

Flight Scientist Report
Thursday 6/17/2021 ACTIVATE RF85

Flight Type: Statistical Survey Flight & ASTER underflight

Flight Route: KLFI ECG OXANA 3515N07315W (overflight lat/long for ASTER Track thru W-72)CROAK ATLIC KLFI

Special Notes: Non-spherical particles seen similar to RF84 near coast and drizzle over the ocean.

King Air

Pilot report (Wusk):

Takeoff (Z): 1430 / Land: 1730

3.0 hours

UC-12 single flight day; cooperative flight with the HU-25. Planned route: KLFI ECG OXANA 3515N07315W (overflight lat/long for ASTOR Track thru W-72)CROAK ATLIC KLFI with overflight of LFI. UC12 Takeoff from runway 08 after HU-25. Uneventful departure and climb to FL280. Approaching the end of AR-8 Giant Killer cleared us into W-72. Both aircraft did some minor maneuvering to get established on the satellite track and for timing. At sat overpass (1545 Z) the aircraft were within 2 nm of each other and 30 sec of the proposed point. Cloud conditions at the overpass were clear overhead.

After sat overpass, the UC-12 attempted to remain coincident over the HU as they hunted for clouds on a SB offset track then reversing again to the north.

This leg was carried north and eventually aligned with a direct to CROAK exit of W-72.

Exiting W72 the UC12 proceeded WB to ATLIC for the final sonde drop and the descent into Langley. ATC vectors for a visual approach to Runway 26. General coincidence was maintained within 10 minutes. Normal landing at KLFI runway 26. 4x dropsondes deployed; W72 entry, overpass, W-72 exit, ATLIC. Crew was Jamison, Wusk, Seaman.

Flight scientist report (Seaman):

Approx. takeoff: 10:30 EST

Approx. landing: 13:29 EST

Summary: Single sortie on the UC12 was a **statistical survey** joint flight with the HU25 Falcon with an ASTER overpass.

Flight plan: KLFI ECG OXANA (points A B C A along ASTER track) OXANA ECG KLFI

Notes: A raster pattern was done just off of the ASTER track to chase clouds while out there.

QNC(s): Shane Seaman was the operator for HSRL-2, RSP, the cameras, and the sondes.

HSRL-2: nominal operation.

RSP: nominal operation.

Cameras: nominal operation.

Sondes: A total of 4 sondes were dropped.

Falcon

Pilot report (Baxley):

3.2 hrs

Science flight for the HU-25 in support of ACTIVATE Campaign #4, conducted cooperatively with the UC-12. Route of flight KFLI-ECG-OXANA-3435.12N/07325.13W-34444.08N/07322.49W-3515.00N/07315W-3638.16N/07252.39W-CROAK-ATLIC-KLFI. Departed Rwy08 direct to ATLIC climbing to 5k ft MSL for initial transit, with a left 3000 turn to proceed towards ECG. Clear modules were commenced once in international airspace southeast of ECG. Winds were light (<15 kts) out of the north and west throughout the flight, with distinct areas of clear air and defined cloud formations. Coordination with the UC-12 was always within 10 miles, and less than 2 miles at the satellite underpass point. Two additional tracks parallel to the satellite underpass were made (15 nm east and 20 nm east) to obtain more cloud sampling data. Both takeoff and landing were delayed by approximately 15 minutes due to arriving/departing traffic at KLFI. All objectives were achieved and with no discrepancies noted. Pilots: Baxley/Delaney QNCs: Crosbie/Winstead

Flight scientist report (Crosbie):

Main focus of the flight was the ASTER overpass coordination. Transit out towards OXANA was conducted above the boundary layer. Once over water a MIN leg was conducted before switching to the cloudy module. There was a small region of cloud that looked to be organized into a line which was sampled during this time. The 2 ACB legs were run back-to-back since we were expecting the cloudy area to be short lived. Once entering W72 for the ASTER work, we set up for the over pass and focused the altitude on a ACB/MEAT to try and capture as much in cloud data as possible. The decision was made to conduct 2x 15min reverse headings to use the additional time available. These reverse legs were offset to the east to try and capture some more cloud time in the vicinity of the ASTER pass for additional contextual data. The third leg was not able to be conducted parallel to the other legs because of the boundary of W72 which we could not pass in and out of. Once complete we reverted to the standard module. The clouds were very sparse in the northern section of W72 and non-existent beyond. We reverted to the clear modules for the inbound leg.

