

## **ACLOUD Flight #21 - Polar 6 - 20170620**

### **Mission PI P6: Mario Mech**

**Objectives:** The main goal of the flight was a study of the boundary layer structure and energy fluxes over Fram Strait. The focus was on the profiles of vertical fluxes of heat, humidity, momentum and on radiation fluxes.

### **Crew:**

<b>Polar 6</b>	
<b>PI</b>	<b>Mario Mech</b>
<b>Basis Data Acq.</b>	<b>Cristina Sans i Coll</b>
<b>ALABAMA</b>	<b>Franziska Köllner</b>
<b>A + TG</b>	<b>Oliver Eppers</b>
<b>CVI</b>	<b>Stephan Mertes</b>
<b>PMS</b>	<b>Guillaume Mioche</b>
<b>Nezvzorov</b>	<b>Dmitry Chechin</b>

### **Flight times:**

<b>Polar 6</b>	
<b>Take off</b>	<b>07:37 UTC</b>
<b>Touch down</b>	<b>13:27 UTC</b>

### **Important remarks:**

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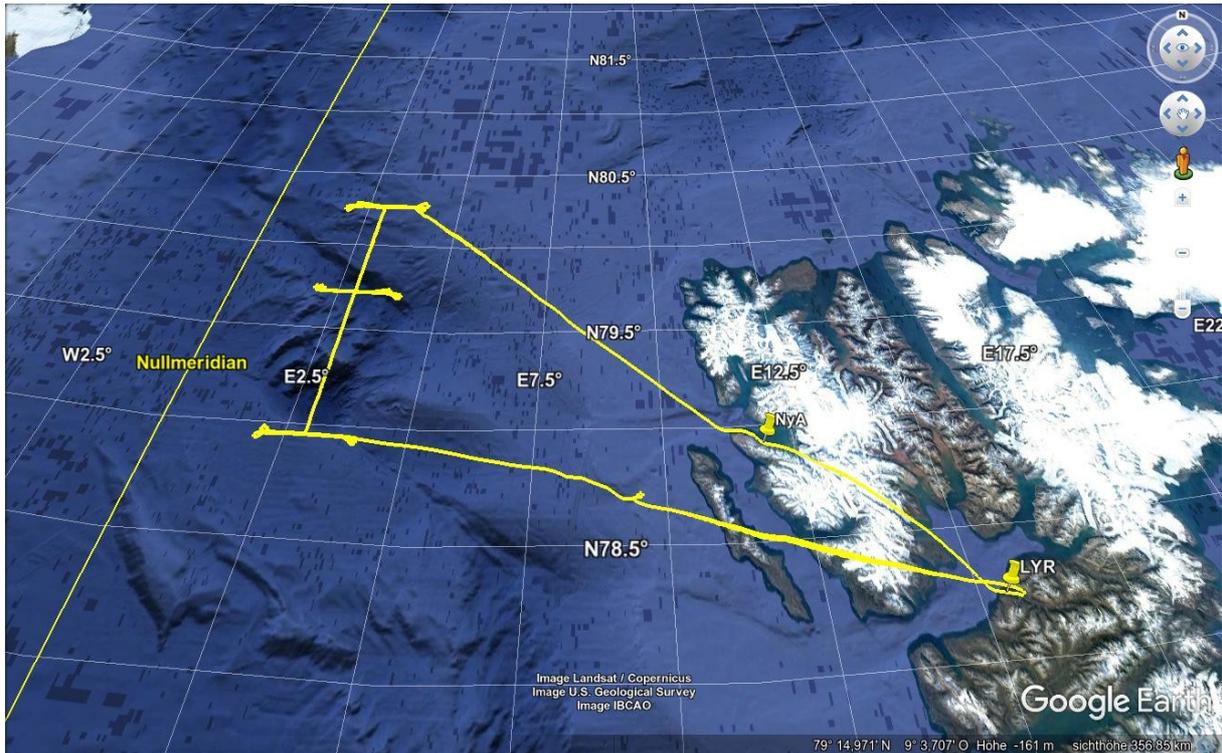
### **Weather situation as observed during the flight (compare to forecast):**

See report of Polar 5.

