



# **YOPPsiteMIP**

**Year of Polar Prediction site Model Inter-  
comparison Project**

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**and the YOPPsiteMIP team**

**<https://www.polarprediction.net/key-yopp-activities/yoppsite mip/>**

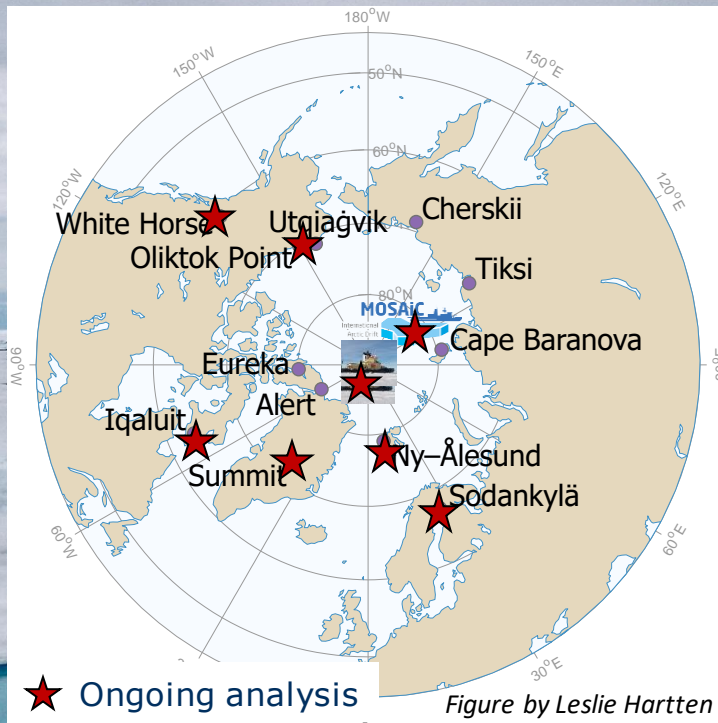


**Stockholm  
University**

# YOPPsiteMIP sites

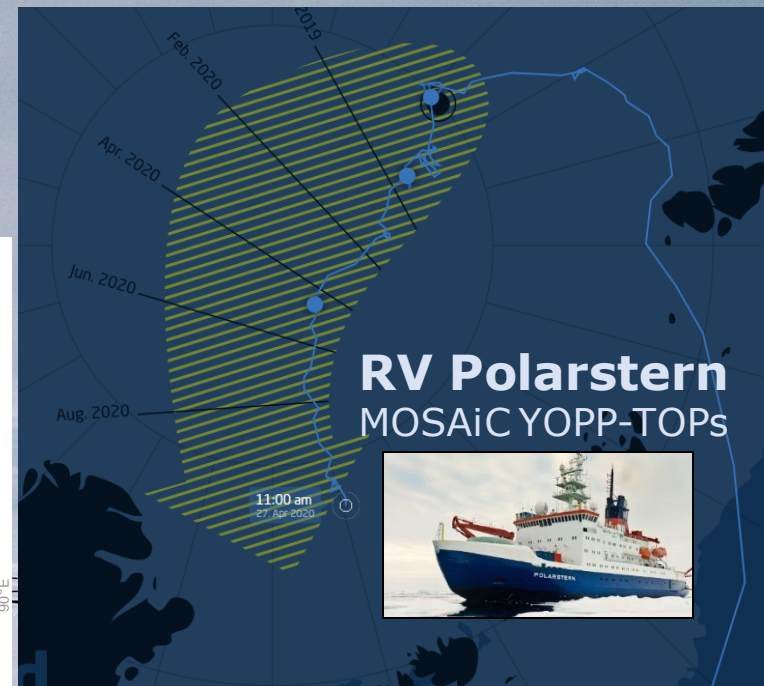
## Arctic

**Icebreaker  
Oden**  
AO2018 SOP-NH2



★ Ongoing analysis

Figure by Leslie Hartten

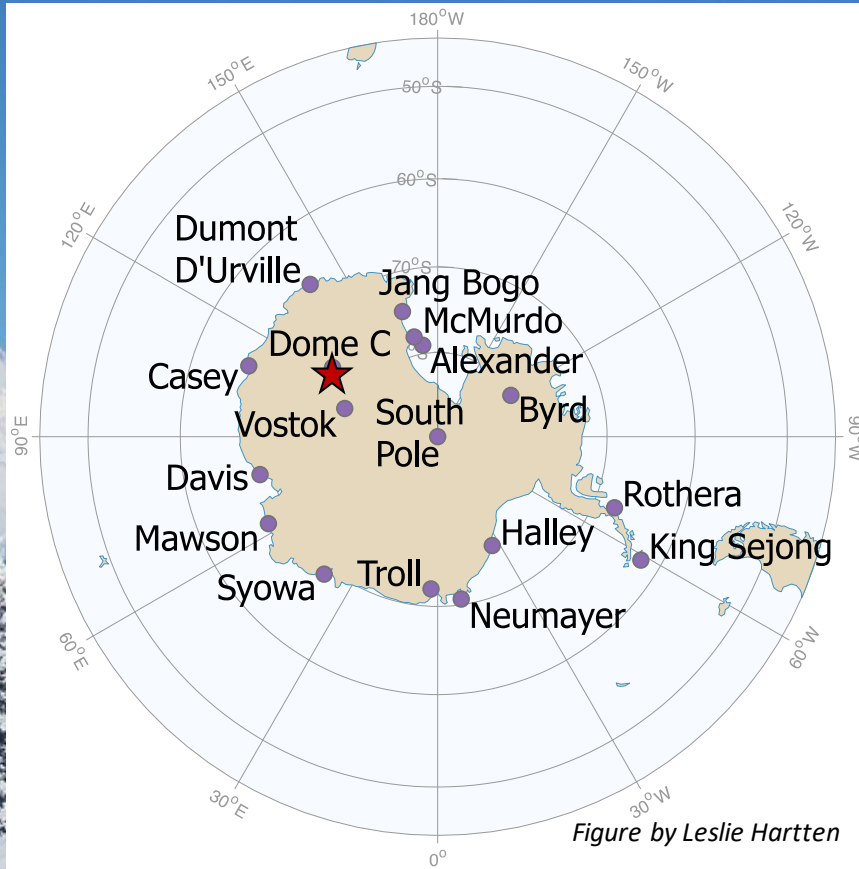


**RV Polarstern**  
MOSAIC YOPP-TOPS

**YOPP**  
YEAR OF  
POLAR  
PREDICTION

# YOPPsiteMIP sites

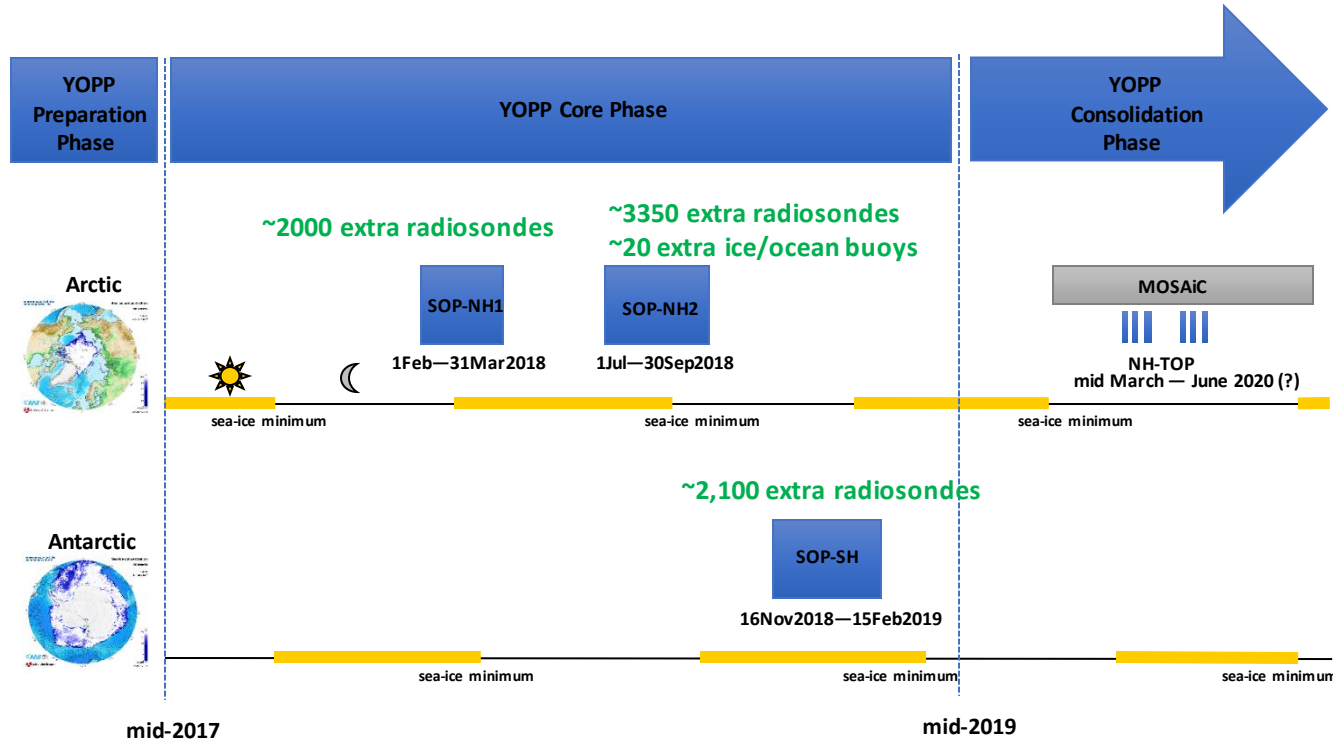
## Antarctic



Less activities so far  
although some models  
have produced data

Third Pole locations are  
also available

# Year of Polar Prediction



**MOSAiC-aligned  
Targeted  
Observing  
Periods (TOPs)**

**NH-TOP1:  
12-20 April,  
2020**

