HALO-(AC)^3 – 2022/03/22 – Polar5 research flight 02

Objectives:

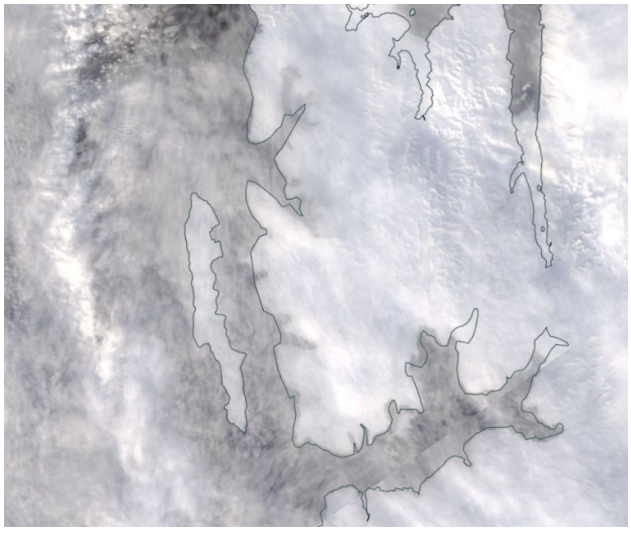
Comparing Ny-Alesund radiosonde to dropsonde measurements .

Polar 5 Crew	
Mission PI	**Mario Mech**
Basis Data Acq.	**Cristian Sans Coll**
SMART/ Eagle/Hawk	**Sebastian Becker**
MiRAC / AMALi	**Sabrina Schnitt**
Dropsondes	**Özden Terli**
Optional seat	**Gunnar Bortz**
Pilot	**James Steward**
1st officer	**Noah Hladiak**

Mission PI P5:

Mario Mech mario.mech@uni-koeln.de

Polar 5	
Take off	**08:23 UTC**
Touch down	**09:58 UTC**
Flight time	**01:35**



MODIS RGB composite satellite image and sea ice fraction observed by the Advanced Microwave Scanning Radiometer (AMSR2) (screenshot from NASA worldview).

Weather situation as observed during the flight (compare to forecast):

See report of RF03 by Marcus Klingebiel.

According to the satellite image from the night before, clouds should have been disappeared once we pass the mountain ridge on the way to Ny-Alesund. This was not the case. We had a closed cloud layer from at least 11000ft to ground. Only after NYA, we could see the ocean surface for a short time.

Overview:

The plan was to overfly NYA, head towards the open ocean, and launch a dropsonde as soon as we are over open water. The same procedure in the opposite way when we turn around.

Detailed:

After take off in Longyearbyen, we have been more or less immediately in clouds all the way up to 10000 ft. We decided to climb further up to 11500 ft. Still clouds. This has been the case as well over NYA. Shortly afterwards it cleared up a bit, but not for long. After passing NYA in the middle of the fjord in the direction of the fjord, we launched a sonde. Once it was out we made a procedure turn and launched a second one before heading back to Longyearbyen over NYA again.

Instrument Status:

Polar 5	
Basis data acquisition	
Nose Boom	
MiRAC-A	
HATPRO	
AMALi	off
SMART	
Eagle/Hawk	
Dropsondes	2 (old ones)

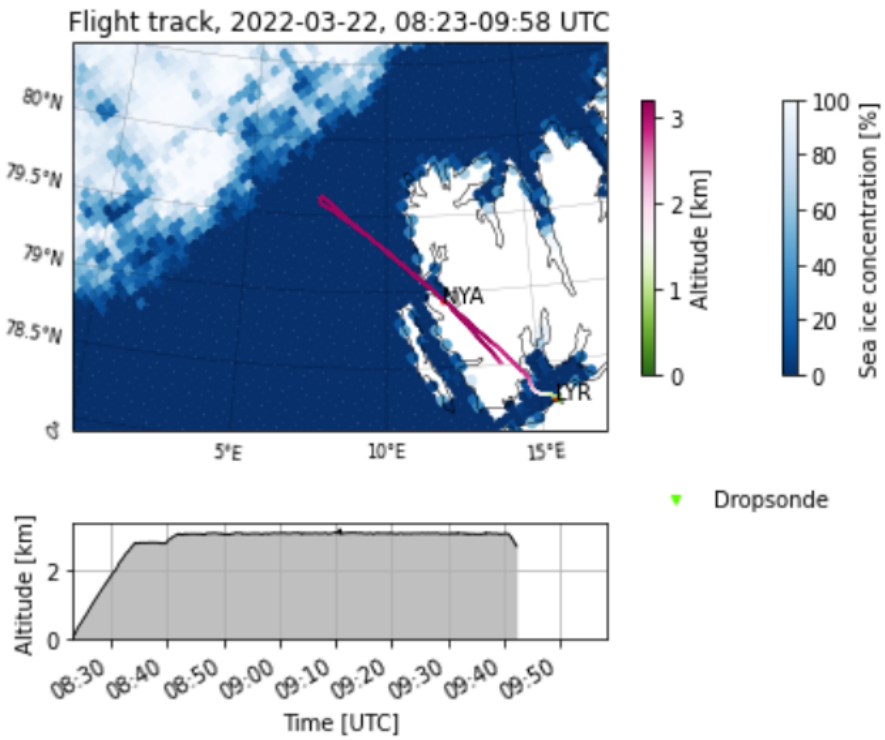
Table S5.1: Instrument status as reported after the flight for all instruments on Polar 5.

