A decorative graphic of a branch with several leaves and small circular fruits, rendered in a light blue-grey color, extending from the left side of the slide.

YOPPsiteMIP

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

Gunilla Svensson

**Department of Meteorology, Bolin Centre for Climate Research and
Swedish e-science Research Centre**

and the YOPPsiteMIP team

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

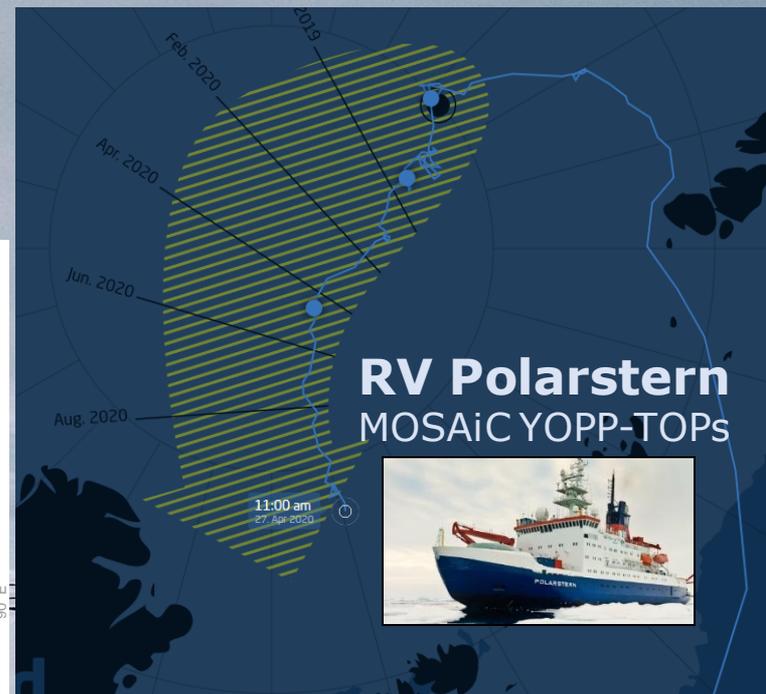
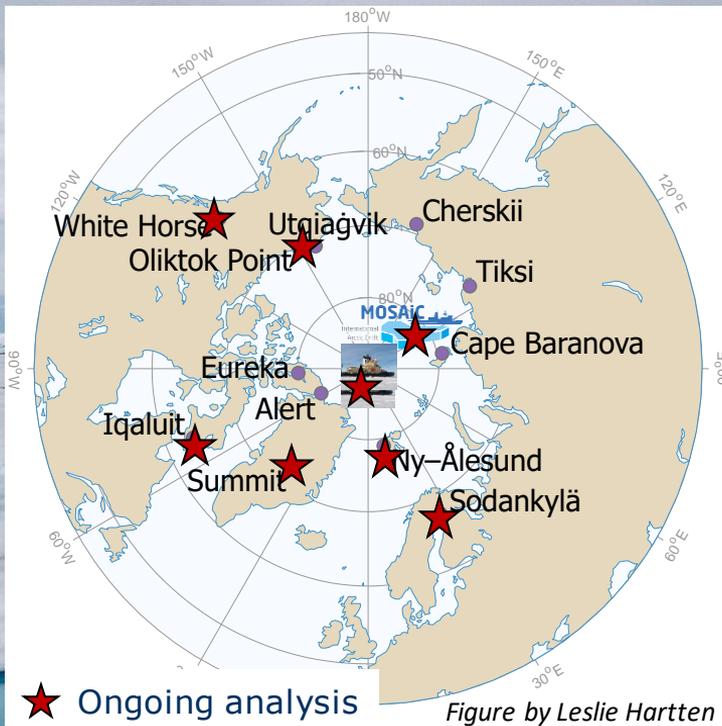