**YOPPsiteMIP cover the SOPs and TOPs**

# YOPPsiteMIP models so far...

Organization	Model (Global or Regional)	SOP- NH1	SOP- NH2	SOP- SH	MOSAic
ECMWF	IFS (operational, G)	C	P	P	P
ECCC	CAPS (operational, R) GDPS-GIOPS (operational, G)	C	C	P	P
Roshydromet	Russian SLAV model	C	C	?	?
MeteoFrance	ARPEGE (operational, G) ARPEGE (SH version, G) AROME-MF-Arctic (R) AROME-SH (R) ARPEGE-GELATO (next operational, G)	C C P	C C P	C C	P
MetNorway	AROME-Arctic (R)	C	C		P
DWD	ICON	P	P	?	P
MetOffice	Unified	P	P	P	P
NOAA Boulder	CAFS (R)	P	P	P	P
NRL Monterey	ESPC (G)				P


C: cataloged  
in the YOPP  
data portal

P: planned

More  
models are  
welcome!



# Data can be found at <https://yopp.met.no>



[YOPP HOME](#) [DATA PORTAL NEWS](#) [AVAILABLE DATASET](#) [DOCUMENTS](#) [TASK TEAM](#) [SUPPORT](#)

## YOPP SiteMIP data from DWD

LAST UPDATED: MARCH 4, 2020

