U.S. Dept. of Commerce / NMAO / NOAA / Aircraft Operations Center

Flight ID: 040709H	Time Off: 1529 Z	Time On: 2300 Z

	A/C - Takeoff	Wx Station - Takeoff	A/C - Land	Wx Station - Land
Pressure	1006.9 mb	2983 mb	1009.6 mb	2987 mb

ATIS	Time	Observation
Takeoff	1455 Z	29008KTS 20SM 21/19 29.83
Land	2155 Z	30006 20SM 24/16 29.87

	Number	Data Disposition / Date / Quality
Flight Level Tapes		
Radar Tapes		
Cloud Physics Tapes / CDs		
Video Tapes		
Dropsondes		Good: Bad:
AXBT		
AXCP		
AXCTD		

Remarks:

U.S. Dept. of Commerce / NMAO / NOAA / Aircraft Operations Center

Flt ID: 040709H	From: KPSM	To: KPSM
Flt. No: 04 - 020	Blk In: 2311 z	Time On: 2300 z
ETD: 1400 z	Blk Out: 1519 z	Time Off: 1529 z
ETE: 7 + 30	Blk Time: 7 + 52 (7.9 Hrs)	Flt Time: 7 + 31 (7.5 Hrs)
Sponsoring Org: **NOAA / A.L.**	Program: **NEAQS**	Purpose: IOP 2

AOC Flight Crew

Aircraft Commander:	Kennedy, P	Data System:	McMillen, S
Co-Pilot:	Choy, B	AVAPS:	
Navigator:	Brakob, D / Gallagher, T	System Eng:	[redacted]
Flight Eng:	WADE, S	A A:	
Flight Director:	Flaherty, P	A A:	
Avionics:	Rodgers, M	Crew Chief:	

Participating Scientists / Visitors

Name (Last, First)	*Activity on Aircraft*	*Affiliation*
REHERSON, T	Principal Investigator	NOAA AL
PELTIER	SCI	A.L.
NOWAK	SCI	A.L
BROWN, S	SCI	A.L
ZAHNISER, M	SCI	AERODYNE

Remarks (Storm Name, Mission ID, Recco Times, Fix Times)

Mission ID: TAKE OFF DELAYED 90 MINS (SCIENTISTS) NAV SWITCHED INE 2 TO INE1

IT 2 INOP 1916

1953-2007 ~~2024-2013~~ RCSR

NOSE RR frozen / last leg (LIGHT ICING) 1953-2004

DUPT 2 INOP APPROACH (BALANCED) SHUT OFF ION

(See reverse for additional remarks)

NOAA P-3 N42RF
NEAQS 2004 Flight # 2
KPSM - KPSM

Flight ID: H040709

Sensor or system	*Number or Name*
Inertial + Accelerometer Data	*1*
Temperature Probe	*1*
Dew Point Probe	*1 (Edge Tech)*
Altitude (for vertical wind)	*Pressure Altitude*
Radar Altitude	*RA-159*
Static and Dynamic Pressure	*Rosemount Fuselage*
Time Source	*Micro 99*
Constants File	*CO2042.CON*

Notes:

There were a time/data glitch between 202601-202620.

Radar Altimeter 159 was replaced with Radar Altimeter 232 from 152701-153200Z (takeoff) and from 224430 - 230200Z (landing) due to spiking.

There may have been instances when the dew point temperature exceeded the ambient temperature resulting in a RH% above 100%. These times were during heavy precipitation events and were likely due to a wet-bulb effect on the total temperature sensor, and/or an artificial warming of the dew point sensor as it tried to burn off excess moisture. These periods are typically reflected in the J/W liquid water data. No corrections were made during these events unless noted above.

All other instruments worked optimally during the flight

The aircraft INE positions were renavigated with respect to GPS

SPECIAL NOTE!!! **Locations 80, 81 and 82 of record five on the standard tape contain vertical ground, vertical air and vertical speeds, respectively, computed using Dave Jorgensen's vertical wind algorithm.**
It is recommended that these values be used for vertical wind analysis.

