

ARMSTRONG FLIGHT RESEARCH CENTER DEPLOYED OPERATIONS SITUATION REPORT #6

MISSION: DC-8 PECAN Deployment

LOCATION: Salina, KS

REPORT DATE: 7/12/2015

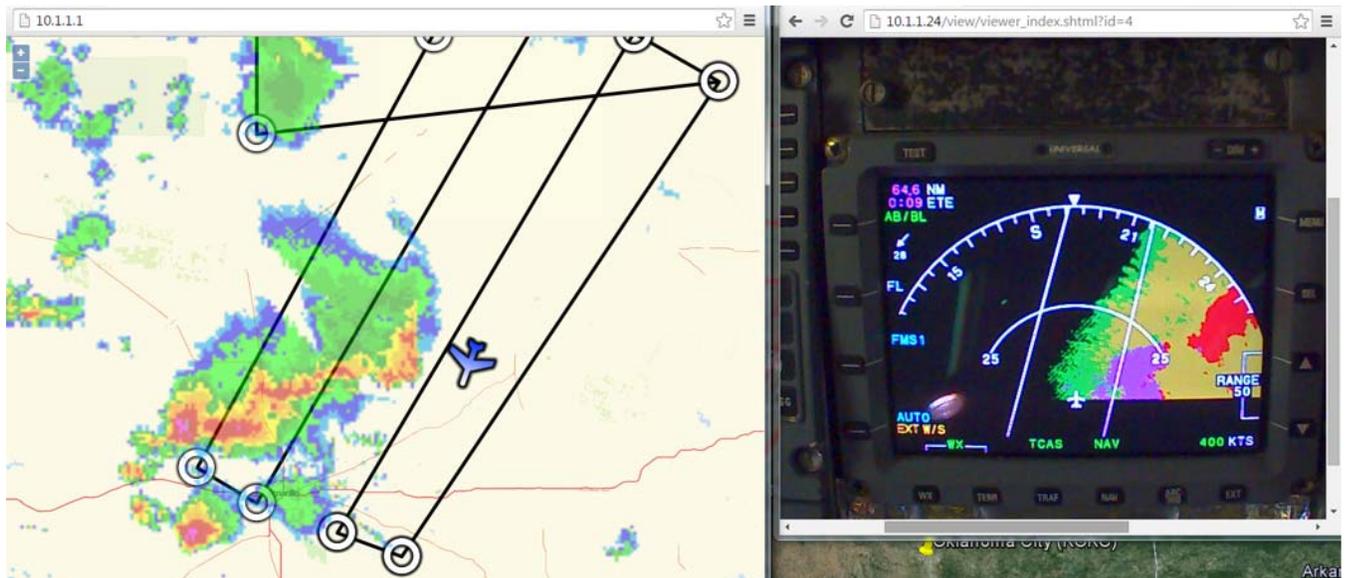
REPORT BY: Moes

LATEST MISSIONS: Dates: 7/8, 7/10, & 7/11

Mission: Plains Elevated Convection At Night (PECAN) Science Flight

Summary: The PECAN project has conducted three successful science flights since the last Sit Rep. A lot of great science data has been obtained. The NAST-I instrument is still in a troubleshooting mode, but has made progress and captured science data for up to 30% of the last two flights. The only Go/NoGo instrument, LASE, is performing well. RainCube and MASC have completed their science objectives and are remaining unpowered for the rest of the deployment.

The flight on July 8 was 8.0 hours and successfully measured the atmospheric conditions in front of a Mesoscale Convective Systems (MSC). Toward the end of the flight we conducted a series of flight lines for the RainCube instrument over precipitation. This was the last flight of the MASC instrument.