DWD ICON data are now added to the catalogue of YOPPSiteMIP datasets. Direct reference to the searchable metadata is provided at [https://yopp.met.no/metadata\\_search/?quid=7b96d8aa15d869c2a2c974b0099d3c...](https://yopp.met.no/metadata_search/?quid=7b96d8aa15d869c2a2c974b0099d3c...) and the data are directly available at [https://thredds.met.no/thredds/catalog/alertness/YOPP\\_supersite/icon-dwd...](https://thredds.met.no/thredds/catalog/alertness/YOPP_supersite/icon-dwd...)

Tags:  
YOPP supersites

[Read more](#) [Log in](#) or [register](#) to post comments

## Arome-Arctic YOPPSiteMIP data available

LAST UPDATED: APRIL 2, 2020

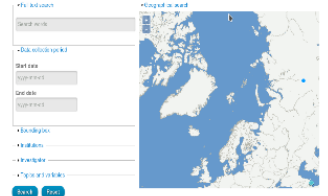
The Norwegian Meteorological Institute has uploaded YOPPSiteMIP data for YOPP supersites Ny-Ålesund and Sodankylä that are within the geographical domain of the Arome-Arctic model. Data are searchable and also directly available at:

[https://thredds.met.no/thredds/catalog/alertness/YOPP\\_supersite/AROME-Ar...](https://thredds.met.no/thredds/catalog/alertness/YOPP_supersite/AROME-Ar...)