Flight Director: Paul Flaherty
Phone #: (813) 828-3310 ext. 3094

040709H

152702-230200

TT 1
TM 1
INS 1

RA 159

TT 1 gate
190046-190100

RENAV

~~160000~~	~~+.2~~	~~-.3~~
183000	+1.1	-.3
171500	+.7	+.4
180000	+1.3	-.8
184500	+.5	+1.4
193000	+.9	-.7
201500	+0	+2.1
210000	-.4	-.4
214500	-.7	+2.2
223000	-1.6	~~+.9~~ + +.6
230200	-1.5	+2.5

20 26 a-
20 26 20

80 RA 158200
- END

224430

orm 413-50
63

040709 H

TIME	LAT	LON	TRK	HDG	T	T_D	WIND DIR	WIND SPD	P.A	Q.A	SFC PRESS	STAT PRESS	REMARKS
152340	4304	7048	152	150	24.6	17.7	351	4.7				1027.0	TAKE
154824	4280	7003	149	152	19.4	14.7	292	21.5	197	165	1009.0	990.7	DESCEND
1555													1500 FT
160010	4147	6935	150	154	19.3	14.5							↑ 3000 ft
160155													3000 FT
160300													1500 FT
160800	4120	6914	150	155	20.8	10.0	274	22.0	437	413	1009.6	965.8	↓DESENT TO 1500
161000													↑ 3000 FT
161400	4102	6855	7	1	22.0	8.6	273	23.7	457	448	1010.2	959.5	1000 FT
1620													DESCENT/ASCENT SERIES
162500	4140	6948	13	8	20.2	13.0	273	20.4					BACK TO 1500 FT
162600													GOING TO 1000 FT
163000	4203	6941	14	10	~~20.5~~	~~13.7~~	275	17.7					descending/ASSENDING
163737	4225	6834							439	416	1008.5		BACK AT 1400
164300													ASSENDING DESCENT/ASCENT
164850	4234	6820	14	8	16.6	14.9	269	19.4	481	449	1008.1	956.6	1500 feet
170000							DESCENT/ASCENT						BACK TO 1525 feet
170500							TURN						AT 4, START ASCENT/DESCENT
173620	4220	6732			10.4	17.3							SPIRAL ASCENT TO 10K
174620			45	42	45	7.2	240	28.7					10K feet, ↓ 1500 FT
175340	4245	6658	32	29	18.9	17.0	244	20.5	477	449			DESCENT TO PT 6
182430	4436	6638									1008.1	957.2	1500 FEET
182500													3500 feet
183030	4459	6641	353	350	11.8	11.7	191	22.5	1624	1628			4000 feet
183408													CLIMBING TO 7000 FT
185000													START 7000 FT LEG
190500	4718	6702	351	350	-3	-.3	109	8.3					CLIMBING 11,000 FT
192130													CLIMBING TO 15000 FT
195350	5100	6738	355	354									CLIMBING TO 19000 FT
200100	5130	6744	355	356	-5.9	-7.2	146	6.1	4160	3223			descending to 15000 FT
202430	5325	6829											descending to 13000 FT
214900	4741	6856	196	198	-9.3	-11.3	350	11.2	5066	4938			SEATTLE
223000	4425	7018	196	201	-14.0	-17.6	321	26.5	5760	5585			582 UP TO 20,000 FT
													DESCENT TO PSM

Friday 9 July 2004

Planned Takeoff: 11:00 EDT

Default climb and descend at 1500 ft/min.

Head in direction of Pt. 2 (42 58.02 N, 70 49.38 W, Appledore) at 1500 ft.

Characterization of Pollution over the Gulf of Maine at low altitude:
Head direction of Pt. 3 (41 00 N, 69 00 W), default flight altitude 1500 ft.

To examine the vertical structure of the pollution over the Gulf of Maine:
Descend to 500 ft.
Return to 1500 ft (or pollution layer) for 5 min.
Ascend to 3000 ft or above the pollution layer, and return to polluted layer at elevation.
Return to 1500 ft (or pollution layer) for 5 min.
Repeat cycle.

Head direction of Pt. 4 (44 00 N, 68 00 W), alternate altitudes as discussed above.
Head direction of Pt. 5 (43 00 N, 66 48 W), alternate altitudes as discussed above.
Adjust Point 5 according to position of the Ron Brown.
If feasible, low level pass near the Ron Brown
Spiral Profile over the Ron Brown up to 10 kft.

Head direction of Pt. 6 (43 43.08 N, 66 06.72 W) Chebogue Point Ground site. If above stratus clouds, descend in route to 500 ft above cloud top for 10 min. Descend to approx. 500 ft below cloud top to measure cloud water for about 5 min.
If clear find pollution layer.
Arrive at Chebogue at 500 ft, low level pass over ground site.
Spiral Profile above Chebogue Point or Ron Brown up to 10 kft.

