

## ACLOUD Flight #15 – Polar 6 – 170609

Mission PI P6: Johannes Schneider

Objectives: "Plan B", short formation flight with P5 due to probability for fog. Turbulence measurement, CO2 instrument comparison.

Crew:

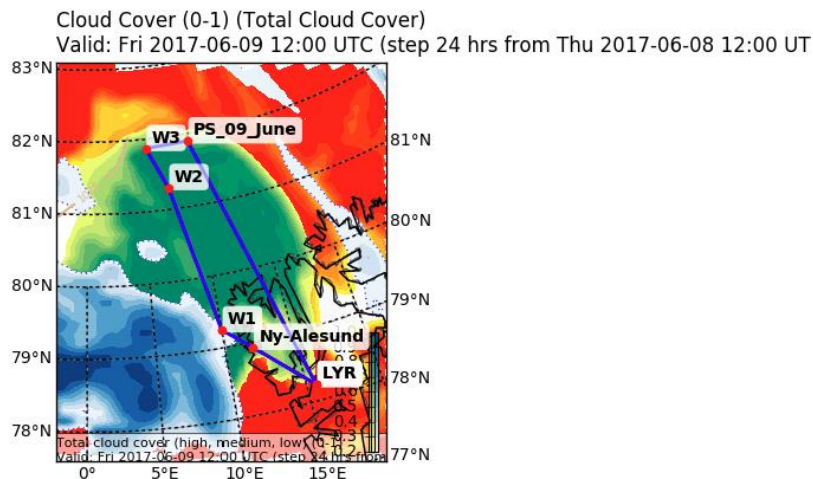
Polar 6	
PI	Johannes Schneider
Basis Data Acq.	Daniel Damaske
ALABAMA	Hans-Christian Clemen
CVI	Stephan Mertes
Gas/AWI-Aerosol	Heiko Bozem
PMS	Delphine Leroy

Flight times:

Polar 6	
Take off	07:56:30 UTC
Touch down	09:18:14 UTC

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

Forecast:



Low level cloud were observed over the open water as predicted, additionally mid-level clouds around 10000 ft that were not predicted.

### Overview:

Short flight in close formation (wing-by-wing) with P5 to measure turbulence and to compare CO2 instruments. The flight started with a joint ascent to 5000 ft, then 8000 ft, then 10000 ft. At 10000 ft two flight speeds (120 and 160 kn) were flown for 10 minutes, followed by a joint continuous descent to LYB.

Due to risk of fog the flight was restricted to 30 minutes distance to LYB.

### Flight track and pattern:

Flight plan:

No detailed flight plan prepared

Actual flight track:



### Instrument Status:

Polar 6	
Basis data acquisition	
Nose Boom	
ALABAMA	
CVI	
Trace Gases	
AWI Aerosol	
KIT PMS	
LAMP PMS	

**Comments:**

Computer froze during attempt to connect to LAMP PMS probes, but probes worked.

**Detailed Flight Logs (Name of author... more than one is possible):****Johannes Schneider (times UTC)**

07:56:30	Take off
08:05	P5 appears on our right side
08:12 - 08:15	level at 5000 ft, 140 kn
08:15:10	start climb to 8000 ft (estimated distance to P5 3000 ft)
08:10	Heiko: CO2 decreases
08:21:30	8000 ft
08:22:56	low level clouds below us
08:24:30	reach 10000 ft
08:25	Heiko: CO2 very low
08:29	penetrate clouds at cloud base (but at constant altitude), only shortly
08:31	start 120 kn at 10000 ft
08:40:34	end of 10 minutes, turn
08:44	start way back
08:44:24	10000 ft, 160 kn, P5 coming on right side behind us
08:52 – 08:53	again through clouds, from cloud base to cloud top at constant altitude
08:54	end of 10 minutes at 160 kn,
08:55	start descent, meet P5 again below clouds
08:56	reach cloud base
08:56:30	descent with 500 ft/min 150 kn, P5 was further away due to cloud passage
08:50	end of low cloud field below us
09:00	P5 is close again
09:18:14	Touchdown

