

## ACLOUD Flight #07 – Polar 5 – 170527—Afternoon

Mission PI P5: Manfred Wendisch

**Objectives:** Remote sensing of clouds in different regimes and different surfaces (sea ice/open ocean) within a weak cold air outbreak.

**Crew:**

Polar 5	
PI	Manfred Wendisch
Basis Data Acq.	Christoph Petersen
SMART	Michael Schäfer
Eagle/Hawk	Evelyn Jäkel
MiRAC	Tatiana Nomokonova
AMALi	Friedhelm Jansen

**Flight times:**

Polar 5	
Take off	13:02 UTC
Touch down	16:21 UTC

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

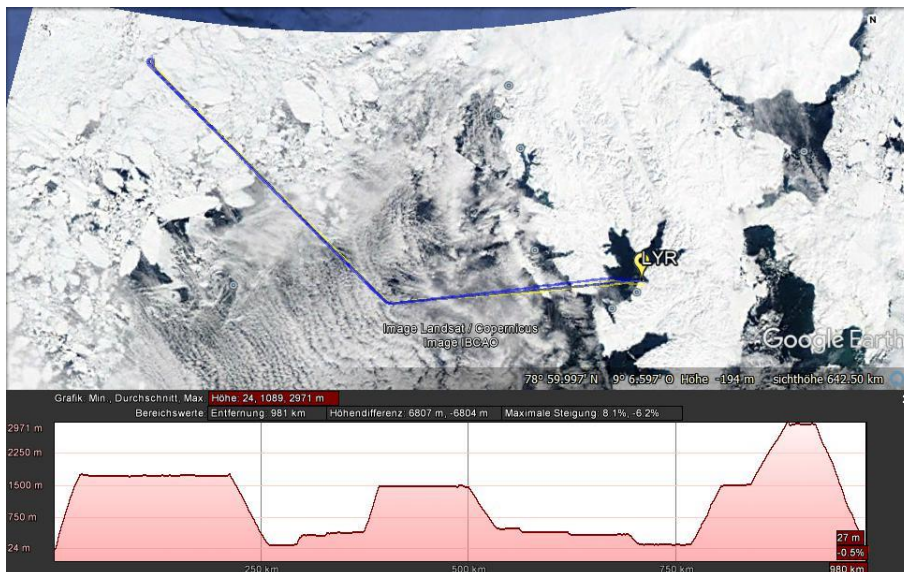
The same as in the morning flight (06)

### Horizontal flight pattern and profile for P5

Waypoints: **LYR:** 78° 14.816' N, 15° 27.545' E

**C1:** 78° 15.000' N, 6° 16.176' E

**C2:** 79° 50.742' N, 3° 30.786' W



Horizontal flight pattern (upper panel) for P5 (blue) and P6 (yellow), profile (lower panel) for P6.

## Detailed Flight Log (all times in UTC)

LYR – C1 climb and stay at ≈10,000 ft: 115 NM @ 140kn 45 min

- 13:02 Taxi, all instruments okay
- 13:04 Takeoff
- 13:06 We are below a cloud deck, as we were in the morning flight
- 13:10 Very scattered clouds at the beginning
- 13:14 Sun glint below us, also snow, kind of mixed clouds
- 13:17 Cloud penetration from below, no cirrus above



- 13:24 Thin clouds beneath us
- 13:27 We slightly climb to get over the cloud top
- 13:32 More thick clouds, and lower



- 13:49 We reach C1 at an altitude of 10,750 ft

C1 – C2 at 10,000 ft:

**147 NM**

- 13:50 Clouds below, nothing above flight altitude



- 
- 14:00 Scattered low level clouds below flight altitude, cloud top estimated at 500 m, radar doesn't see much



- 14:15 No cirrus observed so far on this flight
- 14:20 More thick clouds, better for radar, however still quite low