4200

Lifting of aged and recent pollution in Low pressure system:
Head direction of Pt. 7 (53 00 N, 68 00 W), descend to 1 kft or polluted layer.
Step profile in route: In 15 min intervals climb to 6, 10, 15, 19, 23 kft and level off.
7 11

2400

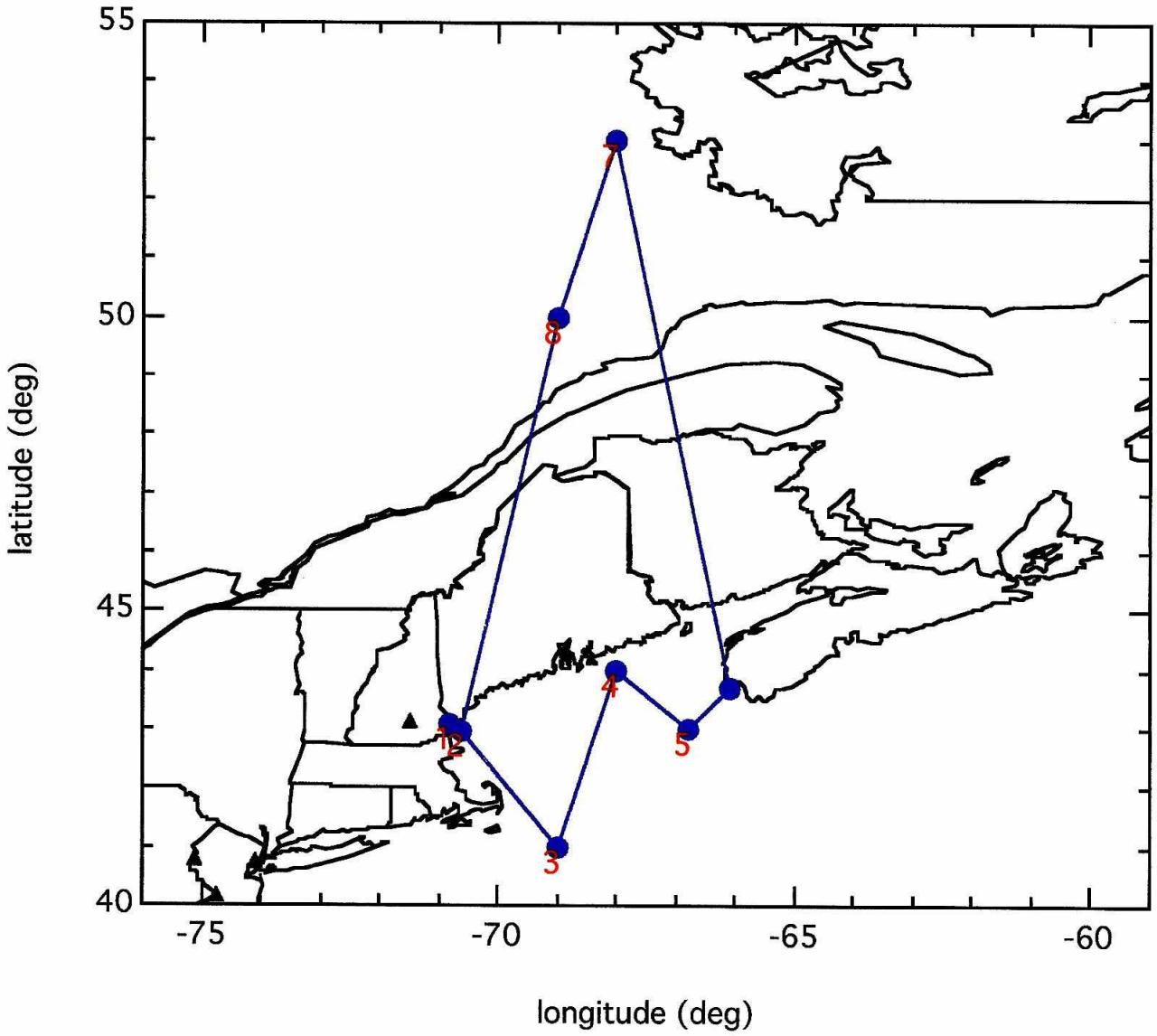
Adjust location of Pt. 7 according to location of biomass burning plume. Look out for fire haze. At Pt. 7 we should have transited to dry air.
Spiral profile at Pt. 7 to level of biomass burning plume (About at 10 – 13 kft). Hold altitude in haze plume for 5 – 10 min (PILS samples).

