



UNIVERSITÄT
LEIPZIG

HALO-(AC)³ Meeting

SMART MEASUREMENTS COMPARED WITH RADIATIVE TRANSFER SIMULATIONS

Johannes Röttenbacher, André Ehrlich, Michael Schäfer, Benjamin Kirbus, Marlen Brückner, Manfred Wendisch

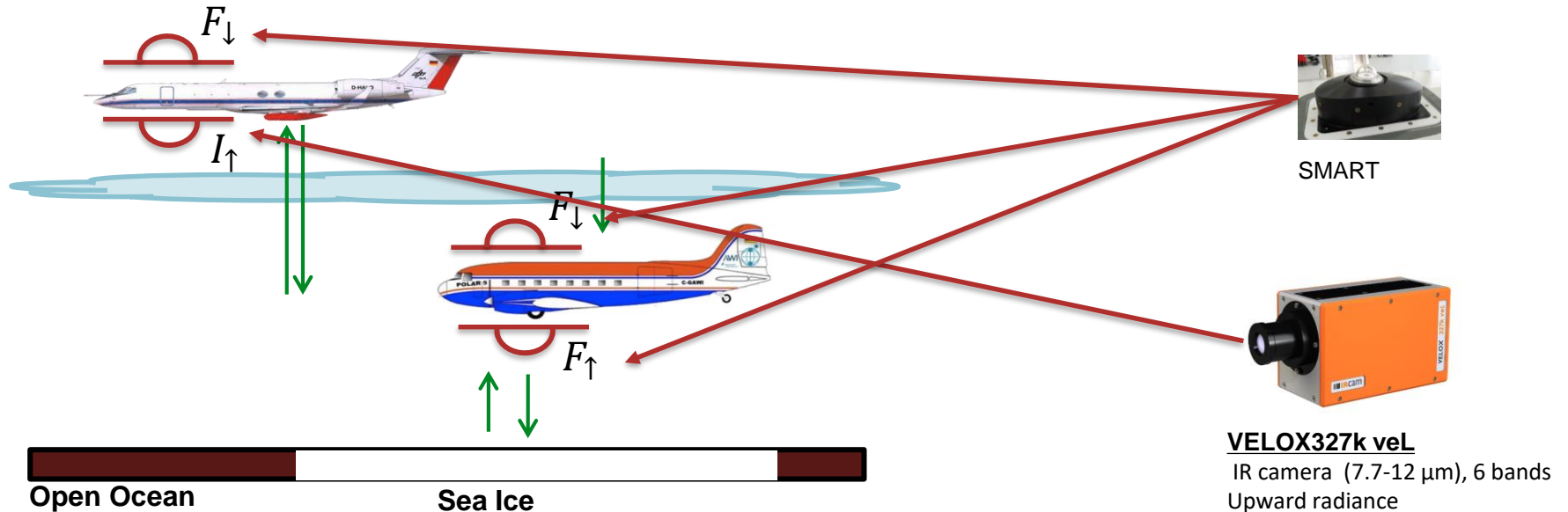
Leipzig Institute for Meteorology, Atmospheric Radiation

