Flight Scientist Report
Saturday 06/11/2022 ACTIVATE RF173

Flight Type: Process Study Flight
Flight Route:
Special Notes: African dust in region. Had about 23 sondes (a record). clouds did not develop much at early portion of flight coincident with high dust loadings but in contrast later in flight we found a great cloud target where there was less dust. We conducted a great wall and wheel-and-spoke pattern by that better target that was a more developed cloud.

King Air
Pilot report (Slover):
ACTIVATE process study flight to south of Bermuda. First cloud formation flew 3 pedals and realized it was dissapating and not desireable. Moved NE closer to Bermuda and found a formation that grew to over 11000 feet and flew a mostly complete pedal pattern with overflight of Falcon's clear air spiral. This cloud formation had one distinct large cloud at southwest end and had a string of clouds that ran to the NorthEast. We were able to fly two lines directly along this path.

Flight scientist report (Shingler/Seaman):

Two process studies were flown this flight. The first was centered at a point of 3019N06533W. We started on an outer petal leg at the north end and proceeded to complete 3 (of a nominal 5) spoke legs and 4 (of a nominal 5) petal legs before being redirected to meet 524 at 3059N06427W. 10 sondes were dropped at the first study, an initial one at the center point, 8 along the petal legs, and a final one at the center point. At the second process study, we were able to execute 6 (of a nominal 5) spoke legs and 5.5 (of a nominal 5) petal legs with 3 dropped along the central convection line at different times, 9 dropped along the petal legs, and 1 at the clear air spiral location. The last spoke leg was execute directly along the line of conection from the SSW to NNE. A total of 23 sondes were dropped during this sortie.

Ops Notes: Process study.

Instrument notes: nominal

Science notes: Process study.

Sonde drops: A record 23 sondes dropped.

Falcon
Pilot report (Baxley):
ACTIVATE coordinated HU-25 and UC-12 flight; Elder/Baxley, Crosbie/Winstead TXKF - 3000N/06500W - TXKF; multiple deviations from flight plan. First cloud for process study at

~3018.92N/06532.78W, with spiral at ~3023N/06527W. Second cloud for process study at ~3059.0N/06427.50W, with spiral at ~3105N/06451W. After second spiral flew two additional legs in the second cloud.

Flight scientist report ():

Winstead:

17:29:15 Virus filters a & B ON

17:40:15 Virus filter A – OFF

17:46:15 Virus filter A – ON

18:04:30 Virus filter A – OFF

18:08:45 Dry scattering approx. 60 in dust layer at 5000 ft

18:26:00 Virus filter A – ON; Starting spiral climb in clear air

18:32:20 Virus filter A – OFF, Clipped cloud

18:39:45 Virus filter A – ON

18:54:15 Virus filter A – OFF

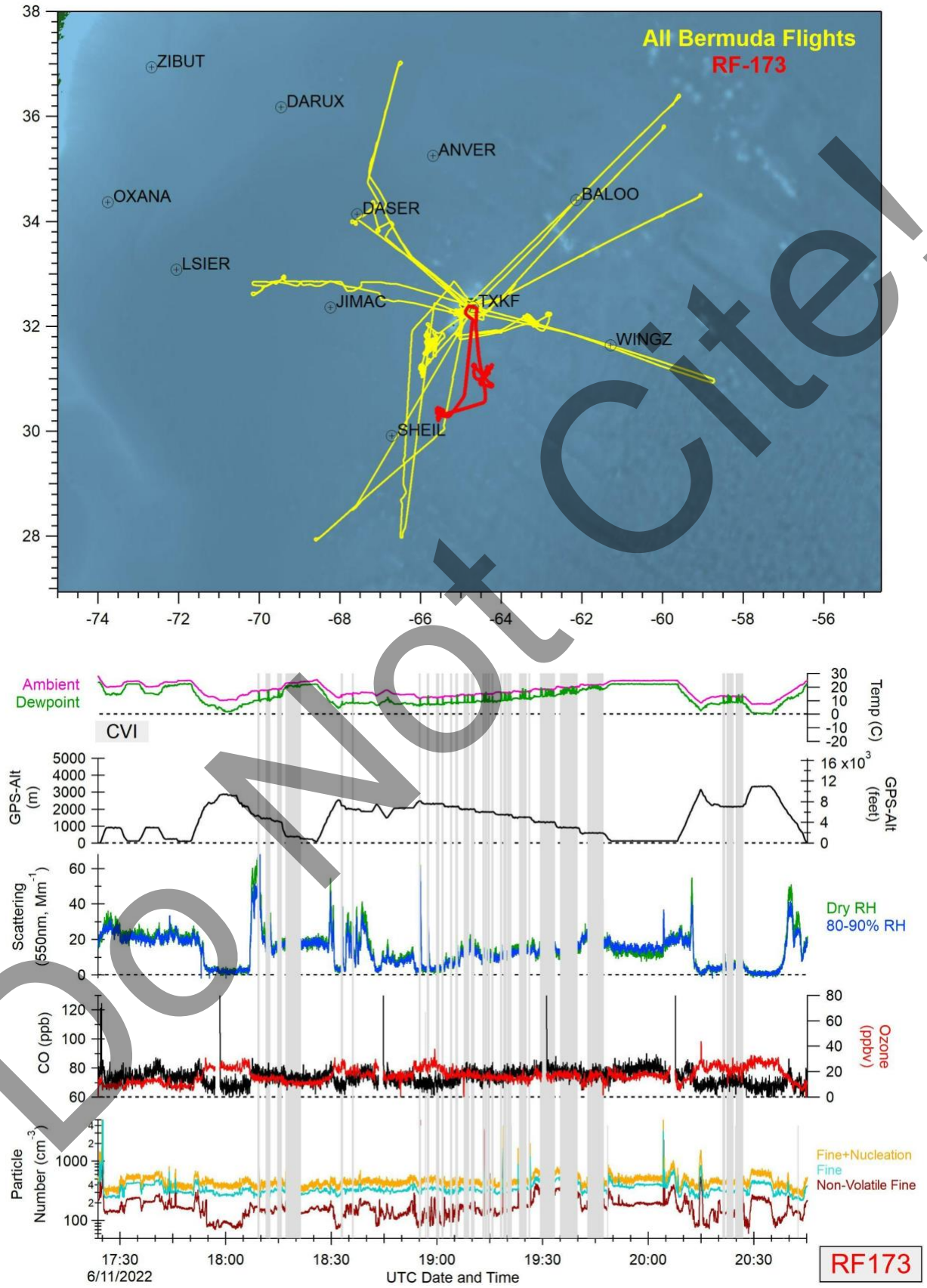
19:52:10 Virus filter A – ON

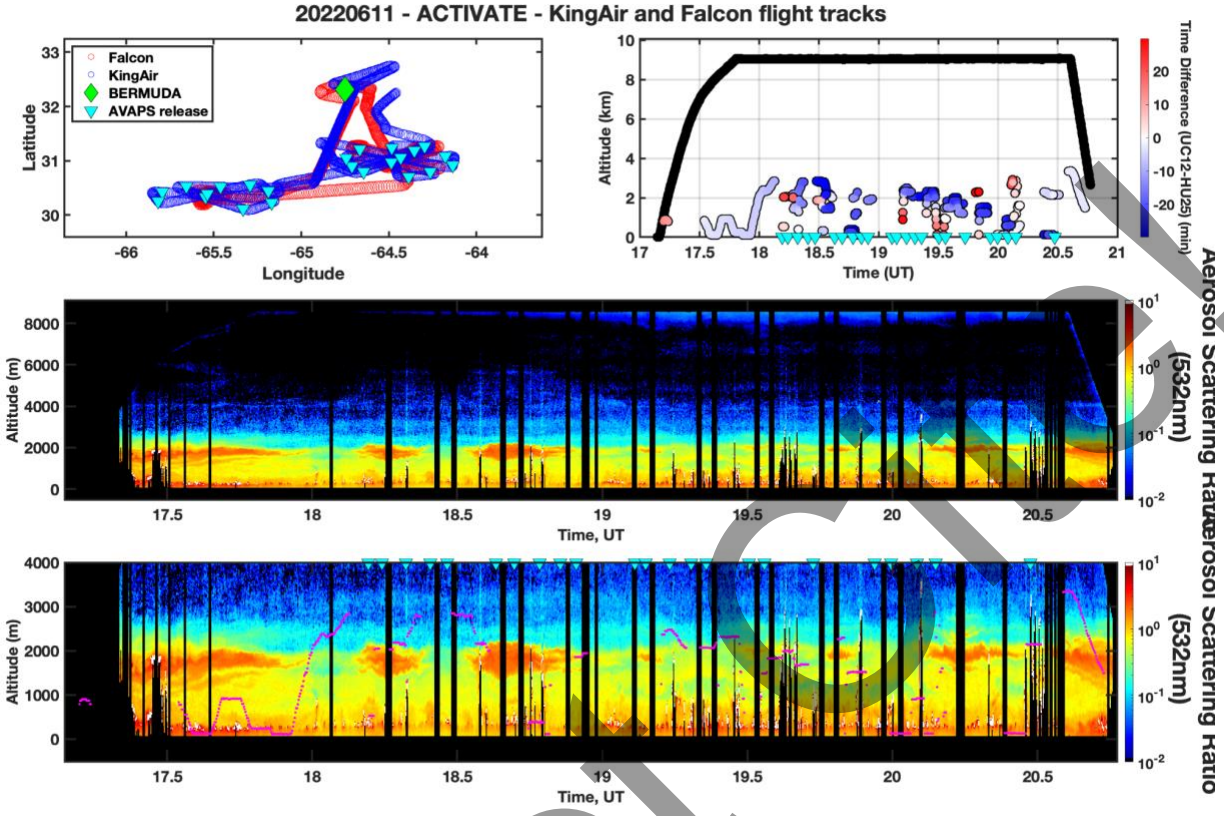
20:08:00 Start spiral up in clear air at 1500 ft/min

