



Flight Plan Testflight: 25 Feb 2022

HALO

Take Off: 08:30 UTC
Duration: 4 Hours, 30 min

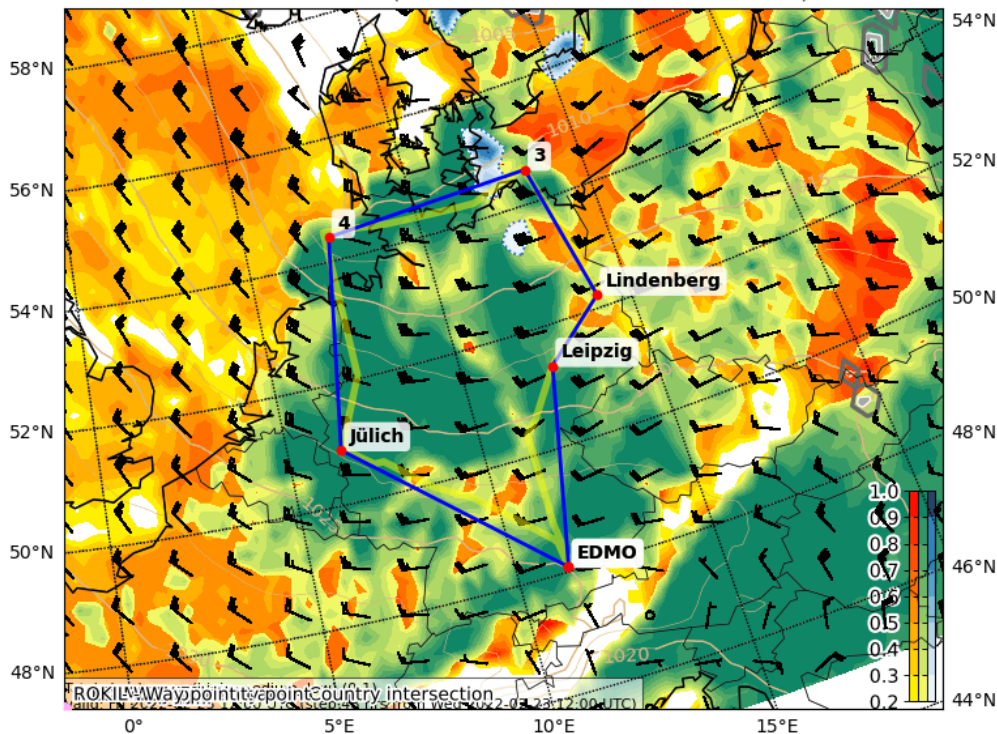
Pilots: Roland Welser
Marc Puskeiler
Technician: Thomas Leder

Crew:

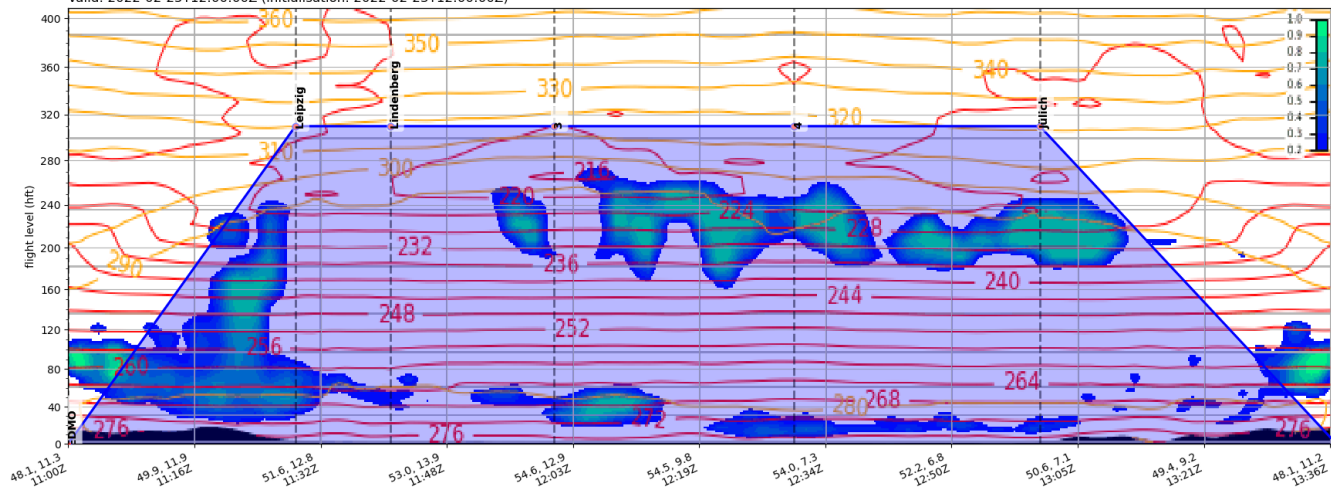
Mission PI	Manfred Wendisch
WALES	Georgios Dekoutsidis
HAMP	Florian Ewald
SMART/VELOX	Johannes Röttenbacher
specMACS	Lea Solveig Volkmer
BAHAMAS	Andreas Giez
Dropsondes	Geet George

