DC-8 08/08/13 - 08/09/13

Aircraft: DC-8 - AFRC (See full schedule)
Flight Number: 130605
Payload Configuration: SEAC4RS2013
Nav Data Collected: Yes
Total Flight Time: 7.8 hours
Submitted by: Frank Cutler on 08/09/13
Flight Segments:

From:	KPMD	**To:**	KEFD
Start:	08/08/13 16:17 Z	**Finish:**	08/09/13 00:06 Z
Flight Time:	7.8 hours		
Log Number:	138301	**PI:**	Kent Shiffer
Funding Source:	Hal Maring - NASA - SMD - ESD Radiation Science Program		
Purpose of Flight:	Science		
Comments:	Purpose of Flight: Science flight (monsoon outflow+ transit to EFD) Aircraft Status: Airworthy Sensor Status: SEAC4RS instrument payload; AOP, DACOM, TD-LIF had issues. Other instruments appeared to perform well. Significant Issues: None Accomplishments Flight to Houston, TX by way of San Francisco CA, Beatty NV, Las Vegas, NV, Flagstaff AZ, Corona NM, Midland TX, Wharton TX, Wichita Fall TX, Alexandria LA, to south of Lafayette LA over the Gulf of Mexico to fly west/east line as far west as Galveston TX. In route altitudes ranged from FL250 to FL380 until crossing Alexandria LA to descend to 2500ft MSL initially and then 1500ft MSL over the Gulf. Spiral ascent at point P6 (approximately 20nm off LA coast & south of Lafayette) to FL160. Spiral descent to 1500ft MSL at P6 to fly cooperatively with ER2 west bound. Reverse course and climb to 5000ft MSL at end of line and track east. At about mid-point of track perform spiral ascent to FL200 and then fly west on track to westerly end point. Descend and land at Ellington Airport, Houston. Takeoff time: 220 16 17 50 Landing time: 221 00 06 11		

Flight Hour Summary:

	138301
Flight Hours Approved in SOFRS	187
Total Used	180.6
Total Remaining	6.4

138301 Flight Reports

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining	Miles Flown
08/01/13	130601	Check	1.8	1.8	185.2	
08/02/13 - 08/03/13	130602	Check	4.1	5.9	181.1	
08/05/13	130603	Check	5	10.9	176.1	
08/06/13 - 08/07/13	130604	Science	8.7	19.6	167.4	
08/08/13 - 08/09/13	130605	Science	7.8	27.4	159.6	
08/12/13	130606	Science	8.2	35.6	151.4	
08/14/13	130607	Science	7.3	42.9	144.1	
08/16/13	130608	Science	8.4	51.3	135.7	
08/19/13	130609	Science	8.5	59.8	127.2	
08/21/13	130610	Science	7.7	67.5	119.5	
08/23/13	130611	Science	7.4	74.9	112.1	
08/26/13 - 08/27/13	130612	Science	7.7	82.6	104.4	
08/27/13 - 08/28/13	130613	Science	8.7	91.3	95.7	

08/30/13 - 08/31/13	130614	Science	7.9	99.2	87.8
09/02/13	130615	Science	8.7	107.9	79.1
09/04/13	130616	Science	8.3	116.2	70.8
09/06/13	130617	Science	8.5	124.7	62.3
09/09/13	130618	Science	6.7	131.4	55.6
09/11/13	130619	Science	8.8	140.2	46.8
09/13/13	130620	Science	8.1	148.3	38.7
09/16/13	130621	Science	8.1	156.4	30.6
09/18/13	130622	Science	7.6	164	23
09/21/13 - 09/22/13	130623	Science	9.1	173.1	13.9
09/23/13 - 09/24/13	130624	Transit	7.5	180.6	6.4

Flight Reports began being entered into this system as of 2012 flights. If there were flights flown under an earlier log number the flight reports are not available online.

Related Science Report:

SEAC4RS - DC-8 08/08/13 Science Report

Mission: SEAC4RS
Mission Summary:

The second science sortie of the DC-8 had 3 objectives: transit the aircraft from PMD to Ellington Field, profile the UT along the flight track to assess the impact of circulation and deep convection associated with the NAM, and to sample a Saharan dust plume over the Gulf of Mexico near the end of the flight. We were loosely coordinated with the ER-2 during most of the flight (both aircraft flew the same ground track), but joined up with them for the first of three dust runs flown by DC-8 over the gulf.

DC-8 flew short level-legs at multiple FL between 250 and 390 from San Francisco to a point SE of Austin, back to NW, and then over to northern LA. When we turned nearly due south toward the gulf we descended toward the boundary layer, spiraling down to avoid overshooting our rendezvous point (not to mention all of southern LA) before getting into the BL. We still arrived about 20 minutes before the ER-2 so spiraled up to ~10 kft and back down to define the extent of the dust layer on E end of the planned leg. We then flew 150 km leg at 1.5 – 1.8 kft over the gulf, starting with the ER-2 but slowly falling behind them. Reversed course and climbed to 5 kft to fly through the longest E-W extent of dust plume imaged by zenith HSRL/DIAL during the west bound leg. When we neared the eastern end of the strong dust layer we spiraled up to 20 kft and then flew westward along the track to obtain nadir HSRL/DIAL curtain (Figs. 1 and 2)

All objectives were met, though we did not get as low as hoped during the N to S leg over LA nor the E to W leg over the Gulf. At debrief it was made clear that pilots had to deal with tall towers and helicopter traffic near oil and gas rigs. Due to misunderstanding, they chose to maintain vertical separation between the aircraft and obstacles, rather than deviating left or right at desired lower FL. It should be possible to fly closer to the surface if we brief before flight that it is OK to deviate from ER-2 ground track to some extent.

Instrument status:

DACOM and TD LIF did not operate during this flight. AOP got some of their instruments on-line but were pretty far from fully functional. CIT CIMS, AMS, and LARGE all had minor issues that caused loss of some data. All instruments except DACOM expect to be fully up for the next sortie, DACOM may be measuring CO by the time of the next flight.

File:
DustBscat&DepolOver Gulf.pdf

LidarRatioDustOver Gulf.pdf
Submitted by: Jack Dibb on 08/10/13

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Page Editor: Katja Drdla

NASA Official: Marilyn Vasques