**Stockholm
University**

YOPPsiteMIP sites

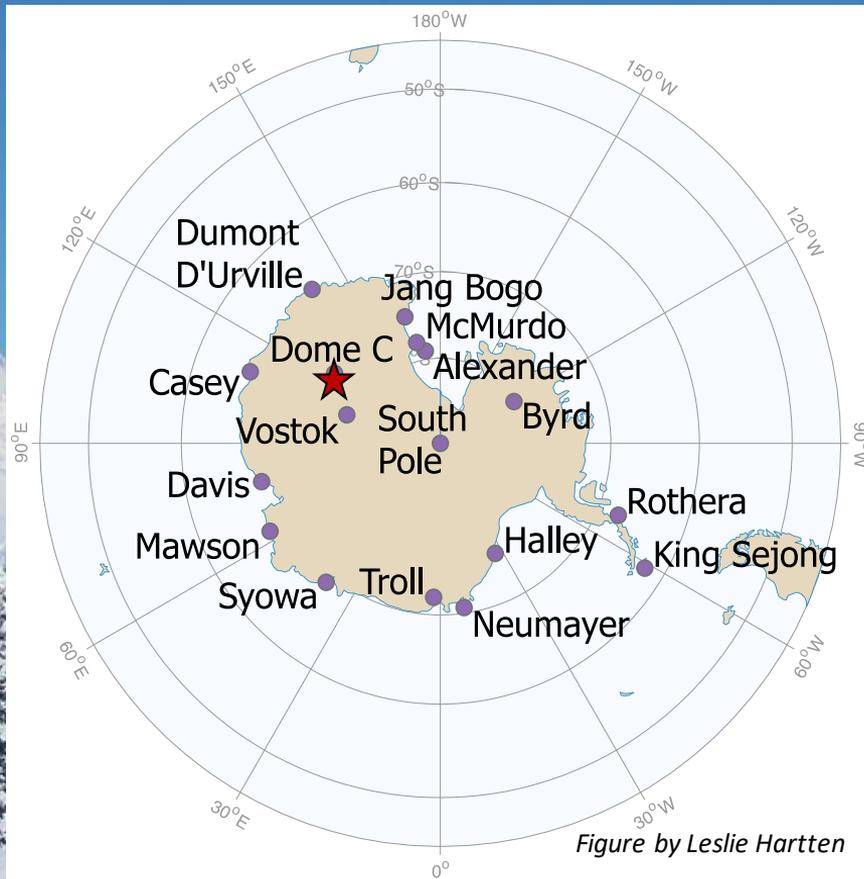
Arctic

Icebreaker
Oden
AO2018 SOP-NH2



YOPPsiteMIP sites

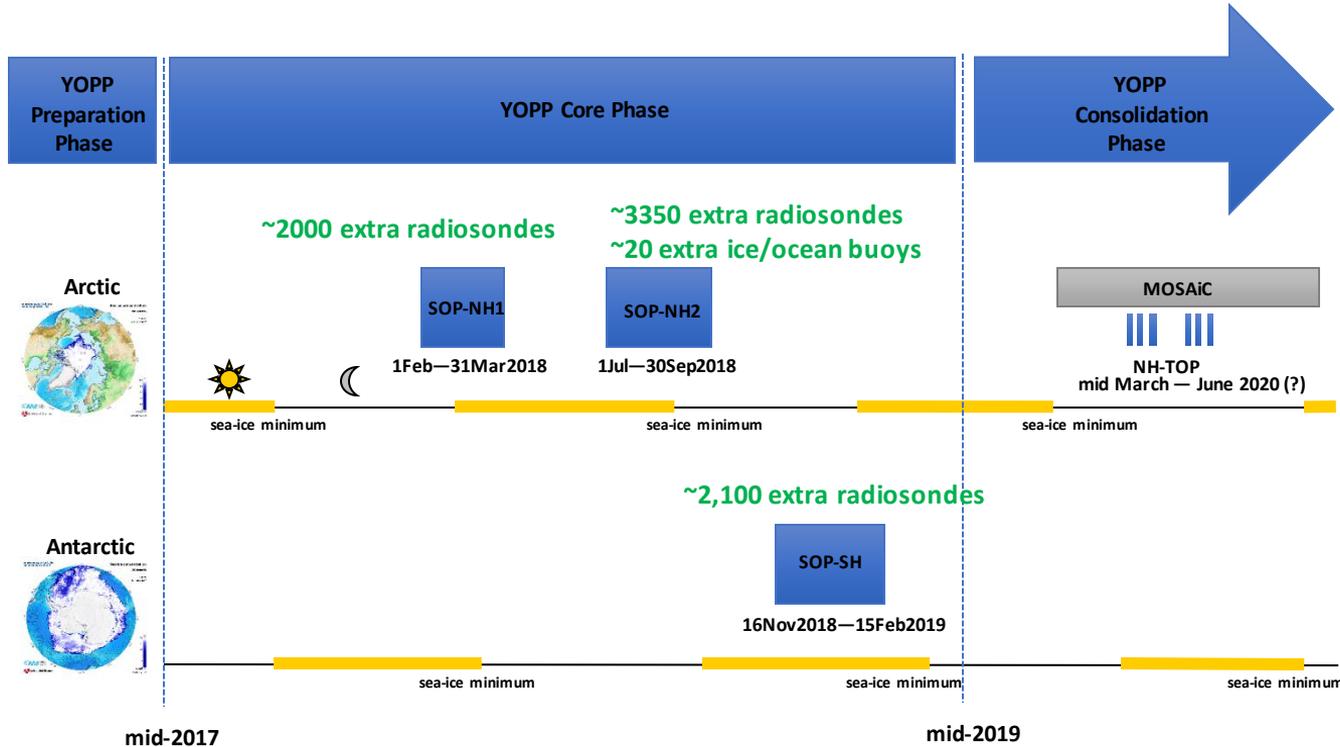
Antarctic



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 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... and the data are directly available at 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...

Tags:
YOPP datasets
YOPP supersites

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

Search for data