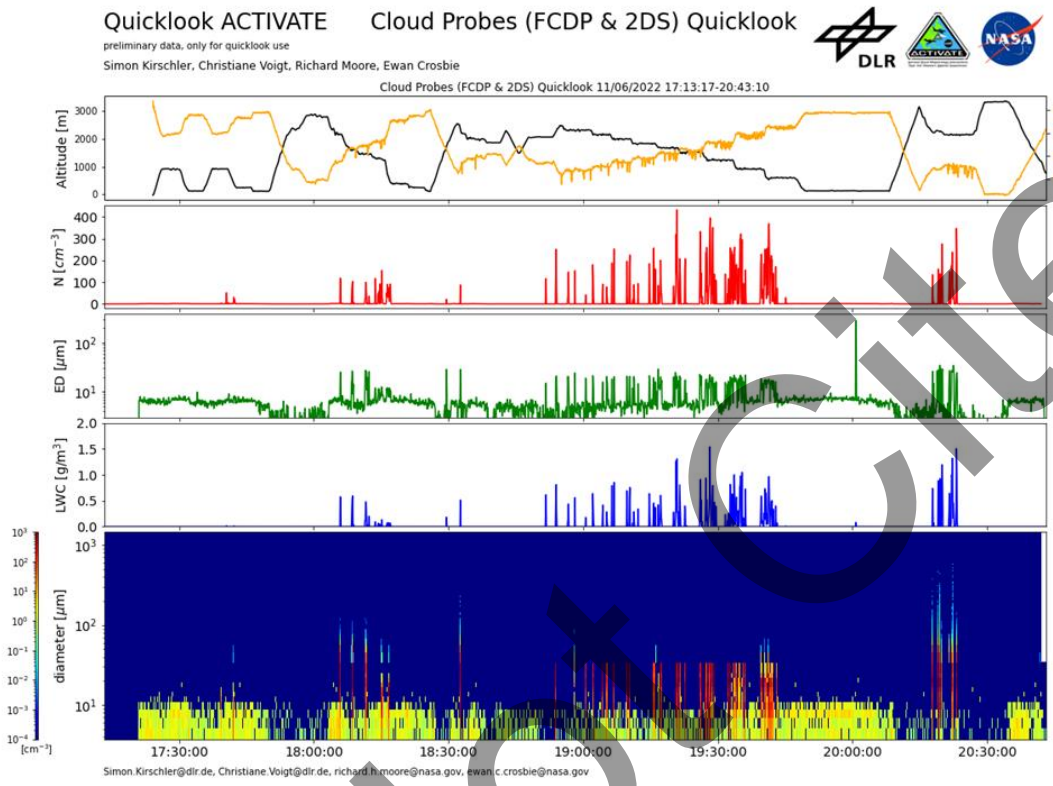
20:16:00 Virus filter A – OFF

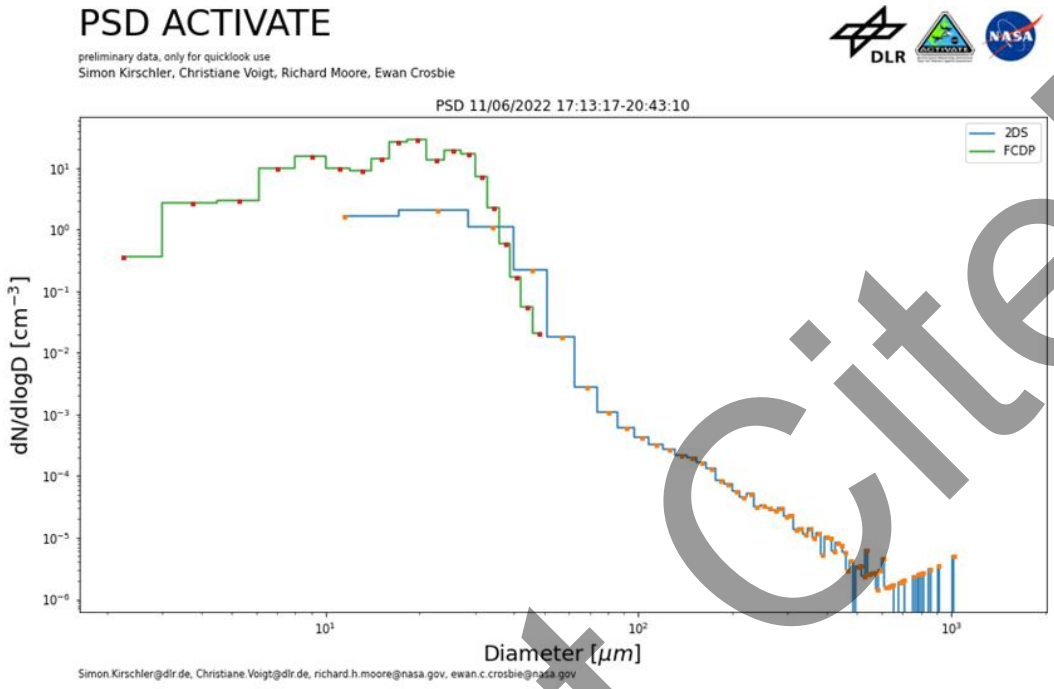
20:40:15 Dust layer at approx. 5200 ft

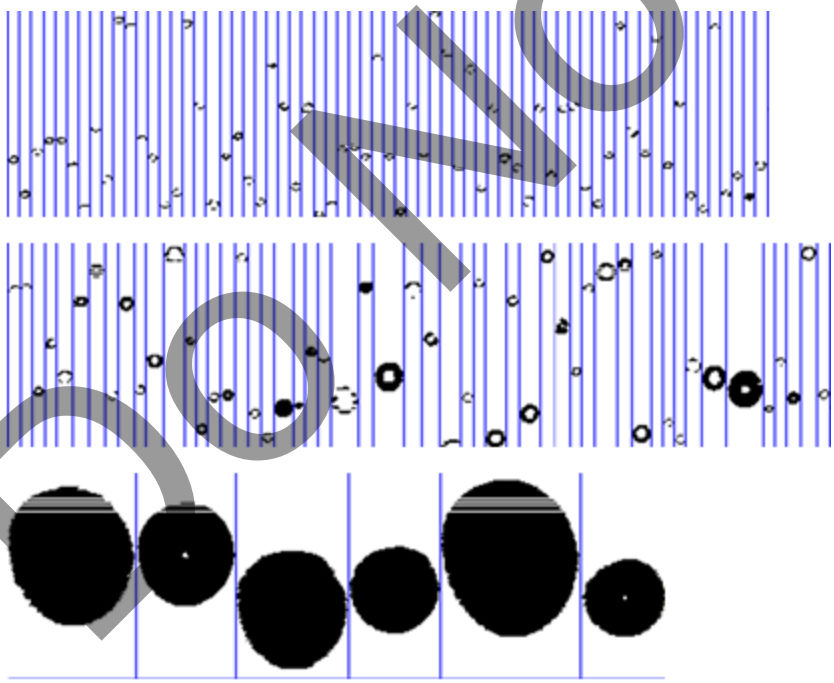
20:44:00 Virus filter B OFF


All Bermuda Flights
RF-173
ZIBUT
DARUX
ANVER
OXANA
DASER
BALOO
LSIER
JIMAC
TXKF
WINGZ
SHEIL
38
36
34
32
30
28
-74
-72
-70
-68
-66
-64
-62
-60
-58
-56
Ambient
Dewpoint
CVI
Temp (C)
GPS-Alt (m)
GPS-Alt (feet)
Scattering (550nm, Mm-1)
Dry RH
80-90% RH
CO (ppb)
Ozone (ppbv)
Particle Number (cm-3)
Fine+Nucleation
Fine
Non-Volatile Fine
17:30
6/11/2022
18:00
18:30
19:00
19:30
20:00
20:30
UTC Date and Time
RF173


20220611 - ACTIVATE - KingAir and Falcon flight tracks
Falcon
KingAir
BERMUDA
AVAPS release
Latitude
Longitude
Altitude (km)
Time (UT)
Time Difference (UC12-HU25) (min)
Altitude (m)
Time, UT
Aerosol Scattering Ratio (532nm)