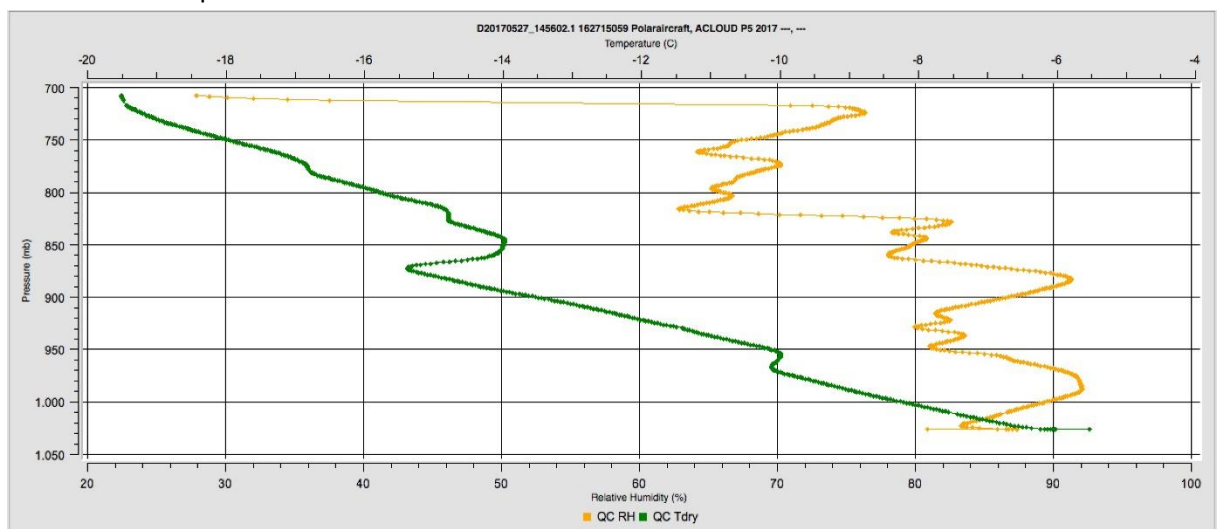
- 14:38 Polar 6 can be seen beneath us



- 14:50 C2 is reached, P6 just ahead of us

C2 – C1 at ≈10,000 ft: 147 NM

- 14:54 P6 enters the cloud, can be seen from above from P5
- 14:55 First drop sonde released



- 14:55 Glory
- 15:02 First dropsonde landed on the ice (-5.7 °C)



