



EarthCARE 2026 Science and Validation workshop

8–12 June 2026 | Rhodes House | Oxford, UK

Zooming out: In-situ validation of target classifications in mixed-phase clouds during CELLO

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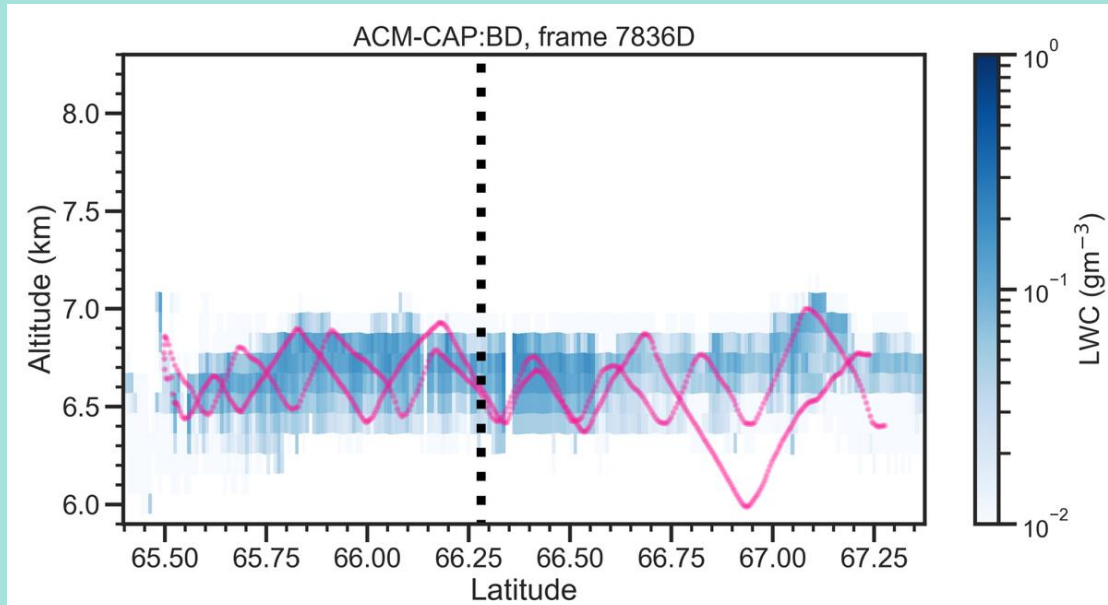
¹University of Oslo, Norway