Maps:

Cloud Cover (0-1) and Mean Sea Level Pressure (hPa) (TOT) at 850.0 (hPa)
Valid: 2022-02-25T12:00:00Z (initialisation: 2022-02-23T12:00:00Z)



Cloud Cover (0-1) Vertical Section
Valid: 2022-02-25T12:00:00Z (initialisation: 2022-02-23T12:00:00Z)





Coordinates

Index	Location	Lat (+-90)	Lon (+-180)	Flightlevel
0	EDMO	48.000	11.333	0.000
1	Leipzig	51.333	12.333	310.000
2	Lindenberg	52.167	14.167	310.000
3		54.500	13.333	310.000
4		54.333	7.500	310.000
5	Jülich	50.833	6.333	310.000
6	EDMO	48.000	11.333	0.000

Detailed Flight Plan (including drop sondes):

EDMO → Leipzig:	ascending to FL 310: 203 NM @ 350 kn	29 min
Leipzig → Lindenberg	FL 310: 84 NM @ 400 kn	12 min
Lindenberg → Ostsee	FL 310: 143 NM @ 400 kn	20 min
Ostsee → Nordsee	FL 310: 204 NM @ 400 kn	29 min
- (1) Radiation-Square over Nordsee (4 legs, 3 mins each)		20 min
- (2) Lidar		
- (3) Noseboom Calibration over Nordsee (Pitch and Yaw, 15 mins each)		30 min
- (4) Radar calibration		20 min
Dropsonde over Nordsee		
Nordsee → Jülich	FL 310: 214 NM @ 400 kn	30 min
Jülich → EDMO	descending: 259 NM @ 350 kn	36 min



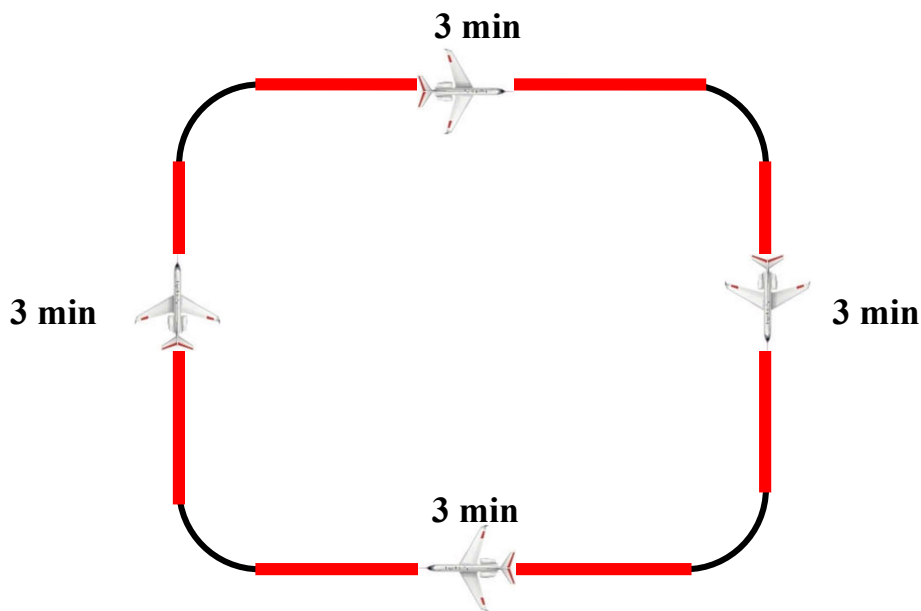
Calibration Maneuvers:

- (1) Radiation square

FL 310 above clouds no cirrus

Constant FL

First leg → heading towards/away from the Sun



Calibration Maneuvers:

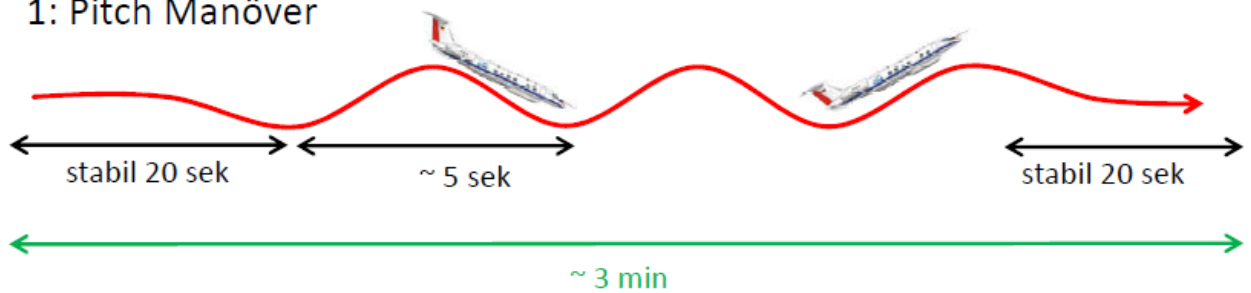
- (2) Lidar (20 mins straight legs at one altitude with no Cirrus below, at least 5 km)



Calibration Maneuvers:

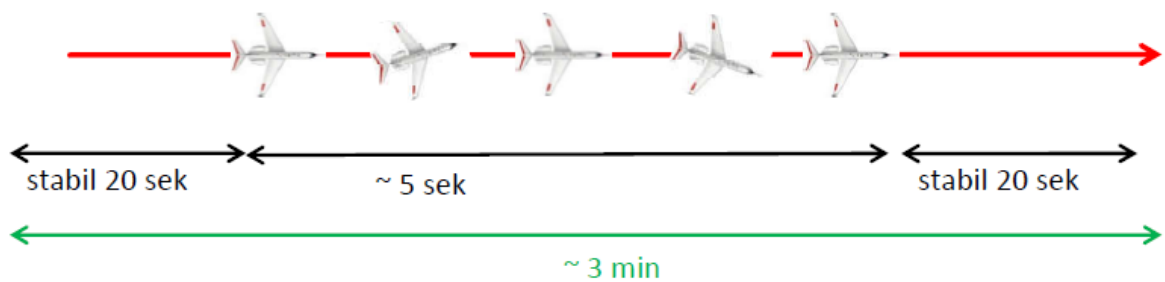
- (3) Noseboom Calibration
 - FL 310, 0.67 Mach
 - 15 min Pitch, 15 min yaw

1: Pitch Manöver



Smooth pitch oscillation	
period	~ 5 sek
repetitions	10x
pitch amplitude	3-4°
Keep speed, keep height, no roll angle	