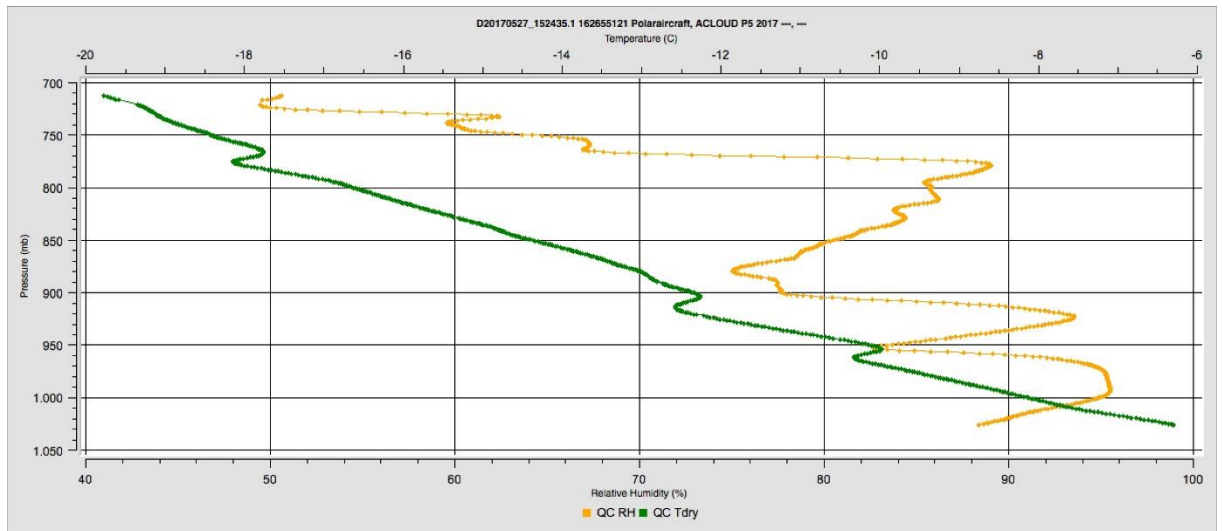
- 15:05 Glories all the time



- 15:14 Altitude still  $\approx 10,800$  ft



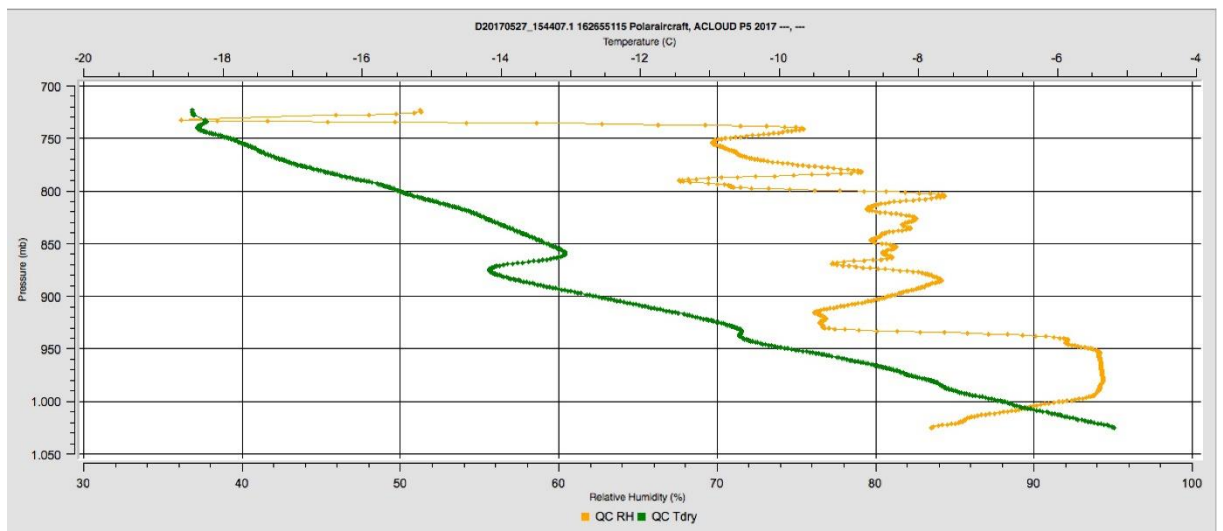
- 15:25 Second drop sonde released



- 15:45 C1 is reached again

### C1 – LYR **115 NM**

- Third sonde



- 16:23 Touch down



## Instrument Status

Polar 5	
Basis data acquisition	
Nose Boom	
MiRAC	
HATPRO	
AMALi	
SMART	
Eagle/Hawk	
Sun Photometer	
Drop Sondes	3 launched

## Comments

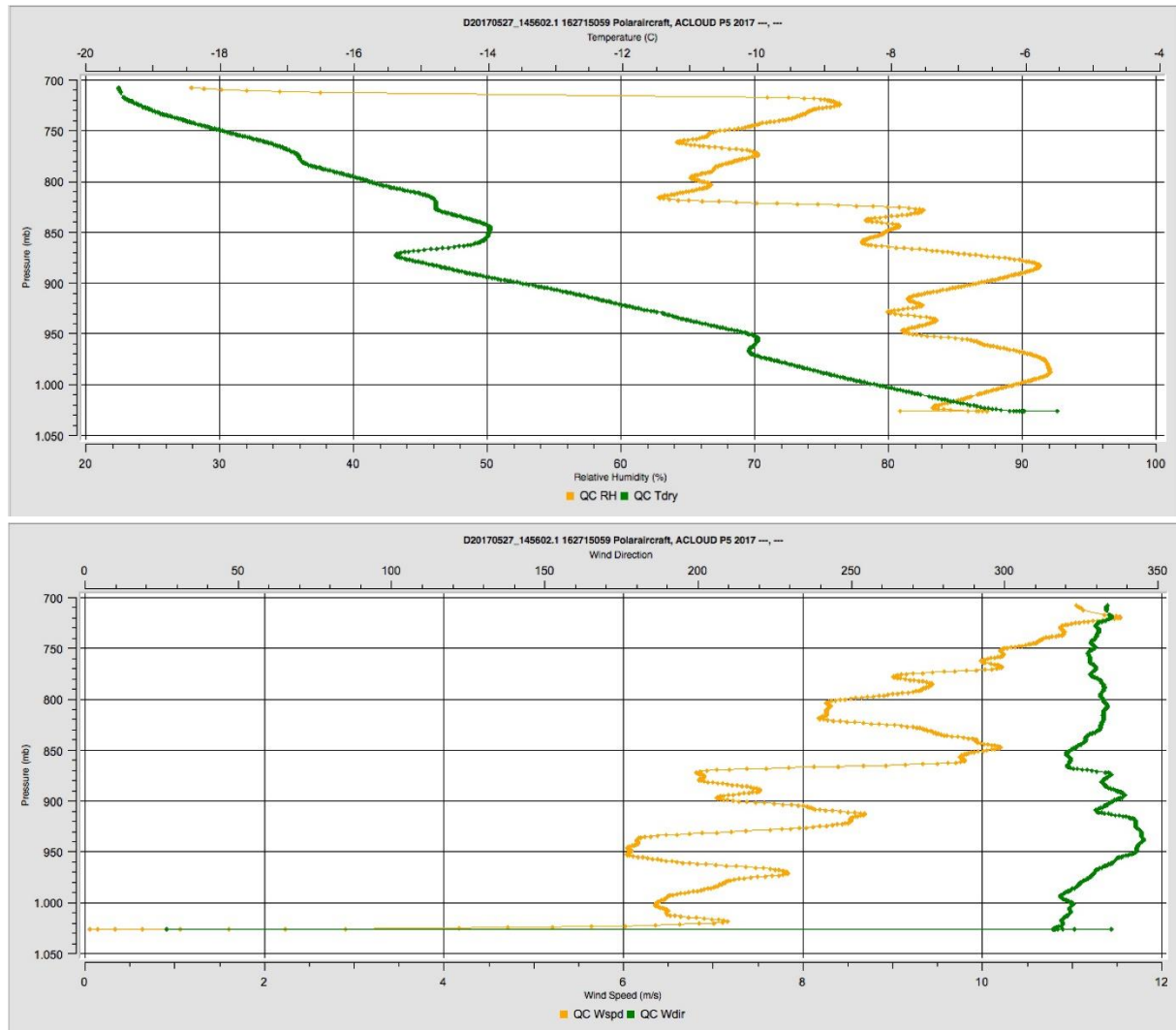
- Great flight
- All instruments worked fine.
- Thanks to the crew, see photo below.



