ACLOUD Flight #10 – Polar 6 – 170531

Mission PI P6: Johannes Schneider

Objectives: Clear sky flight. Vertical profiles around Polarstern, nose boom calibration (wind speed), vertical profile to 12000 ft.

Crew:

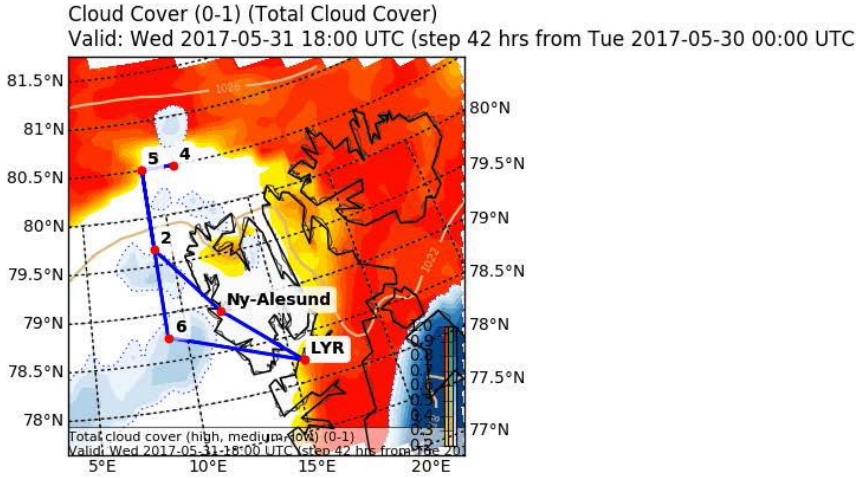
Polar 6	
PI	**Johannes Schneider**
Basis Data Acq.	**Daniel Damaske**
ALABAMA	**Hans-Christian Clemen**
CVI	**Stephan Mertes**
Gas/AWI-Aerosol	**Heiko Bozem**
PMS	**--**
Nevzorov	**Dmitry Chechin**

Flight times:

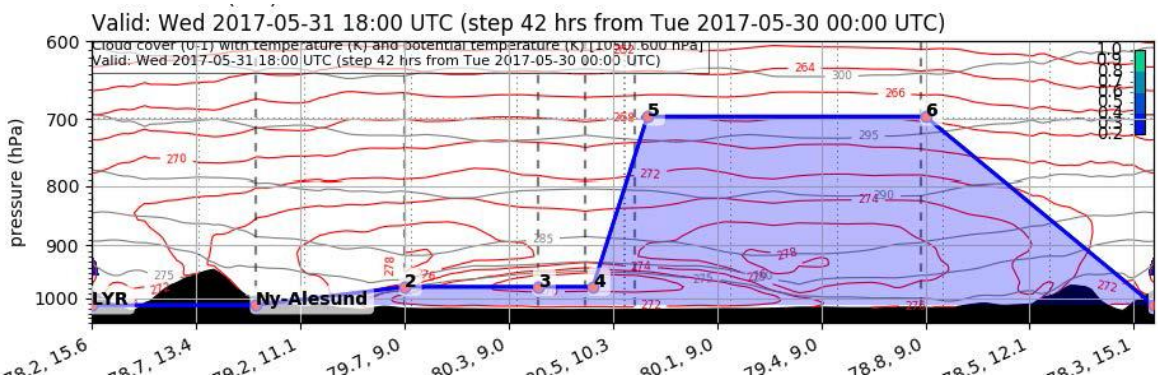
Polar 6	
Take off	**14:59:18 UTC**
Touch down	**19:02:48 UTC**

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

Forecast:



EPSG:77790000



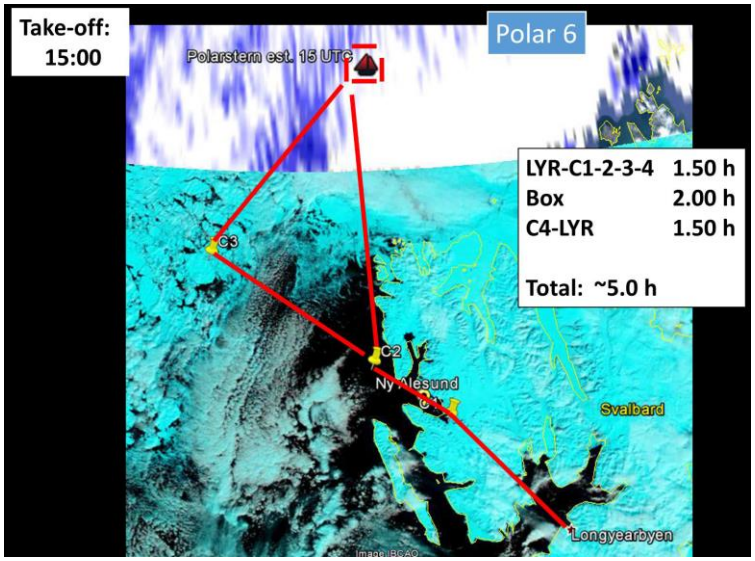
Polarstern was about 30 miles more to the south than estimated. Around that area low level clouds had formed that were not predicted, between about 300 and 600 ft. Cloud streets were observed. Otherwise cloud-free. Strong inversion layer with temperatures up to about 10°C.

