

## ACTIVE First Campaign Log

### Events

First Campaign	
31-Oct	York advance guard arr 3.00 am
01-Nov	Most of ACTIVE arrived Darwin 5.30 pm
02-Nov	
03-Nov	Dornier arr. 2000
04-Nov	Equipment arr 0830, Jorg + Dimona arr 5.00 pm
05-Nov	Egrett arrived mid-pm
06-Nov	
07-Nov	
08-Nov	TD001 t/o 4.00, landing 6.00; flew straight legs along 12S, 130 - 1305.E. All OK except AMS. Unsuccessful ozonesonde test
09-Nov	Partially successful ozonesonde flight: RS92 now OK, few remaining software problems meant no ozone data
10-Nov	Successful ozonesonde flight except overheating at lower levels. Profile looks plausible although > 40 ppb at all levels.
11-Nov	Unsuccessful test of AIMMS. Successful Egrett test flight except CAPS. Greg Kok arrives.
12-Nov	
13-Nov	Successful test flight of both aircraft. Ozonesonde flown evening.
14-Nov	First science flights planned. Violent thunderstorm strikes base and soaks equipment. Flights cancelled. O3sonde flown 2.00.
15-Nov	First science flights. Successful Dornier flight but no Hector so no chance of Egrett flight. No ozonesondes due to failure of GC25
16-Nov	Second science flights. Both aircraft flown successfully with Geophysica and Falcon.
17-Nov	Down day. Confirmation of oil leak in Egrett propellor necessitating return of same to Adelaide for repair
18-Nov	Down day. Tried to make a push on data.
19-Nov	Dornier flight SD005, round Tiwis at 2000' then profiles round the islands from 2000' to 5000'. T/O 1408, after Hector blew up. SCOUT flight also
20-Nov	Hard down day (day off) Mini-monsoon
21-Nov	Monsoon-like conditions persist.
22-Nov	Do flight cancelled due to persisting monsoon. Ozonesonde flown 2.00 (equipment fixed).
23-Nov	Do survey flight SD006 over Arnhem land. Ozonesonde 2.00. SCOUT survey flight
24-Nov	Second Do survey flight, SD007, same path as yesterday but at higher altitudes, mainly 6000'.
25-Nov	Do down for maintenance. Egrett still grounded. Science meeting held in the Uni in the afternoon
26-Nov	Do down for maintenance. Egrett still grounded. Spent day talking to SCOUT
27-Nov	Do down for maintenance. Egrett test flight TE005 successful.
28-Nov	Egrett propellor ready but flight aborted due to air speed indicator. Successful Do flight AD008. Geophysica also had problems
29-Nov	Down day to let ARA sort out Egrett. No Do flight or sondes.
30-Nov	Successful flights AE006 and AD009 with SCOUT in NE part of large anvil outflow
01-Dec	Do flight AD010 successful. Egrett has severe data system problems on AE007
02-Dec	Problems with data system persist. Weather poor so no flight today
03-Dec	Good Egrett flight AE008 west of Bathurst after huge Hector blew up
04-Dec	Dual flight with both aircraft, AD011 and AE009 in outflow south of Bathurst Is.
05-Dec	Do flew round Coburg peninsula. Intercomparison leg N-S, between Melville and Coburg. Egrett sampled aged Cs
06-Dec	Egrett flew in massive cirrus outflow, off the south coast of Bathurst and Melville W of Cape Gambier.
07-Dec	No flight today due to very late Hector. Spectacular storms in Darwin in the evening
08-Dec	Expect late H again today due to suppressed conditions. Flew Egrett westward to catch Nox from anvil of last night's storms
09-Dec	Final Egrett flight in anvil spreading W from Bathurst. Transects flown at increasing distances from the storm.
10-Dec	Egrett survey flight to measure quiescent background conditions with SP2