Head direction of Pt. 8 (50 00 N, 69 00 W) climb in route to 18 kft.
Head direction of Pt. 2 (42 58.02 N, 70 37.02 W) Appledore Island at 18 kft.
Arrive at Pt. 2 at 500 ft for low level pass over ground site on Appledore Island.

Return to Pease Pt. 1 (43 4.7 N, 70 49.4 W).

Estimated flight duration 7 hours 30 minutes.
(Fuel for 8 hour flight to allow for adjustment of Pt. 7 according to location of biomass burning plume)

WP3 Flight Plan for 9 July 2004



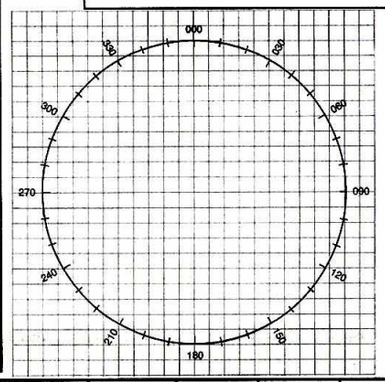
lat_plan	lng_plan	deldist_km	intdist_km	name_plan	lat_plan_deg	lat_plan_min	lng_plan_deg	lng_plan_min	pnt	
43.078	-70.823	0	0	Pease	43	4.68	-70	49.38	1	
42.967	-70.617	21	21	Appledore	42	58.02	-70	37.02	2	
41	-69	256	277		41	0	-69	0	3	
44	-68	343	621		43	60	-68	0	4	
43	-66.8	147	768		43	0	-66	48	5	
43.718	-66.112	97	865	Chebogue	43	43.08	-66	6.72	6	
53	-68	1,041	1,906		53	0	-68	0	7	
50	-69	341	2,247		0	0	0	0	0	
42.967	-70.617	792	3,039	Appledore	42	58.02	-70	37.02	2	
43.078	-70.823	21	3,059	Pease	43	4.68	-70	49.38	1	

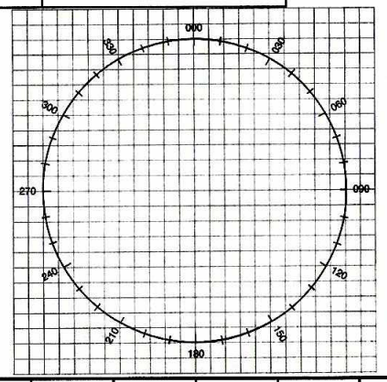
time_altit	altit_kft	alt_way_point	latw_deg	latw_min	lngw_deg	lngw_min	latw	lngw	pntw	
00:00:00	0	Pease	43	4.68	-70	49.38	43.078	-70.823	1	
00:03:22	1.5	Appledore	42	58.02	-70	37.02	42.967	-70.617	2	
00:44:55	1.5		41	0	-69	0	41	-69	3	
01:40:37	1.5		43	60	-68	0	44	-68	4	
02:04:31	1.5	Ron Brown	43	0	-66	48	43	-66.8	5	
02:11:00	10	spiral	0	0	0	0	0	0	5	
02:14:00	6	above cloud	0	0	0	0	0	0		
02:22:00	6	above cloud	0	0	0	0	0	0		
02:23:00	5.5	in cloud	0	0	0	0	0	0		
02:26:00	5.5	in cloud	0	0	0	0	0	0		
02:27:18	1.5	Chebogue	43	43.08	-66	6.72	43.718	-66.112		
02:29:00	0.1	spiral profile at	0	0	0	0	0	0	6	
02:42:00	18	Chebogue	0	0	0	0	0	0	6	
02:52:00	1		0	0	0	0	0	0		
02:57:00	1		0	0	0	0	0	0		
03:00:00	6		0	0	0	0	0	0		
03:12:00	6		0	0	0	0	0	0		
03:15:00	10		0	0	0	0	0	0		
03:27:00	10		0	0	0	0	0	0		
03:30:00	15		0	0	0	0	0	0		
03:42:00	15		0	0	0	0	0	0		
03:45:00	19		0	0	0	0	0	0		
03:57:00	19		0	0	0	0	0	0		
04:00:00	23		0	0	0	0	0	0		
04:56:00	23	Look for fire haze	53	0	-68	0	53	-68	7	
05:05:00	10	spiral descent	0	0	0	0	0	0	7	
05:15:00	10	in haze layer	0	0	0	0	0	0		
05:21:00	18		0	0	0	0	0	0		
06:00:00	18	way point	50	0	-69	0	50	-69	8	
07:30:00	18		0	0	0	0	0	0		
07:42:00	0.5	Appledore	42	58.02	-70	37.02	42.967	-70.617	2	
07:50:00	0	Pease	43	4.68	-70	49.38	43.078	-70.823	1	