A screenshot of the 'Search for data' interface. It features a search form with fields for 'Spatial', 'Temporal', 'Parameters', and 'Other'. To the right of the form is a map of the Arctic region. Below the form are 'Go' and 'Clear' buttons.

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

Validate NetCDF/CF

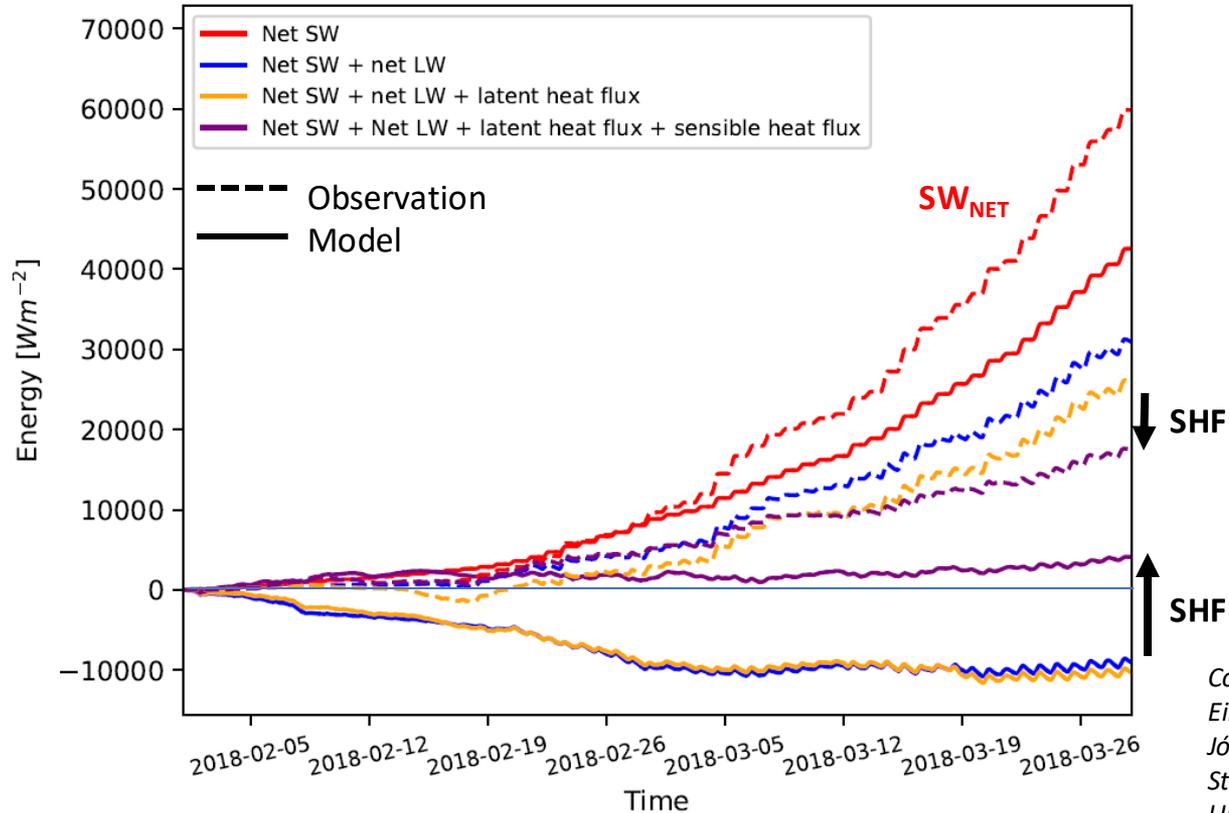
A screenshot of the 'Dataset Validation' interface. It shows a form with fields for 'Dataset Name', 'Dataset Description', and 'Dataset URL'. There are 'Go' and 'Clear' buttons at the bottom.