## Dornier Flights

First Campaign: Dornier flights						
	Flight	Science	Duration	Take	Land	Flight plan
		Plan	hours	off		
08-Nov	TD001	Test 1	1.7	1600	1740	Straight & level runs along 12 S, 130 - 130.5E, 1000', 2000', 5000', 10000'
09-Nov						
10-Nov						
11-Nov			0.5			AIMMS test
12-Nov						
13-Nov	TD002	Test 2	2	1423	1623	As Test 1 but extended in length at 5000' and 10000'
14-Nov						
15-Nov	AD003	Basic	2.7	1403	1643	Flew round island at 2000', straight legs at 5000', 15000' and return to 10000'
16-Nov	AD004	Basic	4	1450	1900	Flew round island at 2000', straight leg at 5000', half circuit at 10000' and 6500', transect at 4000'
17-Nov						
18-Nov			0.5			AIMMS test
19-Nov	SD005	Crown	3.7	1408	1749	Flew round island at 2000' then series of profiles between 2000' and 5000' around island
20-Nov						
21-Nov						
22-Nov						
23-Nov	SD006	HDS	3.5	1444	1812	Survey flight at 2000' eastward over Arnhem Land
24-Nov	SD007	HDS	3.3	1339	1657	Survey flight at 6000' with excursions up to 15000', eastward over Arnhem Land
25-Nov						
26-Nov						
27-Nov						
28-Nov	AD008	Crown	3.7	1305	1647	Flew series of profiles between 2000' and 10000' around island then round island at 2000'
29-Nov						
30-Nov	AD009	Crown	3.7	1215	1557	As 28th with some work at 4500' and 10000'
01-Dec	AD010	Crown	4.6	1210	1646	As 28th with some work at 5000' and 10000'
02-Dec						
03-Dec						
04-Dec	AD011	Crown	3.8	1313	1702	As 28th with some straight runs S of Melville
05-Dec	AD012	HDS/HI	4.25	1331	1745	Flight round Coburg, with intercomparison
			41.95			



EGRETT flights

First Campaign: Egrett flights						
	Flight	Science	Duration	Take	Land	Flight plan
		Plan	hours	off		
05-Nov			7			Transit from Adelaide
08-Nov						
09-Nov						
10-Nov						
11-Nov	TE001	Test 1	3	1620	1920	Straight & level runs along 12° 20' S, 130 - 130.5E, 39000', 42000', max (44800')
12-Nov						
13-Nov	TE002	Test 2	1.5	1520	1650	Flight aborted due to storm approaching Darwin. 15 min run in Ci at 39000'
14-Nov						
15-Nov	AE003	HA1	2	1520	1720	Flight curtailed because of no Hector
16-Nov	AE004	HC1	3.25	1556	1915	Flew diagonal transects of detached anvil at 41000' and 43000'
17-Nov						
26-Nov						
27-Nov	TE005	Test	2			ARA test flight
28-Nov		HC1	0.5	1520	1545	Flight curtailed because of problems with air speed indicator.
29-Nov						
30-Nov	AE006	HC1	4	1345	1742	Successful flight on the edge of a large anvil
01-Dec	AE007	HA1	3.7	1425	1805	Very difficult flight - data system fell over and communication was poor.
02-Dec						
03-Dec	AE008	HC1	3.8	1545	1916	Successful flight looking at westbound outflow from islands
04-Dec	AE009	HA1	3	1620	1921	Messy outflow from a mass of storms, flying S of Bathurst
05-Dec	AE010	HC2/HI	2.5	1533	1757	Intercomparison plus flight in background high level Ci.
06-Dec	AE011	HA1	4.5	1409	1836	Very successful flight in thick Ci outflow along S coast. Seven stacked legs up to FL460.
07-Dec						
08-Dec	AE012	HC2	4.2	1319	1732	Survey flight with NOx to look for remains of anvil outflow to the west. Runs through anvil at the end
09-Dec	AE013	HA1	3.7	1355	1737	Transects of anvil heading W from Bathurst at different distances
10-Dec	SE014	HA2	3	1123	1419	Survey flight with SP2, sampling background clear air and cirrus at 40,000 and 38000 ft
			44.65			
11-Dec	SE015	Transit	7	900	1600	Transit flight back to Adelaide
Hours inc. transit			58.65			