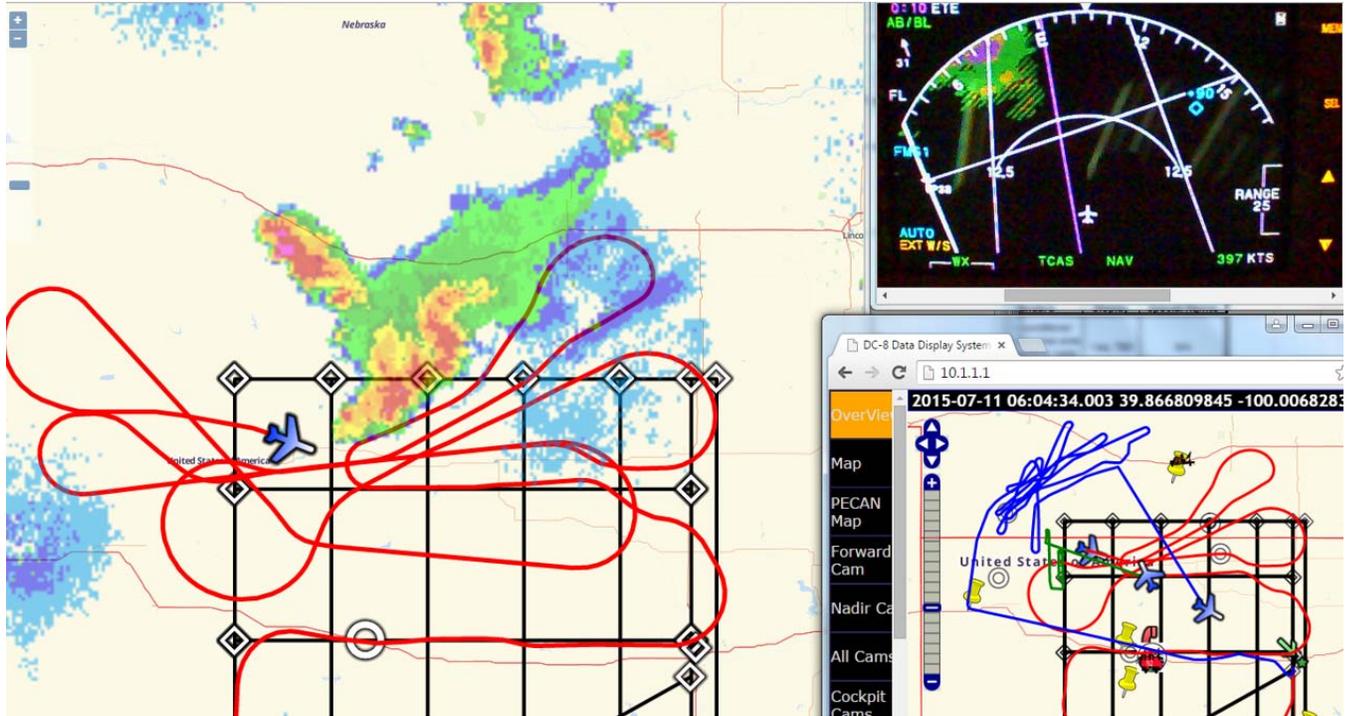


We've been using a Honeywell RDR-4000 Weather RADAR for this deployment. The RADAR is on loan from LaRC to the DC-8 to support the upcoming HIWC deployment in Puerto Rico. However, we installed it prior to the Polar Winds campaign last May, flew it during SARP, and are now getting great use out of it for PECAN. We are also recording the RADAR data for LaRC researchers for them to gain familiarity with its capabilities prior to the HIWC deployment.

Thursday, July 9 was a hard down day due to lack of weather targets of interest and due to the NOAA P-3 requiring a hard down day. No additional hard down days will be required for this deployment.

The flight on Friday, July 10 was an extremely successful scientific mission. The PECAN scientists were able to measure Lower Level Jets, the much-sought-after Bore undulations, and had many passes

in front of a very active convective system to analyze. The strong convective systems provided an amazing light show through much of the flight!