²INCAS Bucharest, Romania

Zooming out



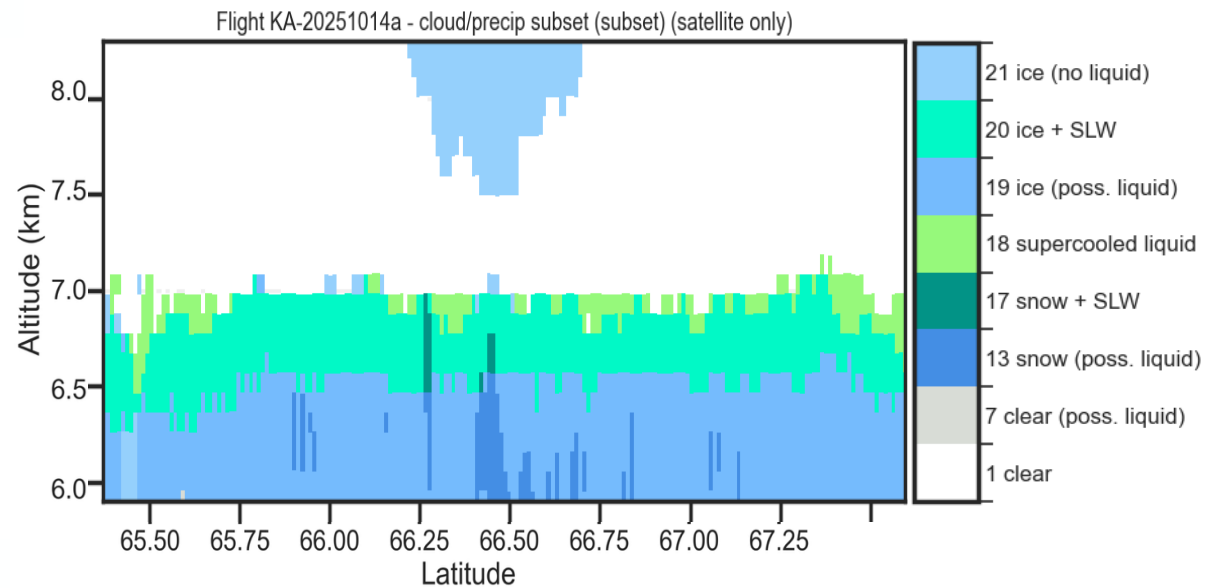
Zoomed in: In-situ microphysics



Zooming out



Scale 1: Target classification

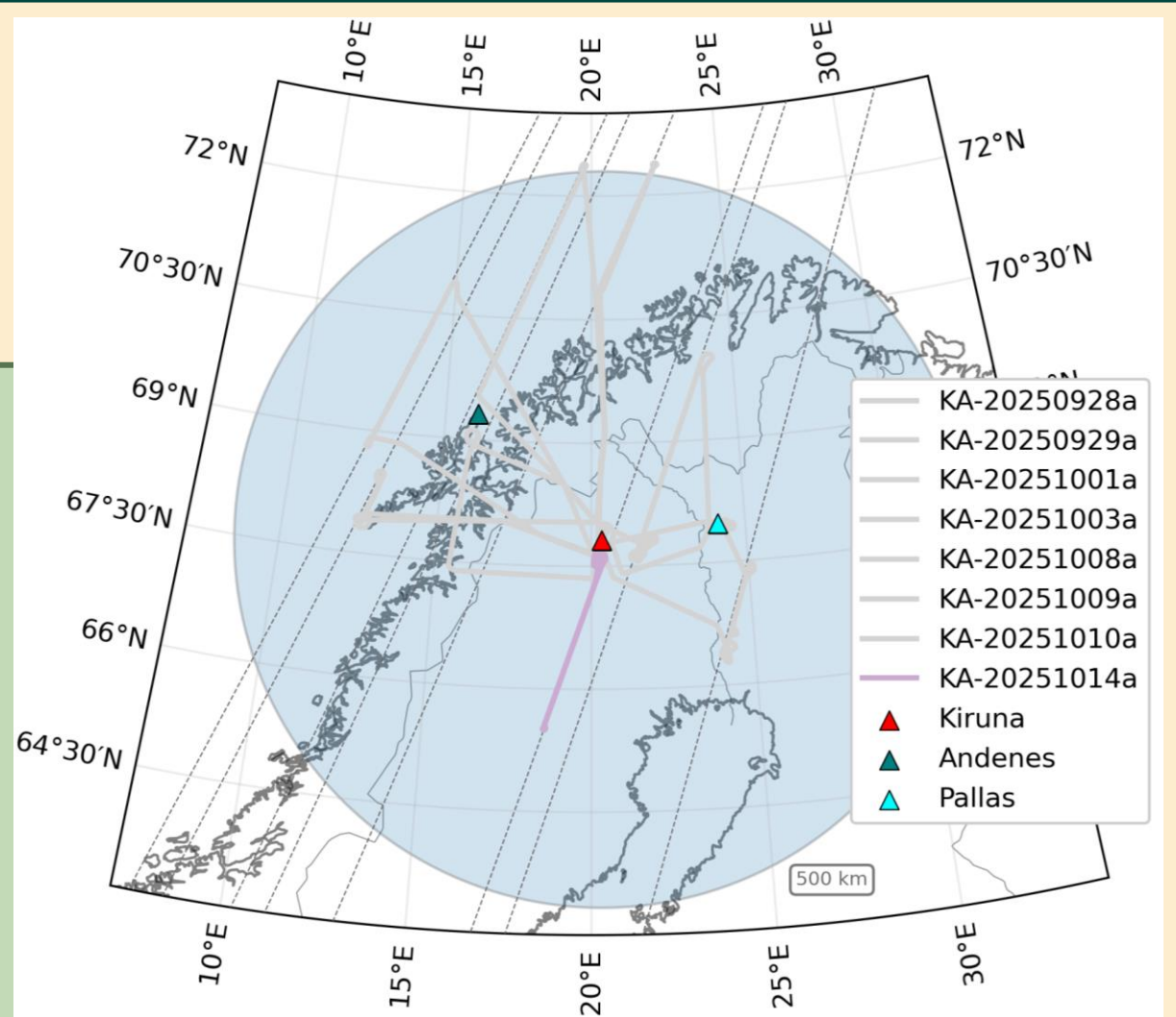


Zooming out



Scale 2: Campaign statistics

Scale 1: Target classification

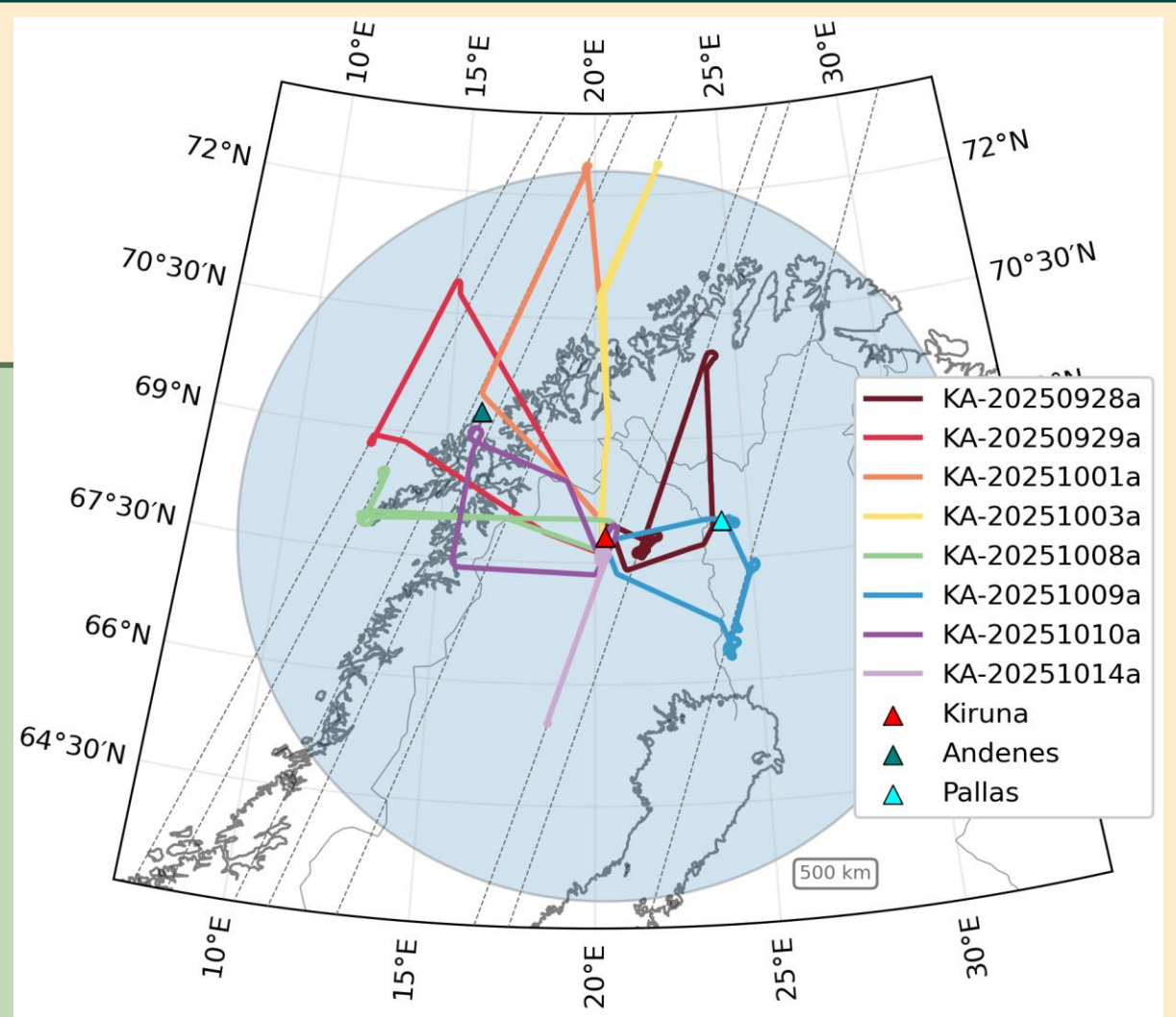


Zooming out



Scale 2: Campaign statistics

Scale 1: Target classification



