

DC-8 08/06/13 - 08/07/13

Aircraft: [DC-8 - AFRC](#) (See full schedule)

Flight Number: 130604

Payload Configuration: SEAC4RS2013

Nav Data Collected: Yes

Total Flight Time: 8.7 hours

Submitted by: Frank Cutler on 08/09/13

Flight Segments:

From:	KPMD	To:	KPMD
Start:	08/06/13 17:58 Z	Finish:	08/07/13 02:42 Z
Flight Time:	8.7 hours		
Log Number:	138301	PI:	Kent Shiffer
Funding Source:	Hal Maring - NASA - SMD - ESD Radiation Science Program		
Purpose of Flight:	Science		
Comments:	<p>Purpose of Flight: Science flight (wild fire smoke) Aircraft Status: Airworthy Sensor Status: SEAC4RS instrument payload; AOP & DACOM had issues. Other instruments appeared to perform well. Significant Issues: None Accomplishments Flight to northern California/Oregon border area in cooperation with ER2. Transit to northern California coastline area @ FL280. Perform data wall maneuver off the coast of Crescent City on northwest/southeast line with smoke over ocean stratus cloud deck. Collect data at 18000ft MSL, 4000ft MSL, 1600ft MSL at cloud tops, & finally in the cloud deck performing long phugoid maneuver. Transition to overland area well north of Crescent City flying north to south track east of Crescent City at FL180 above smoke plume. Descend to FL100 to perform data wall in smoke on north/south track south of Crescent City initially at 10000ft MSL and then at various altitudes, and to as low as 1600ft AGL. Transition to over Crescent City to fly north east/southwest data wall at 8000ft MSL & 9500ft MSL in smoke. Transition to coastal area north of Crescent City to fly north /south data wall at 10000ft MSL, 8000ft, & 7000ft MSL in smoke. Transition to Merced climbing to FL290. Descend to fly east/west data wall in cooperation with ER2 at 18000ft MSL, 2500ft AGL, 1000ft AGL, and low approach at Castle Airport. Return to Palmdale at FL190. Takeoff time: 218 17 58 48 Landing time: 219 02 42 41</p>		

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 08/06/13 Science Report

Mission: SEAC4RS

Mission Summary:

DC-8 Science Flight 06 Aug 13

On this first science sortie of the DC-8 mission we flew above and within the smoke plumes from several wild fires burning in coastal mountains of southern OR and northern OR. First target was to perform a wall below an ER-2 rosette where smoke had been advected over stratus just off shore. In the second phase of smoke sampling we planned to fly over the smoke closer to the fires (over land) and then perform a series of crossing legs at different altitudes in and below the smoke, remaining under the ER-2 as much as possible. On return to Palmdale we sampled a final wall set up across the central valley near Merced.

The interval targeting smoke over stratus went very close to the plan. After our 18 kft leg above the smoke to allow HSRL/DIAL to observe the curtain (Fig. .1) we reversed course and descended to ~ 4 kft to sample through the smoke, followed by further descent while turning to setup up a NW to SE leg just above the cloud deck, and final leg back to NW in the top ~1/4 of the stratus.

Moving on shore, we successfully flew 150 km N to S leg above the various smoke plumes and under the ER-2 (Fig. 2). We also stayed pretty close to underneath the ER-2 along the first 2 crossing legs, but the combination of terrain, heavy helicopter traffic (fighting the fires) and thick smoke, prevented us from passing through smoke plumes at several levels and then flying back on same track below the smoke. On the 3rd crossing leg a communication break down caused us to fly a different ground track from the ER-2. All 7 passes in the 3 crossing legs ended up being flown between 7-10 kft, and included penetration of smoke at times along the leg. Time in smoke, and the thickness of the smoke, increased to the north (1st leg had least smoke, 3rd leg the most).

Our wall near Merced consisted of an HSRL/DIAL leg at 18 kft to obtain down-looking curtain followed by a leg near the top of BL at ~ 2.5 kft AGL and then a leg at 1 kft AGL. This pattern was completed by a missed approach at Castle.

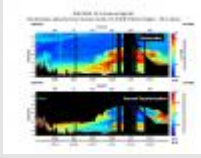
While there were some challenges flying all parts of the plan, all objectives were met.

Nearly all of the instruments on board reported good flights with minor issues and small amounts of missing

data. Exceptions include DACOM and AOP which were both not operating for this flight.

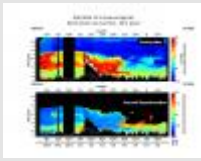
Images:

Smoke Over Stratus



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Smoke Over OR Coastal Range



[Read more](#)

Submitted by: Michael Craig on 08/10/13

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