Flight Scientist Report
Thursday 08/20/2020 ACTIVATE RF25

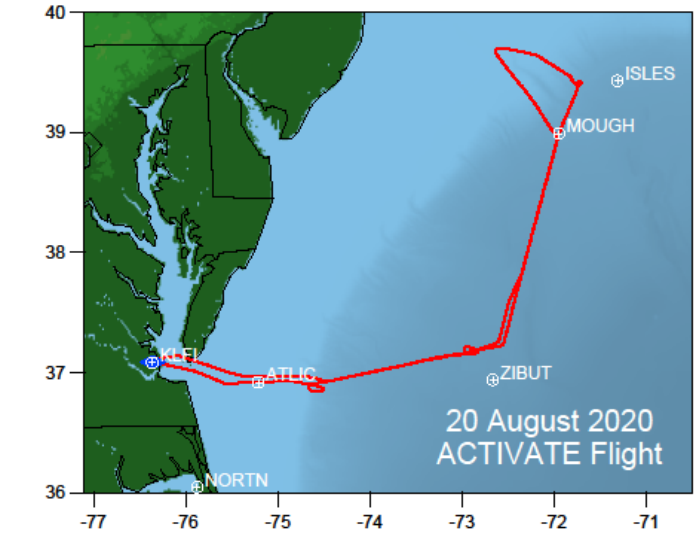
Flight Type: Statistical Survey Flight – to the north
Flight Route: KLFI FUMES OUTES SILLY MOUGH FONDE MOUGH SILLY OUTES FUMES KLFI KFAF KLFI

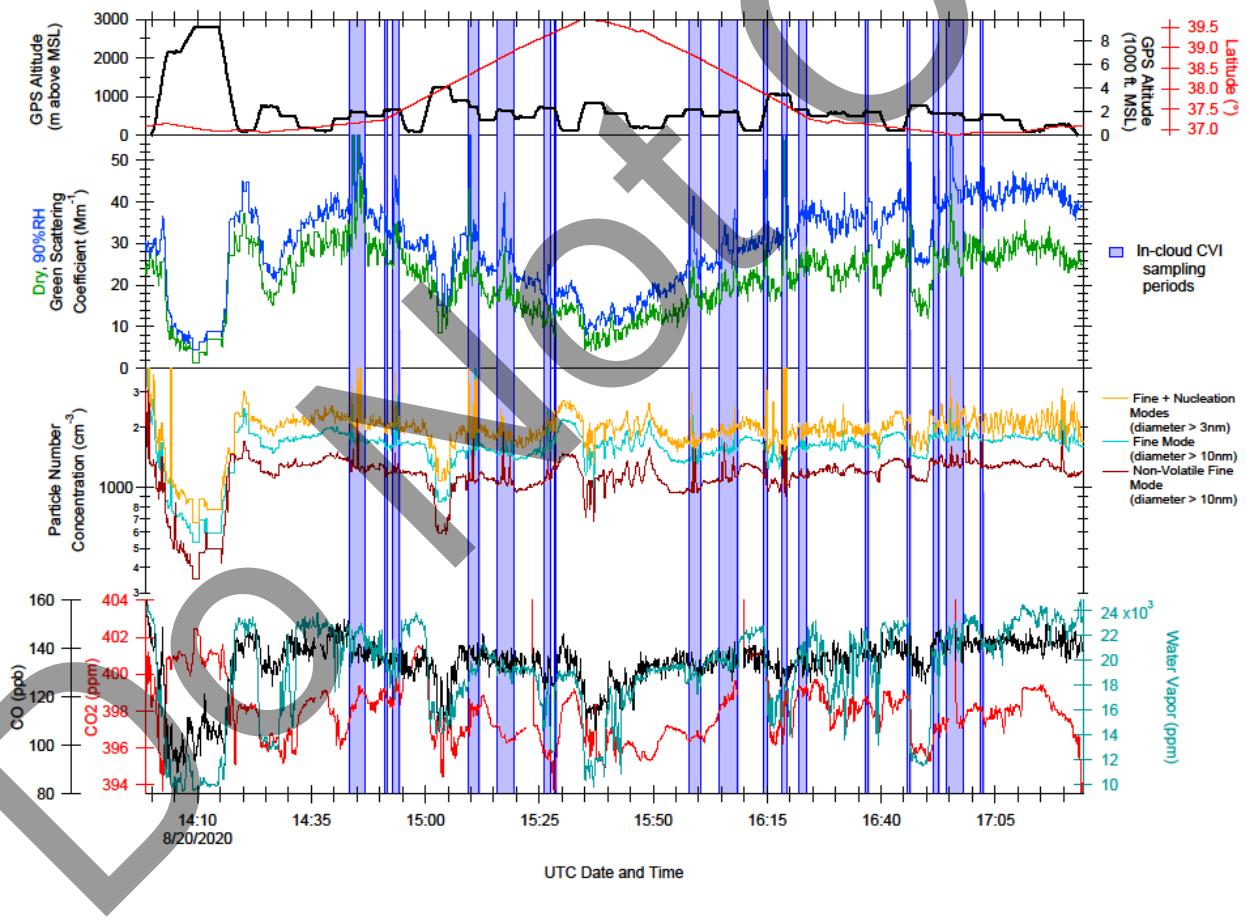
Special Notes:
Was forecasted to be clear in terms of low clouds but there were low clouds (reminiscent of RF12 in winter). There were some cirrus above though but the King Air flew underneath them for the most part and had to adjust at times to make sure it was below. The flight was partly designed to stay closer to coast and to go farther north to capture interesting chemical gradients in aerosol/gases. Northerly flow today. Post-flight briefing suggested that it was in fact a very good flight and easy to fly for the Falcon in terms of executing modules.