Eddie:

14:28:35 Takeoff

14:30:45 Sample Filter A – ON; Filter B will remain off and be used as a blank.

14:39 APU turned off so aircraft speed can be increased to make up time because of delay in takeoff due to air force launching aircraft. Need to be under Astor track at correct time.

14:49 APU back on to get additional cabin cooling

14:59 Feet wet

15:12:50 Sample Filter A – OFF; Approaching cloud encounter

15:16 No CVI flow; CVI flows turned on

15:23:00 Sample filter A – ON

15:24:30 Sample filter A – OFF

15:33:25 Sample filter A – ON

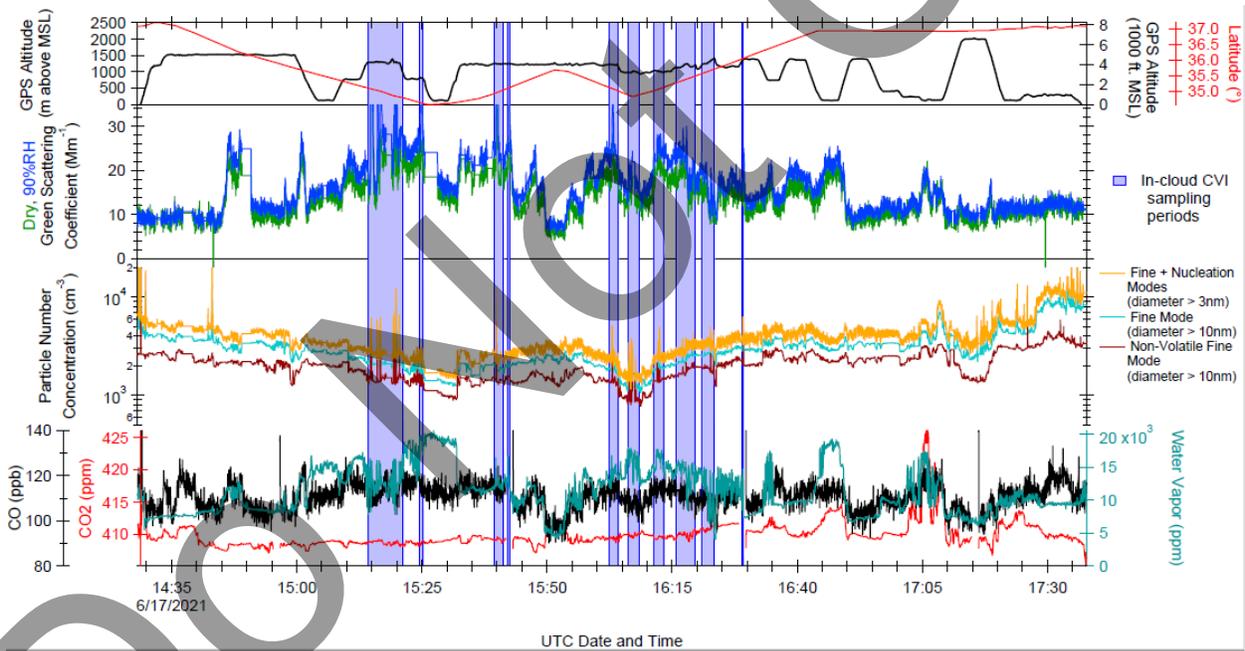
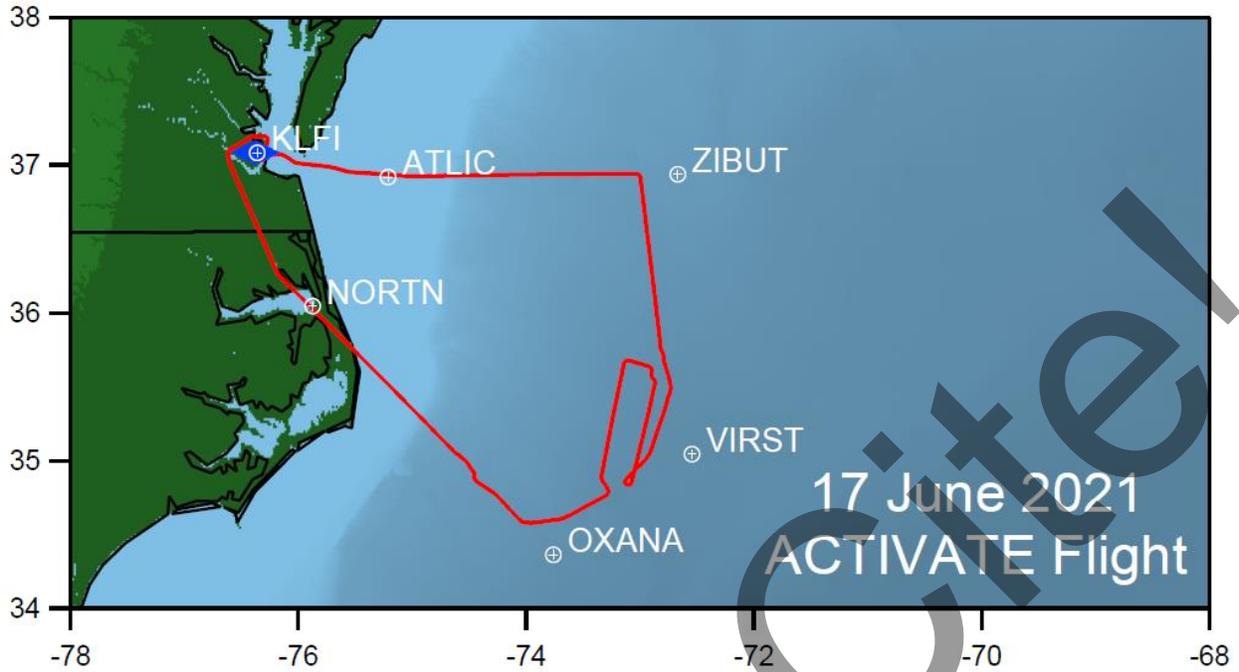
15:37:30 Sample filter A – OFF

16:40:30 Sample filter A – ON

17:24:15 Sample filter A – OFF; Humidifier & WCM turned off in preparation for landing