Zooming out

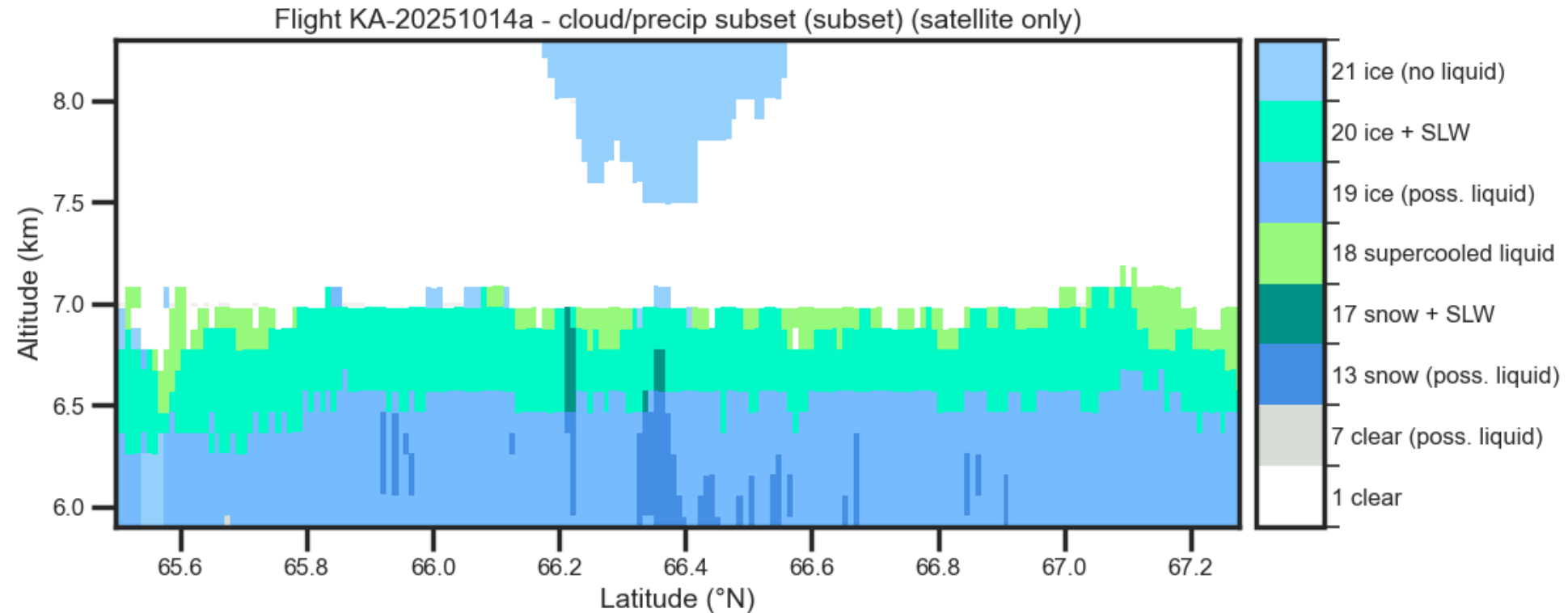


Scaling up

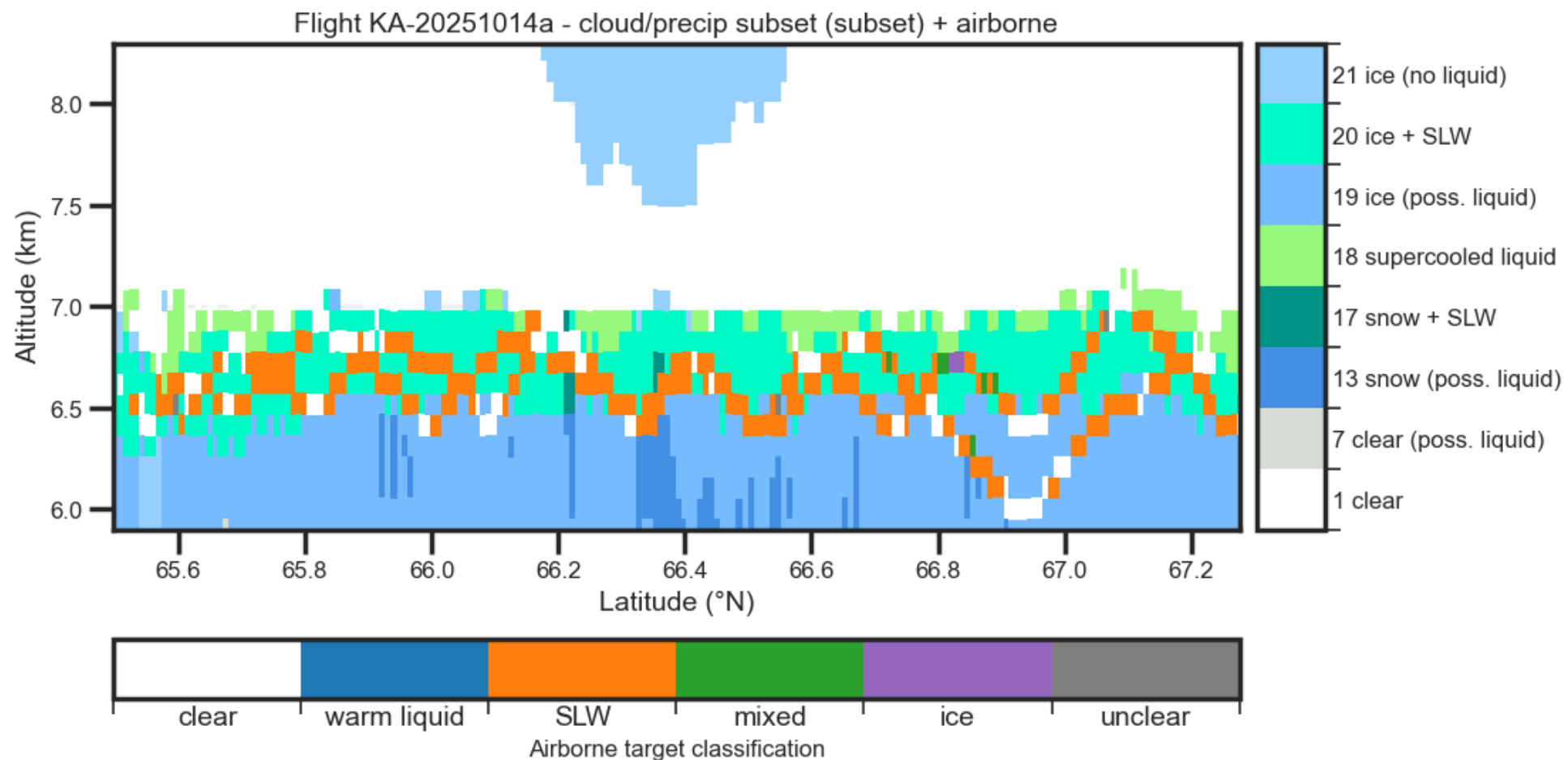


DIMITAR DILKOFF/AFP via Getty Images

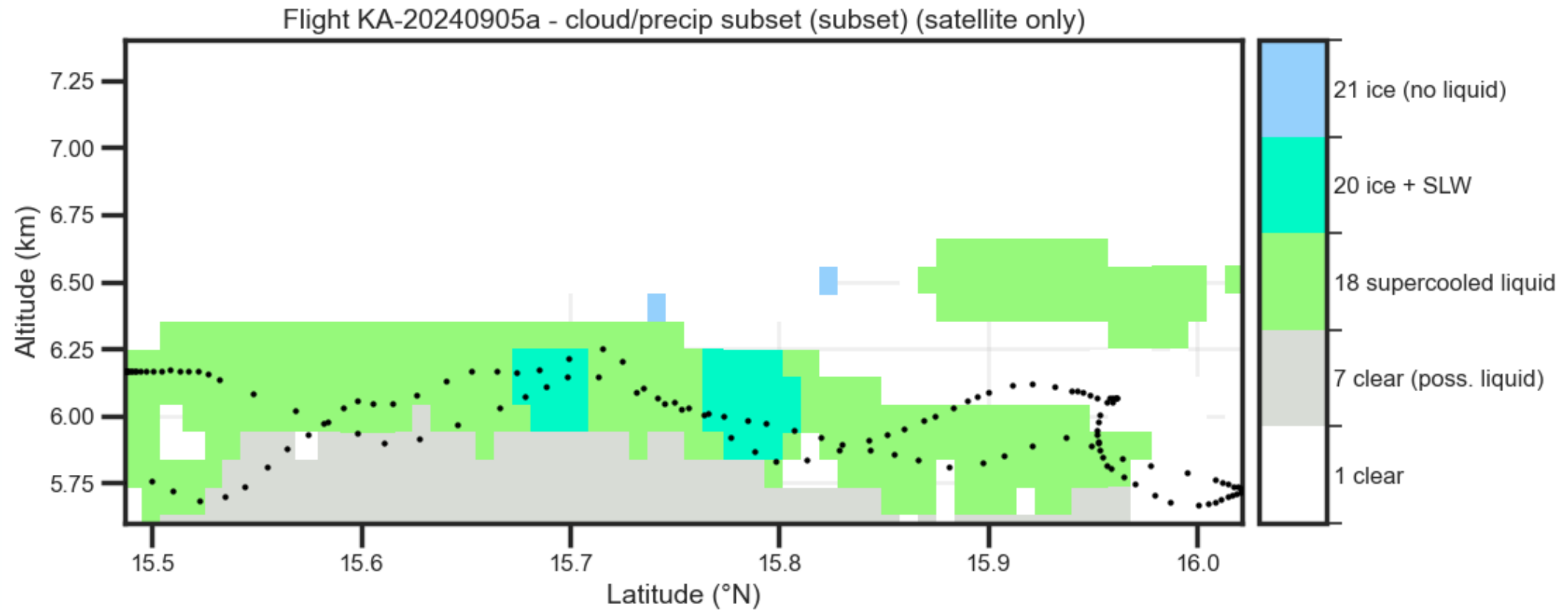
Scale 1: Target classification



Target classification



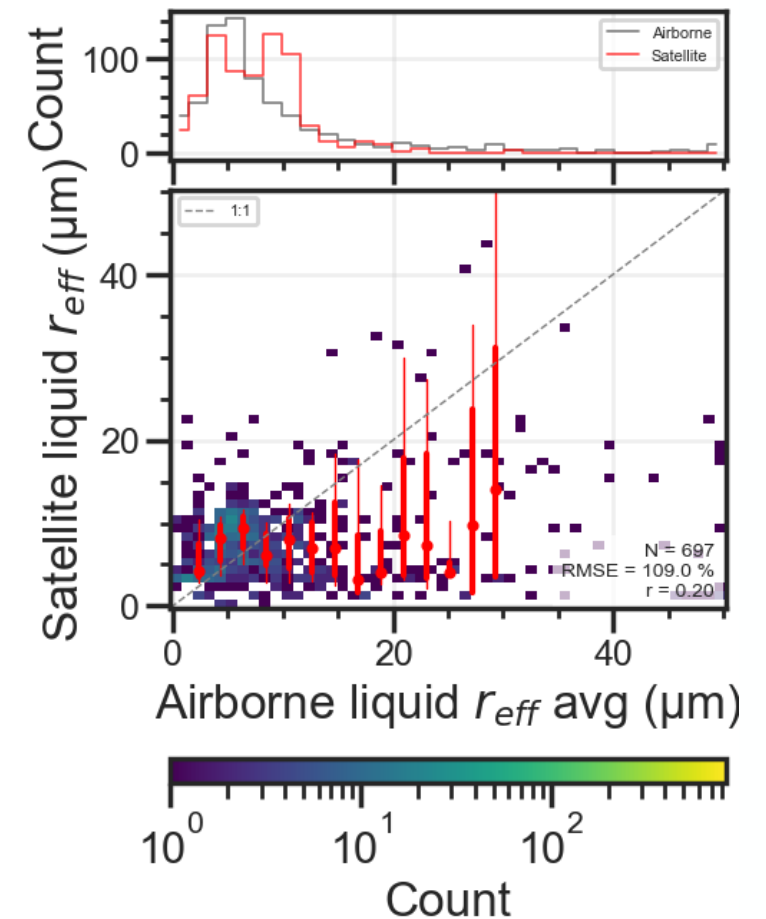
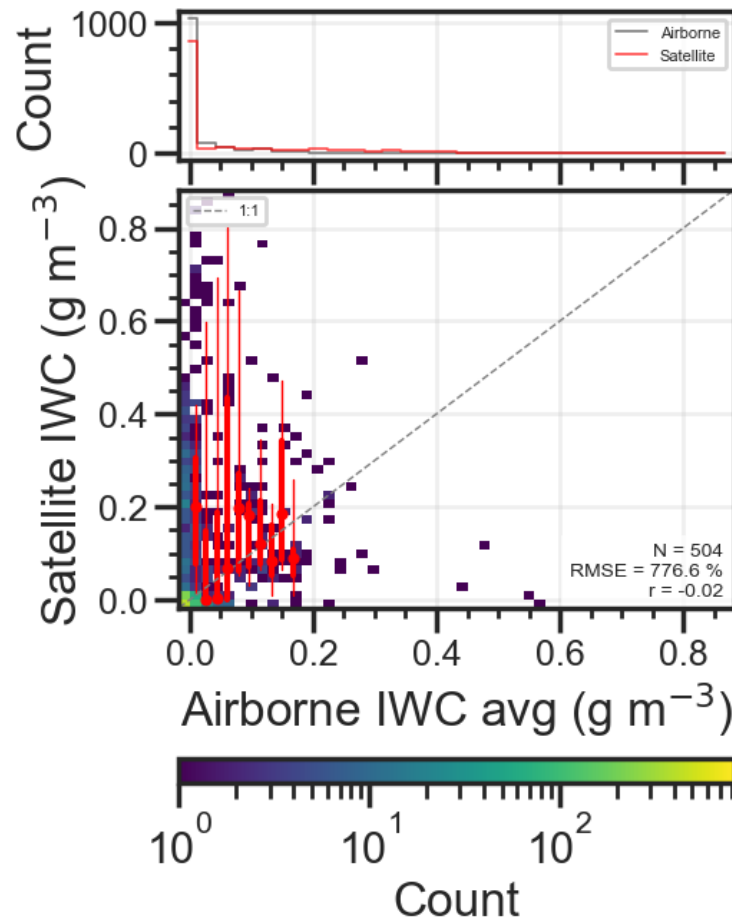
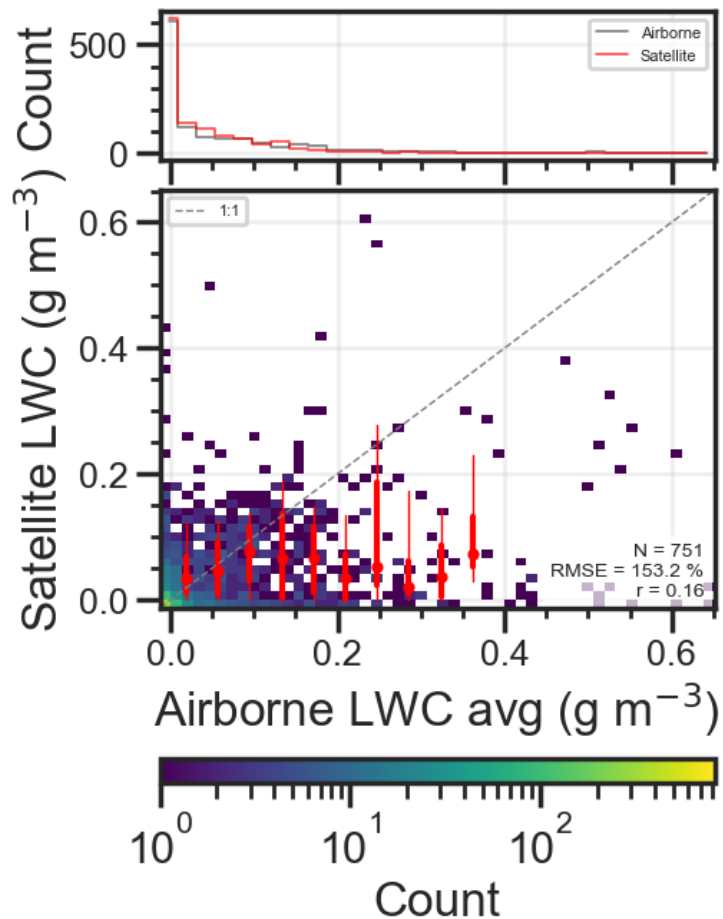
Target classification