EGRETT Equipment

First Campaign: Egrett instrument status (from test flight on)															
n: not flown, x: not working, p: part working, y: working															
	CAPS	CDP	CPI	CO	O3	CR-2	TDL1	TDL2	VOC	GC	Met	NOX	TSI	SP2	Flight
11-Nov	x	y	p	y	y	x	y	n	y	p	y	y	p	n	TE001
12-Nov															
13-Nov	y	p	y	x	y	y	y	n	p	x	y	n	x	p	TE002
14-Nov															
15-Nov	y		x	y	y	y	y	n	y	p	y	n	x		AE003
16-Nov	y	y	y	y	y	n	y	n	y	x	p	y	x	n	AE004
17-Nov															
26-Nov															
27-Nov	y	y	y	y	y	y	y	y	x	n	y	n	y	y	TE005
28-Nov															
29-Nov															
30-Nov	y	p	y	y	p	y	y	y	y	x	p	y	y	n	AE006
01-Dec	y	p	y	y	p	p	y	y	y	y	p	n	y	y	AE007
02-Dec															
03-Dec	y	p	y	y	x	x	y	y	y	x	y	y	y	n	AE008
04-Dec	y	x	y	y	p	y	y	y	y	y	y	n	y	y	AE009
05-Dec	y	n	y	y		p	y	y	y	p	y	y	y	n	AE010
06-Dec	p	n	y	y		y	n	y	n	x	p	n	y	y	AE011
07-Dec															
08-Dec	y	n	y	y		y	y	y	y	y	y	y	y	n	AE012
09-Dec	y	n	y	y			y	y	y	n	y	n	y	y	AE013
10-Dec		n	y	y			y	y	p	x	y	n	y	y	SE014
11-Dec	n	n	n	n	n	n	n	y	n	x	y	n	n	n	SE015

transit flight: only GC, TDL2, p and T flown

## Ozonesondes

First Campaign: ozonesondes										
	900	1400	2100							
									Number left	
x: failure, p: partial success: y: successful flight										
			Background current						RS92	ECC
08-Nov		x			2 radiosondes lost, one broken filament, one went up in smoke				38	40
09-Nov		p	0.16		package prepared and launched OK but ozone data lost				37	39
10-Nov		y	0.127		sonde overheated on ground. Values in troposphere rather high?				35	38
11-Nov										
12-Nov										
13-Nov			y	0.095	anvil profile, 60 ppbv at 500 mb, generally 60 ppbv in UT				34	37
14-Nov		y		0.130	launched into thunderstorm, lost at 400 mb				33	36
15-Nov										
16-Nov					motor went on ozonesonde				33	35
17-Nov										
18-Nov										
19-Nov										
20-Nov										
21-Nov										
22-Nov		y		0.080	Equipment finally fixed. Westerly winds				32	34
23-Nov		y		0.090	Flight with Geophysica and Dornier				31	33
24-Nov		y		0.090	Flight with Dornier - tropopause fold?				30	32
25-Nov										
26-Nov										
27-Nov			y	0.080	Anvil spreading over				29	31
28-Nov		x		0.110	Supposed to support Geophysica and Egrett (sonde didn't work)				28	30
29-Nov										
30-Nov		y	y	0.07/0.100	double flight with SCOUT				26	28
01-Dec		y		0.100					25	27
02-Dec										
03-Dec		y	y	0.094/0.13					23	25
04-Dec		y	x	0.082/0.120	Evening sonde did not work				21	23
05-Dec		y	y	0.12/0.060					19	21
06-Dec		y		0.065					18	20
07-Dec		y	y	0.044/0.040	second sonde launched into thunderstorm				16	18
08-Dec		y		0.065					15	17
09-Dec		x		0.085	sonde did not work (interface card?)				14	16
10-Dec		y		0.110					13	15
									one of the radiosondes has dud humidity	