Tags:  
YOPP datasets  
YOPP supersites

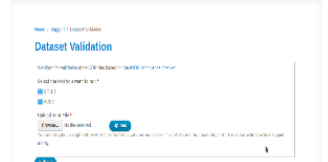
[Read more](#) [Log in](#) or [register](#) to post comments

## Search for data



Search for relevant data using temporal, spatial, parameters etc criteria. Push the image to continue.

## Validate NetCDF/CF

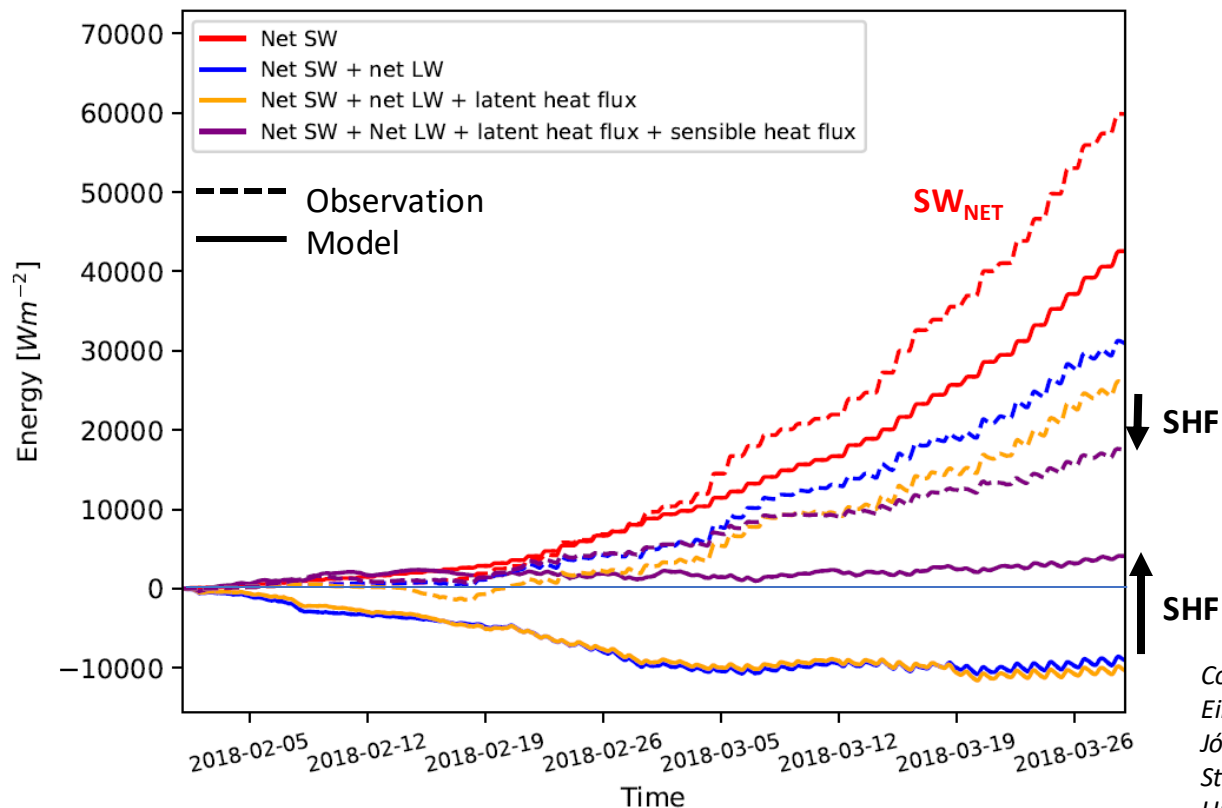


Whenever producing NetCDF/CF files,