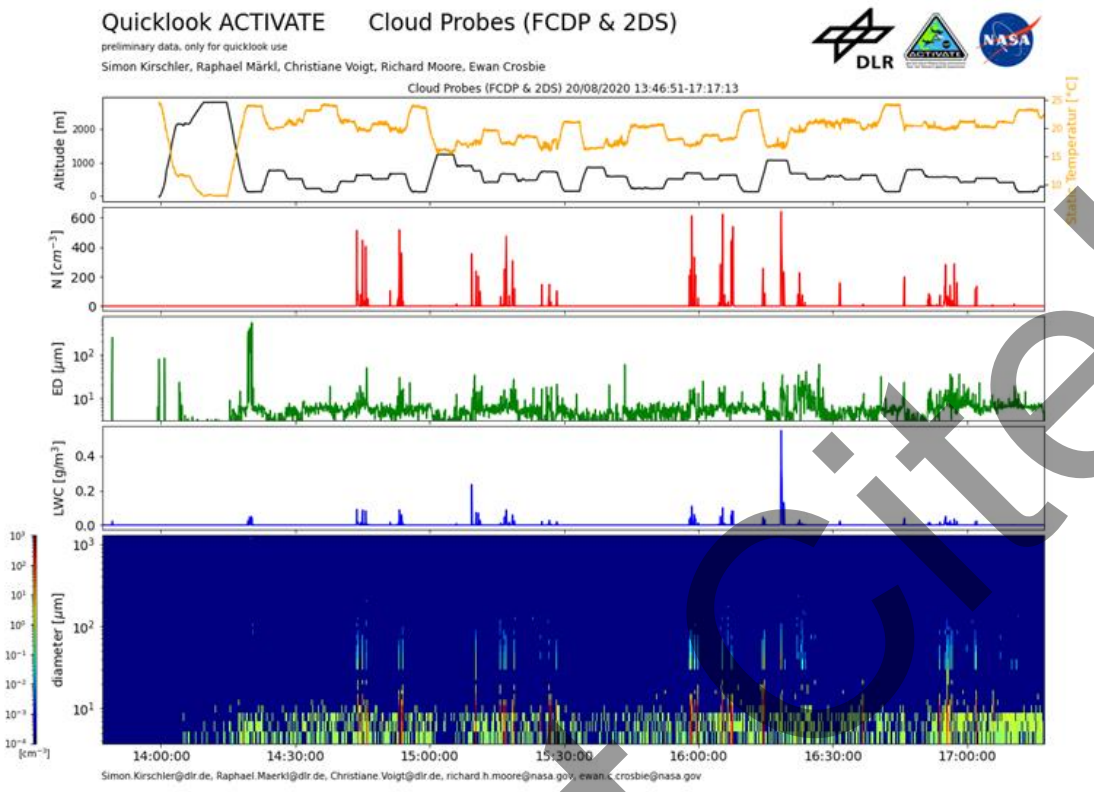
King Air
ATC requested a diversion at northernmost point.
Cirrus at altitude near "Silly".
5 dropsondes
GoPro camera worked well
RSP and HSRL-2 were fine; RSP data are not perfect owing to cirrus above.