Whenever producing NetCDF/CF files,



YOPPsiteMIP: surface energy budget

ECMWF IFS @ Sodankylä for SOP-NH1



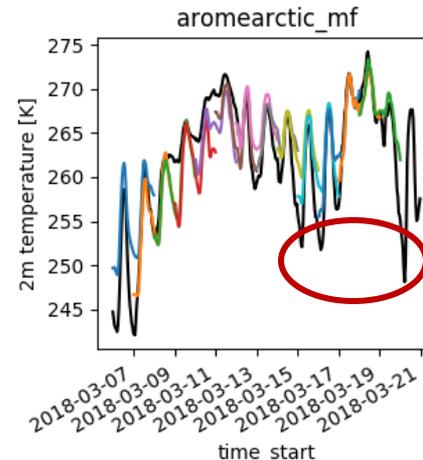
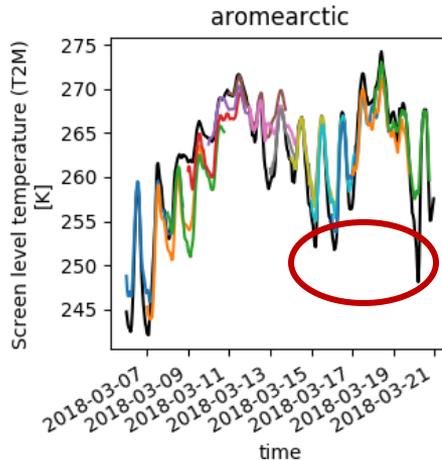
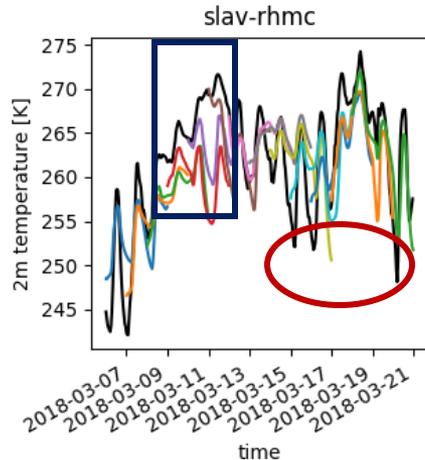
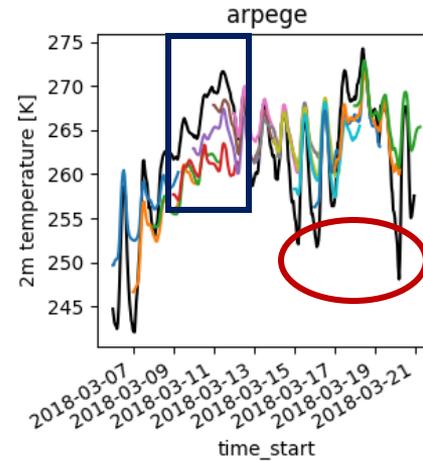
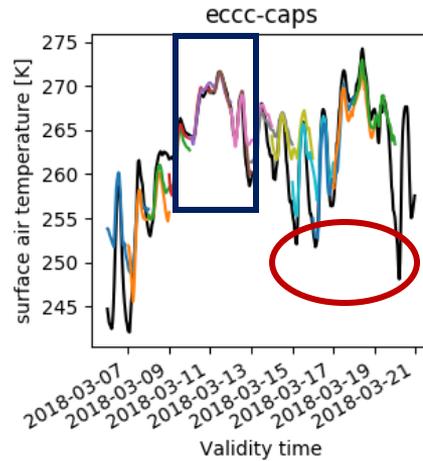
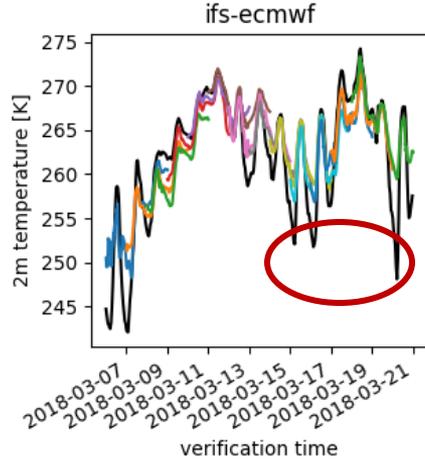
Modeled and observed accumulated fluxes differ, the sensible heat flux contributions are of opposite signs