## Pictures:

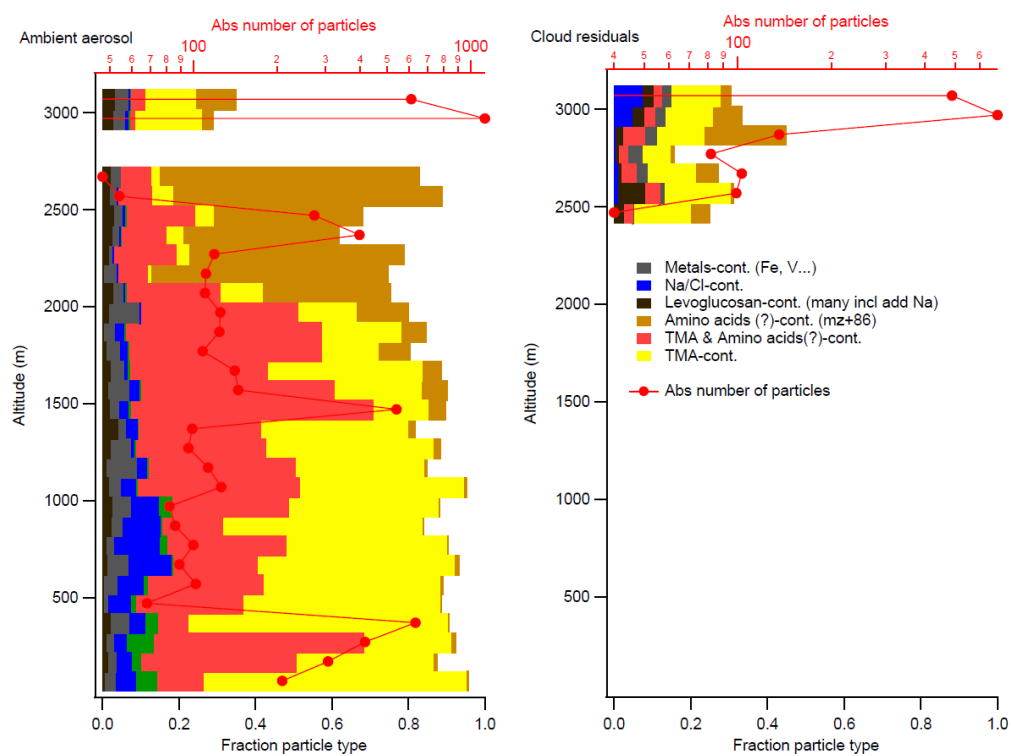
Flight in close formation, the clouds above were at about 10000 ft and were penetrated later during the flight.



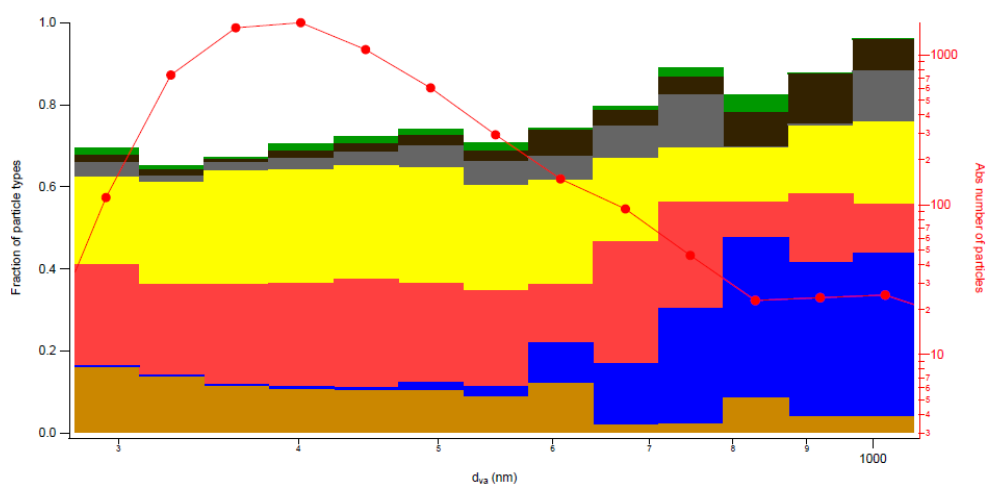
## Quicklooks:

### ALABAMA:

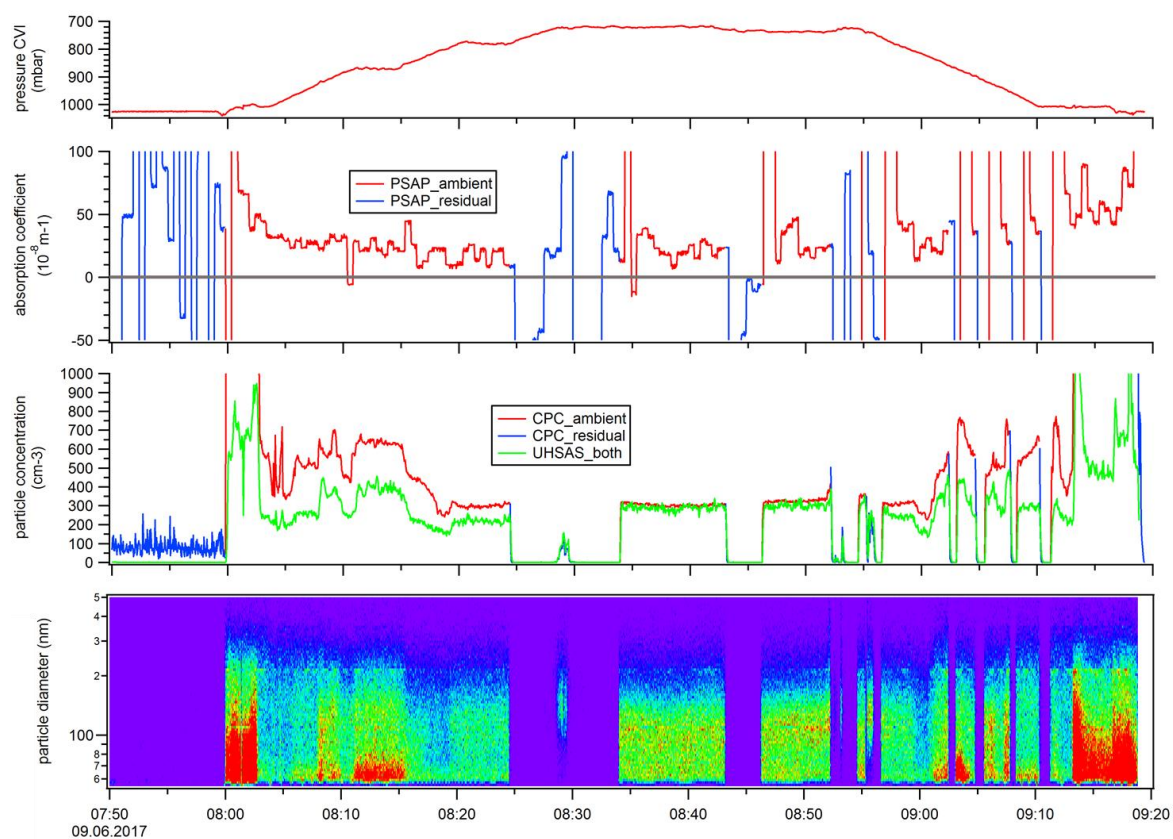
### Vertical profiles:

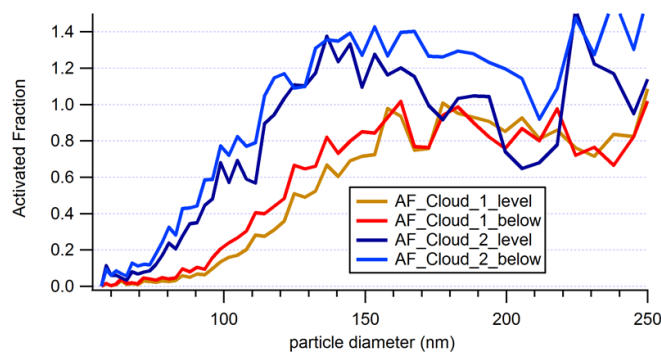
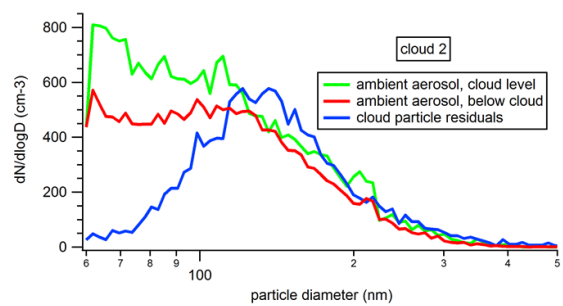
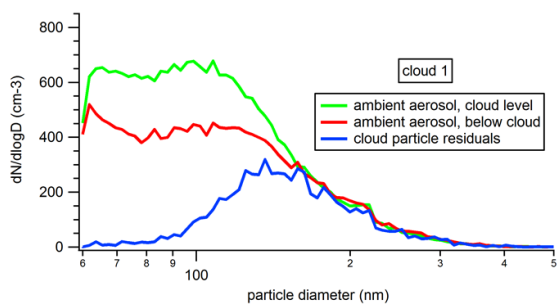
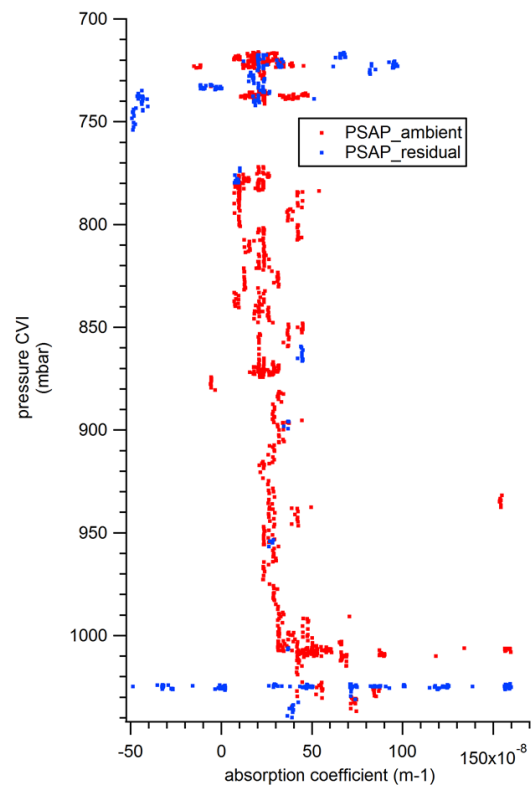
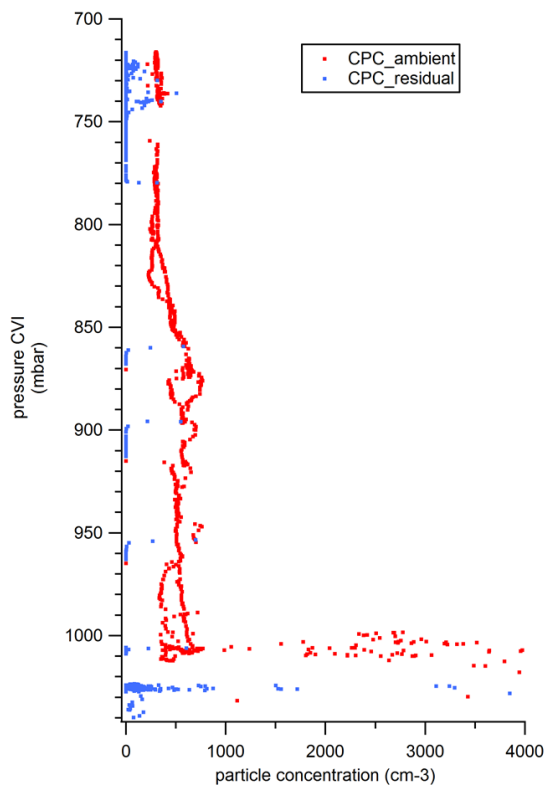


Ambient particle size distribution:



CVI





## PMS probes:

Only short cloud measurements were done during this flight, so no significant and representative data from the PMS probes.