Flight Scientist Report
Wednesday 01/19/2022 ACTIVATE RF108

Flight Type: Statistical Survey Flight
Flight Route: ECG OXANA 3471N OXANA ECG
Special Notes: Second of two flights on this day.

King Air

Pilot report (Wusk):
Afternoon cooperative flight with HU-25. Route of flight: KLFI-ECG-OXANA-N34W71- OXANA-ECG-KLFI. Surface weather clear with winds out of the west favoring KLFI 26 departure for both aircraft. Substantial hold for both due to lots of landing traffic. B200 took off first based on upper wind profile. Uneventful climb on course to FL220 initially. Later climbed to Fl280 to get above some higher clouds as forecast. Positioning with HU-25 was maintained within 10 minutes through duration of science collection, except maybe towards the end of the flight where the strong headwinds held the B200 back. Dropsondes deployed as planned. Maintained FL280 until final dropsonde release off Outer banks then descent for recovery. Uneventful Visual approach to r/w 26.

Flight scientist report (Harper):

Takeoff: 18:35:11utc

B200/HU25 coordination

Outbound leg: perfect, within 1min for entire leg

Inbound leg: B200 trailing by two min at beginning of leg. Less than 4min for remainder of flight.

Sonde 1: 19:40:05utc at OXANA

Sonde 2: 20:09:35utc at East turnaround point.