In holding pattern while air force aircraft land

17:37:00 Landing



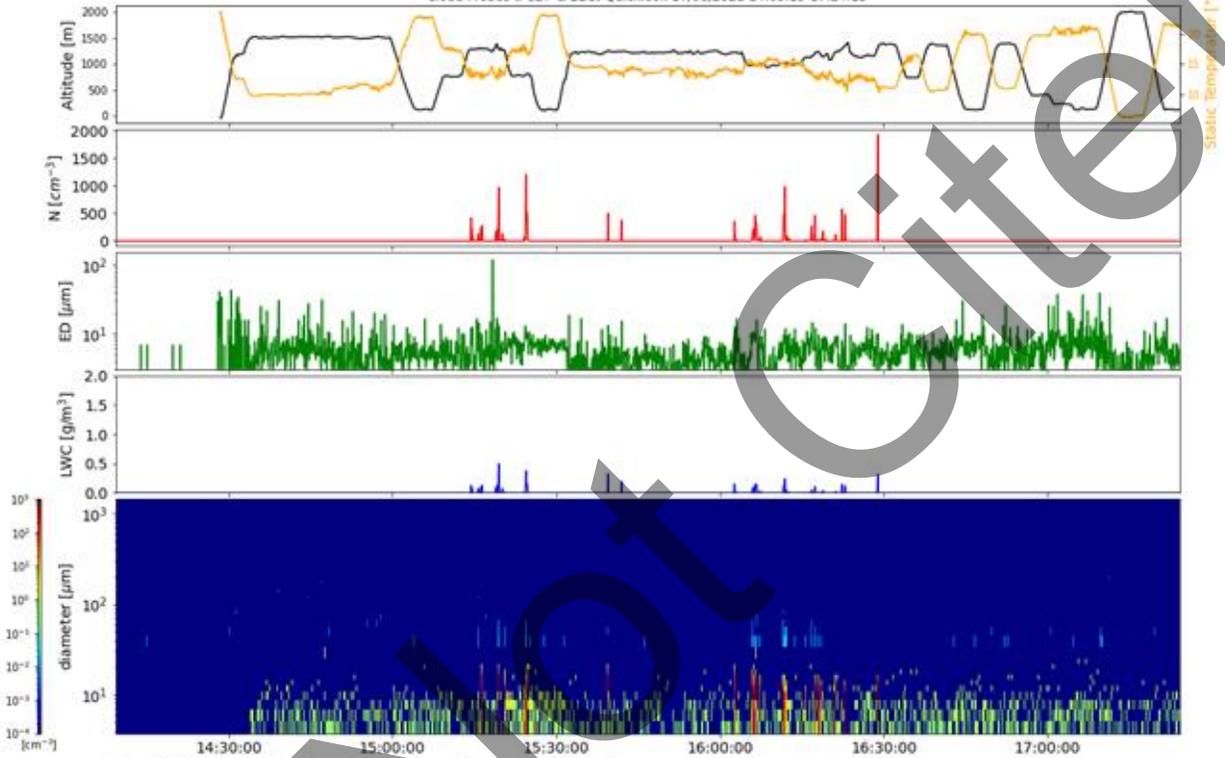
Quicklook ACTIVATE Cloud Probes (FCDP & 2DS) Quicklook