Scale 2: Campaign statistics



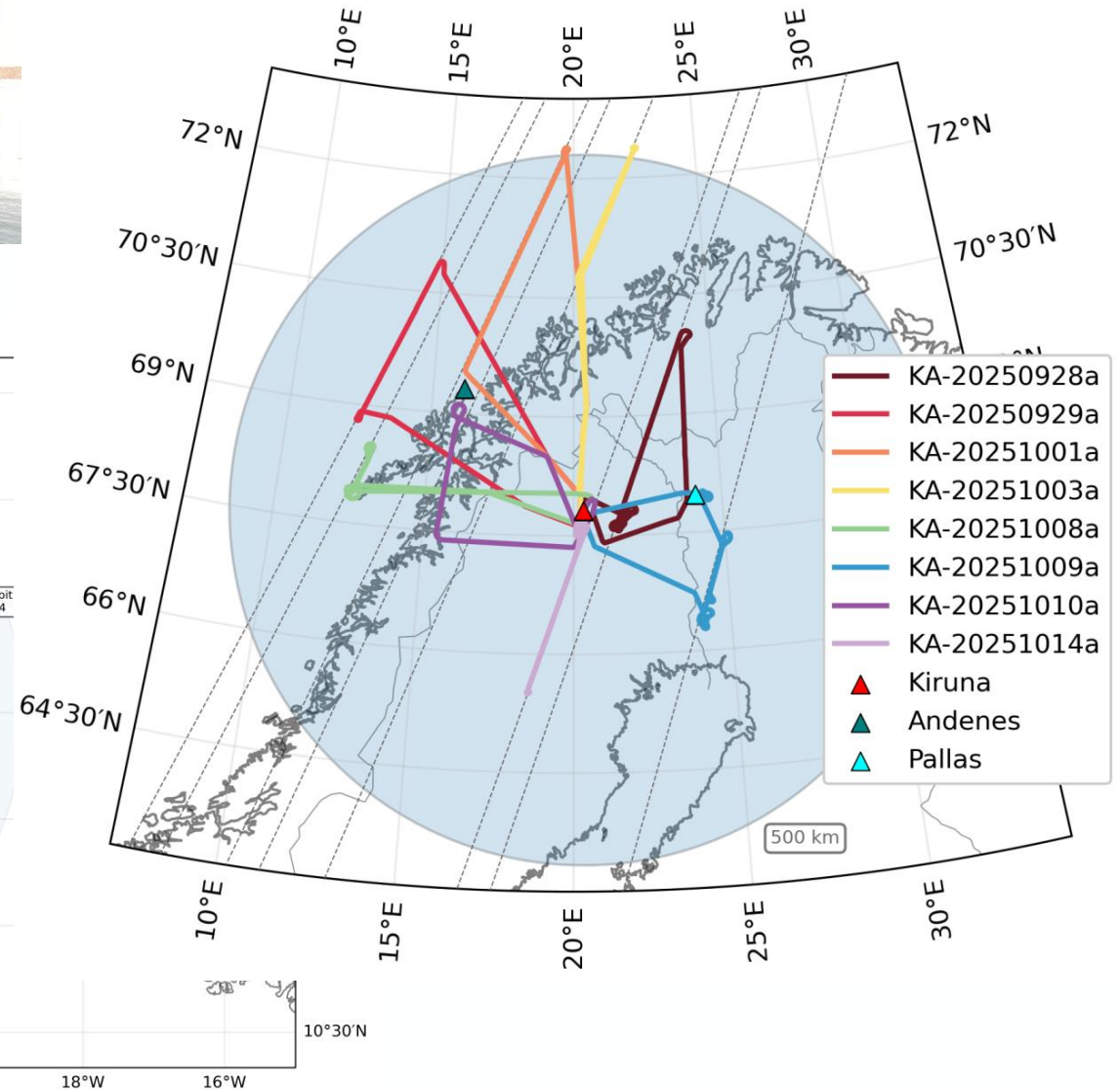
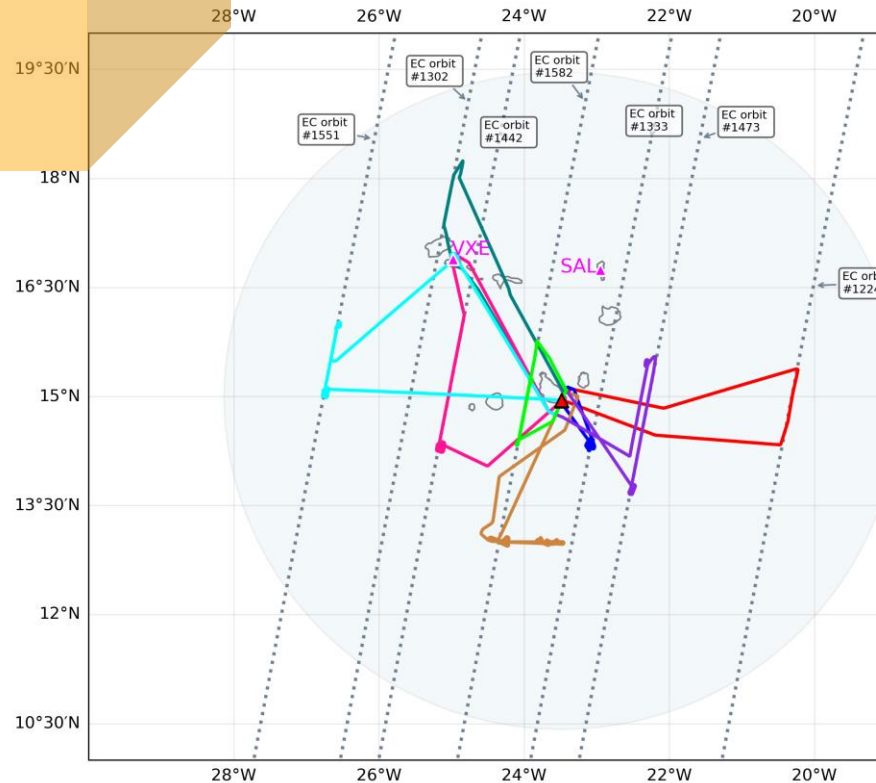
Combined flights – ESA ACM-CAP BD



How much cloud have we seen?



720 m³



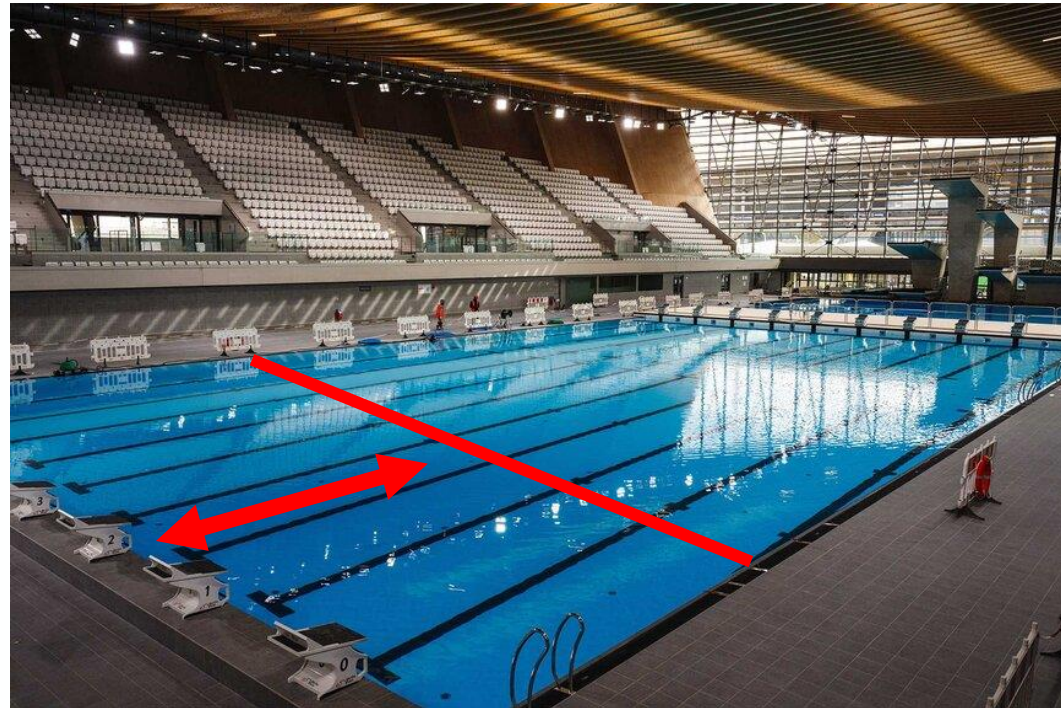
How much cloud have we seen?



