Flight Scientist Report
Wednesday 01/27/2021 ACTIVATE RF41

Flight Type: Part Instrument Check Flight (ICF) and Part Science Flight
Flight Route: KLFI ZAPOM LYNUS OHRYN LYNUS ZAPOM KLFI
Special Notes: The Falcon aimed to first test a few instrument-related issues by staying at high altitude (20,000 ft) for 40 min preferably in clear air. After that was done, then the aircraft would focus on statistical surveying for science. It was decided after the flight that there was sufficient good science done to call this an actual science flight with data to be archived.

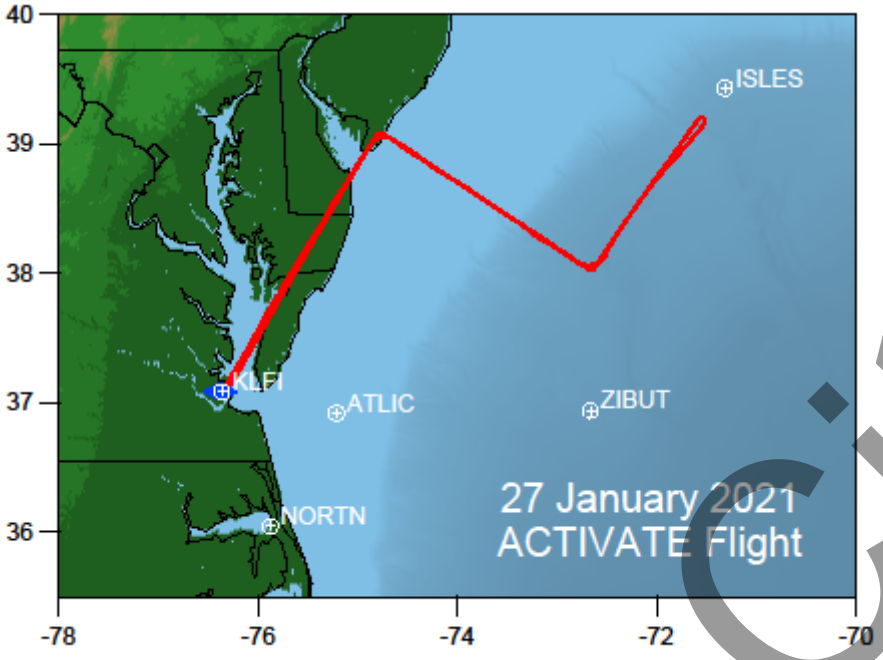
King Air
No Flight as this plane is awaiting its own check flight hopefully tomorrow. This week only one plane can fly at a time unfortunately anyways due to pilot staffing issues.

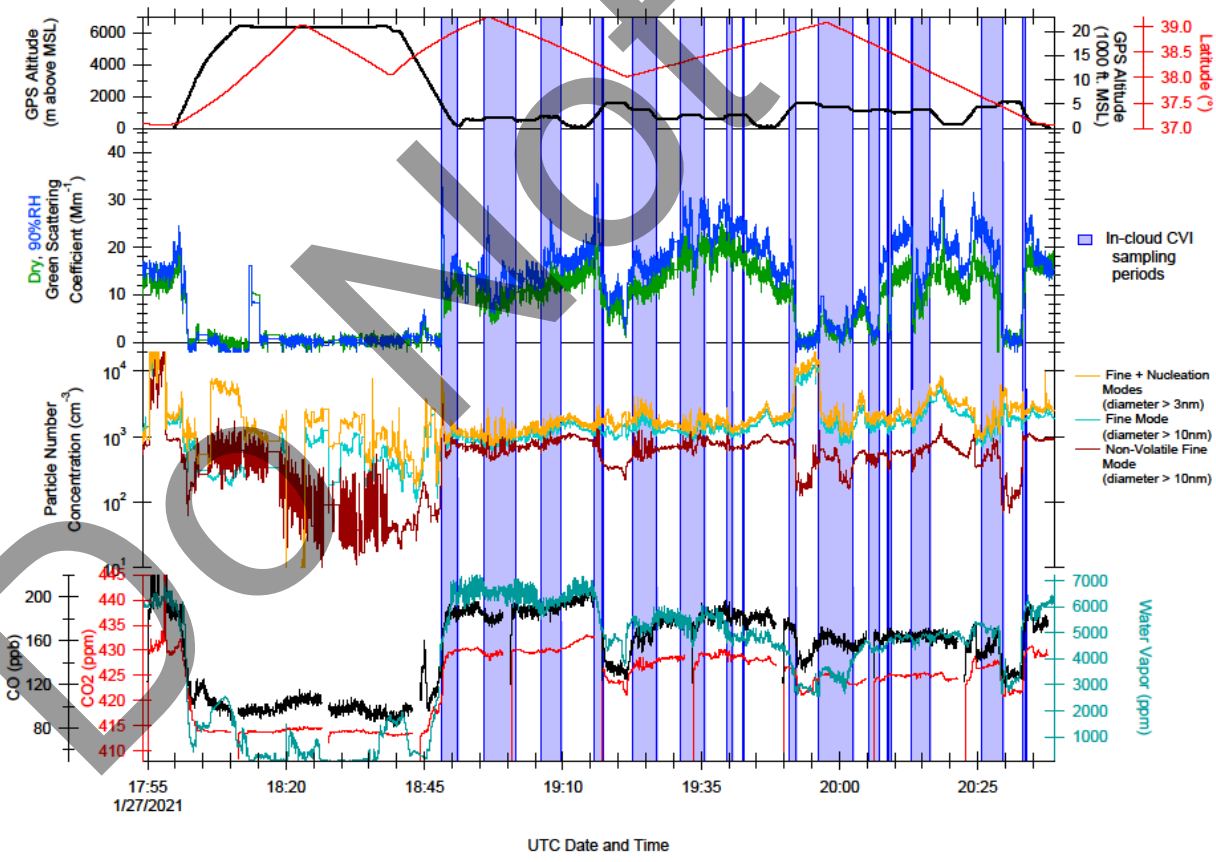
Falcon
Pilot report from Luke Delaney:
We managed to get out a good flight today, after some minor pilot-induced power transients during start-up. No issues with aircraft, and Ewan seemed content with the system performance and data collection effort. Here is a synopsis of the flight report:

This flight was executed as a single-ship for In Situ data collection and further validation of the instrumentation. It was conducted offshore within the New York center FIR boundary, at altitudes ranging from 500 ft AGL to 20,000 ft MSL. The upper altitude portion was for ozone sensor functional assessment and was approximately 40 minutes in duration. Several target airspeeds were also attained during high altitude transit (~245 KIAS - 292 KIAS) for verification of steady-state system parameters. In and out of cloud data was collected for the remainder of flight, targeting slightly above/below/within boundary layer conditions during 3 minute level-flight iterations. These terminated with minimum altitude runs before commencing additional cycles of data collection. The predominant cloud layer was located between 2,500 ft and 5,500 ft MSL throughout the flight. All objectives were achieved and no system discrepancies were noted.

Ewan: We completed 3 full standard cloudy modules. The met/wx conditions were certainly good ACTIVATE conditions. Instruments mostly seemed fine.

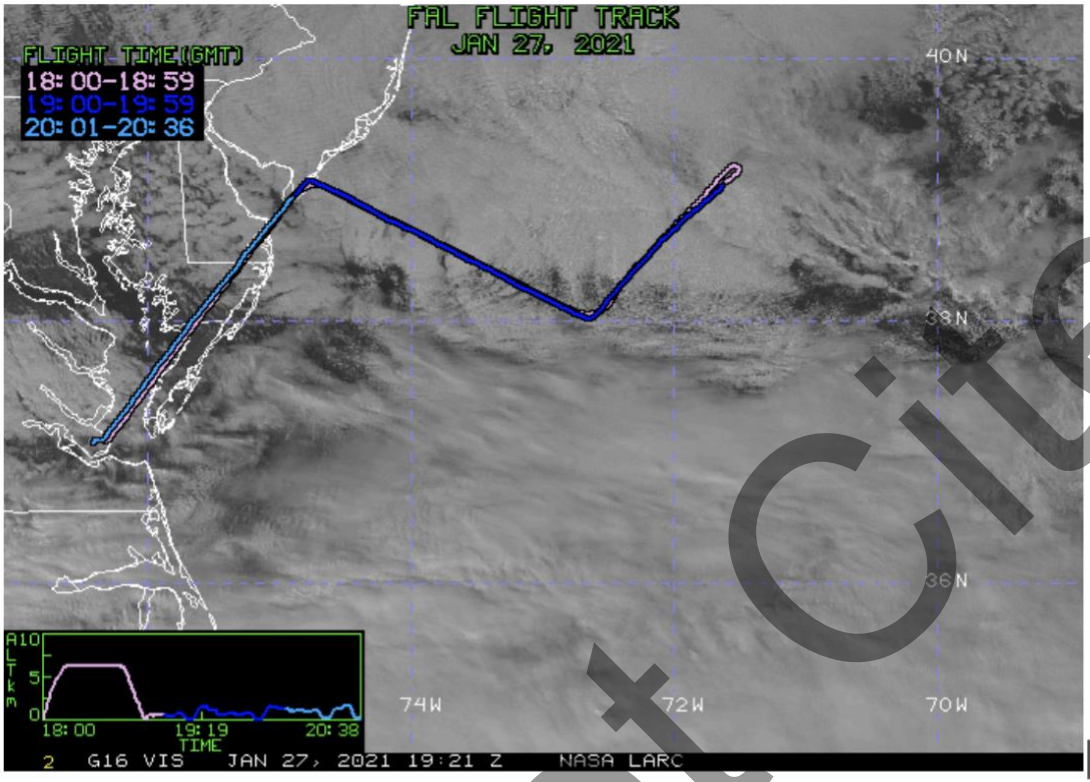
Rich Moore Quicklook Images:



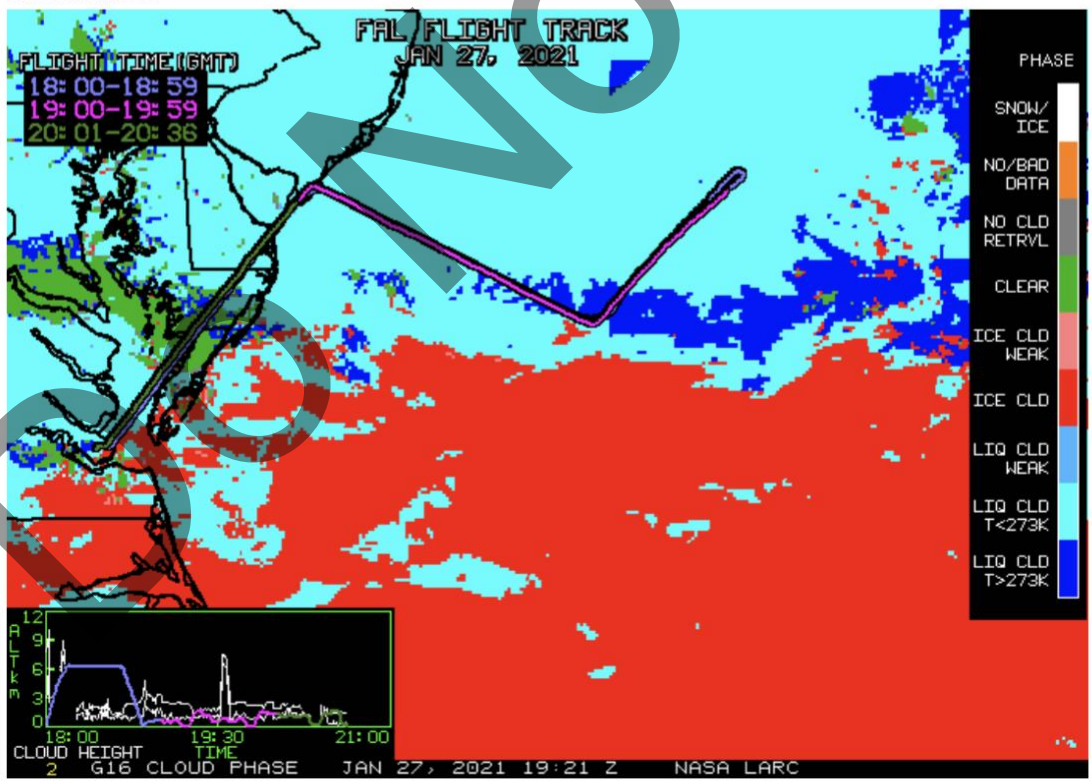


NASA-LaRC Clouds Group GOES-16 Quicklook Images for Flight 41, 19:21 UTC Jan 27, 2021

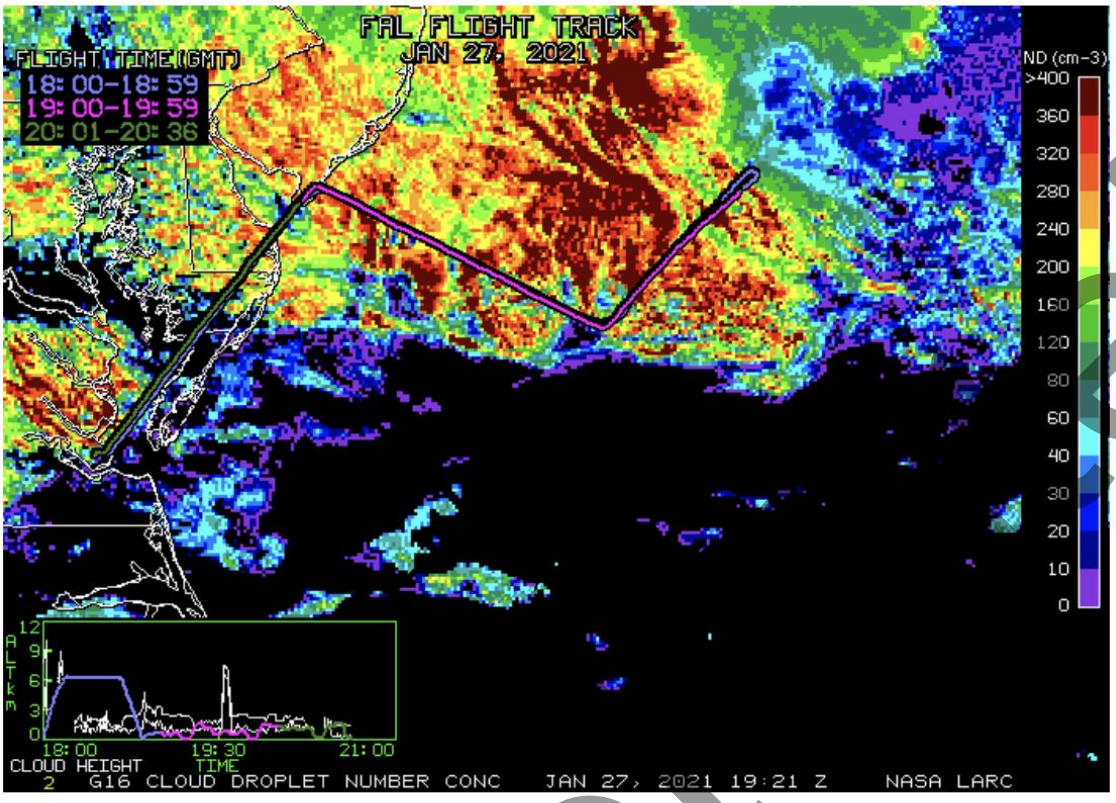
Visible Image



Cloud Phase



Cloud Droplet Number Concentration (cm-3)



Cloud-Top Height (Kft-ASL)