26. March 2022



PLANS FOR HALO-(AC)³

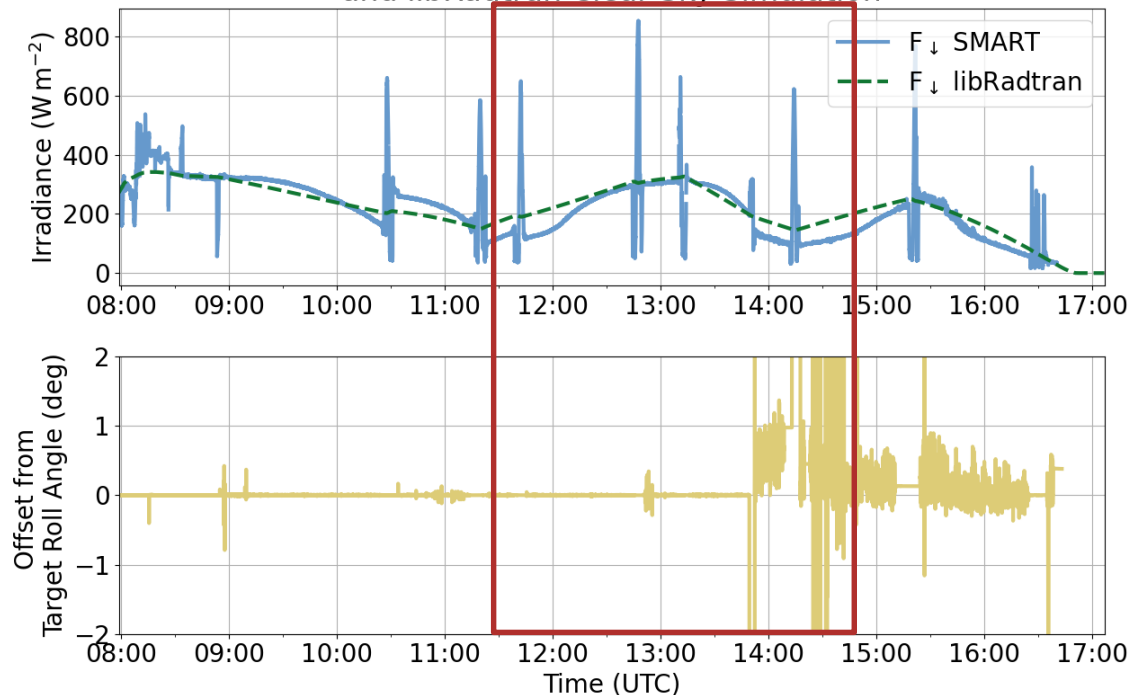
- Flights over sea ice and open ocean
- Collocated flight with Polar 5



CASE STUDY OF 20. MARCH 2022 (HALO RF07, P5 RF01)

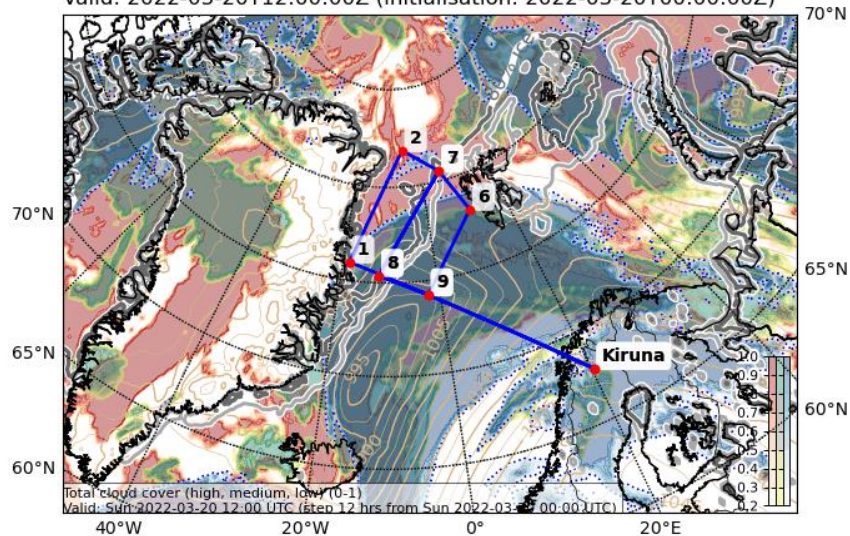
- Stabilization worked fine for most of the flight
- Clear sky simulation and measurement still show offsets -> Cosine correction, only rough calibration

Integrated SMART Measurement 181.64 - 2208.94 nm
and libRadtran Clear Sky Simulation