## Quicklooks

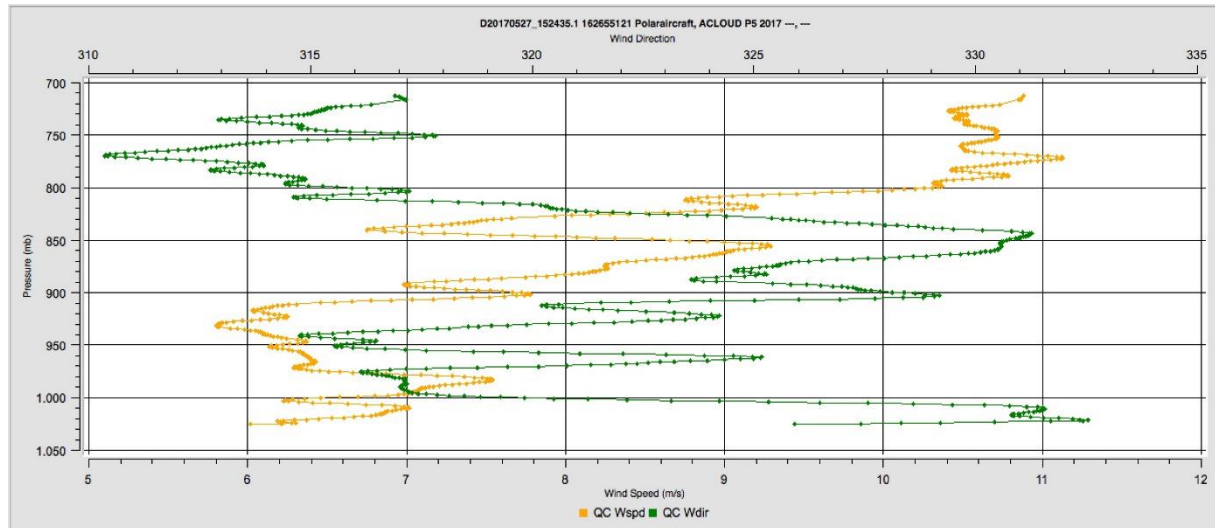
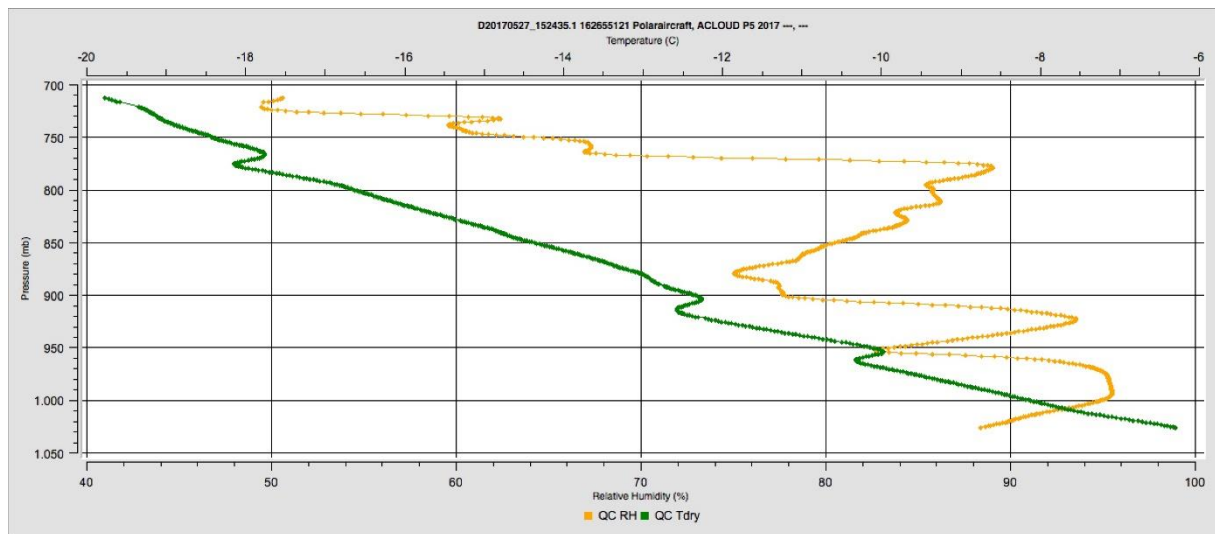
### Drop Sondes