2: Yaw Manöver

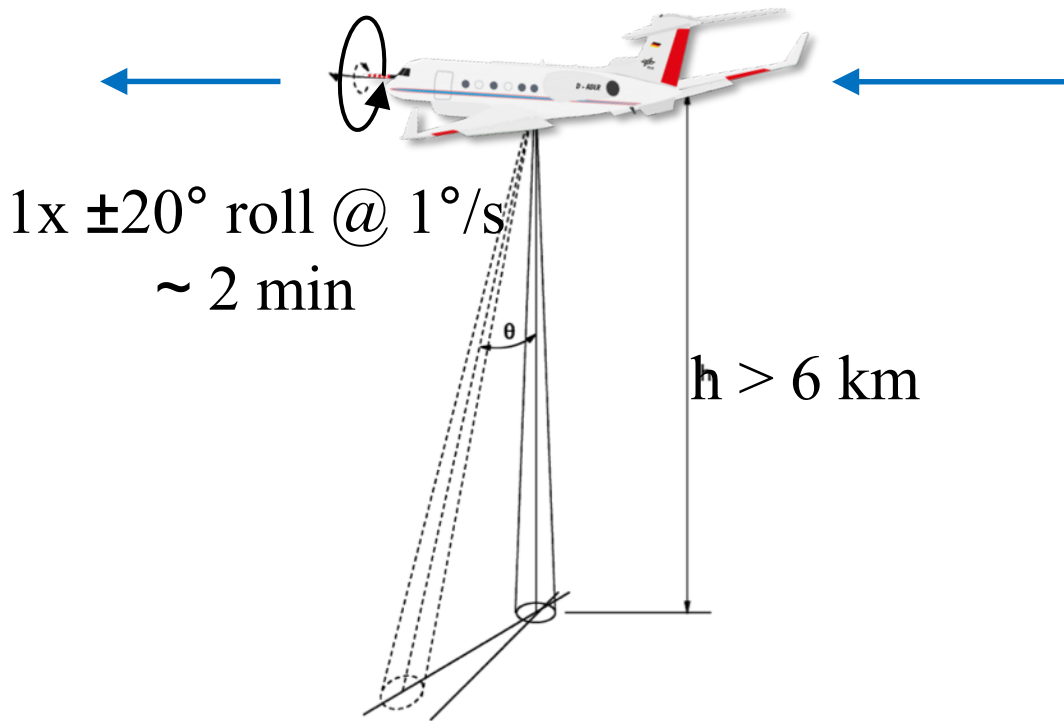


Smooth yaw oscillation	
period	~ 5 sek
repetitions	10x
yaw amplitude	3-4°
Keep speed, keep height, no roll angle , yaw damper on	



Calibration Maneuvers:

- (4) Radar—straight flight with $\pm 20^\circ$ roll changes @ $1^\circ/\text{s}$



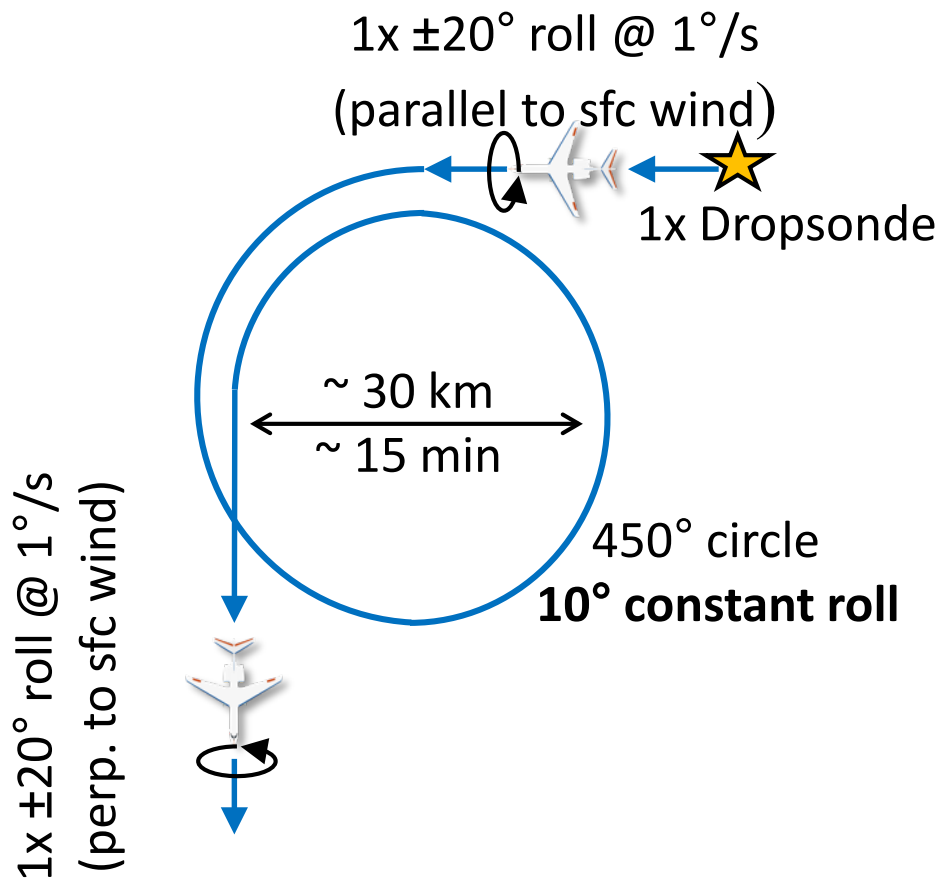
Requirements

- over open sea (alt $> 6 \text{ km}$)
- sfc wind speed $< 30 \text{ kts}$
- no precipitation below
- no whitecaps visible



Calibration Maneuvers:

- (4) Radar—450° circle with 10° constant roll



Requirements

- over open sea (alt > 6 km)
- sfc wind speed < 30 kts
- no precipitation below
- no whitecaps visible