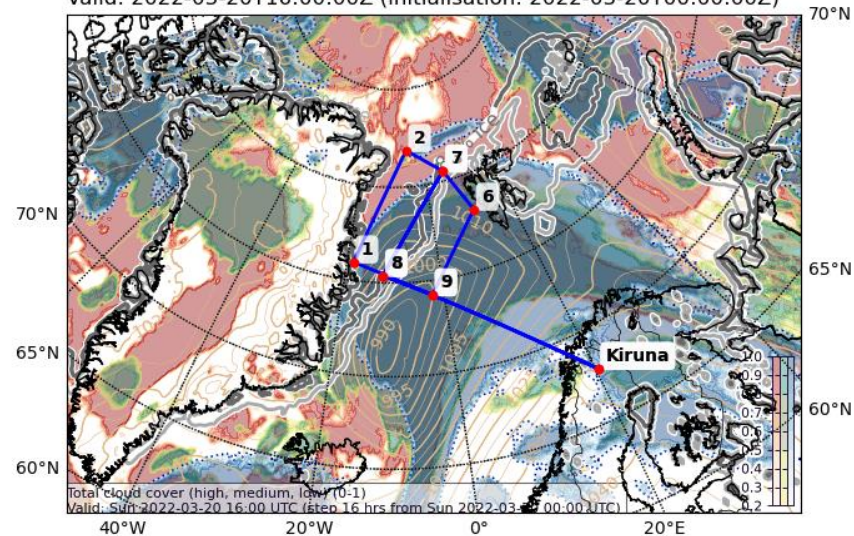
CASE STUDY OF 20. MARCH 2022 (HALO RF07, P5 RF01)

Cloud Cover (0-1) and Mean Sea Level Pressure (hPa) (default)
Valid: 2022-03-20T12:00:00Z (initialisation: 2022-03-20T00:00:00Z)



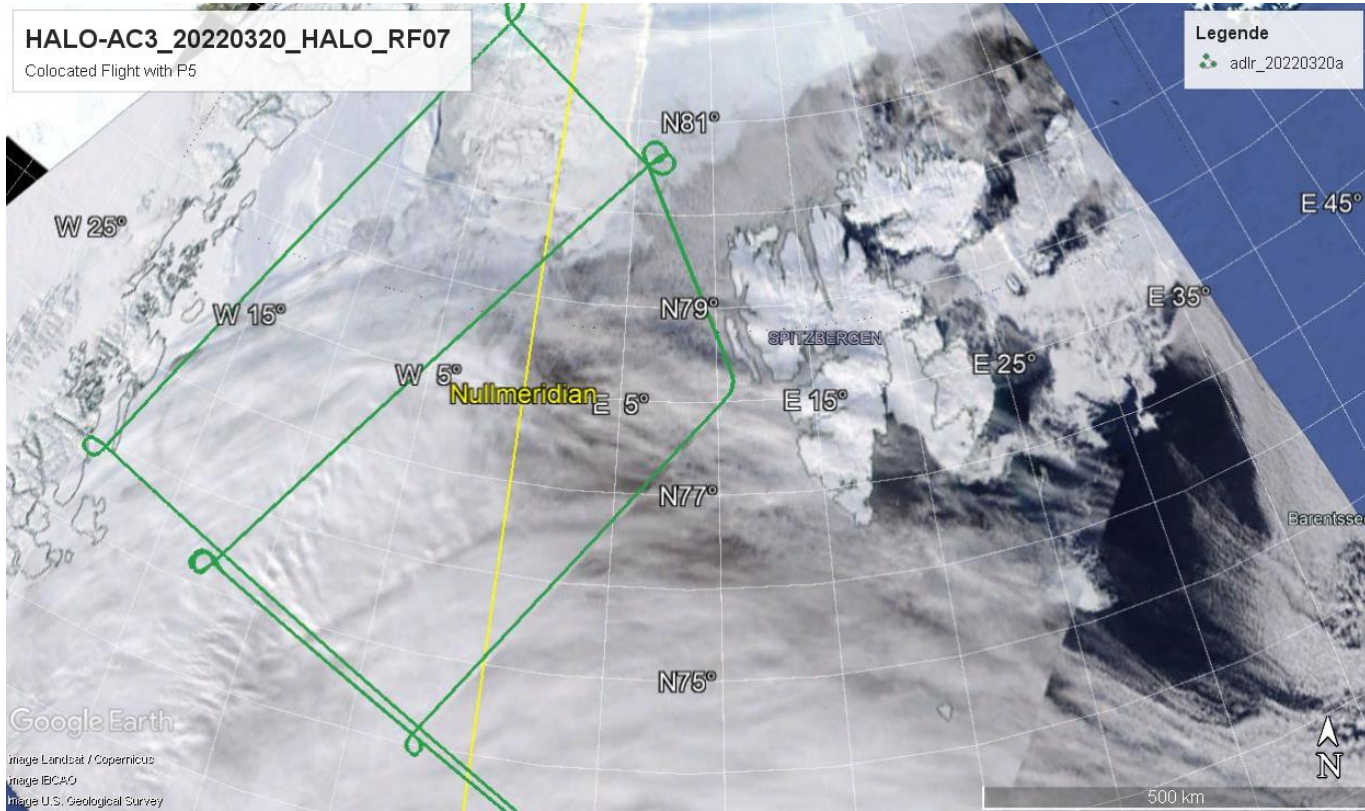
HALO_AC3_20220320_HALO_RF07
EPSG:77752350