Overview:

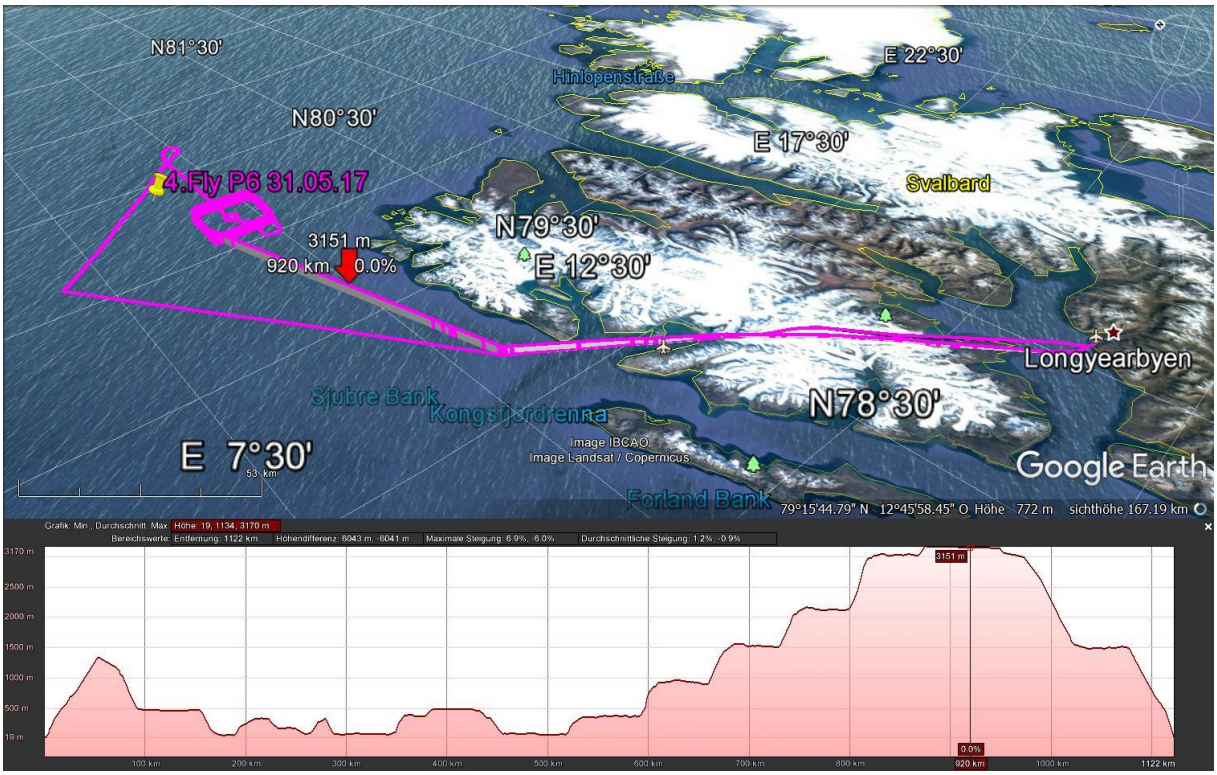
Flight started with 1500 ft overpass over Ny Alesund fjord, then we started low level boundary layer profiling, including cloud penetration at around 600 ft. After C3 nose boom calibration pattern was performed in the assumed direction of the Polarstern. After completing this pattern, we learned that Polarstern was 30 miles to the south, so we turned to reach Polarstern. There the 10-miles square was flown in 6 altitudes (200, 1000, 3000, 5000, 7000, 10000 ft). A thin patchy cloud layer was observed between 600 and 900 ft. After that we ascended to 12000 ft, then descended to 10000 and 5000 ft before LYB.