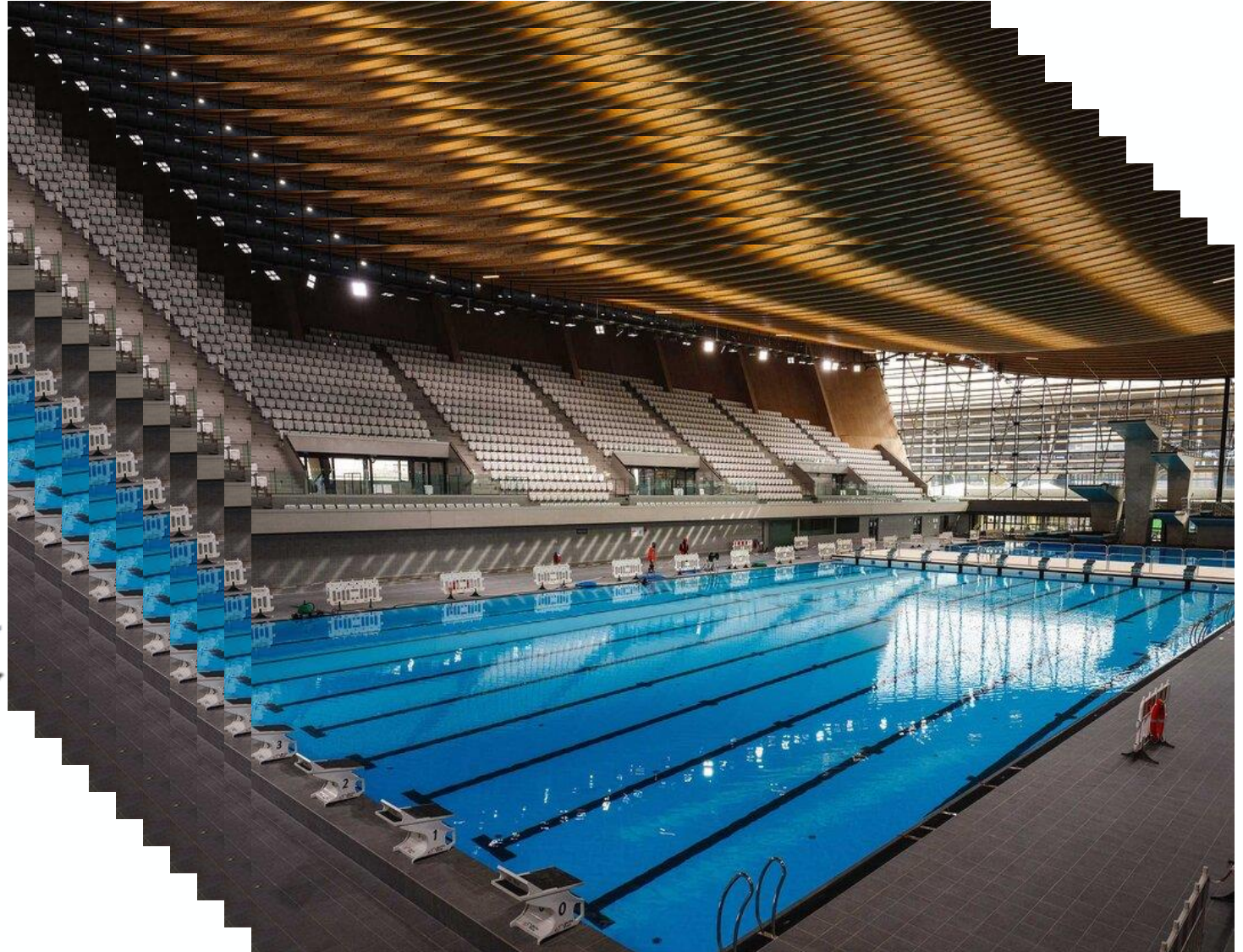
720 m³



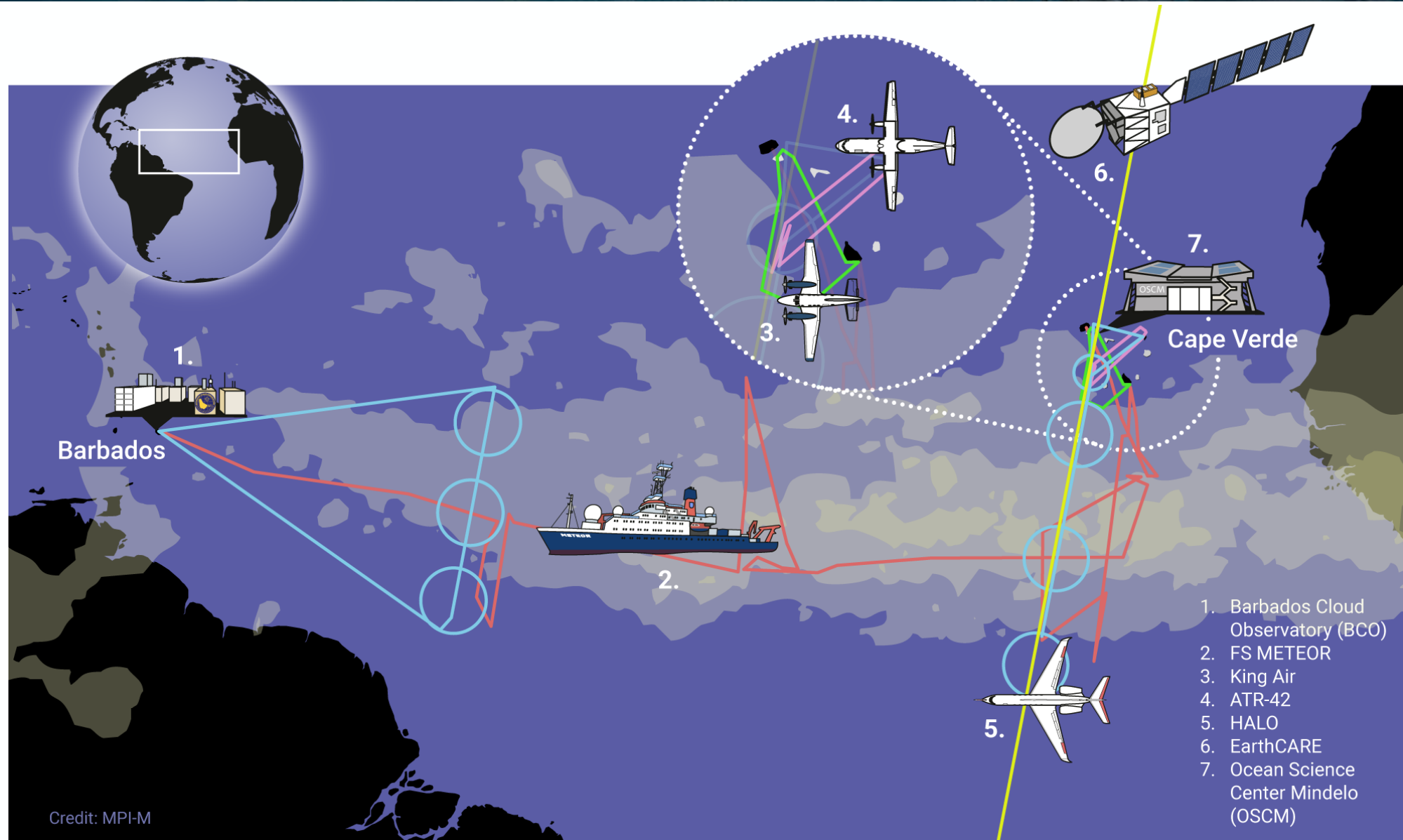
DIMITAR DILKOFF/AFP via Getty Images



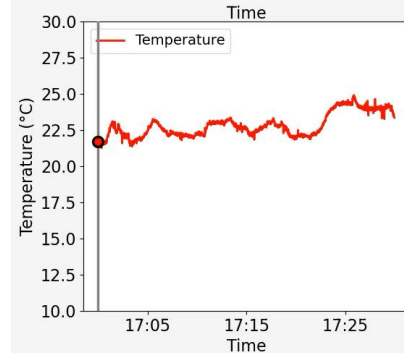
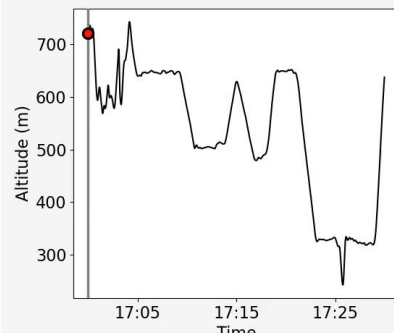
How can we maximize our flights?