*First dropsonde*

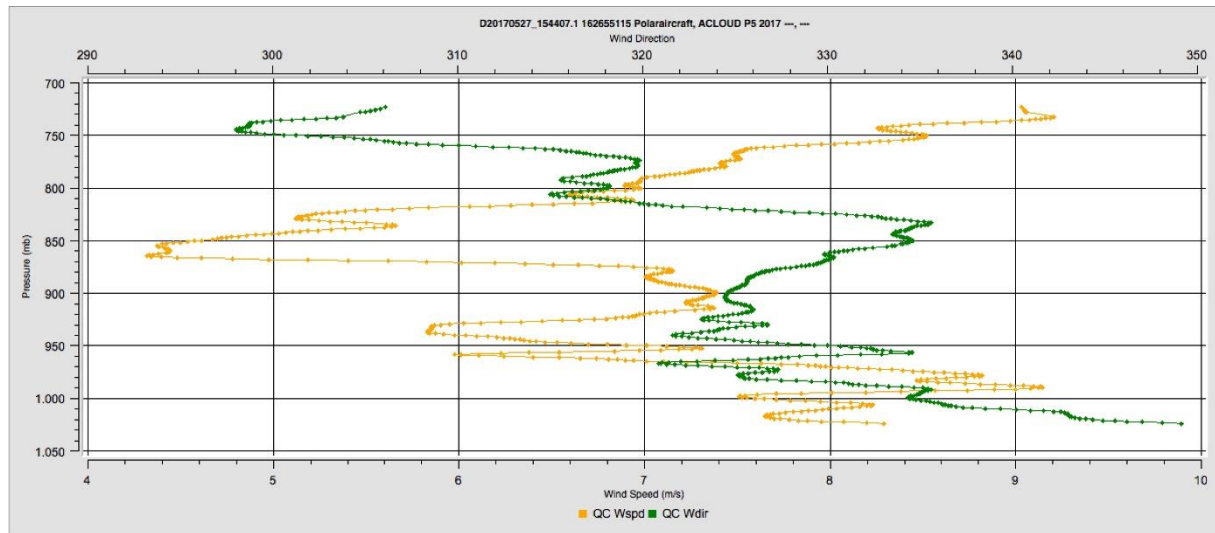
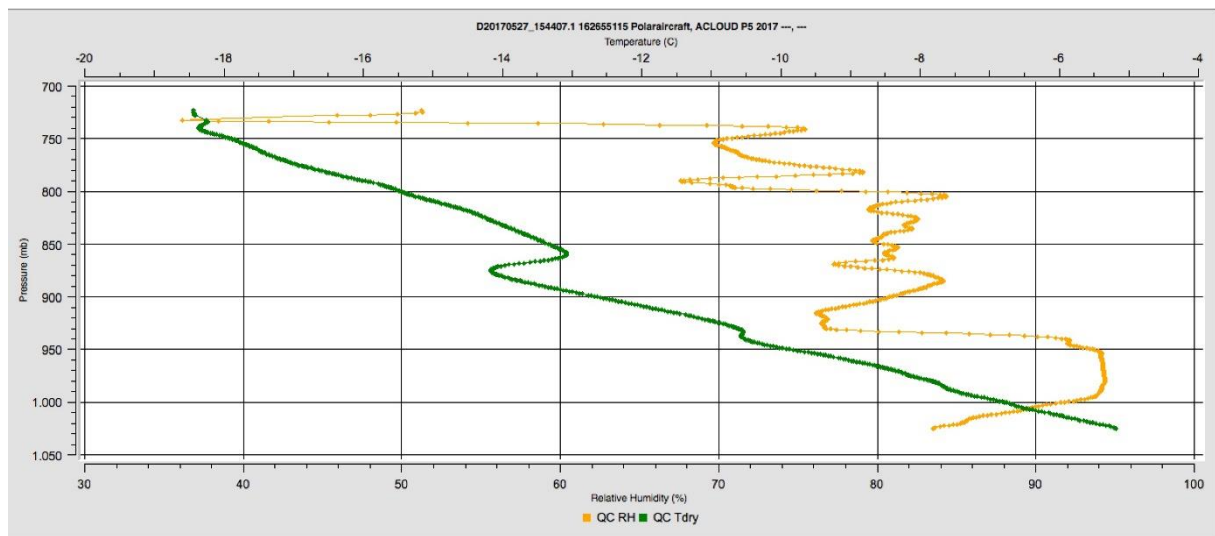