Sonde values

Date	Time	Background Current / mA	Flow Rate / ml min <sup>-1</sup>	Flow Rate / s 100ml <sup>-1</sup>
09/11/05	14:00	0.160	218.8	27.42
10/11/05	14:00	0.129	213.9	28.05
13/11/05	21:00	0.097	211.5	28.37
14/11/05	14:00	0.130	199.3	30.11
22/11/05	14:00	0.080	216.2	27.75
23/11/05	14:00	0.090	228.9	26.21
24/11/05	14:00	0.090	221.8	27.05
27/11/05	21:00	0.080	229.7	26.12
28/11/05	14:00	0.110	240.0	25.00
30/11/05	14:00	0.070	224.3	26.75
30/11/05	21:00	0.100	238.0	25.21
01/12/05	14:00	0.100	224.4	26.74
03/12/05	14:00	0.094	219.2	27.37
03/12/05	21:00	0.130	228.4	26.27
04/12/05	14:00	0.082	228.2	26.29
04/12/05	21:00	0.120	228.3	26.28
05/12/05	14:00	0.120	237.9	25.22
05/12/05	21:00	0.060	223.0	26.91
06/12/05	14:00	0.065	228.2	26.29
07/12/05	14:00	0.044	213.0	28.17
07/12/05	21:00	0.040	230.0	26.09
08/12/05	14:00	0.065	221.2	27.12
09/12/05	14:00	0.085	229.1	26.19
10/12/05	14:00	0.110	218.9	27.41

## Hector

First Campaign			No Hector			Strong H		
			Weak Hector			Late H		
31-Oct								
01-Nov								
02-Nov								
03-Nov								
04-Nov								
05-Nov	Powerful Hector developed ~ 3.00 - 4.00 pm over Bathurst, blown out to sea							
06-Nov	No Hector, 40 kt easterly @ 700 mb, dry layer 600-280 on 9.00 sounding							
07-Nov	Hector developed over SW tip of Bathurst ~ 1430, moved E over sea while anvil spread S							
08-Nov	Hector developed over W Melville							
09-Nov	Strongest Hector yet, developed over Aspley Strait							
10-Nov	Hector developed late in the day over Melville. Said by Emerald veterans to be like those seen then.							
11-Nov	Hector developed around 1400 local over Bathurst, huge anvil spread S - Egrett flew in this							
12-Nov	No Hector, no apparent reason why not							
13-Nov	Hector developed over N Melville ~1400, main anvil spreading east and upper part SE to Darwin							
14-Nov	Hector developed over Bathurst around 2.15							
15-Nov	No Hector developed							
16-Nov	Hector developed over Bathurst around 3.15							
17-Nov	Large multicellular Hector over Melville ~2.30							
18-Nov	Enormous multi-cellular Hector developed over central Melville ~1400. Less hazy today							
19-Nov	Similar to yesterday							
20-Nov	Westerly winds bring monsoon conditions with no deep convection over Tiwis							
21-Nov	Mini-Monsoon persists							
22-Nov	Mini-Monsoon persists							
23-Nov	Extensive Hector covering whole of B. Is by 3.00, kick-off ~1130. Moves W thereafter. Tops > 16km							
24-Nov	very late development: ~1615 near Gdn point reaching > 16 km							
25-Nov	Large Hector over Melville, starting ~ 2.00							
26-Nov	H started over Bathurst and E tip of Melville ~2.30. Huge anvil spread W over Darwin. Tops ~ 18 km							
27-Nov	Hector blew up to ~ 20 km on western tip of Bathurst ~ 2.30							
28-Nov	Messy Hector, with several turrets. One over Melville ~ 2.30, another over Bathurst about 1 hr later.							
29-Nov	As yesterday but later in the day - largest storm around 5.30							
30-Nov	Large Hector over Melville, starting ~ 2.00. Flew with SCOUT in NE corner							
01-Dec	Large Hector over both islands, start ~2.30							
02-Dec	Large Hectors all over islands from 1.30 onwards							
03-Dec	Large Hector ove S.Melville around 2.00							
04-Dec	Late Hector, small storms over Bathurst developing ~ 4.00							
05-Dec	Hector developed over Melville ~2.00 with another storm over C. van Diemen							
06-Dec	Hector developed early, ~ 11.40, over Bathurst then main storm >20 km over S Melville 2.00							
07-Dec	Very late development: ~1615 near Gdn point reaching 20 km							
08-Dec	Late development again but big storms ove NW Melville							
09-Dec	Storms developed around 1.00 over NW of islands, with large anvil spreading out to sea.							
10-Dec	Similar to yesterday							