Flight track and pattern:

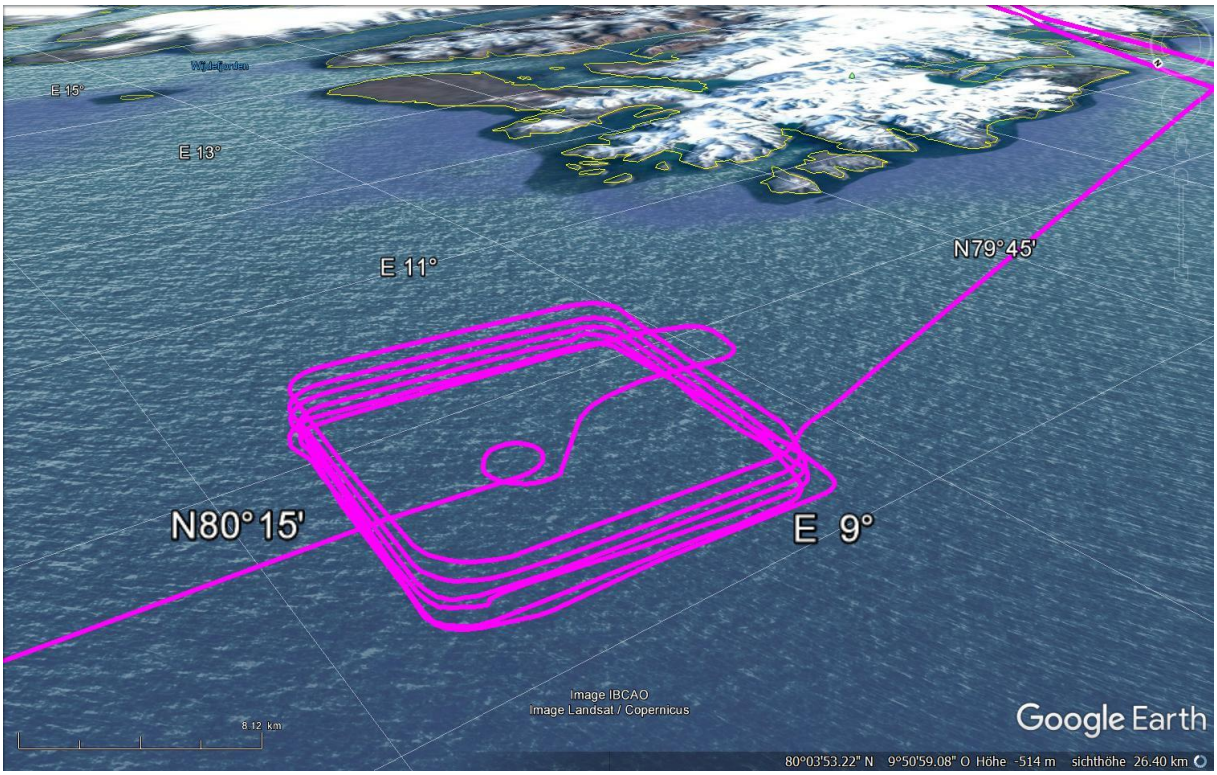
Flight plan:



Actual flight track:



Square pattern over Polarstern:



Instrument Status:

Polar 6	
Basis data acquisition	
Nose Boom	
ALABAMA	
CVI	
Trace Gases	
AWI Aerosol	
KIT PMS	not installed
LAMP PMS	not installed

Comments:

PMS probes were not installed for intended clear sky flight.

Detailed Flight Logs (Name of author… more than one is possible):

Johannes Schneider (times UTC)

14:59:18	Take off
	climb to 4500 ft, fly over fjord toward Ny Alesund, over glacier.
15:17	Overpass meteorological station on glacier
15:18	C1
15:20	overpass Ny Alesund fjord at 1500 ft
15:30	C2, start descent to 200 ft
15:33	reach 200 ft
15:38	climb to 1000 ft
15:41	reach 1000 ft
15:43	over clouds (approx. 600 ft)
15:46	descent into clouds, to 500 ft. T = -1°C
15:53	descent to 200 ft
15:56	climb above clouds
15:52:20	reach cloud top (900 ft), remain until C3
15:59:09	C3. Turn and descent to 200 ft
	Start Noseboom calibration pattern:
16:02:20 – 16:03:20	100 kn
16:04:08 – 16:05:08	110 kn
16:05:36 – 16:06:36	120 kn
16:07:04 – 16:08:04	130 kn
16:08:23 – 16:09:23	140 kn
16:09:50 – 16:10:50	150 kn
16:11:12 – 16:12:12	160 kn
16:12:33 – 16:13:33	150 kn