ORCESTRA: Indirect cal/val



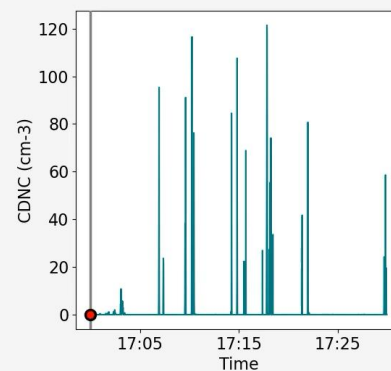
Indirect cal/val



Forward cam



Sideward cam



Live data

Time: 17:00:00
Longitude: -23.64 °
Latitude: 13.00 °
Altitude: 721.7 m
Pressure: 949.1 hPa
Air Temp: 21.7 °C
TAS: 75.5 m/s

CDNC: 0.0 cm-3
Total conc.: 2.7 cm-3

bck/fwd: 0.0
pol/fwd: 0.0
pol/bck: 0.0

The ORCESTRA playing together

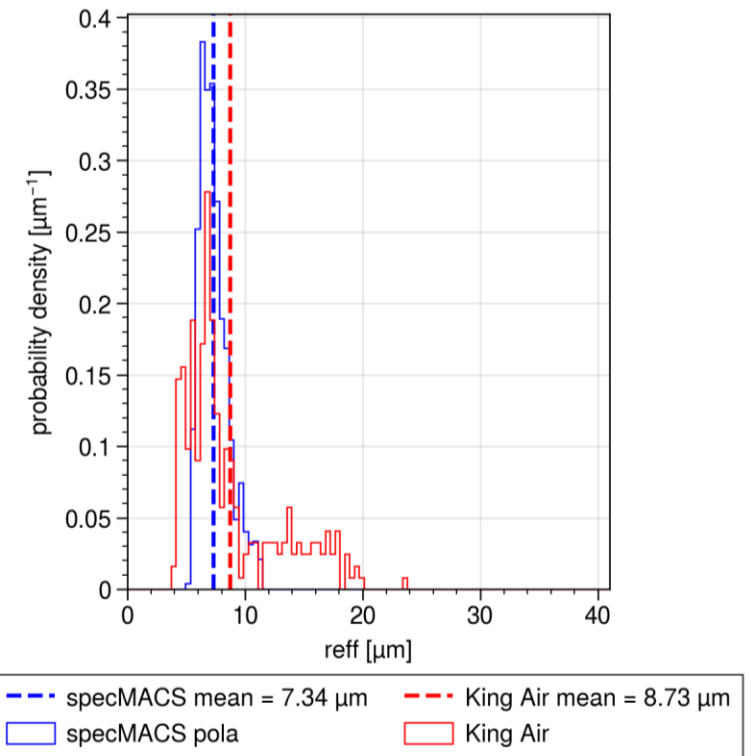
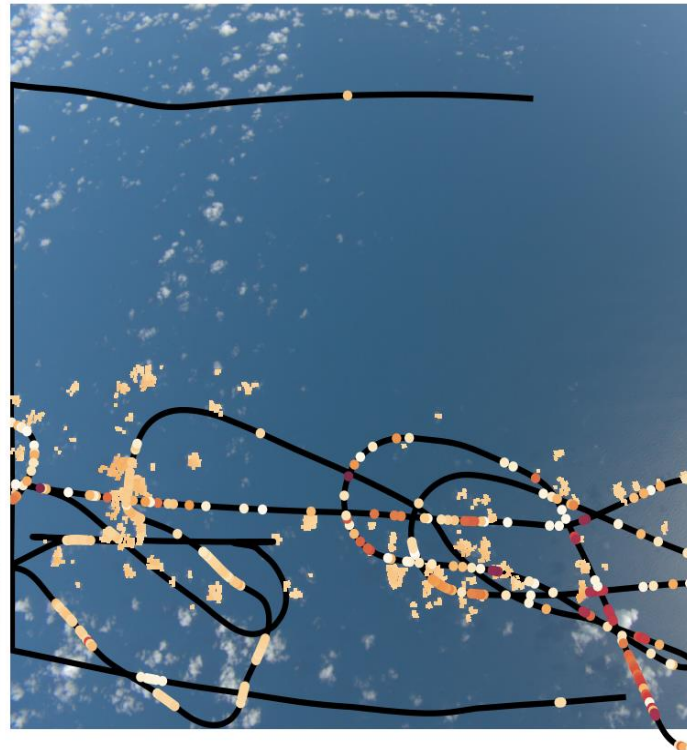


Courtesy of Lea Volkmer (LMU)

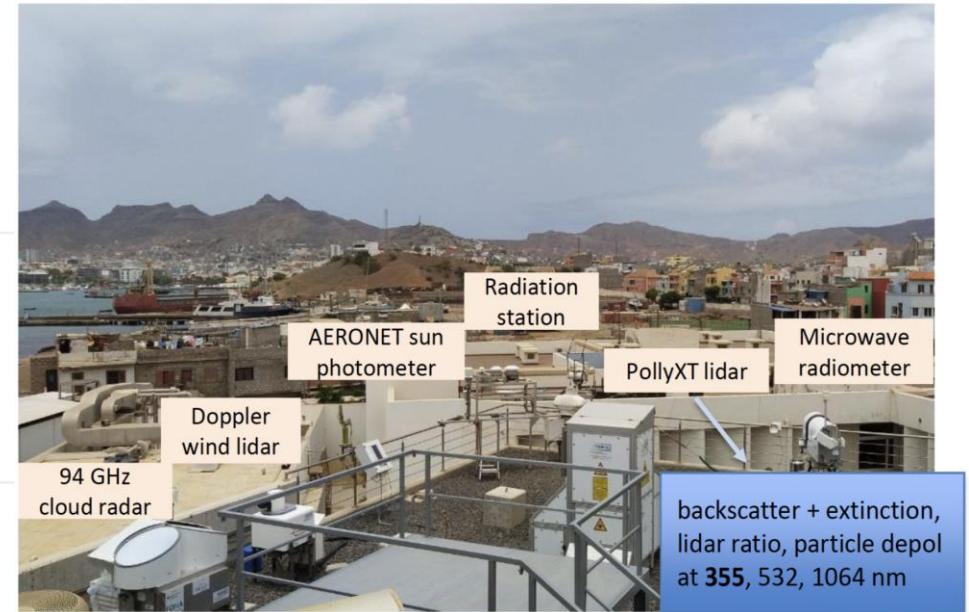
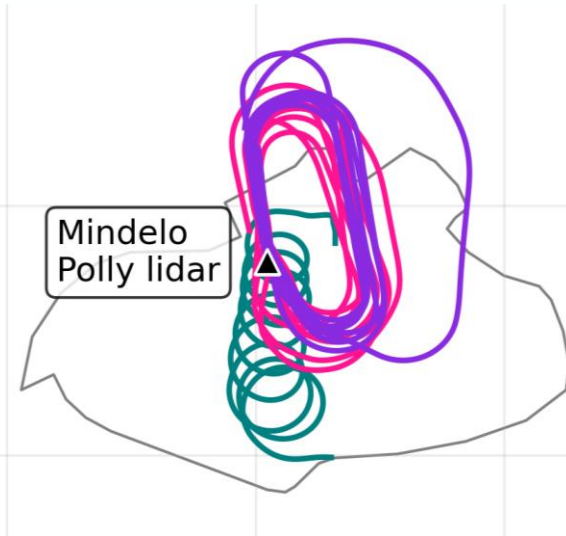
RGB



effective radius

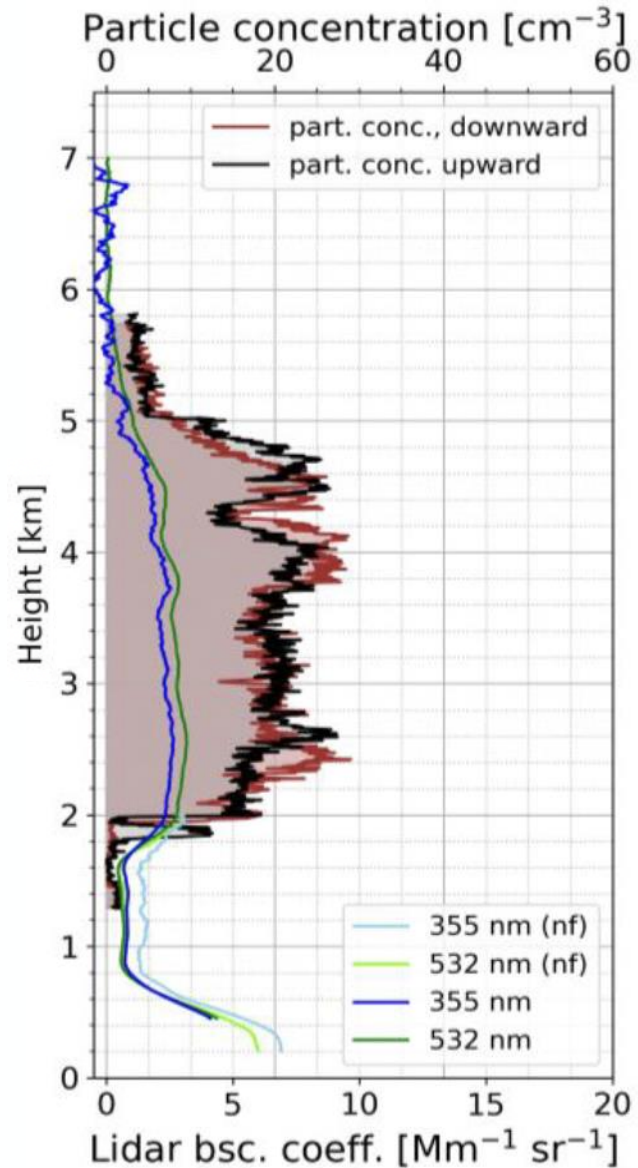
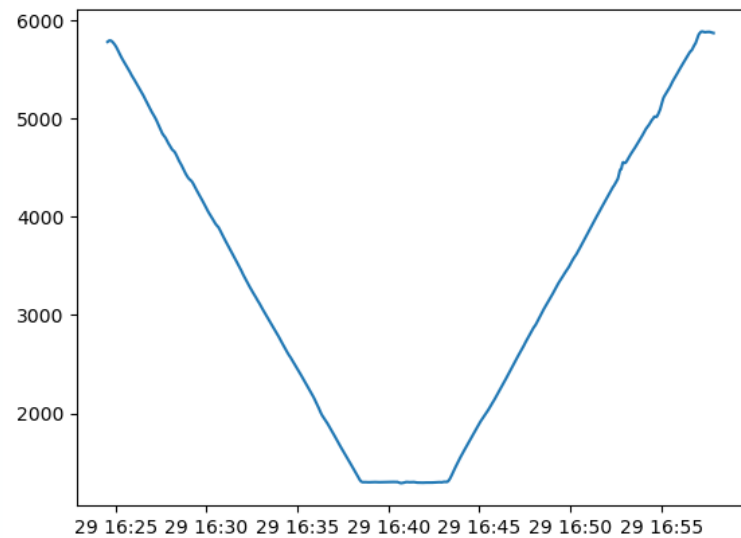
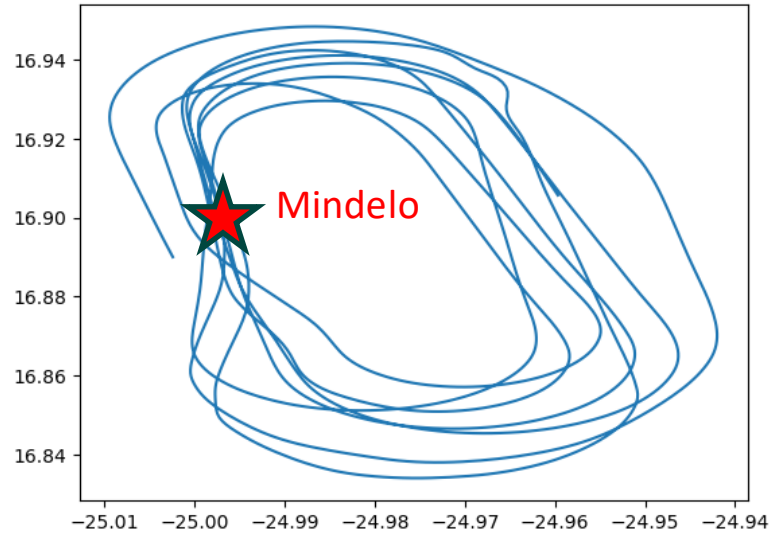