Sonde 3: 20:33:25utc midway between turnaround point and OXANA

Sonde 4: at 12mile coastal boundary

Landing: 21:59:45utc

Instrument Status

HSRL2: no issues

AVAPS: no issues

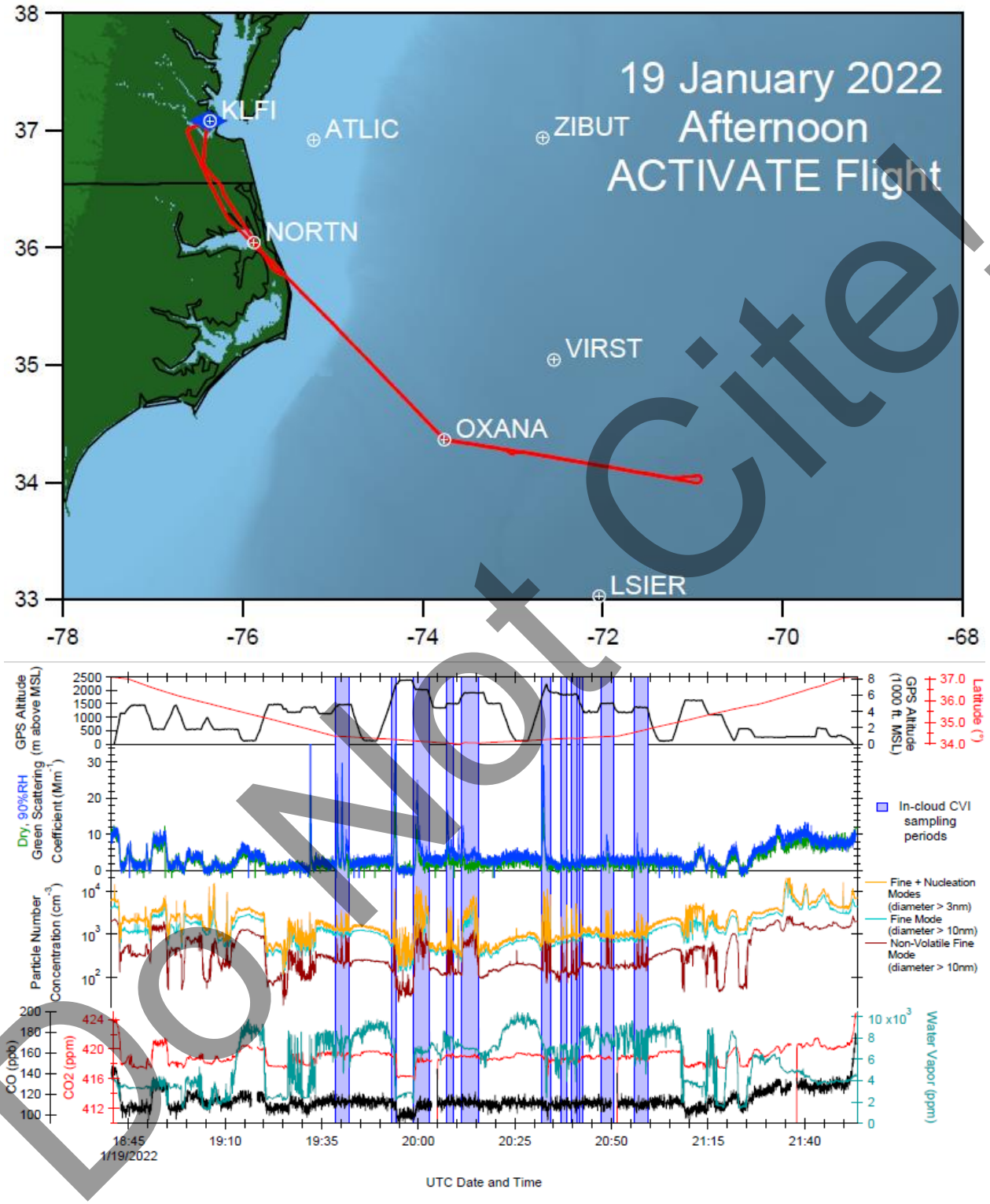
RSP: no issues

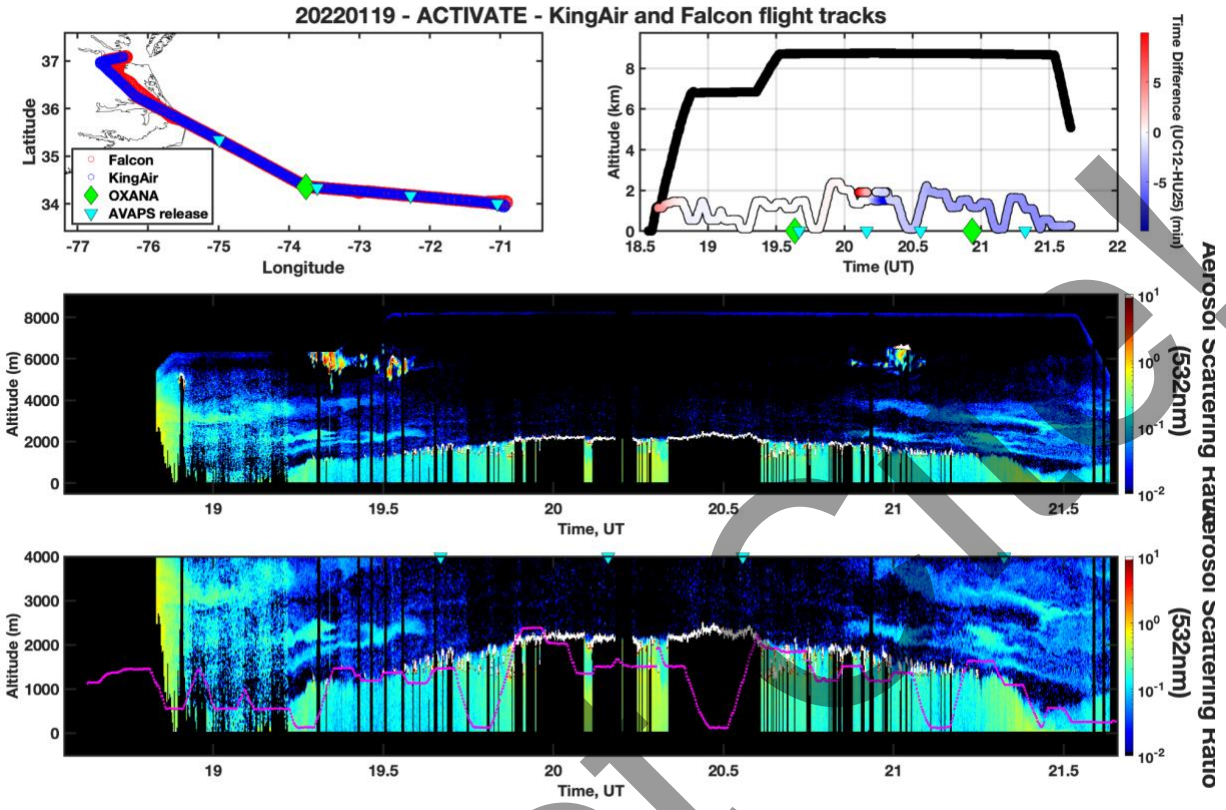
Satcom: Not operational. Issues from previous flight.