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

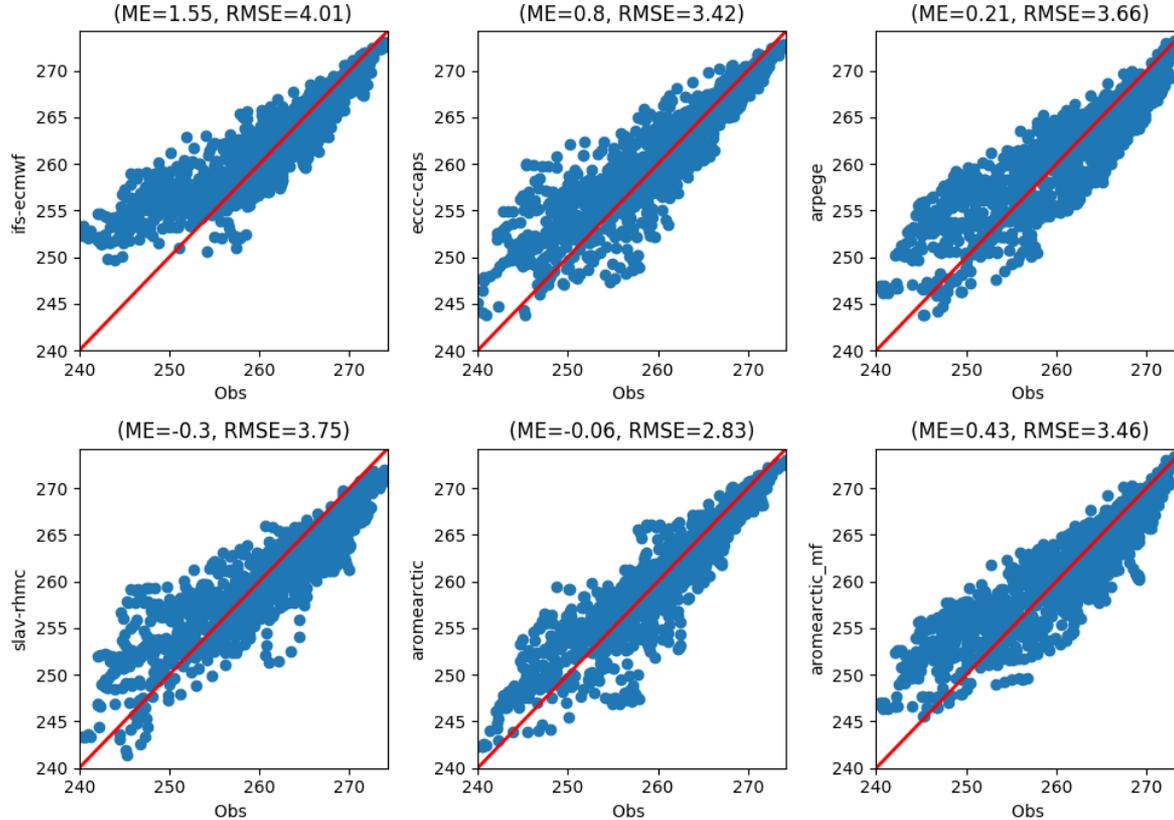
YOPP
YEAR OF
POLAR
PREDICTION

Courtesy
Jonathan Day
ECMWF

YOPPsiteMIP: multimodel diagnostics

Six models @ Sodankylä for SOP-NH1

2-m Temperature (K)
model