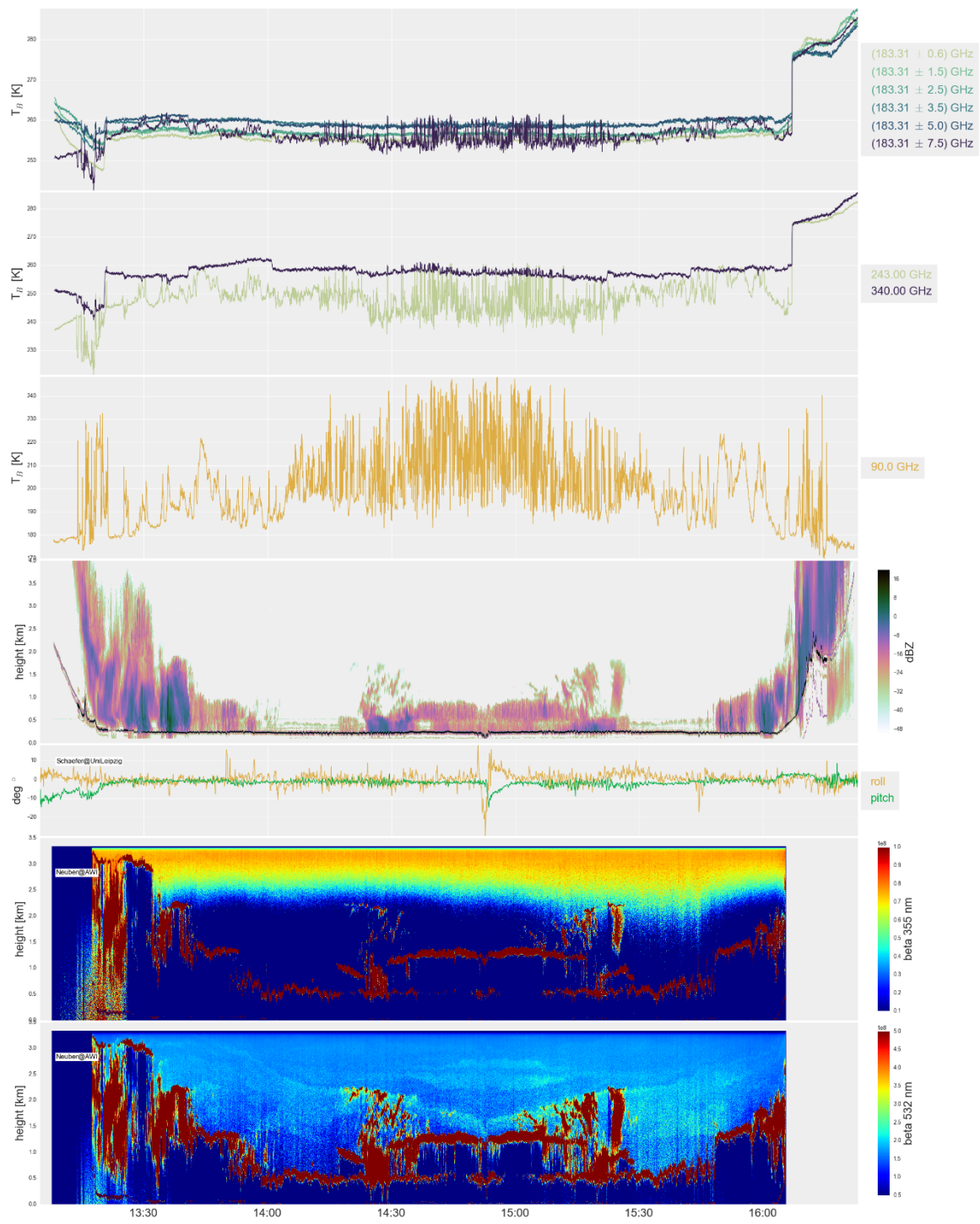
## Second dropsonde



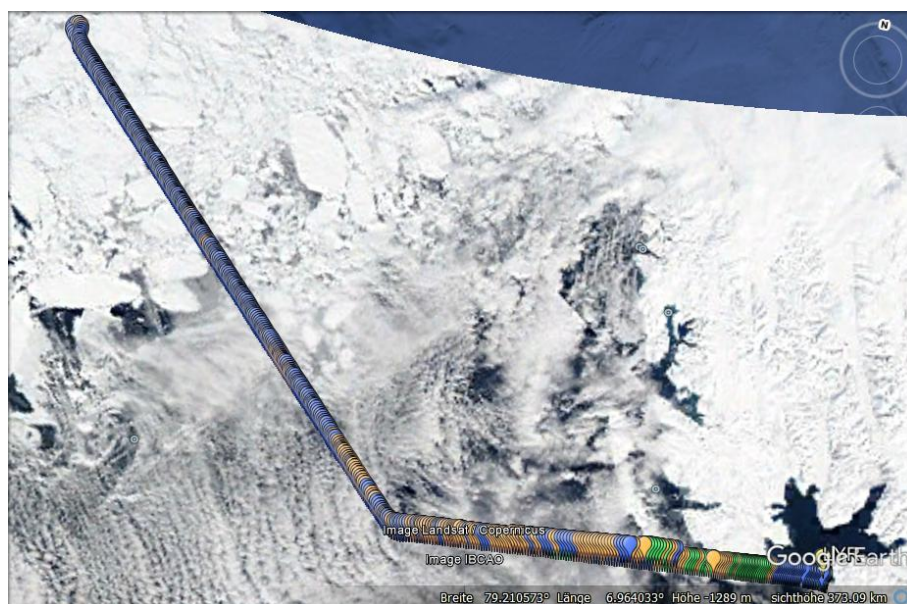