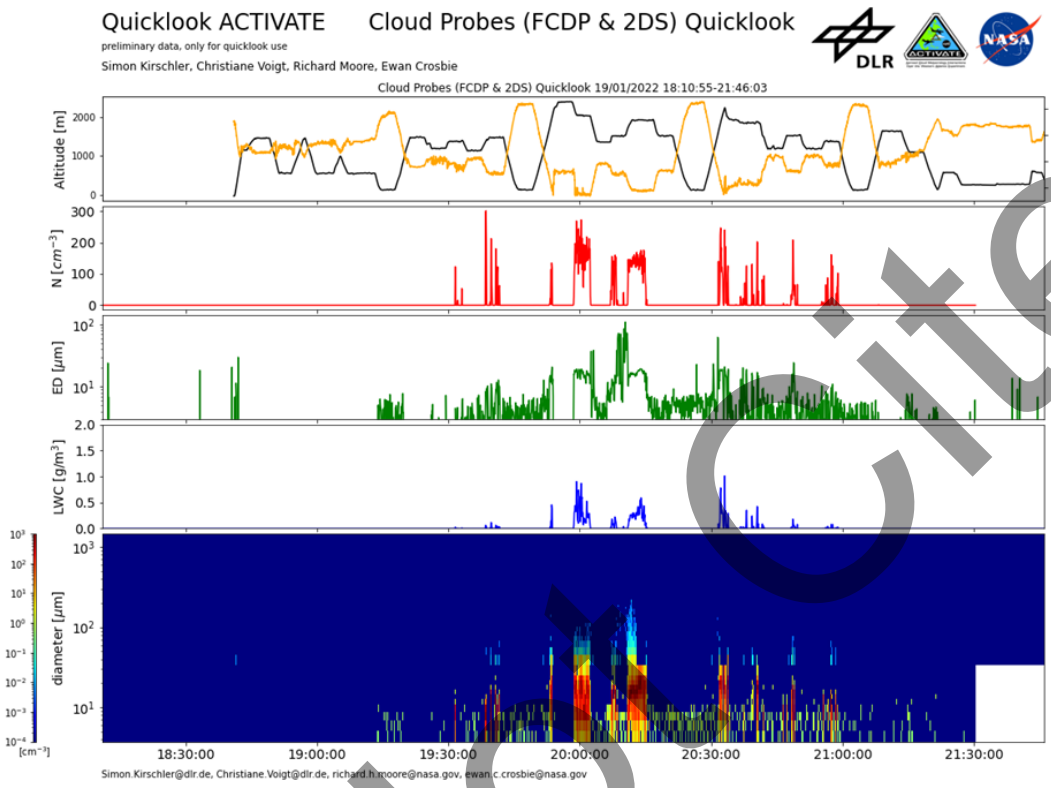
Falcon

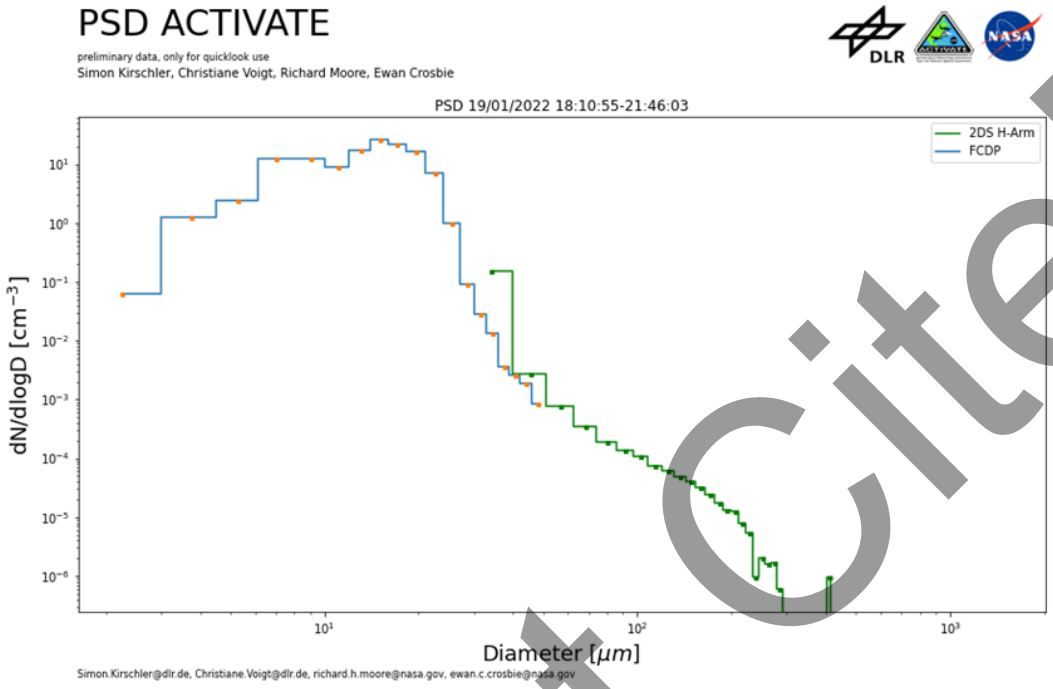
Pilot report (Slover):
Statistical survey mission flown as planned from KLFI ECG OXANA 3471N OXANA ECG KLFI. Clouds up to about 8500' MSL and min alt down to 500' AGL. All profile elements (BCB, ACB, BCT, ACT, min alt) flown multiple times. Temperatures warmer than morning sortie, no icing present.

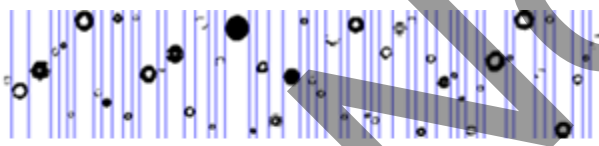
Flight scientist report (Crosbie):
Stat survey, OXANA then east. Clear conditions over land (with the exception of some alto/cirrus aloft. Mostly clear towards OXANA with ShCu forming in some patches. The cloud remained scattered for some time. High cloud base ~4500 ft. Further east the clouds started to spread out near an inversion 6000-7000ft with increasing cloud fraction. This region had features similar to the morning flight with perhaps less widespread precipitation, at least initially. A thicker cloud region was sampled near the far turn point which comprised Cu feeding the upper stratiform deck.