preliminary data, only for quicklook use

Simon Kirschler, Christiane Voigt, Richard Moore, Ewan Crosbie



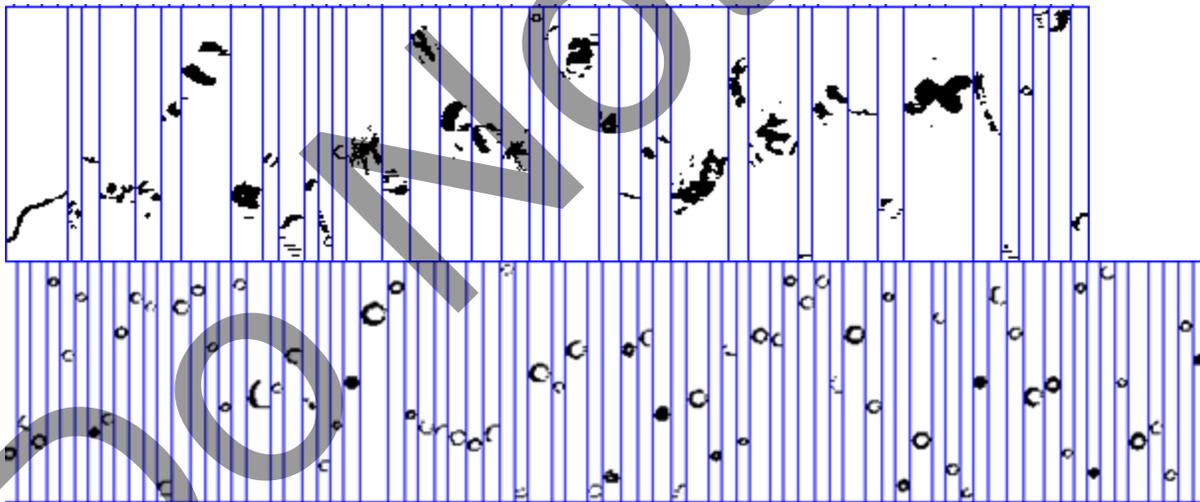
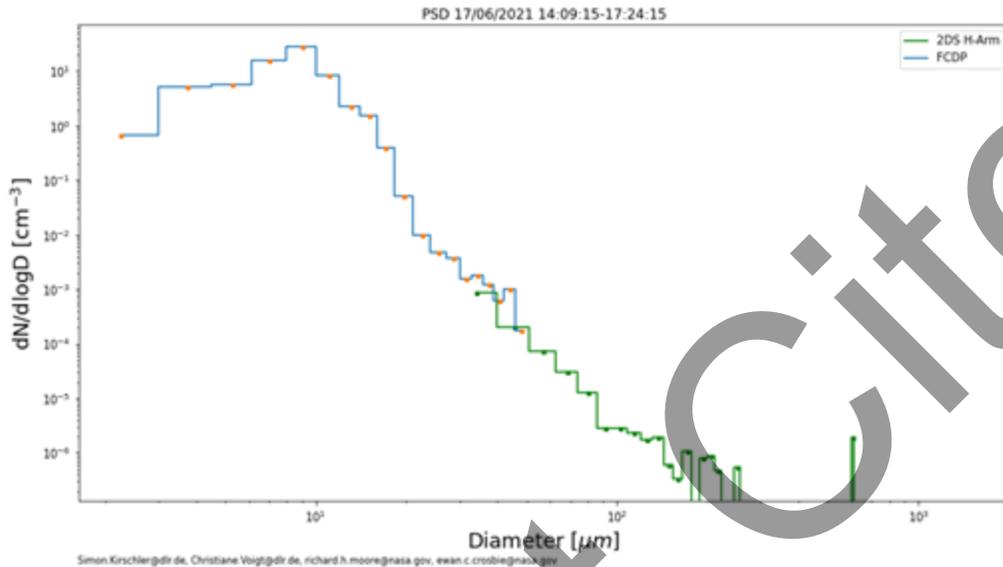
Cloud Probes (FCDP & 2DS) Quicklook 17/06/2021 14:09:15-17:24:15