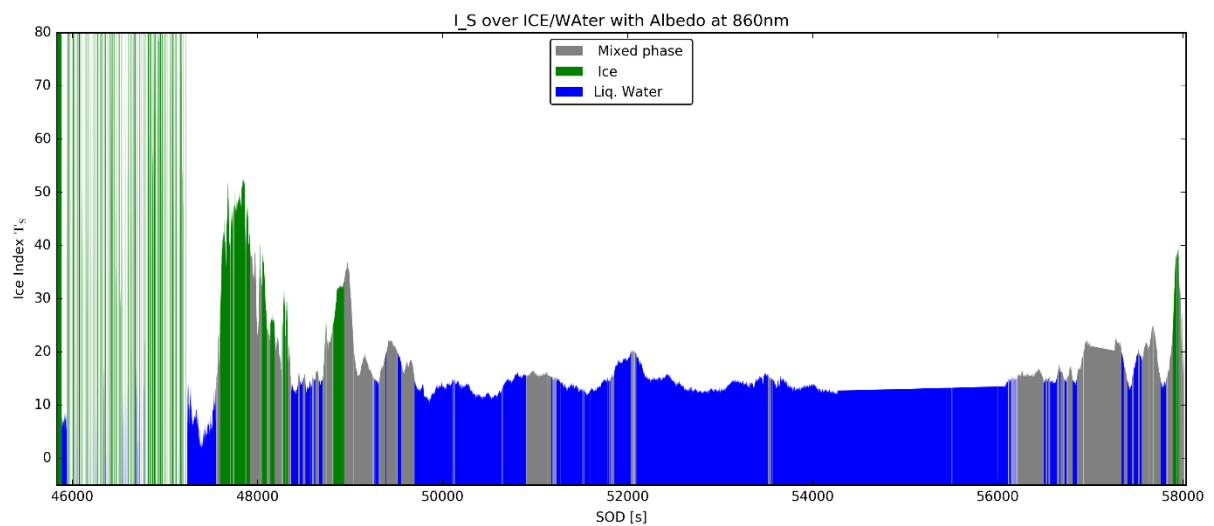
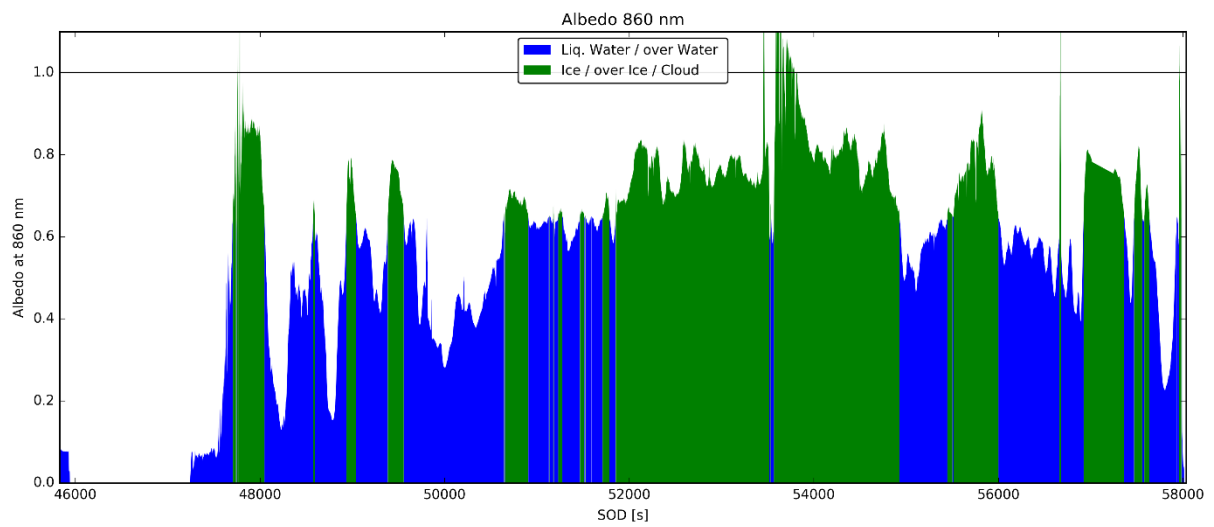
### Third dropsonde



Mirac & Amali



# SMART

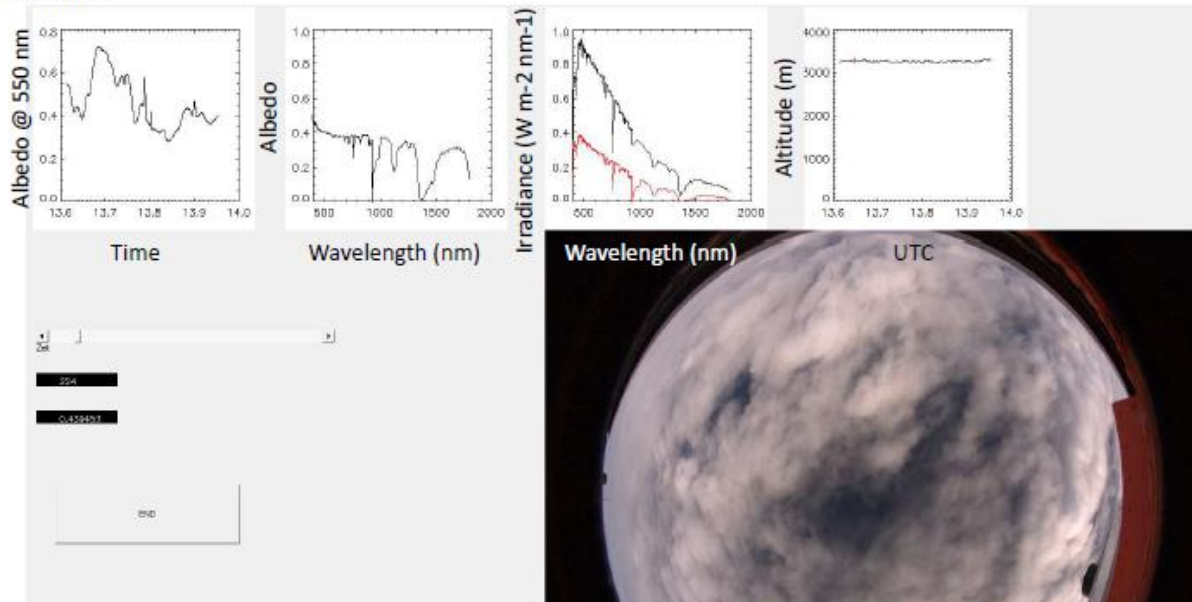


Green ice, orange mixed-phase, blue liquid water cloud

## SMART

(13:40-14:00 UTC)

SMART data



## EAGLE/HAWK

(13:40-14:00 UTC)