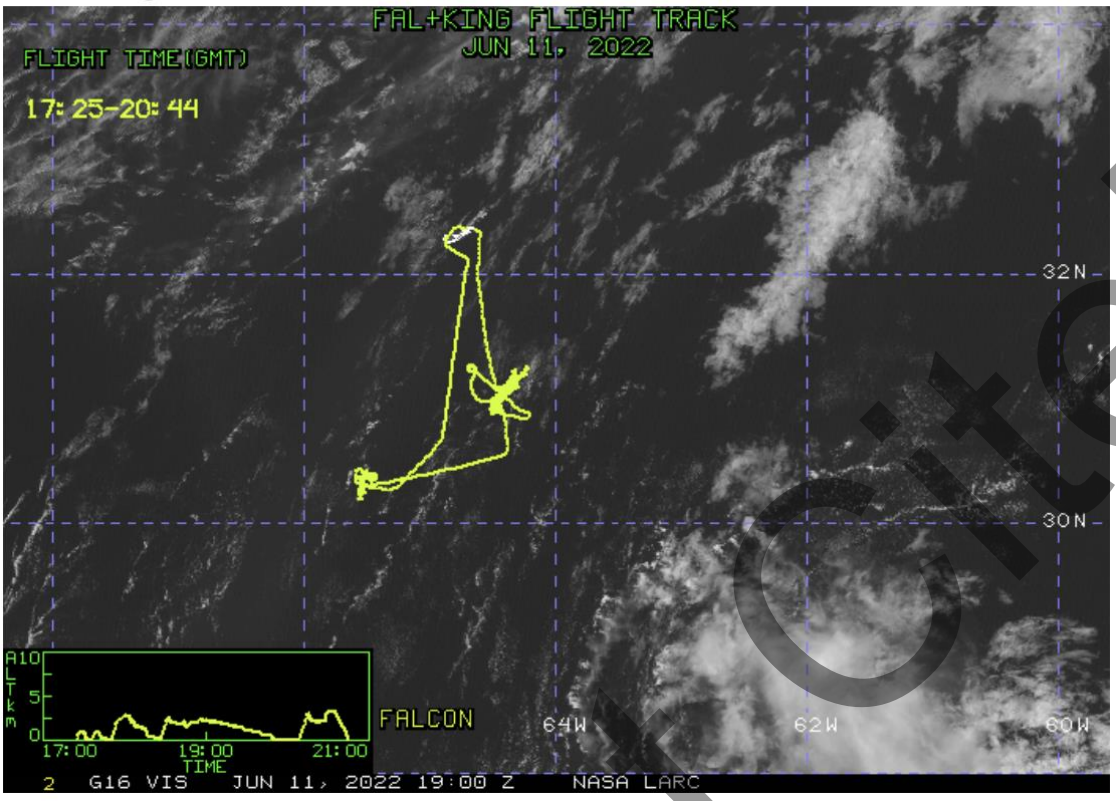

Quicklook ACTIVATE
Cloud Probes (FCDP & 2DS) Quicklook
preliminary data, only for quicklook use
Simon Kirschler, Christiane Voigt, Richard Moore, Ewan Crosbie
Cloud Probes (FCDP & 2DS) Quicklook 11/06/2022 17:13:17-20:43:10
Altitude [m]
Static Temperatur [°C]
N [cm⁻³]
ED [µm]
LWC [g/m³]
diameter [µm]
[cm⁻³]
17:30:00
18:00:00
18:30:00
19:00:00
19:30:00
20:00:00
20:30:00
Simon.Kirschler@dlr.de, Christiane.Voigt@dlr.de, richard.h.moore@nasa.gov, ewan.c.crosbie@nasa.gov