Comments: AMALi has been off cause the time was not enough to heat it up. SMART measurements have been stopped directly after the descent started. We used two of the old dropsondes from previous campaigns that had not to be reconditioned.

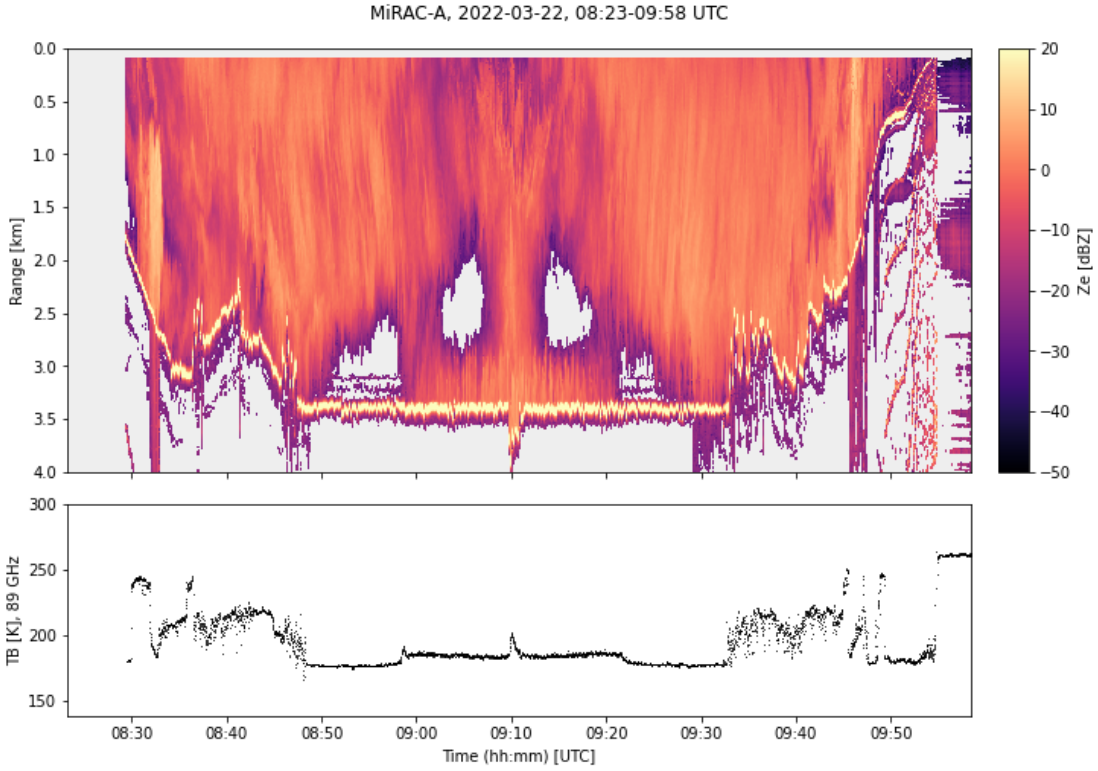
Detailed Flight Logs:

Detailed flight logs will follow after the flight segmentation has been performed. The final document will be updated in the wiki.

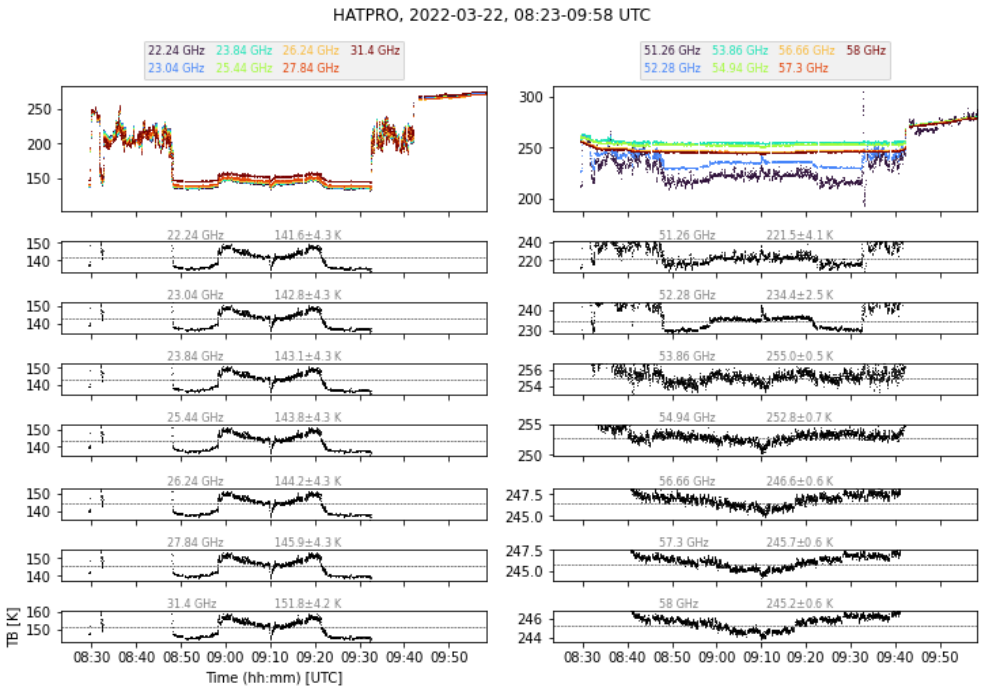
Quicklooks:



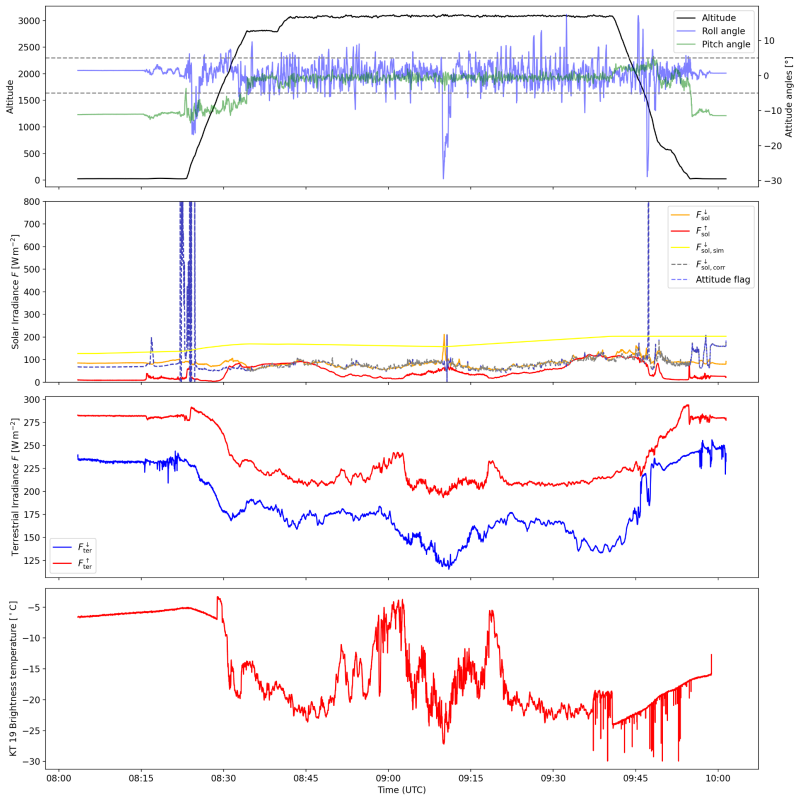
Flight track including sea ice coverage, dropsonde location and flight altitude.



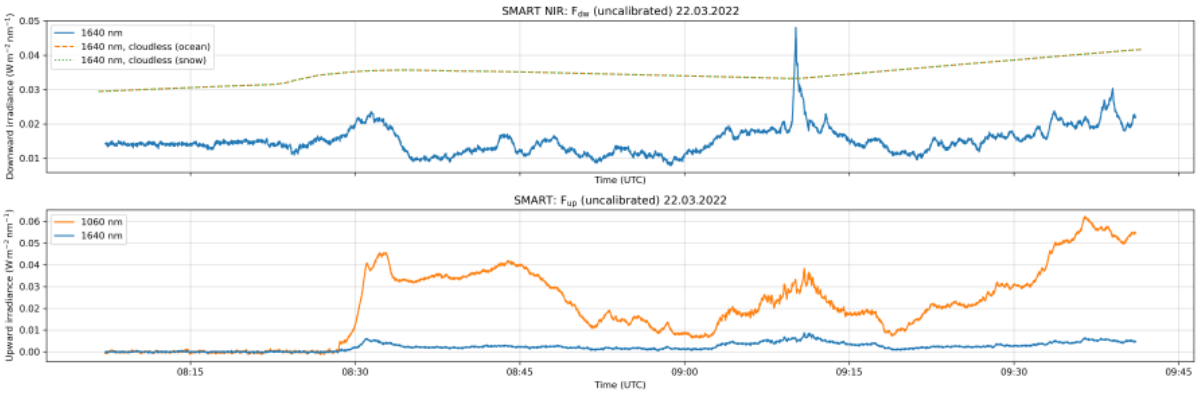
MiRAC radar reflectivity and 89 GHz brightness temperatures.



HATPRO brightness temperature observations at 22GHz water vapor channels (left) and oxygen band at 58 GHz (right).



Broadband radiation measurements and KT19.



SMART spectral radiances.