# YOPPsiteMIP: surface energy budget

ECMWF IFS @ Sodankylä for SOP-NH1

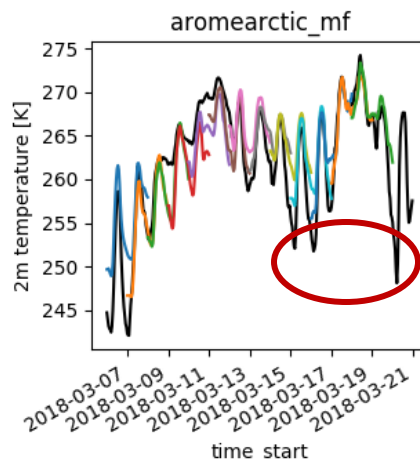
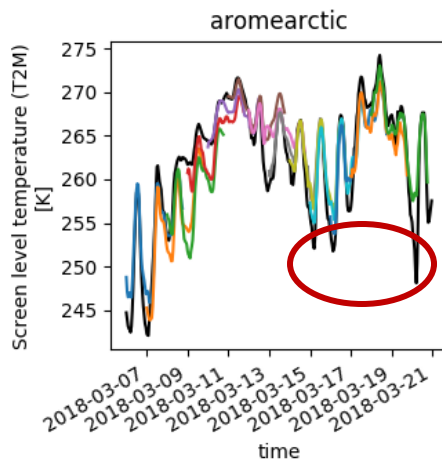
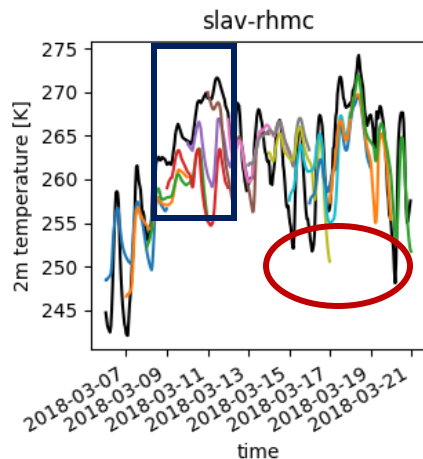
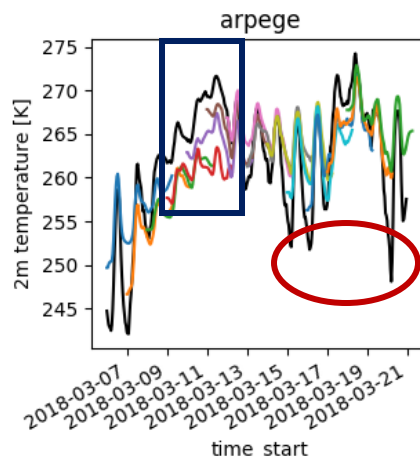
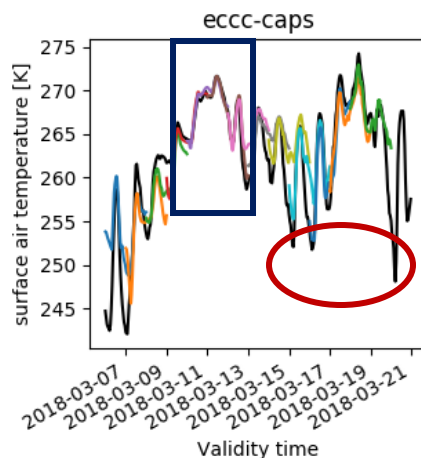
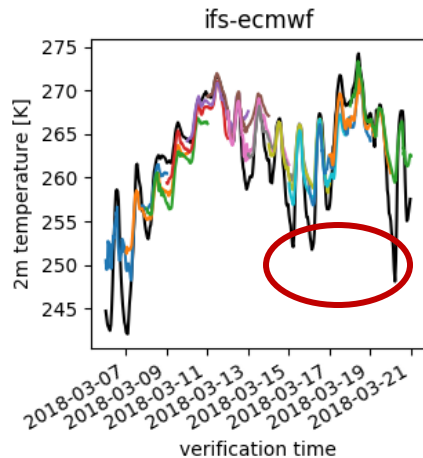


Modeled and observed accumulated fluxes differ, the sensible heat flux contributions are of opposite signs