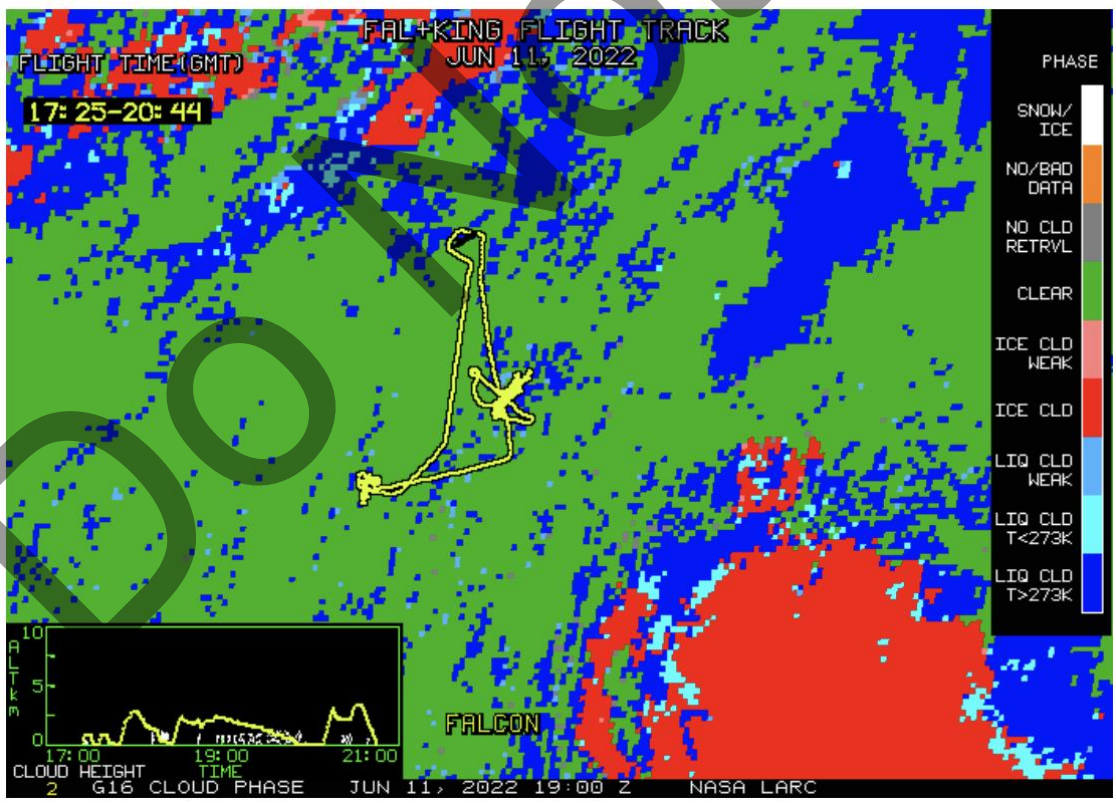


NASA-LaRC Clouds Group GOES-16 Quicklook Images for Flight 173, 19:00 UTC Jun 11, 2022

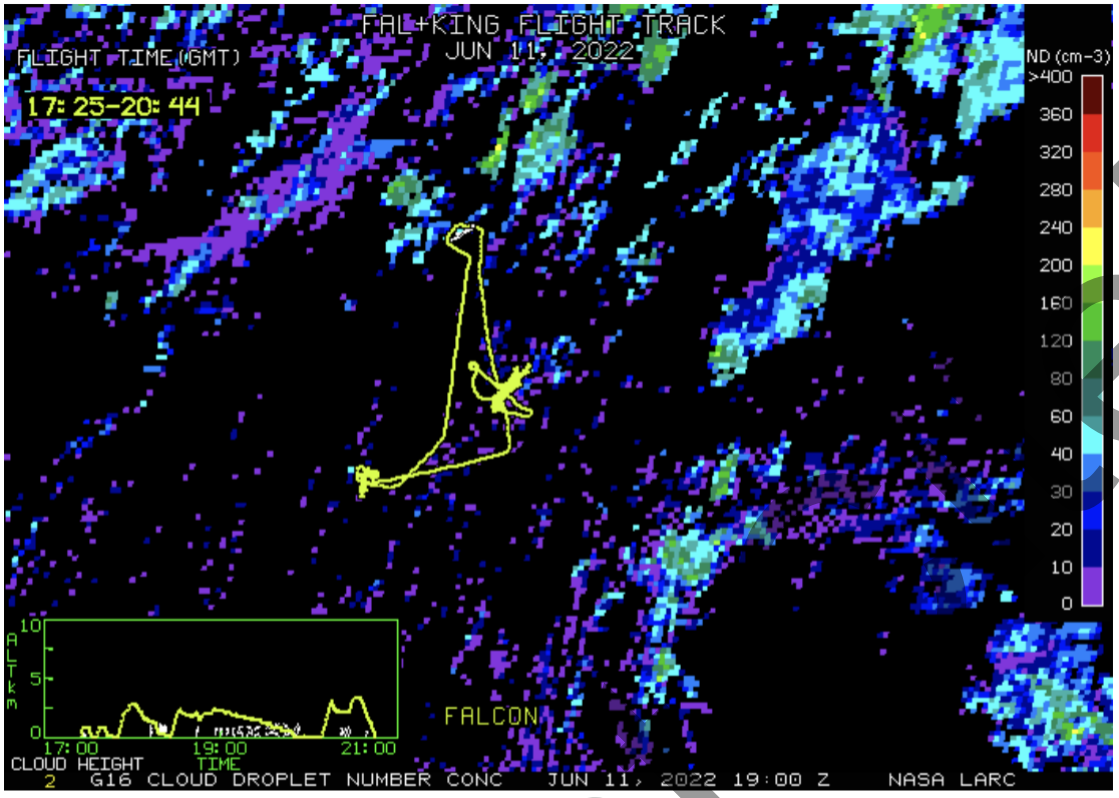
Visible Image



Cloud Phase



Cloud Droplet Number Concentration (cm-3)



Cloud-Top Height (Kft-ASL)