A dusty spiral



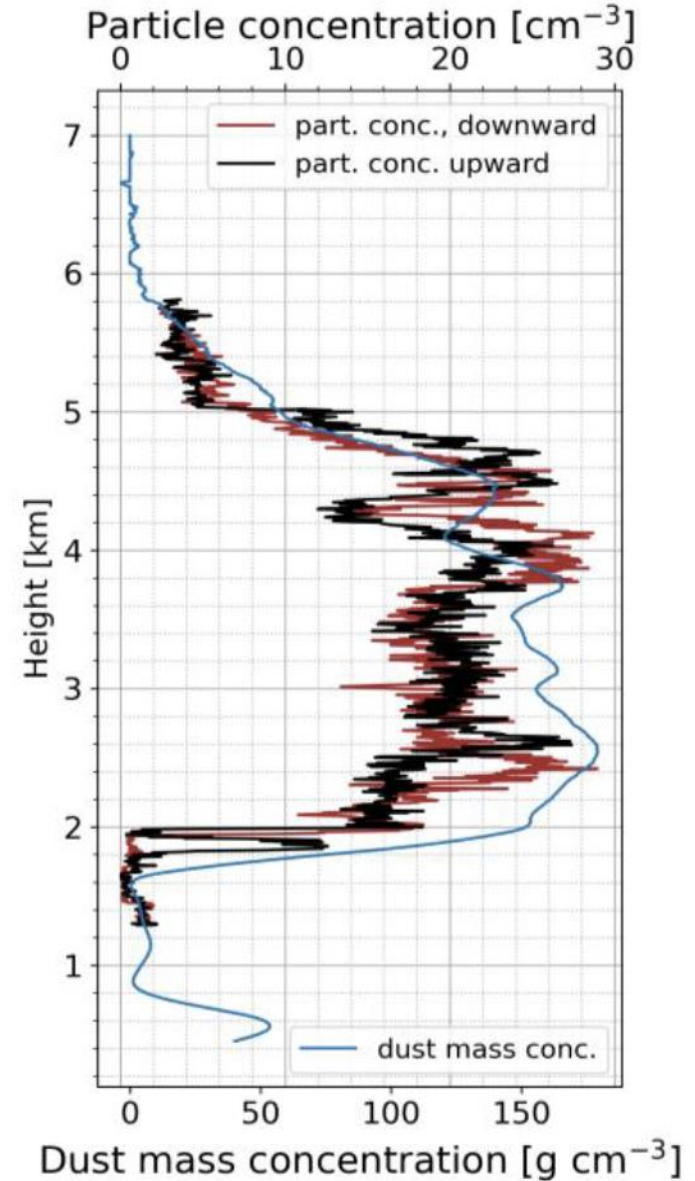
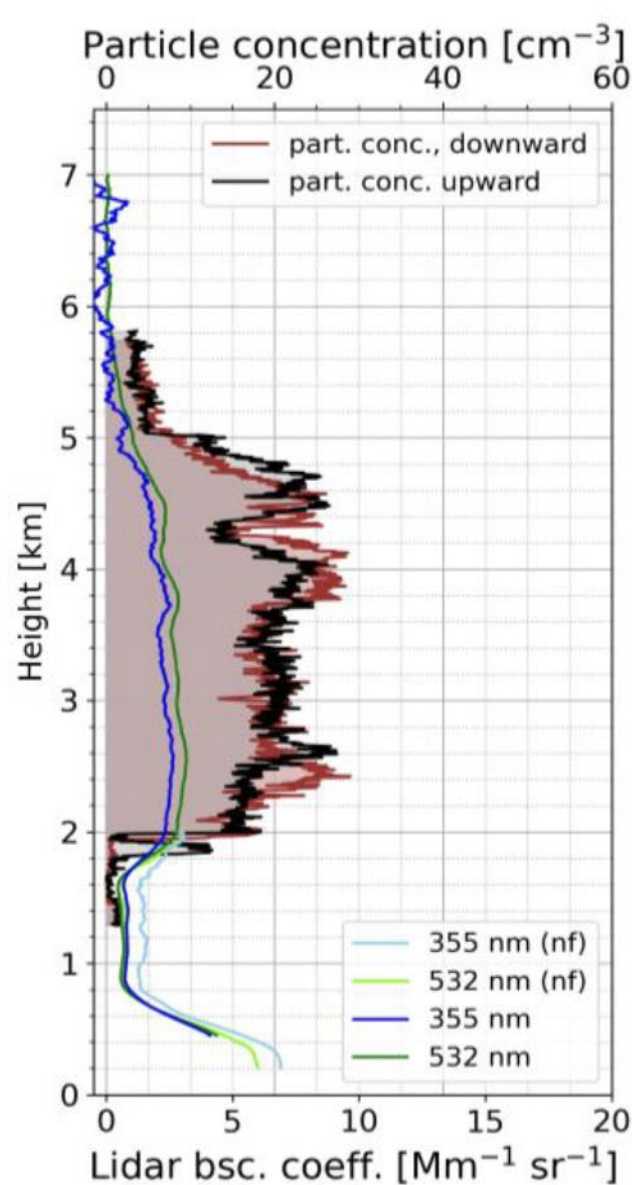
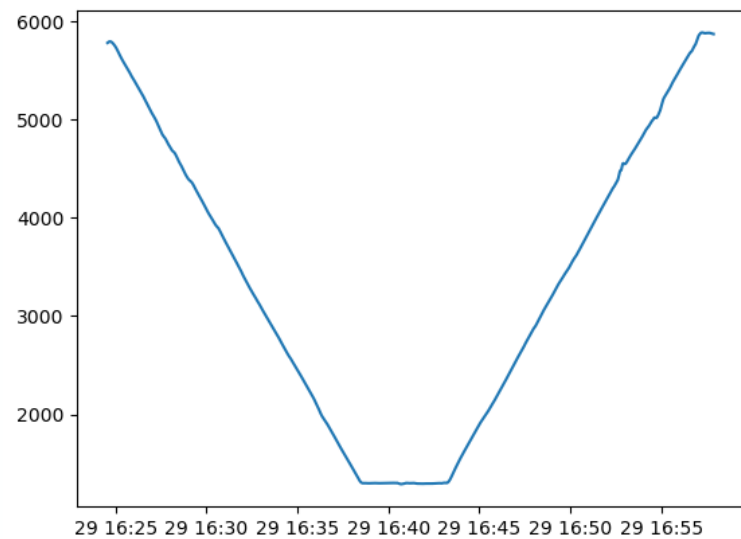
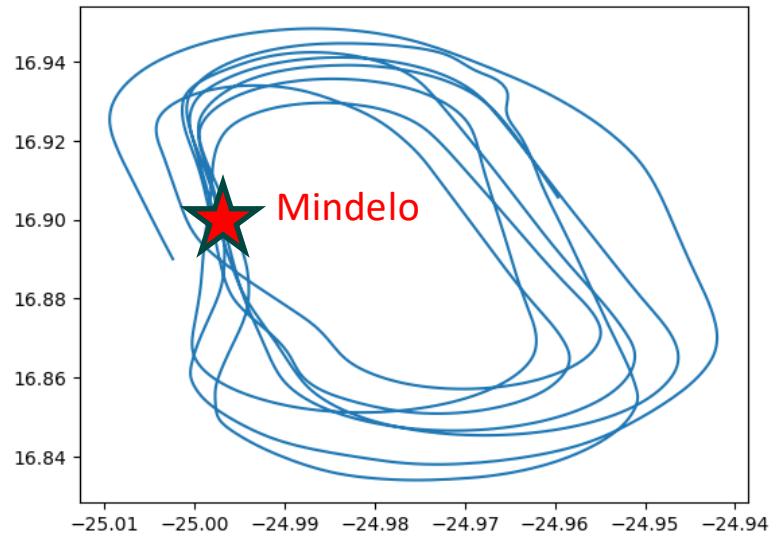
A dusty spiral

Courtesy of Henriette Gebauer (TROPOS)



A dusty spiral

Courtesy of Henriette Gebauer (TROPOS)