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PSD ACTIVATE

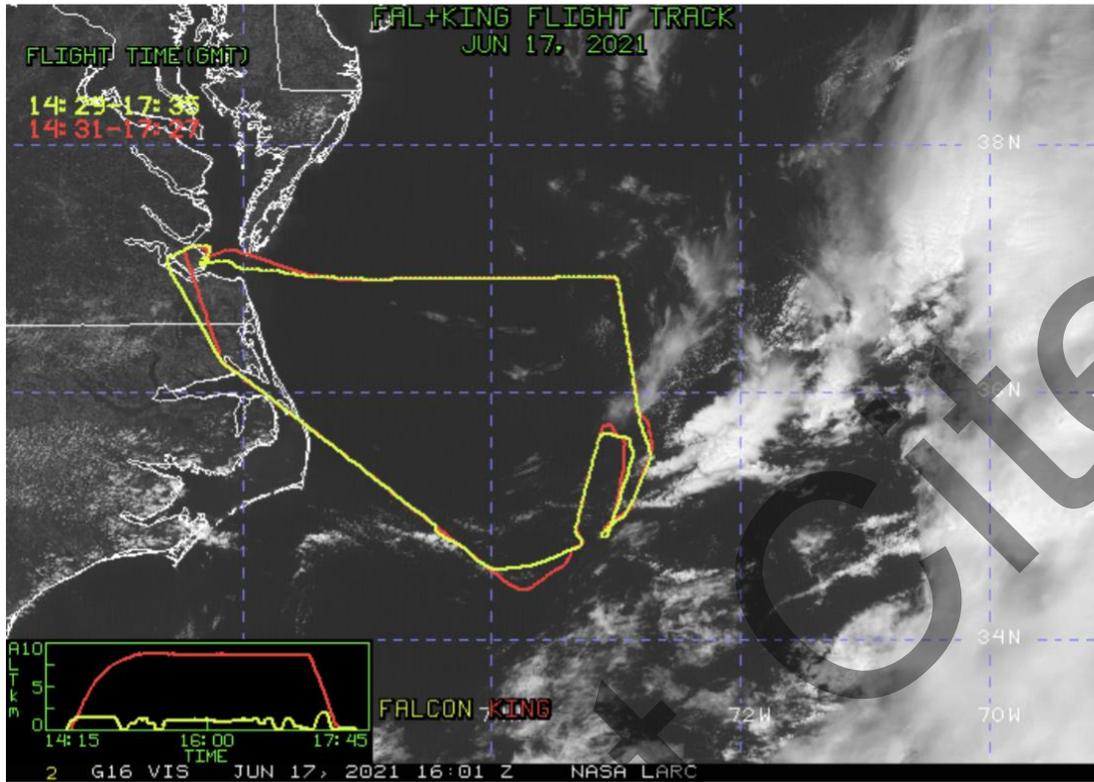
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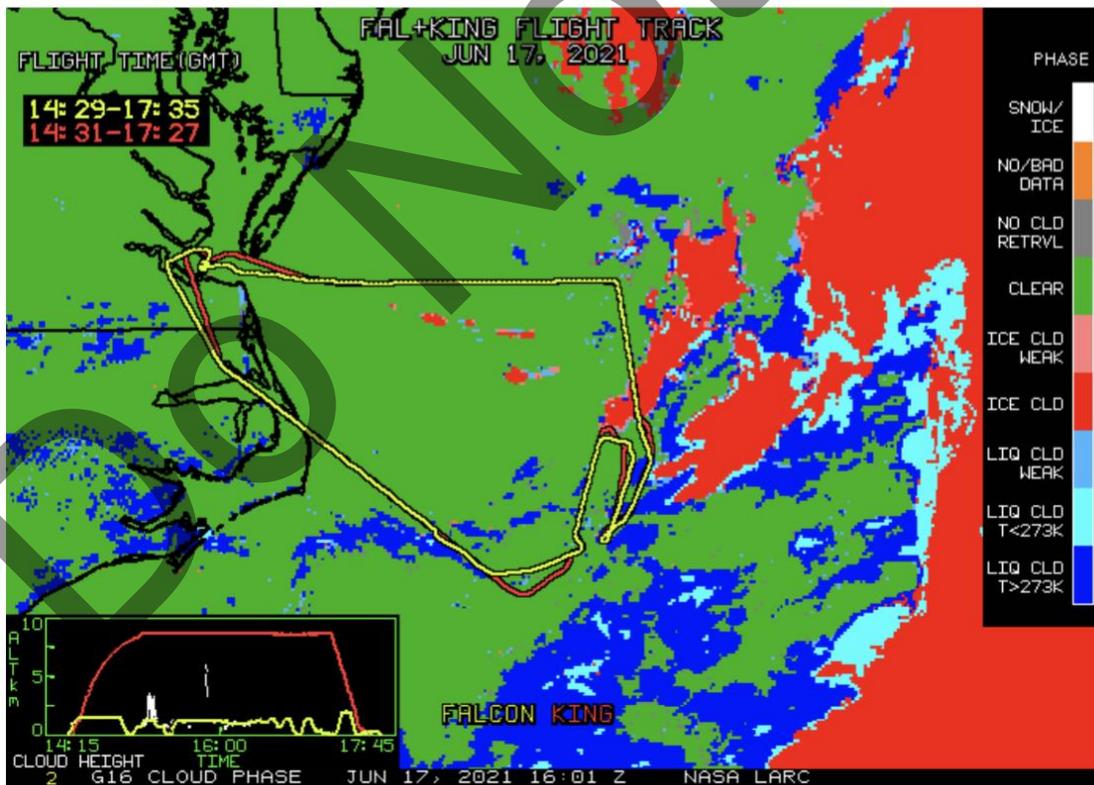
Non-spherical particles seen in the beginning and end of flight and drizzle at ~15:24.