2-m Temperature (K), observed

Most models have problems with the coldest temperatures

APPLICATE.eu
Advanced prediction in
polar regions and beyond

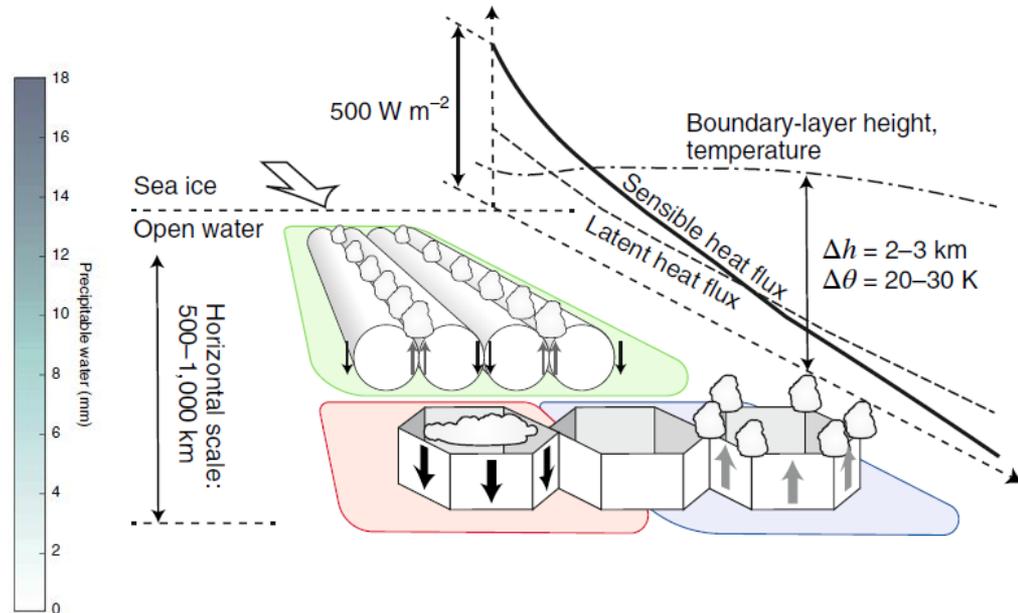
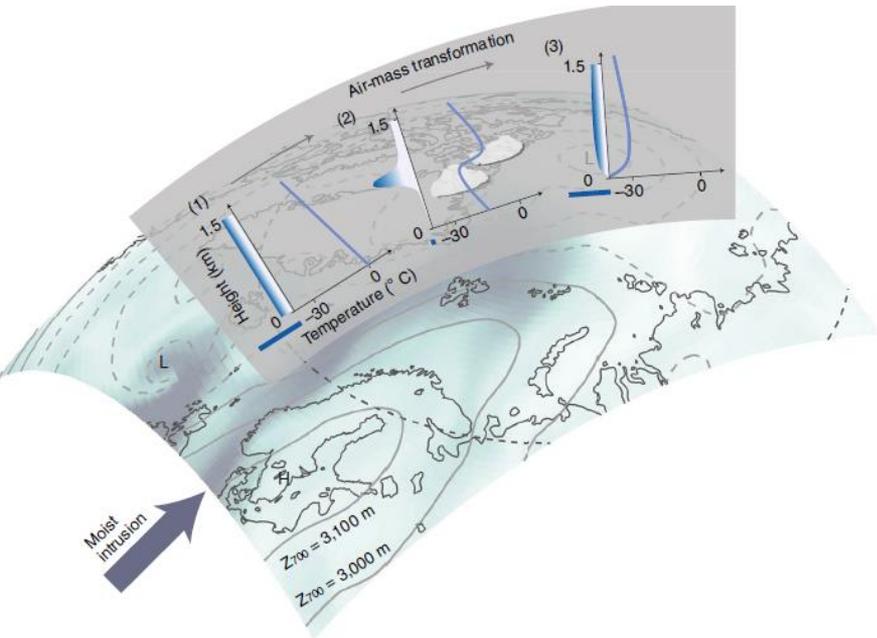
YOPP
YEAR OF
POLAR
PREDICTION