19 January 2022
Afternoon
ACTIVATE Flight
KLFI
ATLIC
ZIBUT
NORTN
VIRST
OXANA
LSIER
38
37
36
35
34
33
-78
-76
-74
-72
-70
-68
GPS Altitude (m above MSL)
GPS Altitude (1000 ft. MSL)
Latitude (°)
Dry, 90%RH Green Scattering Coefficient (Mm-1)
In-cloud CVI sampling periods
Particle Number Concentration (cm-3)
Fine + Nucleation Modes (diameter > 3nm)
Fine Mode (diameter > 10nm)
Non-Volatile Fine Mode (diameter > 10nm)
CO (ppb)
CO2 (ppm)
Water Vapor (ppm)
18:45
1/19/2022
19:10
19:35
20:00
20:25
20:50
21:15
21:40
UTC Date and Time


20220119 - ACTIVATE - KingAir and Falcon flight tracks
Latitude
Longitude
Falcon
KingAir
OXANA
AVAPS release
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 19/01/2022 18:10:55-21:46:03
Altitude [m]
Static Temperatur [°C]
N [cm⁻³]
ED [µm]
LWC [g/m³]
diameter [µm]
[cm⁻³]
18:30:00
19:00:00
19:30:00
20:00:00
20:30:00
21:00:00
21:30:00
Simon.Kirschler@dlr.de, Christiane.Voigt@dlr.de, richard.h.moore@nasa.gov, ewan.c.crosbie@nasa.gov