Cloud Cover (0-1) and Mean Sea Level Pressure (hPa) (default)
Valid: 2022-03-20T16:00:00Z (initialisation: 2022-03-20T00:00:00Z)

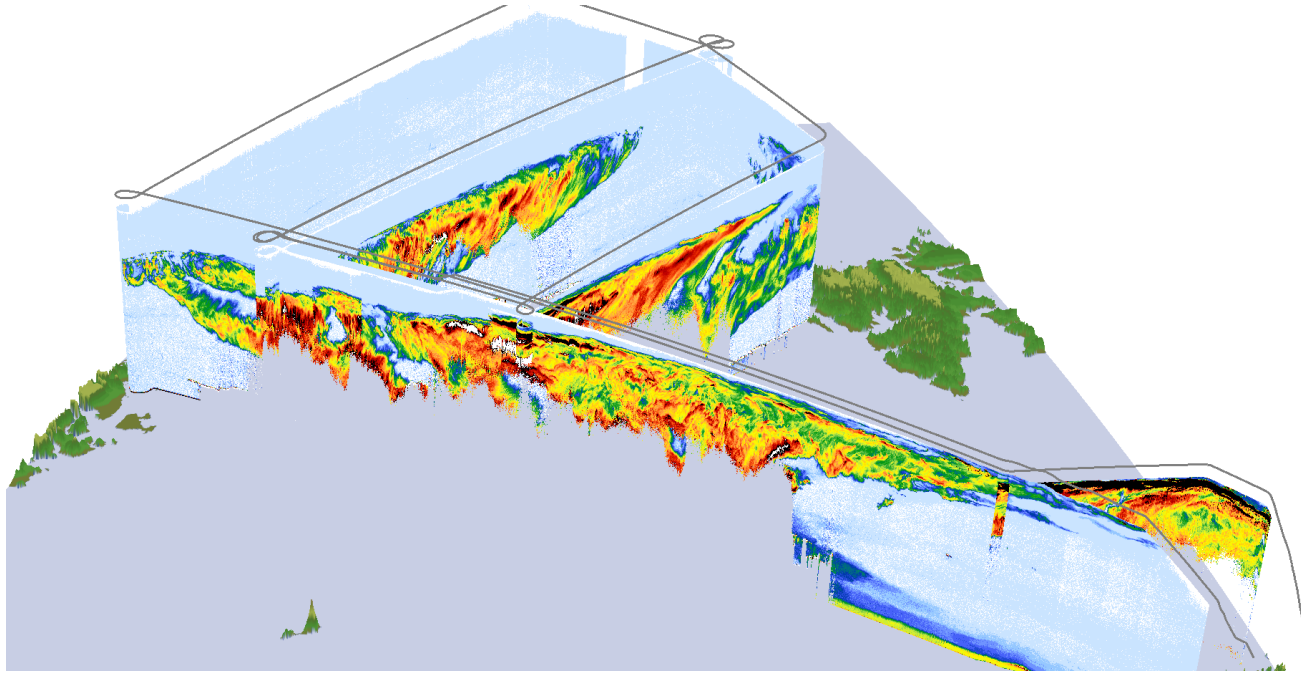


HALO_AC3_20220320_HALO_RF07