Courtesy  
Eiríkur Örn  
Jóhannesson  
Stockholm  
University

# YOPPsiteMIP: forecast comparison

Six models @ Sodankylä for SOP-NH1



Some issues are model specific, some are across models

Solid black: observations  
Colors: overlapping forecasts

**APPLICATE.eu**  
Advanced prediction in polar regions and beyond

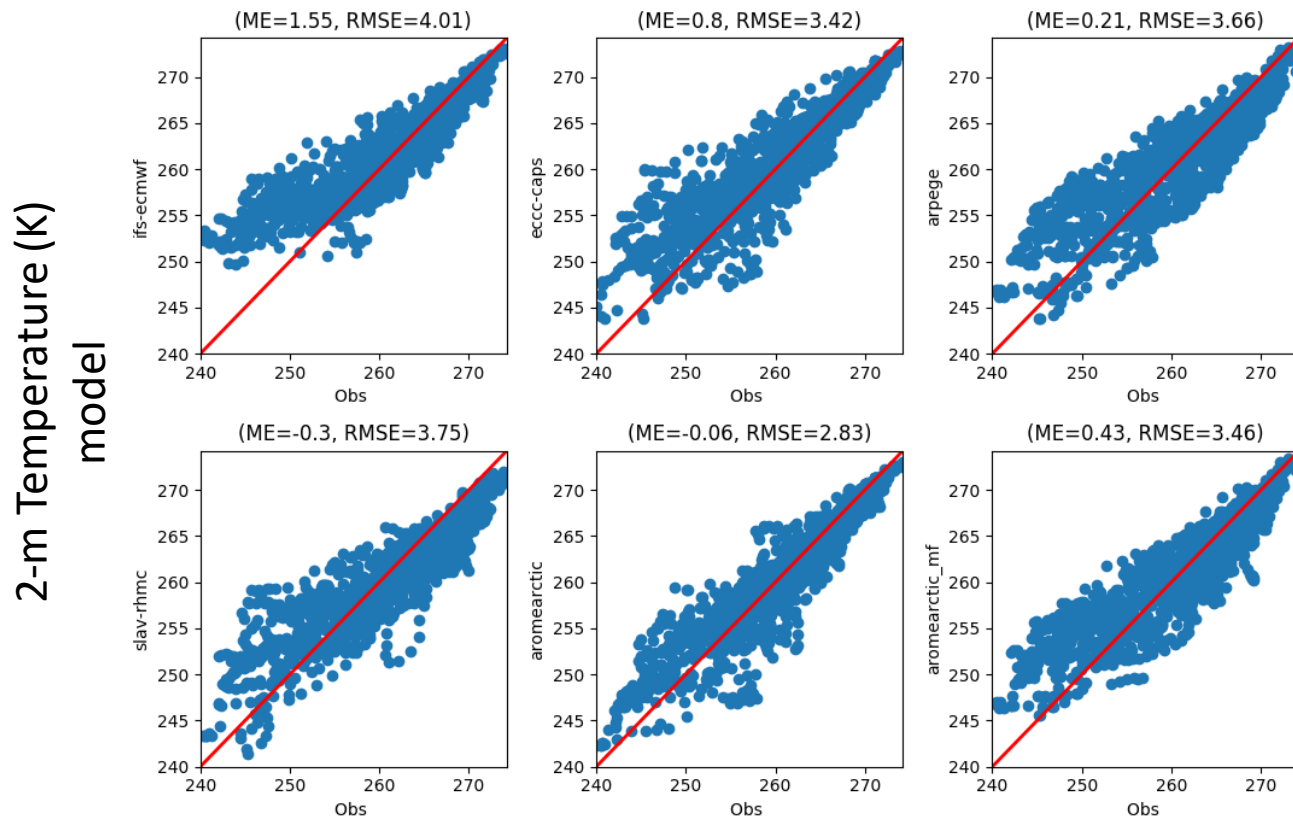
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Courtesy  
Jonathan Day  
ECMWF



# YOPPsiteMIP: multimodel diagnostics

Six models @ Sodankylä for SOP-NH1



2-m Temperature (K), observed

Most models have problems with the coldest temperatures

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Advanced prediction in  
polar regions and beyond