NASA-LaRC Clouds Group GOES-16 Quicklook Images for Flight 85, 16:01 UTC Jun 17, 2021

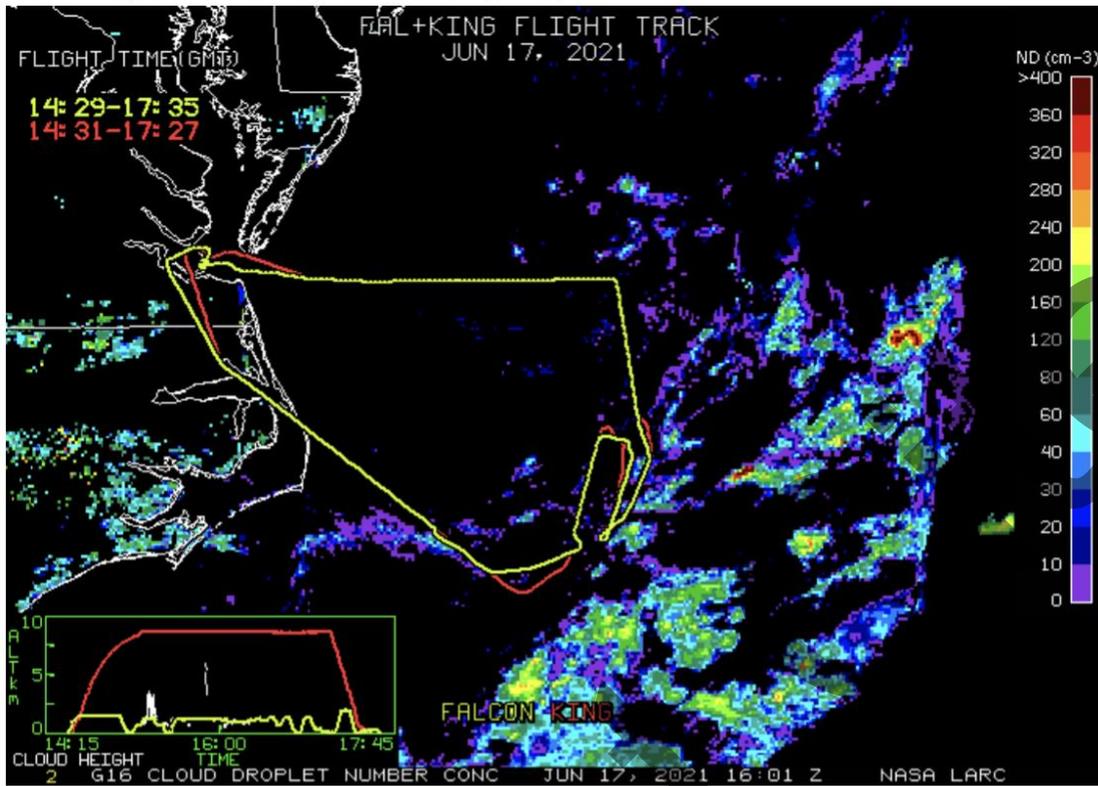
Visible Image



Cloud Phase



Cloud Droplet Number Concentration (cm-3)



Cloud-Top Height (Kft-ASL)