EPSG:77752350

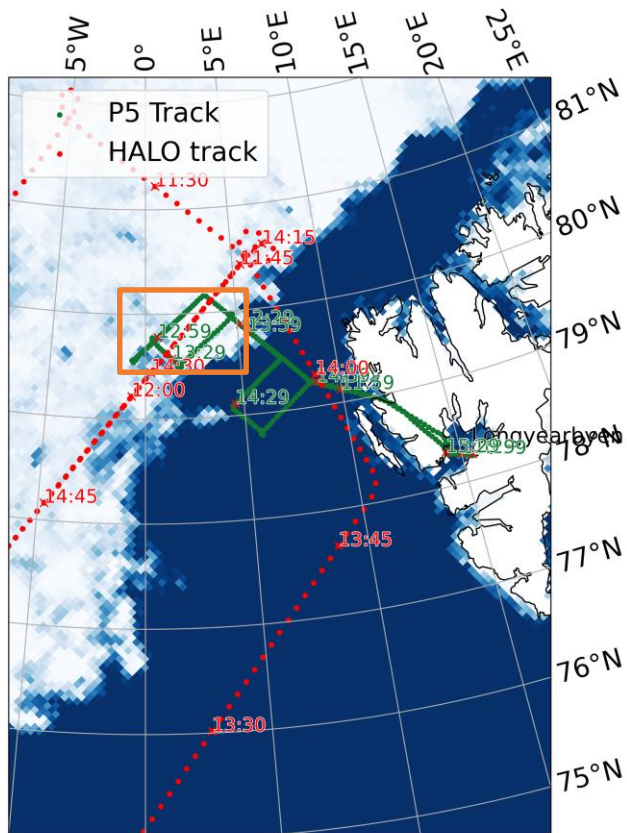
CASE STUDY OF 20. MARCH 2022 (HALO RF07, P5 RF01)



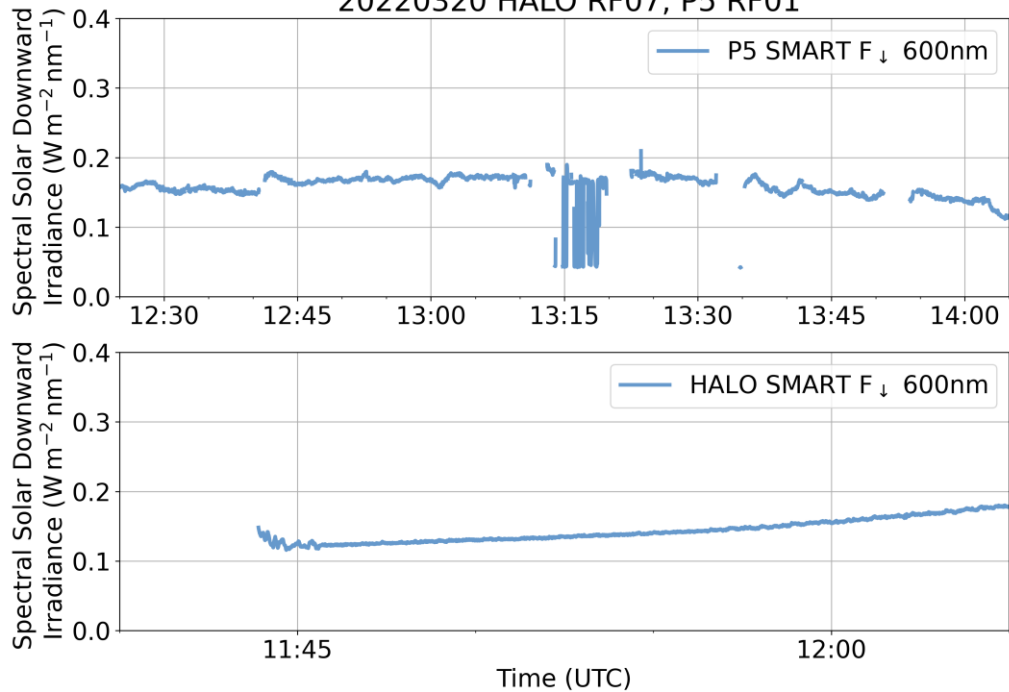
CASE STUDY OF 20. MARCH 2022 (HALO RF07, P5 RF01)