Falcon
Camera worked great
Nephelometer still not drying as well as we want. But the data are good and the gamma distribution can be used to correct the dry data to reach 20%.
Reports in flight of very high N_d (800-1200 cm^{-3})
We didn't see the increase in aerosol as we went north; observed the opposite with a gradual reduction moving north.
3 full cloudy modules, 2 ½ cloudy modules and 2 clear modules.
From the Falcon it was good for pretty much everything, no issues with instruments. We didn't collect any CW because LWC was very low and clouds were not widespread enough.
Did two 360's as a way of improving coordination between planes.

Rich Moore Quicklook Images:



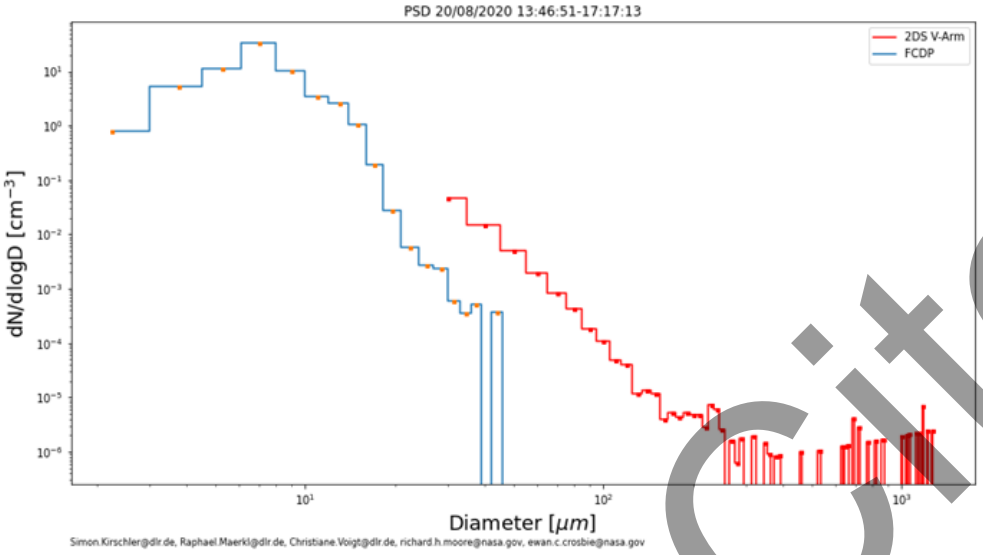



Quicklook ACTIVATE Cloud Probes (FCDP & 2DS)
preliminary data, only for quicklook use
Simon Kirschler, Raphael Märkl, Christiane Voigt, Richard Moore, Ewan Crosbie
Cloud Probes (FCDP & 2DS) 20/08/2020 13:46:51-17:17:13
Altitude [m]
Static Temperatur [°C]
N [cm⁻³]
ED [µm]
LWC [g/m³]
diameter [µm]
[cm⁻³]
14:00:00
14:30:00
15:00:00
15:30:00
16:00:00
16:30:00
17:00:00
Simon.Kirschler@dlr.de, Raphael.Maerkl@dlr.de, Christiane.Voigt@dlr.de, richard.h.moore@nasa.gov, ewan.c.crosbie@nasa.gov

