

RACEPAC Flight #3 – Polar 6 – 140501

Report by Stephan Borrmann

Take off time: 10:24 LT

General remark: This flight was only conducted up to Waypoint C1 and then back to Inuvik. The encountered clouds either were far too close to the ground to be reached, or too high like in the cirrus level. For example in Tuk the clouds were a ground fog below 300 ft. The cirrus had the appearance of jetstream cirrus bands sometimes with wave structures. In the altitude band which can be covered by the P5 and P6 there were only occasional thin layers, whiffs, far too shallow for stair case flying. During this flight only the thin cloud veils were sampled for short periods of time and the trace gas phase staircase experiment was conducted.

Situation on the way to C1: Ground fog near the airport. Outbound cloud layers above MacKenzie Mountains and Delta. 30 minutes before arriving at C1 jetstream type cirrus appeared above, and ground fog below. P6 cruising at 7500 ft. Sometimes during outbound flight thin veils were penetrated.

Experiment 1: Sample thin veil in the middle between ground fog and cirrus. Inside layer only from 10:54 LT to 10:55 LT. Less than 100 ft thick, one can see the ground. Similar sampling during Experiment 2 around 11:24 LT.

Experiment 2: Trace gas experiment CO, CO₂

- * 11:11 LT turn around at C1, stay at 3000 ft 10 minutes.
- * 11:24 LT climb to 5000 ft, arrive 11:27 LT. (In this step we fly directly under a thin veil. Sometimes we enter below and there is turbulence. The layer probably has a thickness below 100 ft.)
- * 11:33 LT climb to 7000 ft, arrive at 11:35 LT and stay until 11:41 LT.
- * 11:41 LT ascend to 10000 ft, arrive 11:44 LT. In clear air, haze at the most. Sighting of the P5.
- * 11:52 LT descend to 8000 ft, arrive 11:54 LT. Clear air.
- * 12:01 LT goto 6000 ft, arrive 12:03 LT. Clear air.
- * 12:08 LT goto 3000 ft, and at the same time turn towards Inuvik. Arrive at 3000 ft at 12:12 LT.
- * 12:12 LT sample at 3000 ft staying until 12:15 LT. This leg was cut short because of imminent landing.
- * 12:20 LT circa, landing Inuvik.

Polar 6 UserEvents 1. May 2014

| | | |
|----|-------------------------|--|
| 0 | 2014-05-01 16:19:26.342 | Lat= 68° 18,319' N Lon=133° 30,005' W Taxi |
| 1 | 2014-05-01 16:23:25.518 | Lat= 68° 18,203' N Lon=133° 29,899' W Take off |
| 2 | 2014-05-01 16:26:32.353 | Lat= 68° 22,017' N Lon=133° 20,217' W B-Met deicing on |
| 3 | 2014-05-01 16:28:56.472 | Lat= 68° 26,424' N Lon=133° 11,738' W Cr 2 on, Rollerdoors open Kt 90 open, deicing ccp/pip on |
| 4 | 2014-05-01 16:38:09.994 | Lat= 68° 46,549' N Lon=132° 37,648' W Nerzerov balance |
| 5 | 2014-05-01 16:43:56.324 | Lat= 68° 59,724' N Lon=132° 10,121' W Vorhang geschlossen Jacob friert ! |
| 6 | 2014-05-01 17:12:06.122 | Lat= 70° 0,112' N Lon=130° 1,060' W WP C1 70 N 139 West turn back |
| 7 | 2014-05-01 17:23:53.431 | Lat= 69° 35,294' N Lon=130° 45,909' W up to 5000 ft |
| 8 | 2014-05-01 17:27:16.821 | Lat= 69° 28,418' N Lon=131° 1,872' W 5000 ft |
| 9 | 2014-05-01 17:32:26.600 | Lat= 69° 17,037' N Lon=131° 27,351' W up to 7000 ft |
| 10 | 2014-05-01 17:37:07.749 | Lat= 69° 7,125' N Lon=131° 48,572' W 7000 ft |
| 11 | 2014-05-01 17:41:05.688 | Lat= 68° 57,824' N Lon=132° 8,131' W up to 10000 ft |
| 12 | 2014-05-01 17:50:08.645 | Lat= 68° 39,685' N Lon=132° 46,082' W Sichtkontakt zu Polar 5 on Starbord |
| 13 | 2014-05-01 18:01:05.057 | Lat= 68° 15,943' N Lon=133° 34,358' W down to 6000ft |
| 14 | 2014-05-01 18:03:10.070 | Lat= 68° 11,632' N Lon=133° 43,584' W 6000ft |
| 15 | 2014-05-01 18:09:11.839 | Lat= 68° 4,977' N Lon=134° 5,522' W ScreenDump_DMS- OPERATOR1_MapViewer_2014_05_01_18_09_11.jpg |
| 16 | 2014-05-01 18:09:14.042 | Lat= 68° 5,055' N Lon=134° 5,447' W down to 3000 ft |
| 17 | 2014-05-01 18:11:30.999 | Lat= 68° 9,706' N Lon=133° 58,067' W 3000 ft |
| 18 | 2014-05-01 18:15:34.577 | Lat= 68° 16,506' N Lon=133° 46,677' W cr2 off. RD close, KT 90 |
| 19 | 2014-05-01 18:16:10.499 | Lat= 68° 17,297' N Lon=133° 44,993' W cr2 off. RD close, KT 90 |
| 20 | 2014-05-01 18:19:54.946 | Lat= 68° 18,198' N Lon=133° 30,056' W toutschdown |
| 21 | 2014-05-01 18:20:57.322 | Lat= 68° 18,229' N Lon=133° 28,714' W bmet deicing off |
| 22 | 2014-05-01 18:25:35.685 | Lat= 68° 18,341' N Lon=133° 30,007' W parkposition |