Courtesy
Jonathan Day
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)

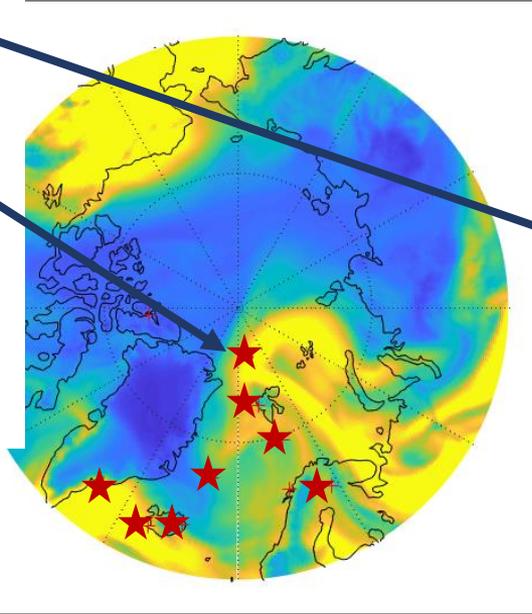
YOPP NH-TOP1: 12 -21 April 2020

Near surface T @Polarstern

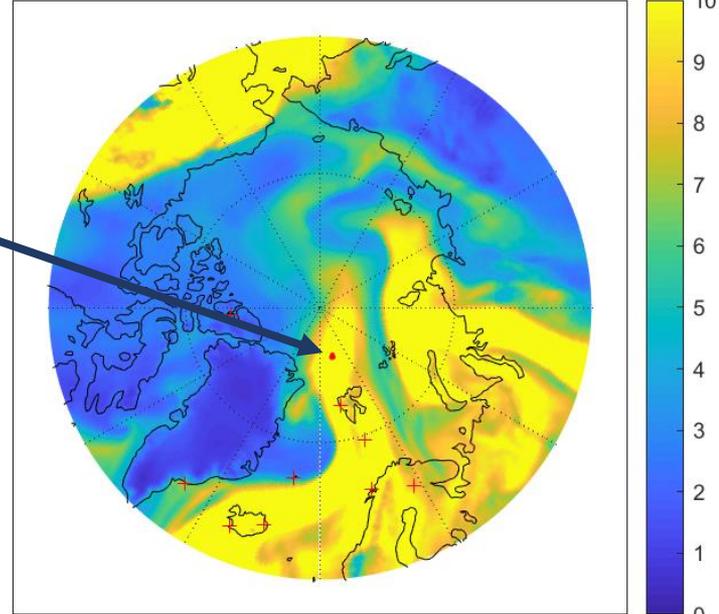


ERA5 - Total column water vapor in kg m⁻²

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

More information can be found at polarprediction.net



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