N42 20.4 W67.14.35 53. YBC TSM 123.7 52 68W SIJ YSJ 1412

CLEARANCES			
FREQ	ALT	HDG	OTHER

MISSION LOG PAGE ___ OF ___





POSITION REPORT

1. POSITION
2. TIME
3. ALTITUDE
4. NEXT POSITION
5. ETA
6. NEXT POSITION

EMERGENCY MESSAGE

TRANSMIT THE FOLLOWING MESSAGE TO ANY AGENCY ON THE AIR-GROUND FREQUENCY IN USE. IF UNABLE TO ESTABLISH COMMS, ATTEMPT CONTACT ON ANY OF THE FOLLOWING EMERGENCY FREQUENCIES:

UHF/VOICE	VHF/VOICE	MF/VOICE	HF/CW	MF/CW
243.0	121.5	2182 KHZ	8364 KHZ	500 KHZ

MAYDAY, MAYDAY, MAYDAY
THIS IS NOAA _____, NOAA _____, NOAA _____

- POSITION _____ N / S
  _____ E / W AT _____ Z
- HEADING _____ TRUE/MAG
- AT _____ KTS TRUE/INDICATED
- FLIGHT LEVEL OR ALTITUDE _____
- WE ARE A P-3 AIRCRAFT WITH _____ SOULS ON BOARD
- NATURE OF EMERGENCY
- ASSISTANCE DESIRED
- PILOT INTENTIONS
- WE HAVE _____ ENDURANCE REMAINING

TIME	FIX TYPE	POSITION	INS 1 POSITION	K ERR	INS 2 POSITION	K ERR	MH	VAR +E==>	TH	DR +R==>	TRK	GS	WD	WS	ALT	TAS	NEXT PT	DIST	TIME	ETA	REMARKS
0517	EPG																				
1519	TA/I																				
1519	BLK																				
1529	T/OFF																				
1545	X	N42-37.4 W070-19.0	N42-37.5 W070-18.7	-.1 +.3	N42-37.3 W070-19.1	+.1 -.1	166	16W	150	3L	147	231	265	15	1500	224	13	98	426	1611	INS #2 TRK
1645	△	N42-47.2 W068-26.4	N42-45.8 W068-26.4	+1.4 —	N42-45.5 W068-25.7	+1.7 -.7	086	16W	010	4R	014	215	300	20	↑1500	218	4	76	122	1707	INS #1 PPI
1745	△	N42-22.7 W067-27.4	N42-22.1 W067-27.6	+.6 -.2	N42-20.2 W067-27.3	+2.5 +.1	045	16W	029	4R	033	229	265	30	↑N000	225	6	102	+27	1812	"
1845	△	N45-51.1 W066-51.0	N45-50.7 W066-49.7	+.9 +1.3	N45-50.1 W066-51.2	+1.0 -.2	002	20W	342	1R	343	243	190	20	↑000	225	7	431	1+46	2031	"
1935	△	49-34.8 67-22.1	49-33.9 67-22.9	+.9 -1.8	49-33.0 67-23.0	+1.8 -.9	016	23W	353	1R	354	285	185	30	19K	253					
2030	△	53-12.1 68-30.3	53-12.5 68-28.9	-.4 +1.4	53-11.5 68-31.9	+.6 -1.6	199	26W	173	2R	175	245	020	12	10K	229					
2130	△	49-04.8 68-14.8	49-05.0 68-13.6	-.2 +1.2	49-05.4 68-15.0	-.6 -.2	219	22W	199	2L	196	267	345	21	16K	249					
2230	△	44-06.9 070-25.4	44-08.4 070-24.7	-1.5 +.7	44-07.2 070-25.6	-.3 -.2	206	16W	190	2L	188	244	345	30	↓11000	235					
2300	Land	N43-04.4 W070-48.5	N43-06.0 W070-45.7	-1.6 +2.8	N43-04.8 W070-48.5	-.4 —															

YBC