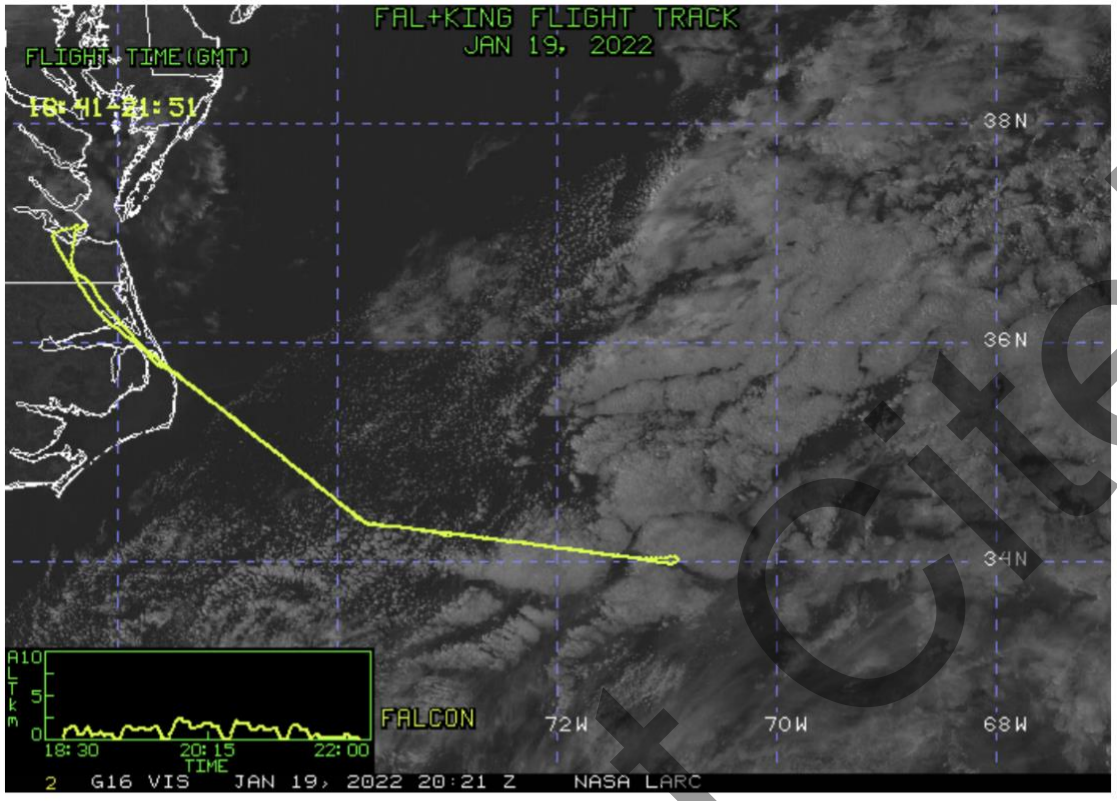




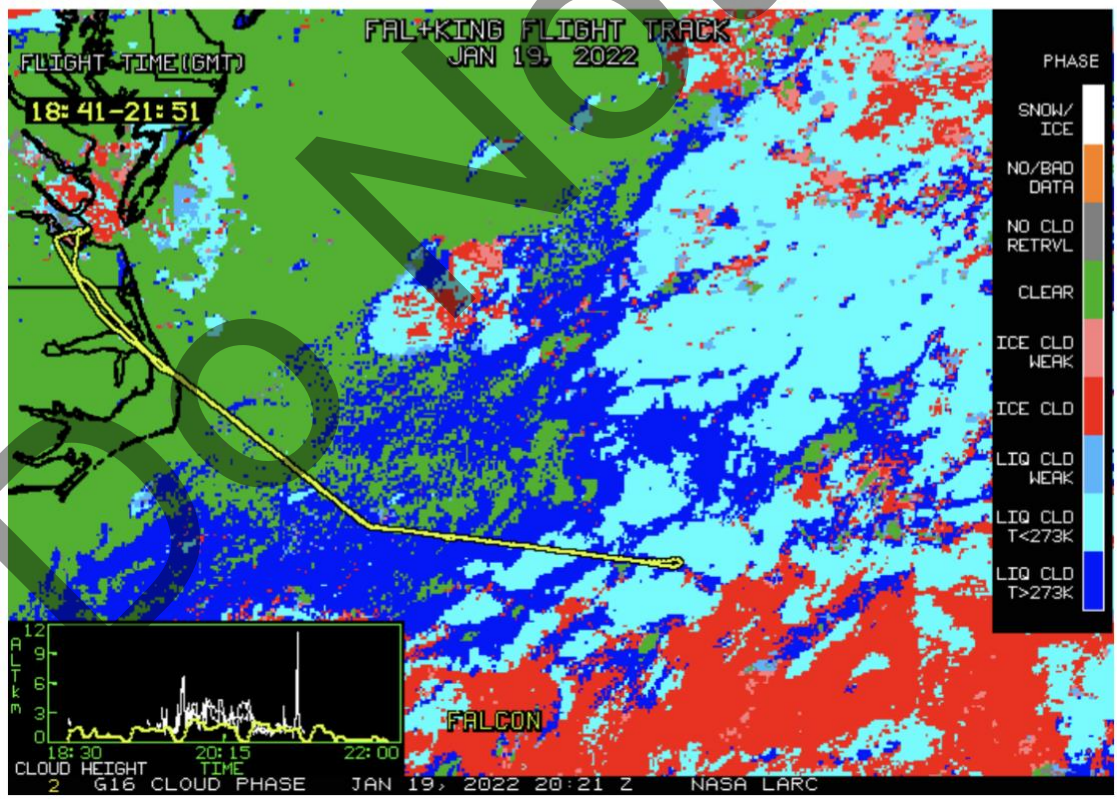
Pure liquid clouds and no precip.