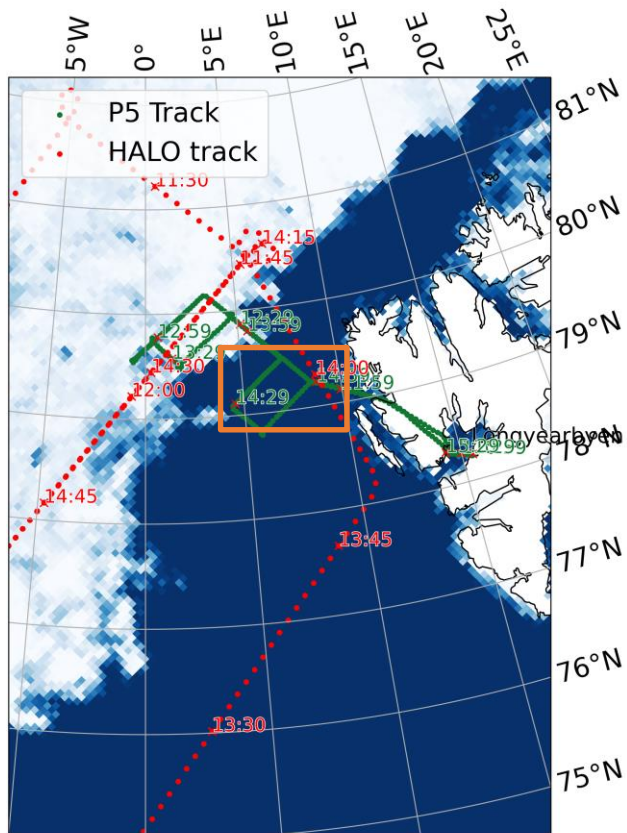
CASE STUDY OF 20. MARCH 2022 (HALO RF07, P5 RF01)



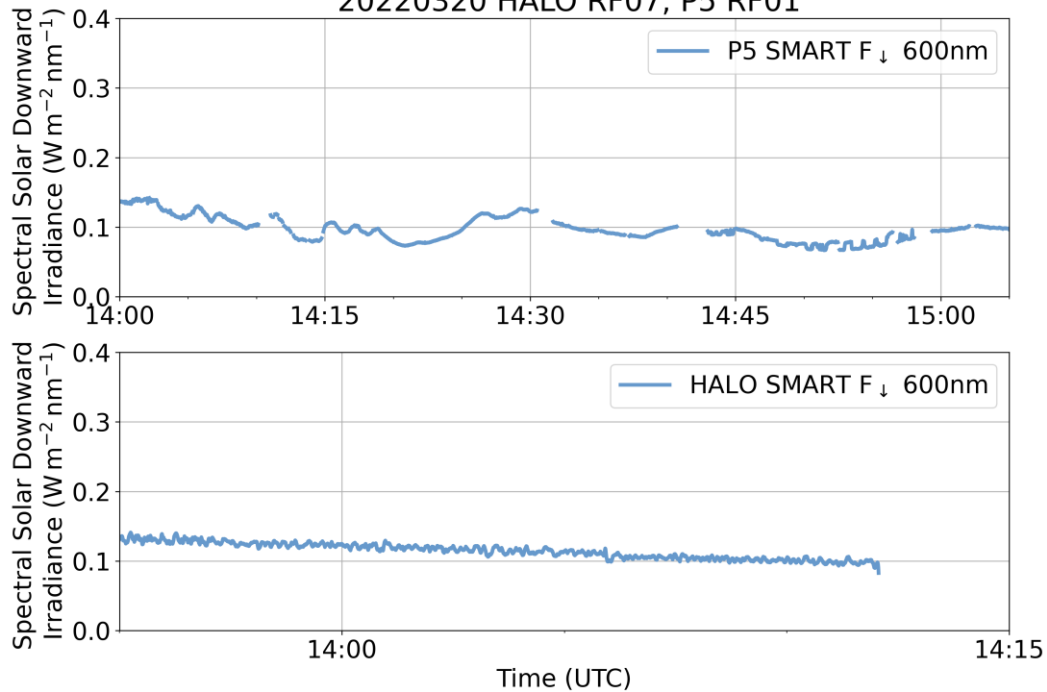
Comparison of collocated SMART measurements P5 and HALO
20220320 HALO RF07, P5 RF01



CASE STUDY OF 20. MARCH 2022 (HALO RF07, P5 RF01)



Comparison of collocated SMART measurements P5 and HALO
20220320 HALO RF07, P5 RF01



OUTLOOK

Future Flights:
Timing is very important for collocation!



THANK YOU!