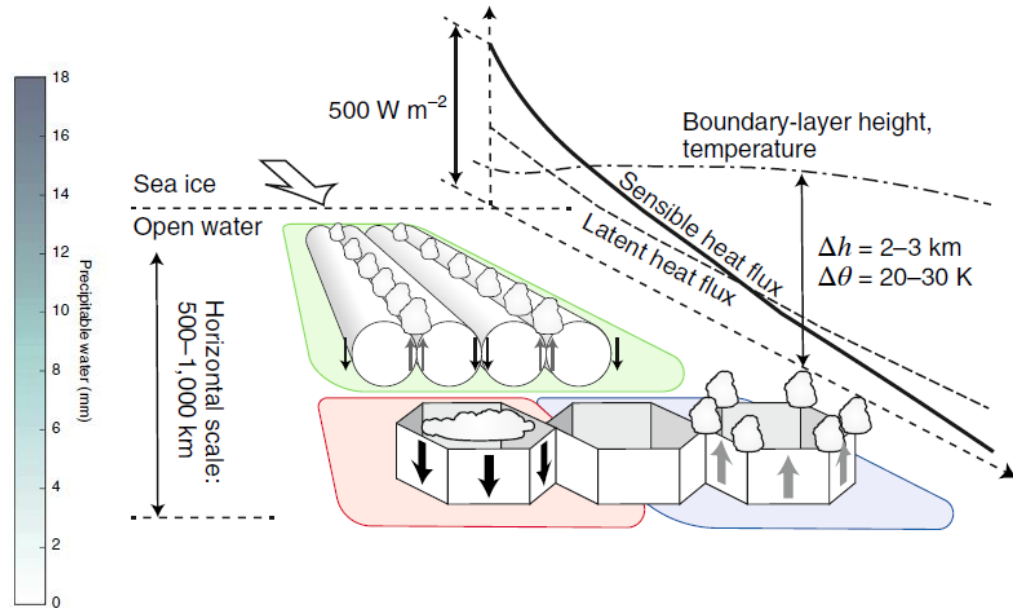
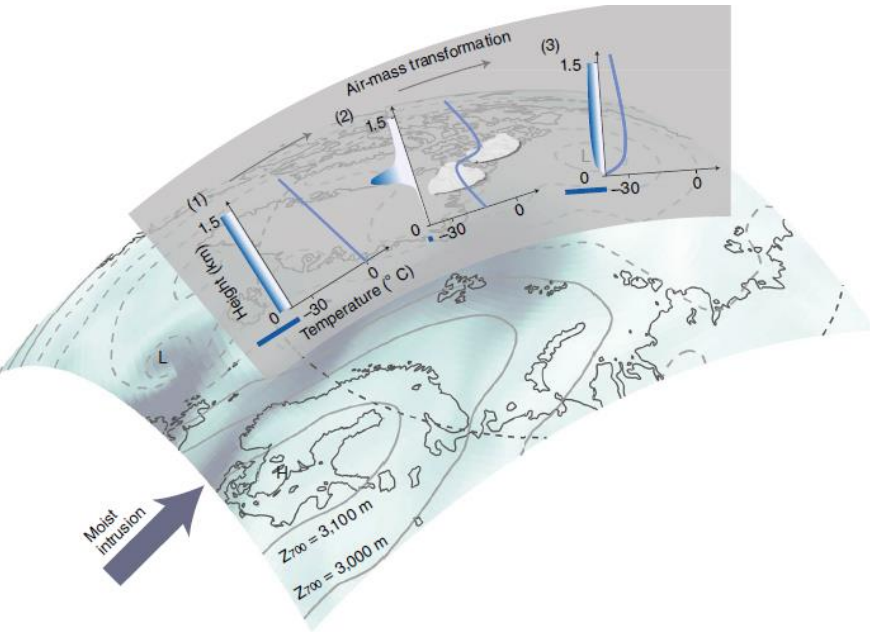
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ECMWF

# Ongoing YOPP TOPs

## Airmass transformation - Lagrangian perspective

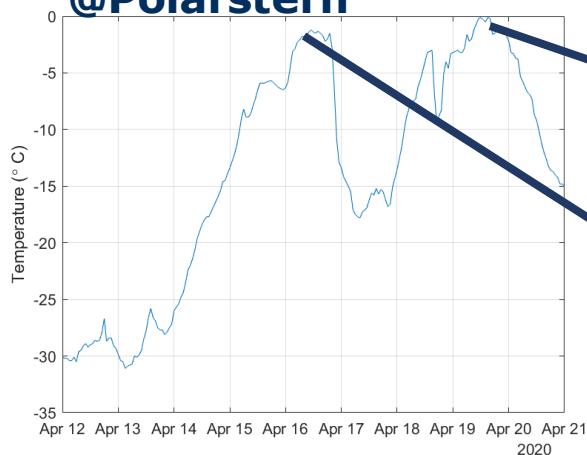
Warm-air advection and cold-air outbreaks



