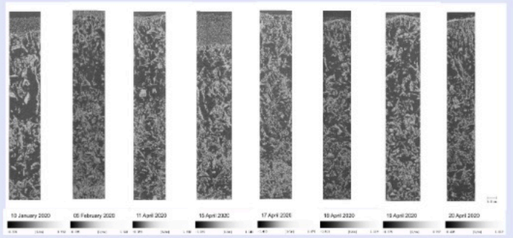
## Snow structure from microCT



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## Snow density and temperature

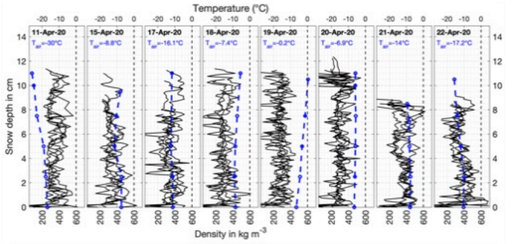


**Figure 5:** Daily **snow temperature** (dashed bue line) and **density profiles** (black lines) measured at snowpit site Snow2-A2 over the course of the warm air intrusion event. Density was retrieved from 5 SnowMicroPen measurements crossing the snowpit

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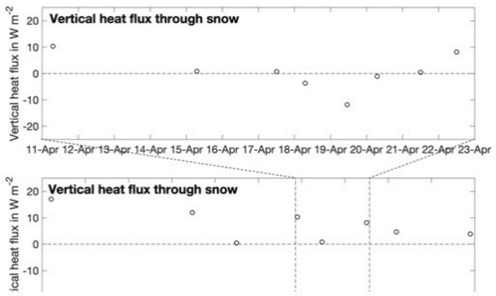
## Vertical heat fluxes

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