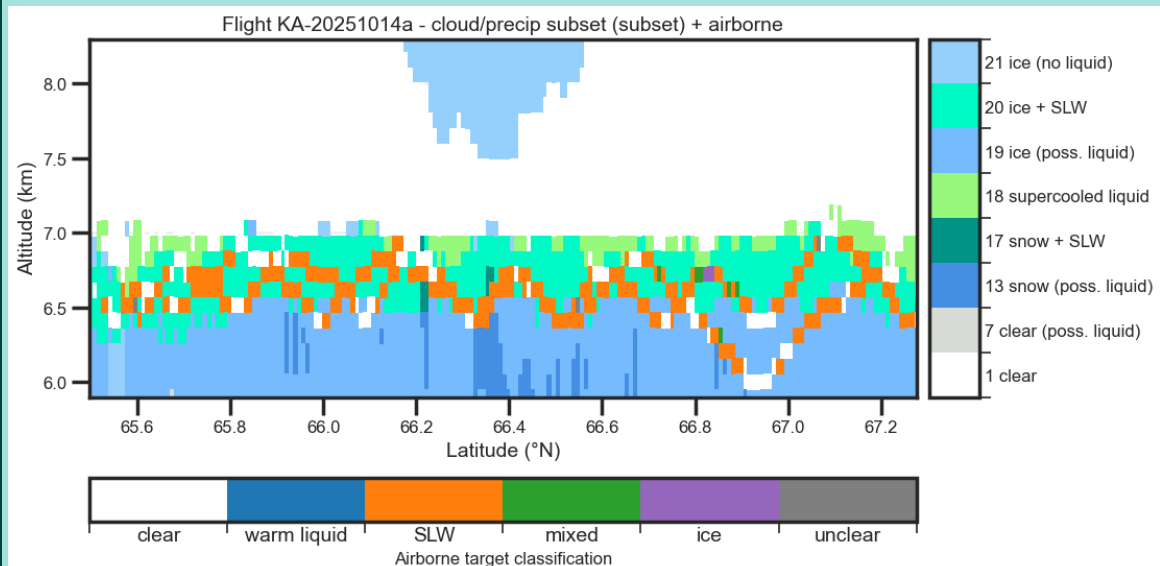


Validating from within



AC-TC performs well in MPCs,
some issues remain

Scale 1: Target classification

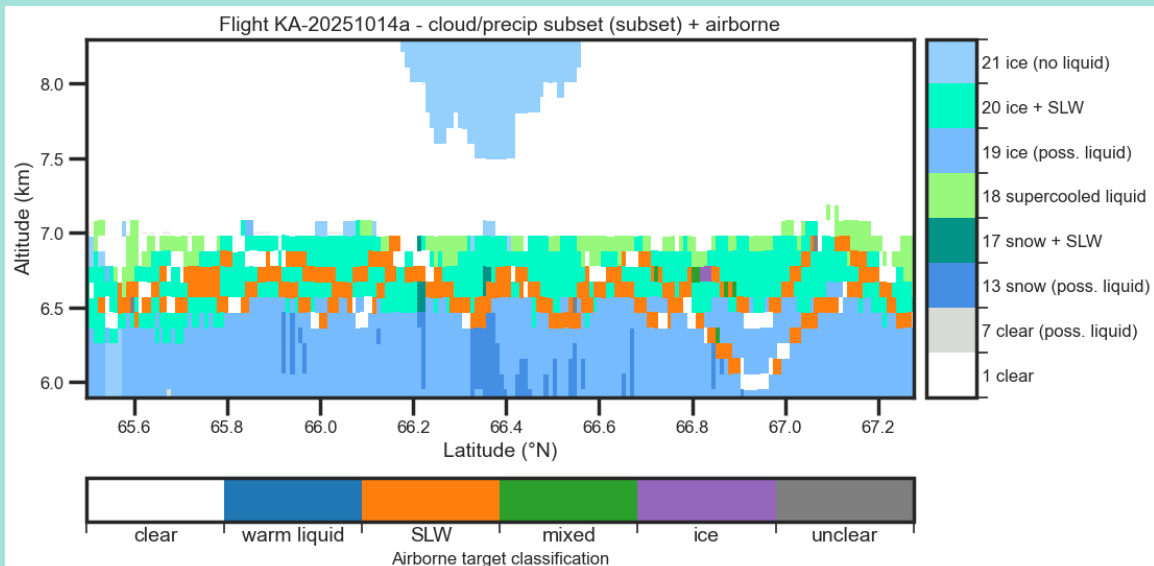


Validating from within

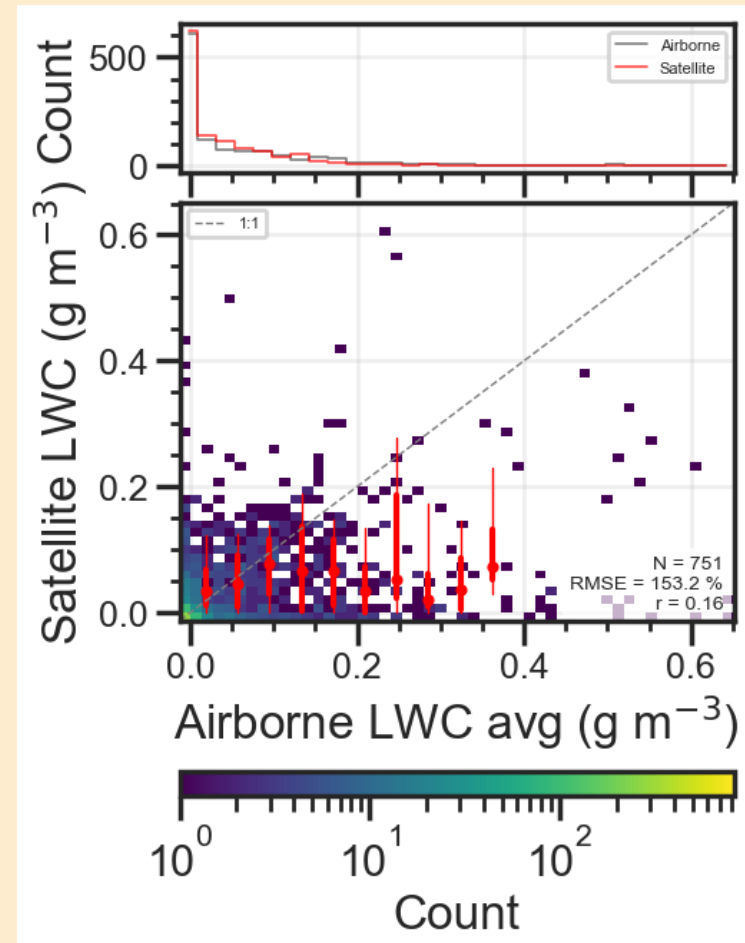


Synergistic retrievals do well for LWC in mixed-phase conditions

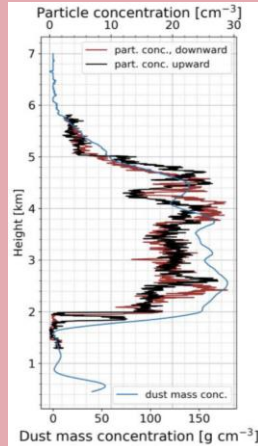
Scale 1: Target classification



Scale 2: Campaign statistics

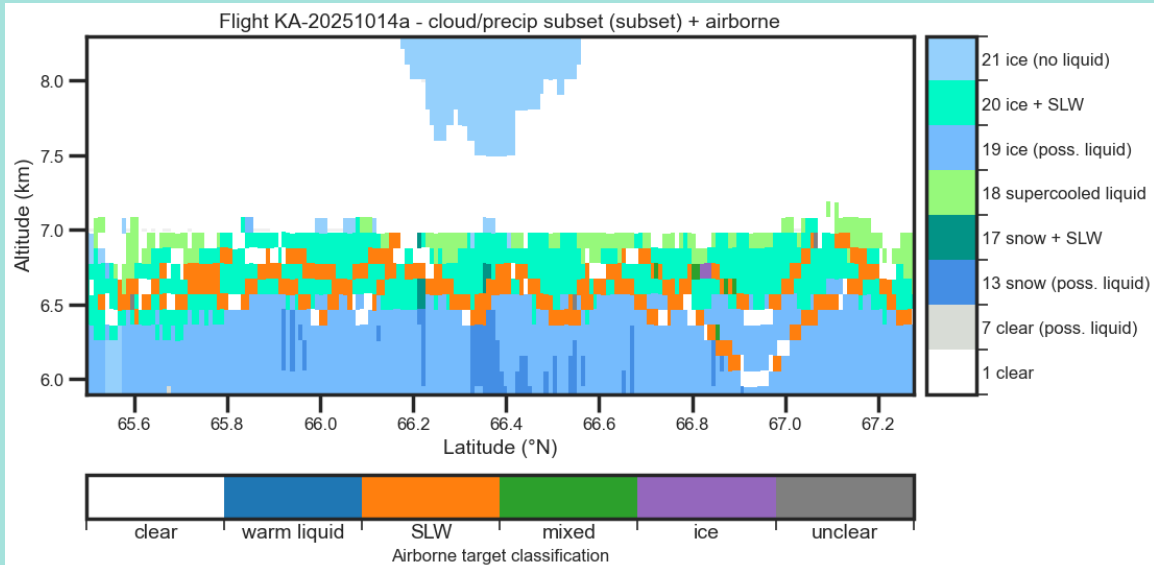


Validating from within



**Scaling up:
Indirect cal/val**

Scale 1: Target classification



Scale 2: Campaign statistics