### **Overview:**

See report of Polar 5. The last legs have been shifted further South to get a chance of being completely over open water. This didn'T succeed to 100%. There was still some ice remaining.

### **Flight track and pattern:**



Left: Pictures from cloud or ice

**Instrument Status:**

<b>Polar 6</b>	
Basis data acquisition	
Nose Boom	
PHIPS	
SID-3	
CIP	
PIP	
ALABAMA	
CVI	
CVI UHSAS	
CVI ???	
AWI SP2	
AWI UHSAS	
CO/CO2/O3	

**Problem with CVI inlet:** CVI inlet heating is not working. When the inlet freezes it does not operate at its full functionality.

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

**Mario Mech (times UTC)**

07:37 take off

07:44 heading towards glacier Sveabreen in 1500 ft  
07:45 closer to the glacier it is getting turbulent  
07:51 patchy cirrus ahead, very few mid level clouds  
07:53 top of glacier  
07:57 over NyA fjord  
07:58 mountain tops in clouds ~1200 ft  
08:01 over NyA  
08:05 200 ft - strato cumulus mid level  
08:10 strong head wind  
08:14 patchy low level clouds 500 ft  
08:19 getting less patchy  
08:21 220° 16 kt wind just before transition zone  
08:22 sea ice starts  
08:23 cloud base lowering to 300 ft  
08:26 very thin clouds in flight altitude  
08:27 sea ice gets more closed  
08:28 more particles (aerosol) in the transition zone than over open water  
08:30 sea ice almost closed  
08:34 climb to 5000 ft  
08:35 cloud base at 1500 ft  
08:37 snow recorded at 2700 ft  
08:40 at 5000 ft in clouds  
    precipitation from above but ground still visible  
08:43 visibility getting worse  
08:44 start descend to S1 at 700 ft/min - legs at 200, 300, 400, 500, and 700 ft  
08:52 S1 - 200 ft 125 kt  
08:54 many leads visible  
09:00 S3 climb to 300 ft 120 kt  
09:02 S3 to S1  
09:05 hazy due to precipitation  
09:09 still precipitation but very low concentration  
09:10 S1 with climb to 400 ft  
09:12 more hazy with a lower cloud base to the North  
09:15 S1 to S3  
09:23 climb to 550 ft  
09:25 S3 to S1  
09:27 getting bright  
09:27 ice precipitation in PMS  
09:36 S1 to S3 in 700 ft  
09:41 precipitation ahead  
09:43 PMS reports ice precipitation  
09:45 S3  
09:46 to S2 going down to 200 ft and start saw tooth up to 2500 ft  
09:48 S2  
09:50 start of saw tothing  
09:53 precipitation in PMS at 2000 ft  
09:54 descend from 2500 ft back to 200 ft  
09:57 redish horizon to the South-East

09:59 back at 200 ft - levels for the next legs at 200, 300, 400, 550, and 700 ft -  
BL at 600 ft

10:04 S4

10:05 large lead (whale)

10:10 at S5 in 200 ft

10:18 at S6 climb to 300 ft

10:25 5 kt wind

10:29 decrease in cloud

10:31 S5

10:39 S6 550 ft

10:50 into cloud

10:53 S5 PMS reports snow

10:57 S5 to S6 in 700 ft

11:02 S6

11:07 hazy/cloudy stuff to the West comes closer

11:11 out of clouds again

11:17 start climb to saw tooth

11:19 st 2500 ft no clouds

11:27 at new S7 heading to S81 (moved pattern to South due to sea ice coverage; idea was to have the last legs over open water)

11:29 mid/high level broken clouds

11:34 levels for this legs: 200, 300, 400, 550, and 700 ft

11:34 200 ft S81 to S71

11:44 turbulent at S71 - 300 ft

11:56 S81 - 400 ft

12:05 S71 - 550 ft

12:18 S81 - 700 ft

12:28 S71 climb to 2000 ft and head for Polarstern

12:33 left the transition zone

12:40 turbulent

12:45 climb to 12000 ft

13:01 5700 ft cloud base

13:02 6750 ft cloud top

13:04 cirrus above, therefore no radiation square

13:06 9800 ft cloud

13:13 descend

13:27 touch down

# Quicklooks:

