

Flight Scientist Report  
Wednesday 5/26/2021 ACTIVATE RF73

Flight Type: Statistical Survey Flight  
Flight Route: ATLIC-ZIBUT-N3700/W06900-ZIBUT-ATLIC  
Special Notes:

### **King Air**

Pilot report (Jamison):

Science flight for the UC-12 in support of ACTIVATE, conducted cooperatively with the HU-25. Two flight day. Departed Rwy 08, VFR departure direct to ATLIC at FL270. Planned route ATLIC-ZIBUT-37N069W-ZIBUT-ATLIC. Coordinated change with New York Center to get FL280 headed out to ZIBUT. Winds were out of the northwest at ~10-20kts at altitude. Aircraft geolocation was generally within ~20 NM on way out to 37N069W during the flight. Turned slightly early to synch up with NASA 524. Maintained less than 5 NM separation on the way back. Remained at FL280 until 20nm from ATLIC. Had to descend to FL 260 for traffic. Descended out of FL 260 at ATLIC. All objectives were achieved with no aircraft discrepancies noted. Crew was Coldsnow, Sandeen, and Harper

Flight scientist report (Harper):

UC12 takeoff: 12:38:08utc approx 3 min after HU25.

Aircraft coordination: UC12 6min behind HU25 for the outbound leg. UC12 maintained less than 1 min separation for inbound leg.

Descended to 26kft due to air traffic 4min before ATLIC on inbound leg.

Clear conditions above MBL and cloud deck.

Sonde 1: 13:30utc approx 1 min after ZIBUT.

Sonde 2: 14:10utc at outbound turn point.

Sonde 3: 14:39utc at midway point between ZIBUT and outbound turn.

Sonde 4: 15:32utc near ATLIC

No instruments issues for HSRL2, RSP, or AVAPS

### **Falcon**

Pilot report (Baxley):

Science flight for the HU-25 in support of ACTIVATE, conducted cooperatively with the UC-12. Departed Rwy08 to ATLIC climbing to 3k ft MSL for initial transit. Research profiles conducted from ATLIC-ZIBUT-N3700/W06900-ZIBUT-ATLIC, from 500' to 8000' MSL. Winds were moderate (<20 knots), with complex cloud structures that made data collection challenging. Both cloud and clear air modules were completed throughout the flight as conditions warranted. Aircraft geolocation was within ~20 nmi throughout the flight, and generally within

~10 nmi during the return westbound leg. All objectives were achieved and no system discrepancies were noted.

Pilots: Baxley/Elder

QNCs: Crosbie/Winstead

Time (Z): 1234 takeoff, 1552 land, 3.3 hrs

Flight scientist report (Crosbie):

The clouds during this flight were so complicated that it was impossible to follow the standard module and also successfully collect any useable cloud data. There was at times up to 4 separate layers of cloud and in places there was possible wave clouds which were not constrained to a consistent altitude range. Some times the layers appeared to drift towards another and merge and other times layers just terminated without warning. A level marked ACT was usually also BCB and vice versa. Quite often a leg started in cloud and then was in clear. I did my best to label the legs from my flight notes but I did not attempt to group them into modules.

Eddie:

Takeoff: 12:35:13

Landing: 15:51:26

12:45 - Wet neph RH >90%. Dropping very slowly. Control switched from Omega to remote to decrease RH.

12:52:30 - Wet neph RH now less than 90%. Switching back to Omega control

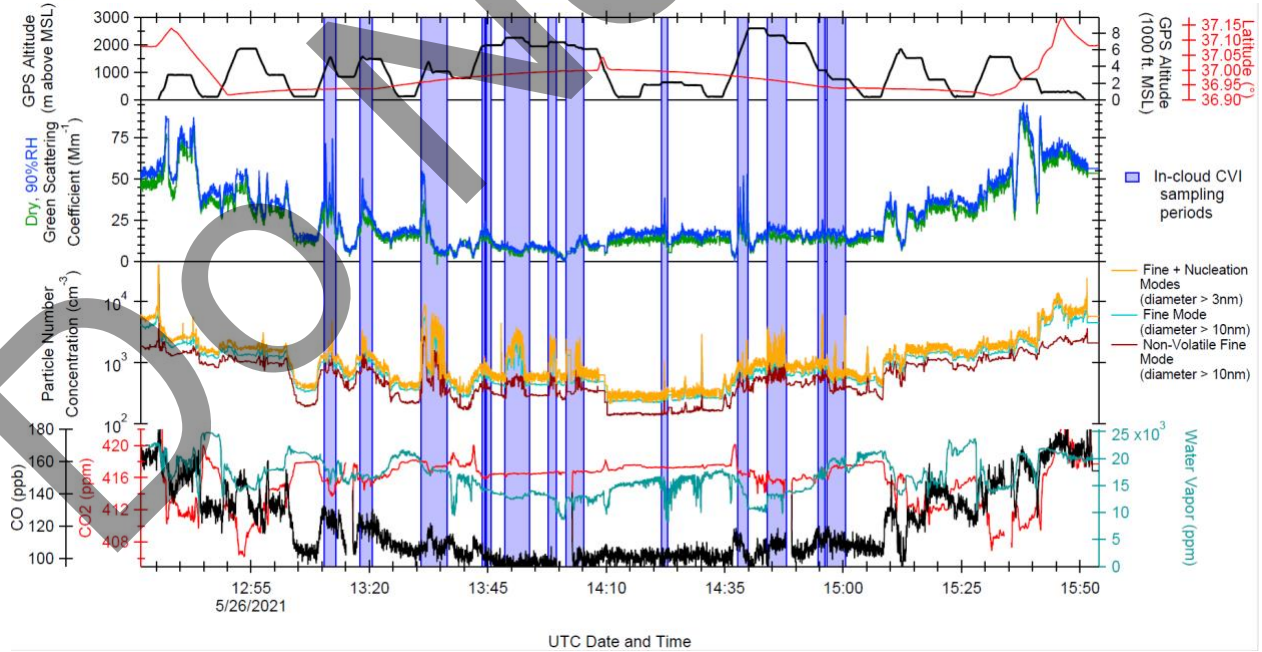
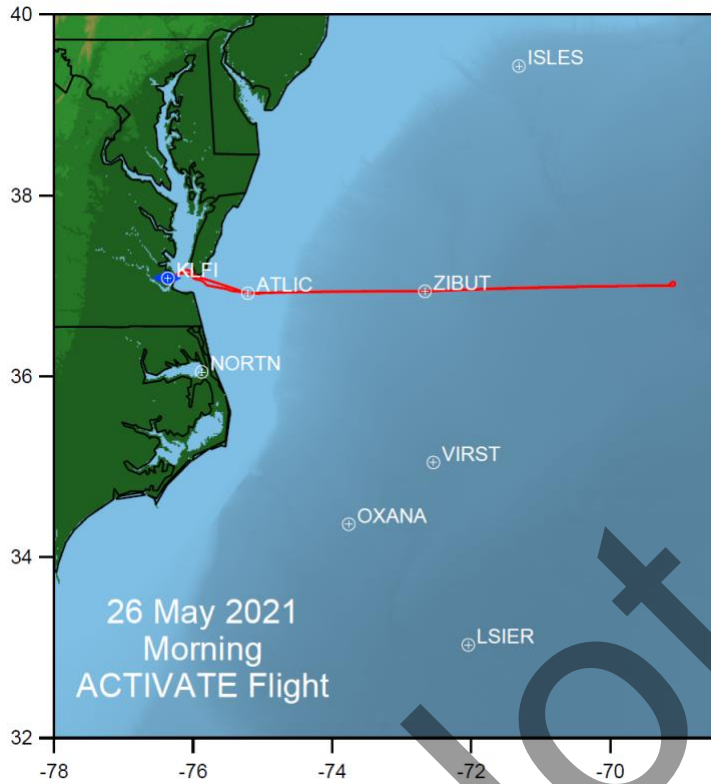
13:02 - Manually adjusting humidifier control flow

13:23 - Multiple cloud layers; As many as 4

14:08 - Turning early for RTB because of fuel concerns

14:43 - SMPS software had stopped scanning; Software restarted

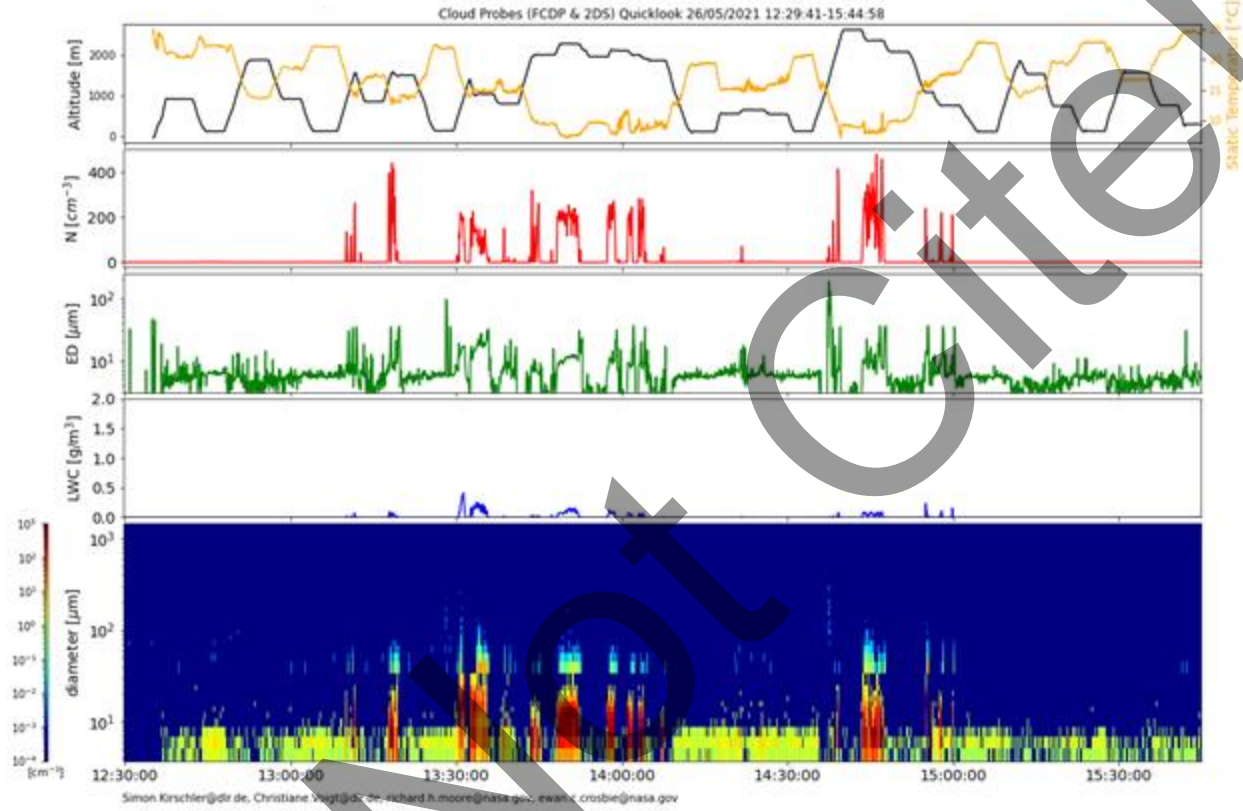
15:44:30 - WCM & humidifier turned off



# Quicklook ACTIVATE Cloud Probes (FCDP & 2DS) Quicklook

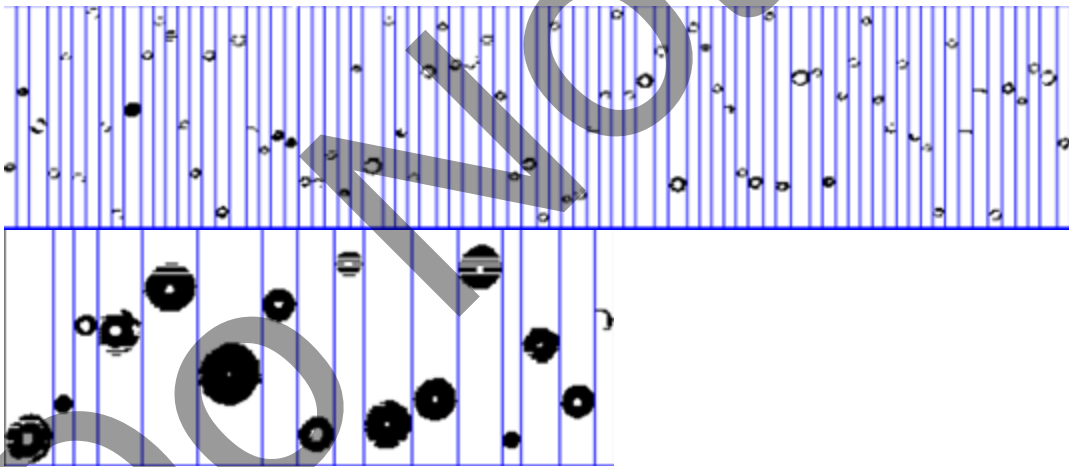
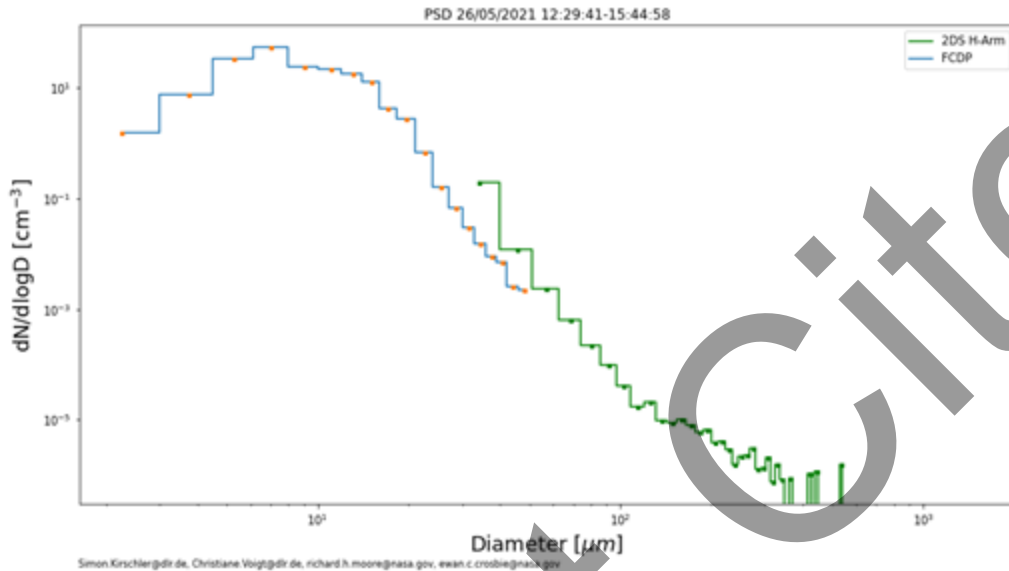
preliminary data, only for quicklook use

Simon Kirschler, Christiane Voigt, Richard Moore, Ewan Crosbie



# PSD ACTIVATE

preliminary data, only for quicklook use  
Simon Kirschler, Christiane Voigt, Richard Moore, Ewan Crosbie

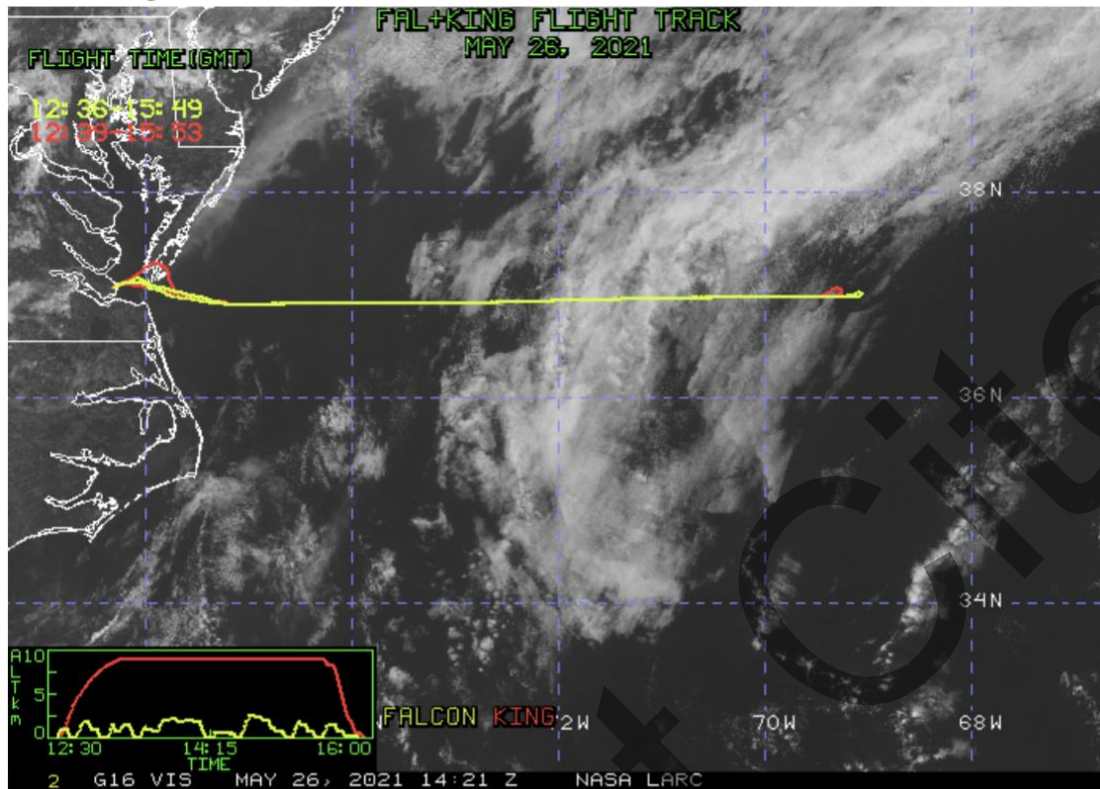


Only pure liquid clouds with mainly drizzle and precipitation around 14:37.

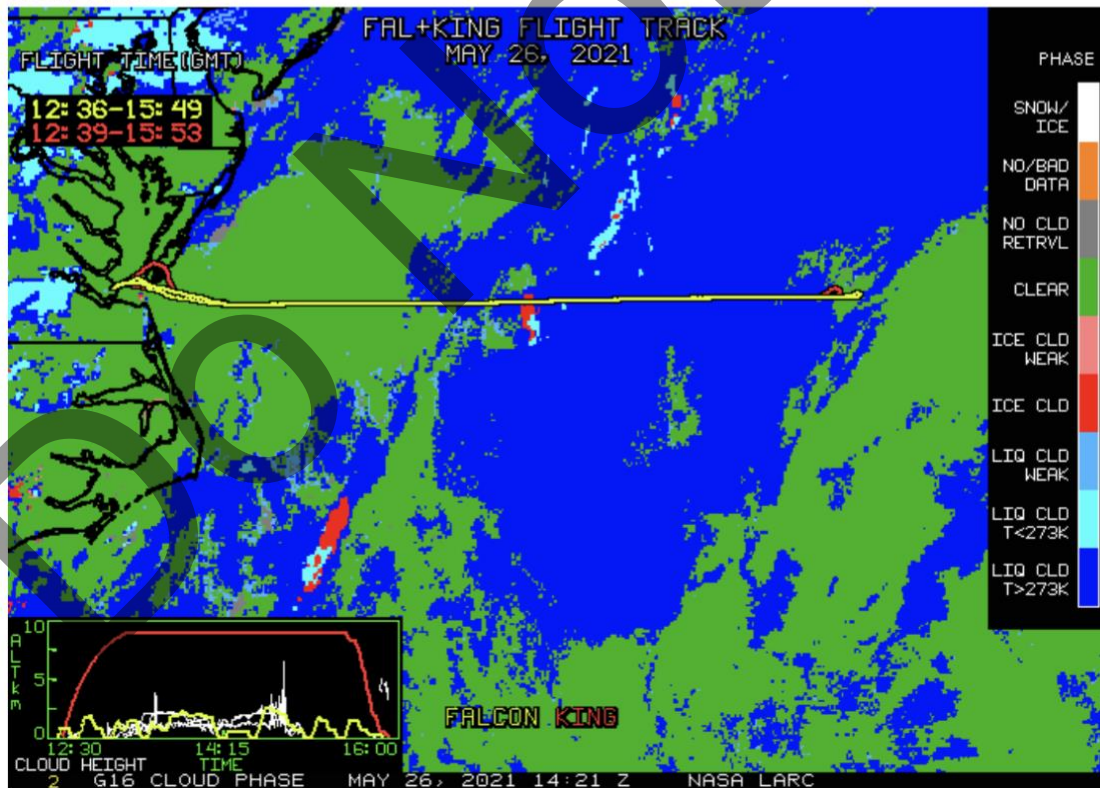
NASA-LaRC Clouds Group GOES-16 Quicklook Images for Flight 73, 14:21 UTC May 26, 2021



Visible Image

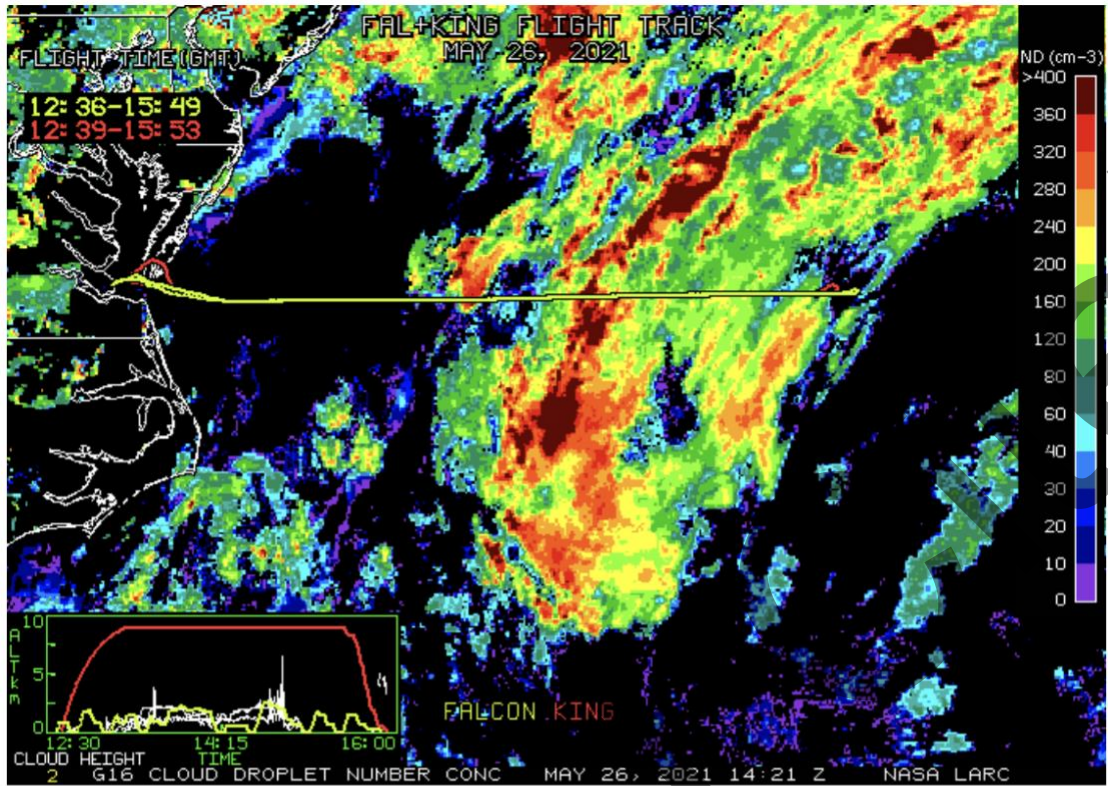


Cloud Phase





Cloud Droplet Number Concentration (cm-3)



Cloud-Top Height (Kft-ASL)