NASA-LaRC Clouds Group GOES-16 Quicklook Images for Flight 108, 20:21 UTC Jan 19, 2022

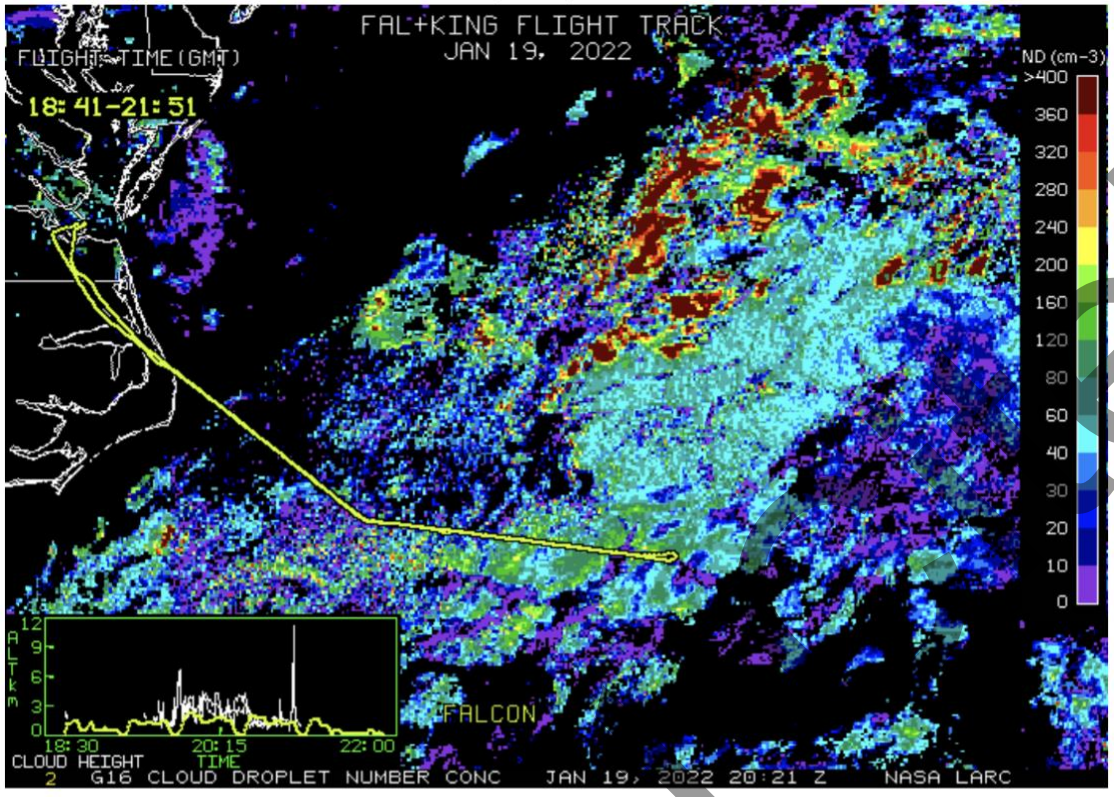
Visible Image



Cloud Phase



Cloud Droplet Number Concentration (cm-3)



Cloud-Top Height (Kft-ASL)