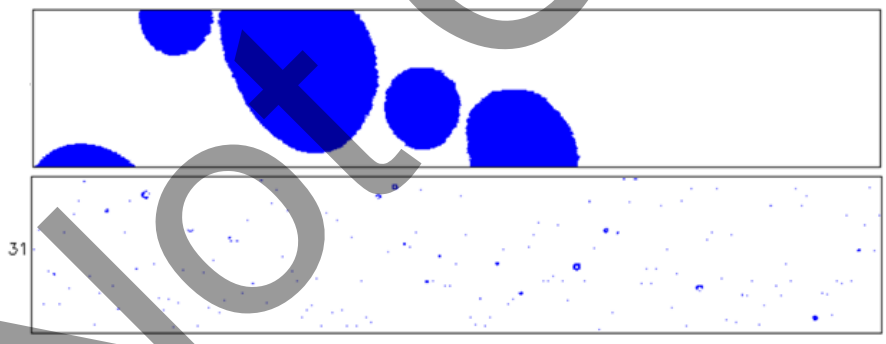
PSD ACTIVATE

preliminary data, only for quicklook use

Simon Kirschler, Raphael Märkl, Christiane Voigt, Richard Moore, Ewan Crosbie

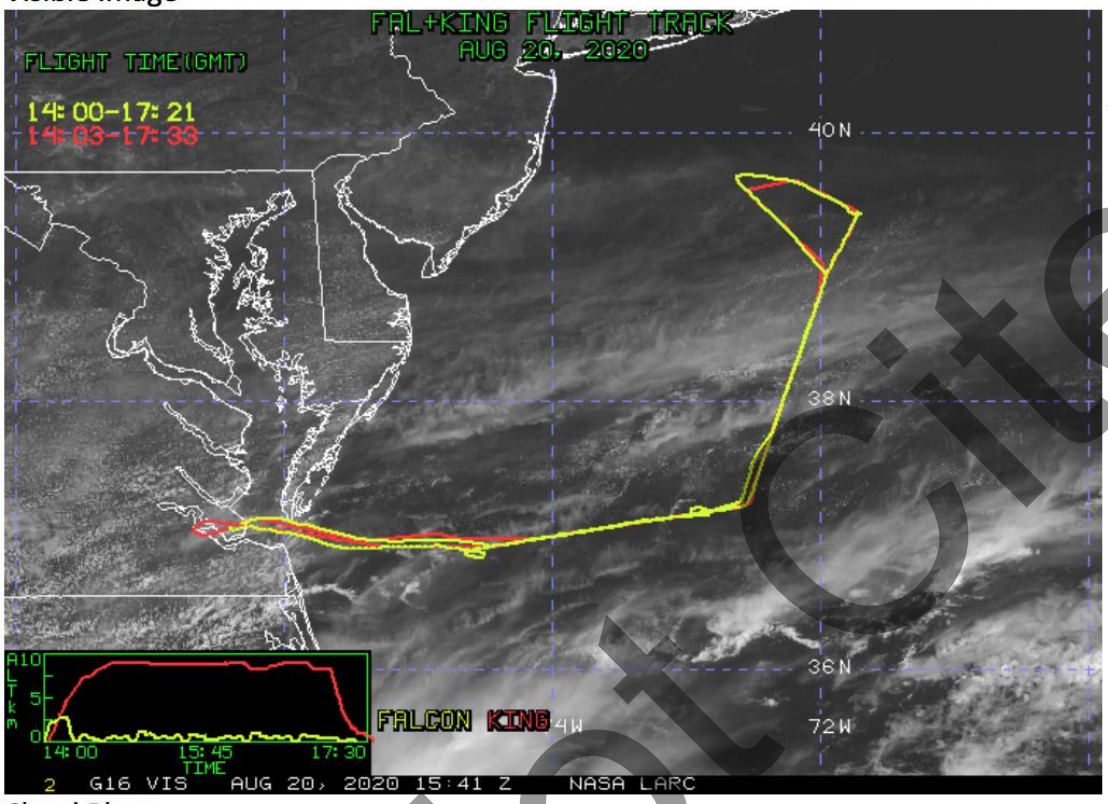


Simon.Kirschler@dlr.de, Raphael.Maerkl@dlr.de, Christiane.Voigt@dlr.de, richard.h.moore@nasa.gov, ewan.c.crosbie@nasa.gov