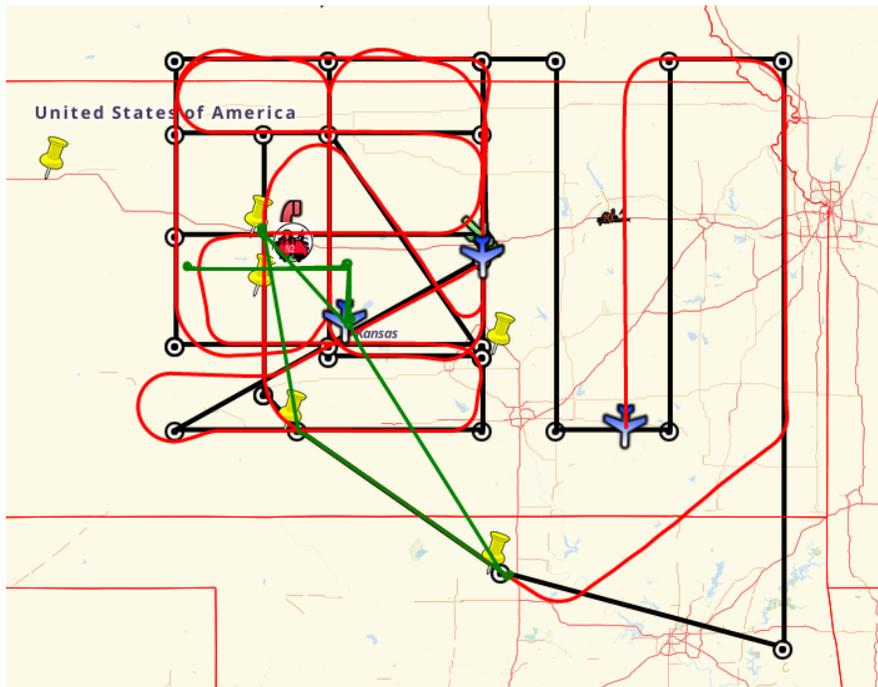


All three PECAN aircraft were involved with this mission. The DC-8 with red flight path, the NOAA-P3, and the Univ or Wyoming KingAir.



Cloud layers in the PECAN region just before sunset (Gus Carreno photo July 10, 2015)

The flight on July 11 focused on Low Level Jets, Convective Initiation, and Bore disturbances. We also coordinated a timed overflight of three of the PECAN fixed RADAR sites. It was timed to get coincident data with the Univ of Wyoming King Air at 5300 ft altitude and the DC-8 and 28kft. The flight was very successful, and unlike every previous flight, stuck very close to the original flight plan (primarily due to the fact that there were no major convective systems barreling through our test region).



TODAY: No Fly Day - Instrument access from 1900 – 0200 CDT at the aircraft to allow LASE calibrations and NAST-I troubleshooting.

NEXT MISSION: Date: No earlier than July 13

Mission Objectives: Options include Mesoscale Convective Systems (MCS), Convective Initiation (CI), Bore Disturbance Missions. Decision is made at 1600L on day of flight.

STATUS:

Aircraft: **GREEN** ... continuing to monitor the main gear Door Manual Open Valve for hydraulic leaks. We have the replacement part if needed.

Payload:

- | | |
|-------------|--|
| 1. LASE | GREEN |
| 2. NAST-I | YELLOW ... still troubleshooting, but getting some science data |
| 3. RainCube | Science complete. Unpowered for rest of deployment |
| 4. MASC | Science complete. Unpowered for rest of deployment |

Personnel Issues: None

Logistics Issues: None

Other: On schedule to arrive back in Palmdale on July 16 at approximately 1100 PDT

NASA airborne science tracker: <http://airbornescience.nasa.gov/tracker/>

DEPLOYMENT MISSION SUMMARY TO DATE:

Mission Description	Mission Date	Flight#	Pilot/FE Crew	Takeoff	Duration hrs	Hours Left
Instrument Check Flight	6/24/2015	1020	Slover/Brockett/Sandon/ Antimisarias, Owens, Proett	0805 PDT	1.5	58.7
Deploy to Salina, KS	6/28/2015	1022	Slover/Brockett/Elit/Owens/Klein	1316 PDT	2.6	56.1
Night Proficiency	6/28/2015	1023	Slover/Brockett/Elit	2130 CDT	0.7	55.4
Science	6/30/2015	1024	Brocket/Slover/Elit/Owens/Pugh	2102 CDT	6.9	48.5
Science	7/4/2015	1025	Slover/Brockett/Elit/Pugh/Klein	2121 CDT	4.1	44.4
Science	7/5/2015	1026	Brocket/Slover/Elit/Owens/Pugh	1953 CDT	8.2	36.2
Science	7/6/2015	1027	Slover/Brockett/Elit/Pugh/Klein	1957 CDT	4.7	31.5
Science	7/8/2015	1028	Brocket/Slover/Elit/Owens/Pugh	1953 CDT	8.0	23.5
Science	7/10/2015	1029	Slover/Brockett/Proffitt/Elit/ Beauregard/Klein	2015 CDT	7.7	15.8
Science	7/11/2015	1030	Slover/Brockett/Proffitt/Elit/ Beauregard/Klein	2052 CDT	6.5	9.3
				Total	50.9	



Photos taken by Chris Rink of LaRC PAO (July 11, 2015)