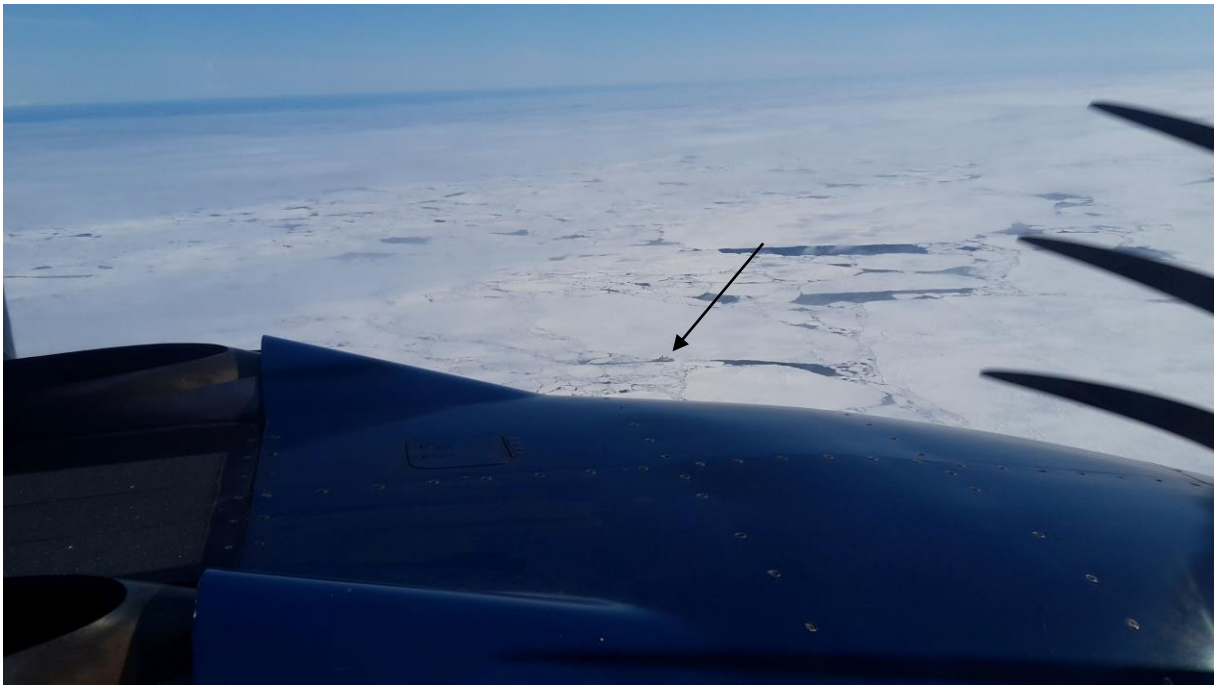
16:13:48 – 16:14:48 140 kn
16:15:04 – 16:16:04 130 kn
16:16:21 – 16:17:21 120 kn
16:17:41 – 16:18:41 110 kn
16:19:04 – 16:20:04 100 kn

16:20:30 ascent to 1000 ft, 140 kn
16:14 turn to reach actual Polarstern position
16:27 ascent to 1500 ft, 140 kn
16:28 reach 1500 ft
16:37 see Polarstern, descent to 200 ft
16:42 through clouds
16:46:33 1st way point, start square around Polarstern 200 ft, 1st leg northbound
16:51:20 2nd leg (westbound)
16:55:13 3rd leg (southbound)
16:59:30 4th leg (eastbound), climb to 1000 ft
17:01:10 reach 1000 ft
17:03:48 1st leg (north)
17:07:50 2nd leg (west)
17:11:16 3rd leg (south)
17:15:02 4th leg (east), climb to 3000 ft
17:18:32 reach 3000 ft
17:20 1st leg (north)
17:23:50 2nd leg (west)
17:27:20 3rd leg (south)
17:30:30 4th leg (east), climb to 5000 ft
17:35 north
17:39 west
17:42:30 south
17:46:07 east, climb to 7000 ft
17:50:20 north (T = +6°C)
17:54:23 west
17:57:30 south
18:00:42 east, climb to 10000 ft (cross several aerosol layers during ascent)
18:05:07 north
18:08:40 west
18:11:50 south
18:15:14 turn towards C2
18:15:40 climb to 12000 ft
18:19:30 reach 12000 ft
18:25:00 descent to 10000 ft
18:29:00 reach 10000 ft
18:32:40 C2, descent to 5000 ft, turn towards C1
18:41:40 5000 ft
18:43:00 C1, turn to LYB
19:02:48 Touch down

Pictures:

Polarstern during square at 1000 ft, > 5 miles distance

Polarstern from 5000 ft altitude (17:41:25 UTC), ca. 5 miles distance



Cloud streets (17:37:13 UTC), 5000 ft

Quicklooks:

CVI