Pithan, F., G. Svensson, R. Caballero, D. Chechin, T.W. Cronin, A.M.L. Ekman, R. Neggers, M.D. Shupe, A. Solomon, M. Tjernström, and M. Wendisch, 2018: Role of air-mass transformations in exchange between the Arctic and mid-latitudes, *Nature Geoscience*, [doi:10.1038/s41561-018-0234-1](https://doi.org/10.1038/s41561-018-0234-1)

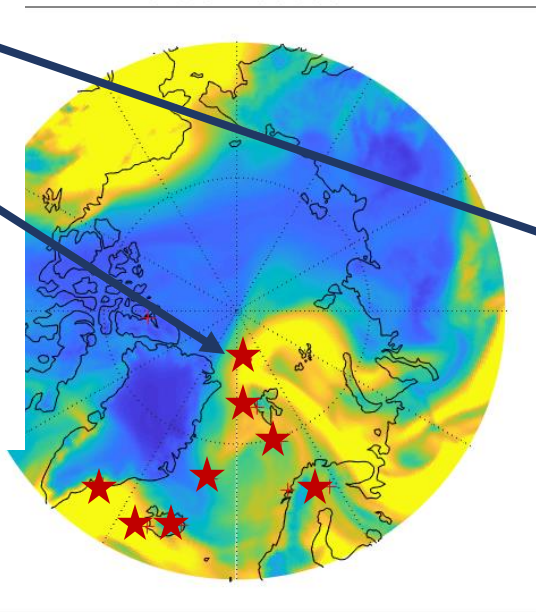
# YOPP NH-TOP1: 12 -21 April 2020

## Near surface T @Polarstern

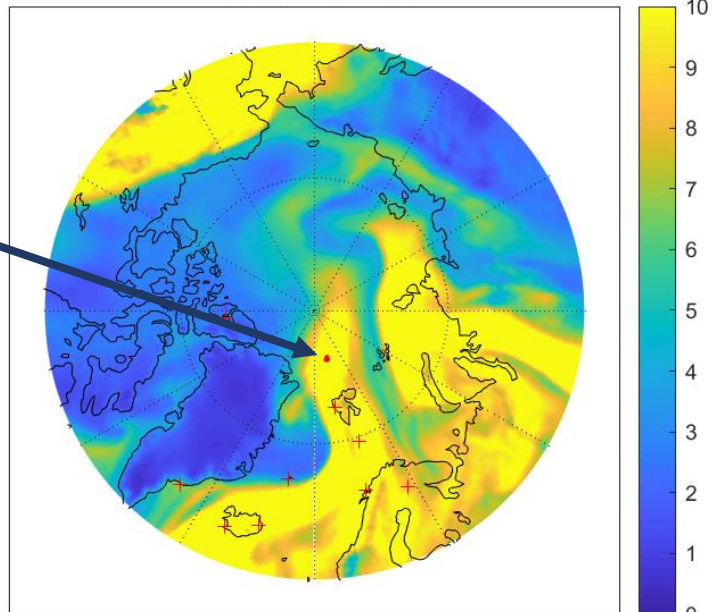


## ERA5 - Total column water vapor in kg m<sup>-2</sup>

2020-04-16 00:00



2020-04-19 12:00



Focus: warm & moist  
air intrusions

- ★ 37 extra soundings during the period
- Several stations already releasing 4 per day due to winter & less AMDAR data

# Summary

**YOPPsiteMIP** in the Arctic has good model participation and observational support. More opportunities in SH and Third pole...

**Workshop** to help create comparable model and observation data files planned for the autumn in Boulder, US (if possible)

## **Target processes for which studies and MIPs will be organized:**

- Low level clouds (including phase)
- Stable boundary layers
- Atmosphere-snow interactions over land and sea-ice
- Coupling procedures (variables and frequencies)
- Ocean mixing

## **MOSAic TOPs:**

- focus on air mass transformations
- First TOP: 12-21 April



# Interested in participating?

Please contact Gunilla Svensson  
[gunilla@misu.su.se](mailto:gunilla@misu.su.se)

More information can be found at [polarprediction.net](http://polarprediction.net)



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727862.

