

## RACEPAC Flight #9 – Polar 6 – 140513

**Report by** Stephan Borrmann

**General remark:** This flight was conducted to measure vertical profiles of aerosol and trace gas properties in cloud free clear air again, like on Flight 8, because no low level clouds were present. However, there was a closed unstructured, diffuse cloud deck (low altostratus) around 20000 ft altitude, probably with 8/8 coverage present throughout the entire flight. It was optically fairly thick although the sun could be seen through at times.



The two pictures –left taken at 10:54 LT and right at 10:26 LT– demonstrate the situation.

**Take off** time: 09:51 LT

### **Situation on the way to C1:**

- \* 10:02 LT: Flying inside a haze –probably lower end of the cloud deck above– at 10000 ft.
- \* 10:17 LT: Outbound North the approaching frontal system can be seen to the West like a cloud wall. The cloud particle instruments report 5  $\mu\text{m}$  droplets from the haze we are flying in.
- \* 10:37 LT: Arrive at C1 at 9900 ft.

### **Experiment 1:** “Curtain” as set of nine stacked five minute legs between C1 and C2.

- \* 10:37 LT: Fly at 10000 ft first leg to C2 still inside the haze.
- \* 10:37 LT – 11:37 LT: Five minute flight legs at 10000 ft, 8000 ft, 6000 ft, 4000 ft, 3000 ft, 2000 ft, 1500 ft, 1000 ft, 500 ft. Each turn and level-change combined took about 1-2 minutes.
- \* 10:58 LT- 11:03 LT: On leg at 4000 ft we are inside and outside the below-cloud-haze.
- \* 11:05 LT: Flightlevel 3000 ft still hazy at times.
- \* 11:37 LT: Arriving at C2 at 500 ft. End of Experiment 1 and climb to 10000 ft towards C3.
- \* 11:46 LT: At 9000 ft again well inside the haze.
- \* 11:49 LT: Arrive at 10000 ft, inside haze.
- \* 12:10 LT: Arrive at C3.

### **Experiment 2:** “Curtain” of nine stacked five minute legs between C3 and C4 over Tuktoyaktuk.

- \* 12:10 LT – 12:15 LT: First leg on 10000 ft from C3 towards C4. Here we seem to be below the haze.
- \* 12:10 LT – 13:05 LT: Five minute flight legs at 10000 ft, 8000 ft, 6000 ft, 4000 ft, 3000 ft, 2000 ft, 1500 ft, 1000 ft, 650 ft. Each turn and level-change combined took about 1-2 minutes.  
The lowest four legs were somewhat West of the town because of the 2000 ft altitude restriction  
The lowest leg at 650 ft rather than 500 ft.
- \* 13:05 LT: End of Experiment 2 and climb to above 3500 ft heading for YEV.

**Landing** in Inuvik at about 13:35 LT.

## Polar 6 UserEvents 13. May 2014

0	2014-05-13 15:55:59.262	Lat= 68° 27,330' N Lon=133° 43,507' W Rollerdoors, and KT 19
open		
1	2014-05-13 16:43:38.435	Lat= 70° 31,893' N Lon=136° 0,242' W Curtain start 2 leg
2	2014-05-13 16:49:59.150	Lat= 70° 18,014' N Lon=136° 1,790' W Curtain end 2 leg
3	2014-05-13 16:50:55.587	Lat= 70° 19,580' N Lon=135° 58,154' W Curtain start 3 leg
4	2014-05-13 16:55:58.122	Lat= 70° 32,082' N Lon=136° 1,624' W Curtain end 3 leg
5	2014-05-13 16:58:10.386	Lat= 70° 31,759' N Lon=136° 5,466' W Curtain start 4 leg
6	2014-05-13 17:03:20.401	Lat= 70° 21,246' N Lon=136° 2,034' W curtain end third leg
7	2014-05-13 17:05:11.975	Lat= 70° 20,789' N Lon=135° 57,811' W curtain start 4 leg
8	2014-05-13 17:09:37.668	Lat= 70° 31,528' N Lon=136° 2,353' W curtain end 5 leg
9	2014-05-13 17:11:17.416	Lat= 70° 30,415' N Lon=135° 58,445' W curtain start 6 leg
10	2014-05-13 17:15:59.242	Lat= 70° 20,843' N Lon=136° 2,091' W curtain end 6 leg
11	2014-05-13 17:17:18.692	Lat= 70° 21,239' N Lon=135° 58,260' W curtain start 7 leg
12	2014-05-13 17:22:56.382	Lat= 70° 34,570' N Lon=136° 1,000' W curtain end 7 leg
13	2014-05-13 17:24:41.003	Lat= 70° 31,730' N Lon=136° 0,453' W curtain start 8 leg
14	2014-05-13 17:30:11.120	Lat= 70° 20,234' N Lon=136° 2,516' W curtain end 8 leg
15	2014-05-13 17:31:18.869	Lat= 70° 20,263' N Lon=135° 58,483' W curtain start 9 leg
16	2014-05-13 17:36:58.788	Lat= 70° 32,248' N Lon=135° 55,562' W curtain end
17	2014-05-13 18:14:28.071	Lat= 69° 21,900' N Lon=133° 10,100' W curtain end leg 1
18	2014-05-13 18:16:16.009	Lat= 69° 21,557' N Lon=133° 5,453' W curtain start leg 2
19	2014-05-13 18:20:48.695	Lat= 69° 31,826' N Lon=132° 47,512' W curtain end leg 2
20	2014-05-13 18:21:58.194	Lat= 69° 32,501' N Lon=132° 50,663' W curtain star leg 3
21	2014-05-13 18:28:28.858	Lat= 69° 22,022' N Lon=133° 11,002' W curtain end leg 3
22	2014-05-13 18:29:51.501	Lat= 69° 22,189' N Lon=133° 5,590' W curtain start leg 4
23	2014-05-13 18:34:14.950	Lat= 69° 31,504' N Lon=132° 48,087' W curtain end leg 4
24	2014-05-13 18:39:08.586	Lat= 69° 26,134' N Lon=133° 1,619' W curtain start leg 5
25	2014-05-13 18:40:17.836	Lat= 69° 24,411' N Lon=133° 4,859' W curtain end leg 5
26	2014-05-13 18:42:51.197	Lat= 69° 22,526' N Lon=133° 5,373' W curtain start leg 6
27	2014-05-13 18:47:38.197	Lat= 69° 32,443' N Lon=132° 47,373' W curtain end leg 6
28	2014-05-13 18:48:29.228	Lat= 69° 33,275' N Lon=132° 49,345' W curtain end leg 7
29	2014-05-13 18:54:28.315	Lat= 69° 25,032' N Lon=133° 16,785' W curtain end leg 7
30	2014-05-13 18:55:09.344	Lat= 69° 24,942' N Lon=133° 13,048' W curtain end leg 8
31	2014-05-13 18:59:47.279	Lat= 69° 34,693' N Lon=132° 55,149' W curtain end leg 8
32	2014-05-13 19:00:35.324	Lat= 69° 35,149' N Lon=132° 56,851' W curtain start leg 9
33	2014-05-13 19:05:03.694	Lat= 69° 27,375' N Lon=133° 7,912' W curtain end leg 9
34	2014-05-13 19:19:59.559	Lat= 68° 49,711' N Lon=133° 14,264' W Rollerdoors and KT19
closed		
35	2014-05-13 19:35:11.714	Lat= 68° 18,255' N Lon=133° 27,957' W Touchdown
36	2014-05-13 19:39:09.146	Lat= 68° 18,341' N Lon=133° 30,007' W Park Position