Polar 5 - 1. May 2014

1650 UTC Flache geschlossene Wolkenschicht unter uns. Aber Cirrus ueber uns

1700 UTC geschlossene Wolkiendecke unter uns, aber duenner Cirrus ueber uns. Wirkt homogen, Flug ueber Eis, zum Ende hin keine Wolken mehr

1709 UTC Keine Wolken unter uns. Duenner Cirrus ueber uns. Messung Boden. Eis

1718 UTC geschlossene Wolkendecke uunter uns ueber Eis. Ueber uns clear sky
Flug abgebrochen wegen schlechten Bedingungen am FDLuhafen und wenig guten
Bedingungen draussen

1730 UTC Wolken unter uns. Fast clear sky ueber uns

1734 UTC wolkenschicht unter uns. Cirrus ueber uns, aber homogen und duenn

P5 Tim ... Flug-Nr.: 01.05.2014

Datum: 01.05.2014, Zeiten sind LT

Take-off: 10:32

Messbeginn SMART: 10:40:40

10:34: Systemzeit anpassen auf allen Rechnern

10:41: aufgebrochene Wolkendecke unter uns, Wolkenschleier über uns

10:50: Höhe: 2900m, Geschwindigkeit: 87m/s

11:03: Cirrus über uns, gleich kaum Wolken unter uns, Eis unter uns

11:15: wieder Wolken unter uns, keine Cirrus über uns

11:16:30: C1 passiert, Linkskurve

11:18: Abbruch des Fluges, kaum tiefe Wolken für P6, Kurs Inuvik

11:19: kaum Wolken über uns, nur sehr vereinzelt, unter uns Eis

11:23: Cirrus teilweise über uns, Eis unter uns

11:29: wieder Wolken unter uns, dünne Wolkenschleier über uns

11:43: LIDAR aus

11:51: aufgebrochene Wolken unter uns, Cirrus über uns, Landeanflug

11:53: Stop der Messungen

12:10: Landung Inuvik, Flugdauer: 1h40min

Polar 5 UserEvents 1. May 2014

| | | |
|----|-------------------------|---|
| 0 | 2014-05-01 16:29:11.352 | Lat= 68° 18,227' N Lon=133° 28,996' W Takeoff |
| 1 | 2014-05-01 16:33:01.542 | Lat= 68° 22,806' N Lon=133° 14,316' W Rollerdoors open, Video and KT19 start |
| 2 | 2014-05-01 16:33:39.932 | Lat= 68° 24,219' N Lon=133° 13,229' W Camera start |
| 3 | 2014-05-01 16:40:52.755 | Lat= 68° 38,331' N Lon=132° 49,608' W SMART start |
| 4 | 2014-05-01 16:42:44.816 | Lat= 68° 42,303' N Lon=132° 42,900' W Photometer start |
| 5 | 2014-05-01 16:47:41.135 | Lat= 68° 53,116' N Lon=132° 20,563' W AMALI start |
| 6 | 2014-05-01 17:16:31.113 | Lat= 70° 0,326' N Lon=130° 0,467' W WP C1 |
| 7 | 2014-05-01 17:18:22.004 | Lat= 69° 59,756' N Lon=130° 11,563' W Mission boarded fly back to Inuvik |
| 8 | 2014-05-01 17:43:17.947 | Lat= 68° 54,521' N Lon=132° 14,750' W AMALI off |
| 9 | 2014-05-01 17:53:30.453 | Lat= 68° 34,218' N Lon=133° 10,614' W Camera stop |
| 10 | 2014-05-01 17:55:08.845 | Lat= 68° 31,875' N Lon=133° 21,318' W Albedometer off |
| 11 | 2014-05-01 17:55:42.483 | Lat= 68° 30,964' N Lon=133° 25,178' W Rollerdoors closed |
| 12 | 2014-05-01 17:56:24.968 | Lat= 68° 29,968' N Lon=133° 29,596' W KT19 |
| 13 | 2014-05-01 17:58:32.634 | Lat= 68° 26,647' N Lon=133° 43,019' W Video stop |
| 14 | 2014-05-01 18:09:42.341 | Lat= 68° 18,201' N Lon=133° 30,012' W Touchdown |
| 15 | 2014-05-01 18:15:18.152 | Lat= 68° 18,321' N Lon=133° 30,013' W Park Position 18:14 |