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Flight Report

Aircraft :	N426NA P-3B Orion
Operating Site(s) From / To :	KWAL/KWAL
Flight Date :	7/27/2011
Flight Number :	1093
Take Off Time :	Local / GMT 0950/1350
Landing Time :	Local / GMT 1729/2129
Flight Time :	7.7
Flt Request # / PI:	11P201 Dr. Jim Crawford (NASA LaRC) N/A []
Purpose of Flight(s) :	Data [x] Ferry [] Functional Check [] Other []
Aircraft Status:	Up [x] Down []
Sensor Payload :	DISCOVER-AQ mission configuration
Comments :	<ul style="list-style-type: none">• Twelfth science flight of the DISCOVER-AQ campaign. Flight was successful. Please see mission science report for further science updates.

SUBMITTED BY: Rick McKee _____

DATE: 7/27/2011

Flight Hours Flown

Flight	Date	Aircraft Flight #	Data Flight#	Duration (hr)	Remaining Hours*
<i>Total Allocated</i>	6/26/2011				100
FCF	6/26/2011	1069		.8	100
DISCOVER-AQ ECF	6/26/2011	1069		1.6	98.4
PPF	6/26/2011	1069		1.1	98.4
PCF #1	6/28/2011	1074		2.6	95.8
Media Event Flight	6/28/2011	1074		.8	95.8
ECF #2	6/29/2011	1077		.9	94.9
PCF #2	6/30/2011	1079		2.8	92.1
Science Flight 1	7/01/2011	1080	#1	7.3	84.8
Science Flight 2	7/02/2011	1081	#2	7.7	77.1
Science Flight 3	7/05/2011	1073	#3	8.0	69.1
Science Flight 4	7/10/2011	1083	#4	7.6	61.5
Science Flight 5	7/11/2011	1071	#5	5.5	56.0
Science Flight 6	7/14/2011	1071	#6	8.1	47.9
Science Flight 7	7/16/2011	1087	#7	5.6	42.3
Science Flight 8	7/20/2011	1088	#8	7.7	34.6
Science Flight 9	7/21/2011	1089	#9	7.7	26.9
Science Flight 10	7/22/2011	1091	#10	7.9	19
Science Flight 11	7/26/2011	1092	#11	7.4	11.6
Science Flight 12	7/27/2011	1093	#12	7.7	3.9

Comments: This afternoon flight occurred under clean conditions and could rival the baseline conditions observed during the morning flight on 14 July. Code green conditions persisted throughout the day, and conditions were almost indistinguishable between sites. Ozone was initially rather low in the BL (<40 ppbv), but grew to around 60 ppbv throughout the flight. While there was enhanced ozone aloft (80-90 ppbv), it is not clear that mixing from above made any contribution to the increase observed in the BL. This will be a topic for further examination. Between the second and third circuits, and wingtip-to-wingtip comparison was conducted over the Eastern Shore with the University of Maryland Cessna. A level leg at 8500 feet was followed by a descent at 500 feet-per-minute to a second leg at 2500 feet. Conditions were clean and stable for each leg and a 10-minute calibration leg was conducted at the end of the comparison. Modified sampling to examine biogenic hydrocarbon chemistry was implemented for this flight given the high variability observed in isoprene throughout the study. PTR-MS measurements shifted to a two-second cycle to provide high resolution measurements of isoprene and oxidation products (methylvinylketone+methacrolein). UC-Berkeley also shifted emphasis for the TD-LIF measurements from PNs to ANs in their sampling scheme for this flight.