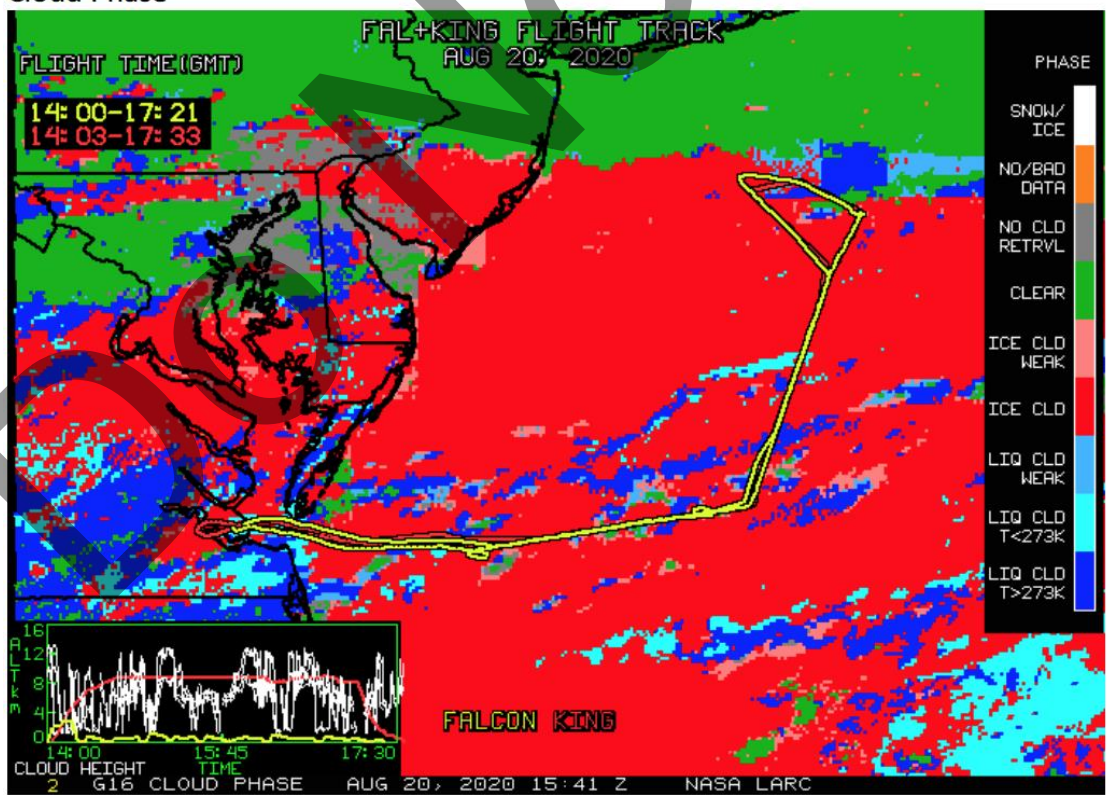


NASA-LaRC Clouds Group GOES-16 Quicklook Images for Flight 25, 15:41 UTC Aug 20, 2020

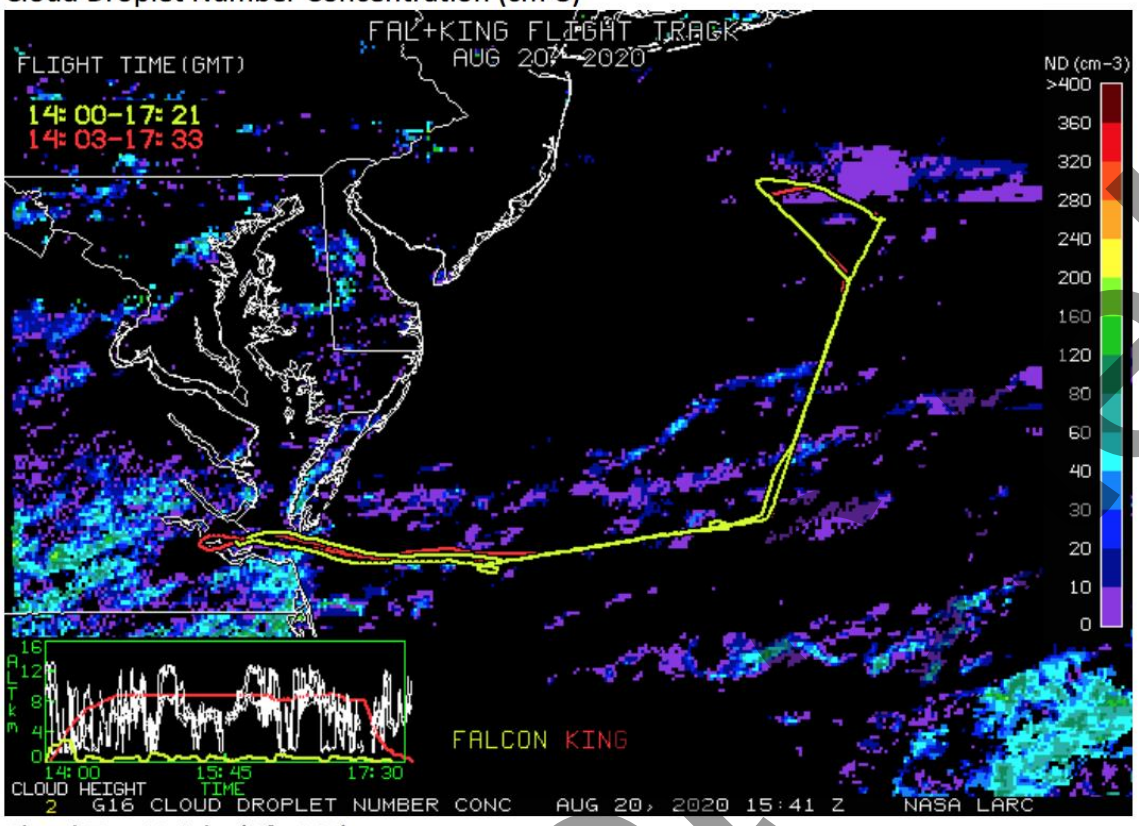
Visible Image



Cloud Phase



Cloud Droplet Number Concentration (cm-3)



Cloud-Top Height (Kft-ASL)