0709141 Rogers

Lead Project Scientist

Preflight

1. Participate in general mission briefing.
2. Determine specific mission and flight requirements for assigned aircraft.
3. Determine from field program director whether aircraft has operational fix responsibility and discuss with AOC flight director/meteorologist unless briefed otherwise by field program director.
4. Contact HRD members of crew to:
   a. Assure availability for mission.
   b. Review field program safety checklist
   c. Arrange ground transportation schedule when deployed.
   d. Determine equipment status.
5. Meet with AOC flight director and navigator at least 3 hours before take-off for initial briefing.
5. Meet with AOC flight crew at least 2 hours before take-off for crew briefing. Provide copies of flight requirements and provide a formal briefing for the flight director, navigator, and pilots.
6. Report status of aircraft, systems, necessary on-board supplies and crews to appropriate HRD operations center (MGOC in Miami).
7. Before take-off, brief the on-board GPS dropsonde operator on times and positions of drop times.
7. Make sure each HRD flight crew members have life vests
7. Perform a headset operation check with all HRD flight crew members. Make sure everyone can hear and speak using the headset.
8. Collect "mess" fee ($2.00) from all on-board HRD flight crew members.

In-Flight

1. Confirm from AOC flight director that satellite data link is operative (information).
2. Confirm camera mode of operation.
3. Confirm data recording rate.
4. Complete Lead Project Scientist Form.
5. Check in with the flight director to make sure the mission is going as planned (i.e. turns are made when they are supposed to be made).

Post flight

1. Debrief scientific crew.
2. Report landing time, aircraft, crew, and mission status along with supplies (tapes, *etc.*) remaining aboard the aircraft to MGOC.
3. Gather completed forms for mission and turn in at the appropriate operations center. [Note: all data removed from the aircraft by HRD personnel should be cleared with the AOC flight director.]
4. Obtain a copy of the 10-s flight listing from the AOC flight director. Turn in with completed forms.
5. Obtain a copy of the radar DAT tapes. Turn in with completed forms.
6. Obtain a copy of the all VHS videos form aircraft cameras (3-4 approx.). Turn in with completed forms.
7. Obtain a copy of CD with all flight data. Turn in with completed forms.
8. Determine next mission status, if any, and brief crews as necessary.
9. Notify MGOC as to where you can be contacted and arrange for any further coordination required.
10. Prepare written mission summary using **Mission Summary** form (due to Field Program Director a week after the flight).

0308A

Lead Project Scientist Check List

Date 9/14/07 **Aircraft** N43RF **Flight ID** 0709141

A. Participants:

HRD		AOC	
Function	**Participant**	**Function**	**Participant**
Lead Project Scientist	Rogers	Flight Director	Almeida
Radar	Black, Rogers	Pilots	Choy, Nelson
Workstation	Black	Navigator	Siegel
Cloud Physics	—	Systems Engineer	Lynch
Photographer/Observer /Guests	—	Data Technician	Smith
Dropwindsonde	Black	Electronics Technician	Gamsoui
AXBT/AXCP		Other	

B. Take-off and Landing Locations:

Take-Off: 1949 Z Location: Barbados

Landing: 0402 Z Location: Barbados

Number of Eye Penetrations: 0

15.7 50.8 00Z

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind
14/15 Z	15.2	50.0		40 kt
15/00Z	15.5	50.8		35 kt
15/12 Z	16.5	52.2		35 kt

D. Mission Briefing:

Fly rotating fig-4 pattern in support of 3-D Doppler winds experiment. Leg lengths 100 nm, set up IP SW of storm, end up north of storm. Drop sondes on diagonal legs, at end points and 1/3 + 2/3 of distance on each radial. On 2nd Fig-4, along cardinal directions, descend to 10,000 ft and get a fix for NHC on each pass.

E. —Equipment Status (Up ↑, Down ↓, Not Available —, Not Used **O**)

Equipment	Pre-Flight	In-Flight	Post-Flight	# DATs / Cds /Expendables/ Printouts
Radar/LF	✓	✓	—	
Doppler Radar/TA	✓	—	—	
Cloud Physics	—	—	—	
Data System	✓	—	—	
GPS sondes	✓	✓	✓	
AXBT/AXCP	—	—	—	
Workstation	✓	—	✓	
Videography	✓	✓	✓	

REMARKS:

15 40 50 37

Lead Project Scientist Event Log

Date 9/14/07 **Flight** 070914I **LPS** Rogers

Time	Event	Position	Comments
1949	takeoff	Barbados	takeoff
2112	obs	90 nm SW of IP	bands visible on LF, from sat, most deep convection will be on SE side of pattern, some scatterers on W side too through approach IP, good scatterers on left (NW) side of plane
2129	obs	near IP	
begin radar leg ↓ 2131 14	drop 1	100 nm SW from ctr.	SF 15, FL 10
2137	obs	71 nm SW ctr	2 bands on SW side, decent scatterers here
2138	drop 2	66 nm SW ctr	FL 10, SF 20
2146	drop 3	33 nm SW ctr	FL 10, SF 20
2153	obs	2 nm SW ctr	SF winds have consistently been about 10 kt higher than FL on this legs
2200	obs	28 nm NE ctr	FL ~~winds have now become much~~ ic SF winds have now switched, w/ FL winds about 10-15 kt higher than SF winds
22042	drop 4	33 nm NE ctr	FC 40, SF 25
2206	obs	53 nm NE ctr.	peak winds: SW: FL 30kt, SF 40kt; NE: FL 45kt, SF 28 kt
2209	drop 5	66 nm NE ctr	FL 32, SF 20 kt

215730
15 52
50 26 18kt

Lead Project Scientist Event Log

Date 9/14/07 Flight 070914I LPS Rogers

18kt

end radial

start radial

Time	Event	Position	Comments
221154	obs	80 nm NE ctr.	center not easy to find
221652	drop 6	100 nm NE ctr.	FL 25, SF 10
224852	turn		
224858	drop 7	100 nm NW ctr.	FL 30, SF 20 kt
225733	drop 8	63 nm NW ctr.	FL 30, SF 22 kt
230140	obs	46 nm NW ctr.	little to no rain on NW side; FL > SF winds for first 60 nm of leg, now both are same value
230515	drop 9	33 nm NW ctr.	FL 35, SF 25 kt
231328	obs	near supposed ctr.	passed thru ctr., FL stayed near 30 kt, SF dropped to 20, w/ wind dir. ESE means were missed ctr, it was off to our right hitting some bumps, some convection off to right of alc
2322	drop 10	33 nm SE ctr.	FL 28, SF 28 kt
2331	drop 11	80 nm SE	FL 20, SF 24 kt
2339	drop 12	105 nm SE	FL 20, SF 5 kt

1007.9

15.8 N
51.2 W

Lead Project Scientist Event Log

Date 9/14/07 **Flight** 070914I **LPS** Rogers

Time	Event	Position	Comments
2339	pattern	105 nm SE ctr.	turn to track 0
2356	pattern	100 nm E ctr.	turn to track 270
0014			
002013	pattern	12 nm E ctr	turn to track 255
002430	pattern		turn to 240
002828	drop 13	near supposed ctr.	FL 8, SFC 0 kt
0037	obs	~50 nm W of ctr.	very difficult to find a center; seems possible that SF center is to N of FL ctr, but never really found zero wind at FL; encountering
0047	ob	100 nm W of ctr	"center" drop showed winds low FL & 750 mb as easterly, b/w 800 & SFC. shifted to westerly; that's consistent with a vortex whose sfc. center is displaced S of FL center
0053	pattern	115 nm W of ctr.	turn to track 135
0125	pattern	100 nm S of ctr	turn to track 0
0128	pattern	85 nm S of ctr	deviate to track 25 to punch through line
			ahead of us & then parallel it
			until we get back to track 0

end of RL2

start of RL3

end of RL3

start of RL4

0402 Land Barbados Land in Barb.

Lead Project Scientist Event Log

Date 9/14/07 Flight 070914I LPS Rogers

Time	Event	Position	Comments
0135 54	obs	58 nm SSE ctr.	heavy stratiform on
		both side of a/c, punching thru	
		live	
0138	pattern	34 nm SSE	turn to track 330
0142	pattern	31 nm S SE	track 320, about
			20 nm east of line of
			convection
0156	obs	23 nm N of ctr	SF winds went to 0,
			FL wind stayed at 30kt
		with SE	winds, suggesting vert.
		was tilted toward the NW with	
		height	
Level FL4 0213 04	pattern	100 nm N of ctr	at FP, heading home,
			no convection on
			this side

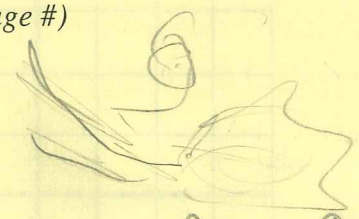
Mission Summary
Storm name
YYMMDDA# Aircraft 43 RF

Scientific Crew (4 RF)

Lead Project Scientist Rogers
Radar Scientist Black
Cloud Physics Scientist —
Dropwindsonde Scientist Black
Boundary-Layer Scientist —
Workstation Scientist Black
Observers —

Mission Briefing: (include sketch of proposed flight track or page #)

See previous

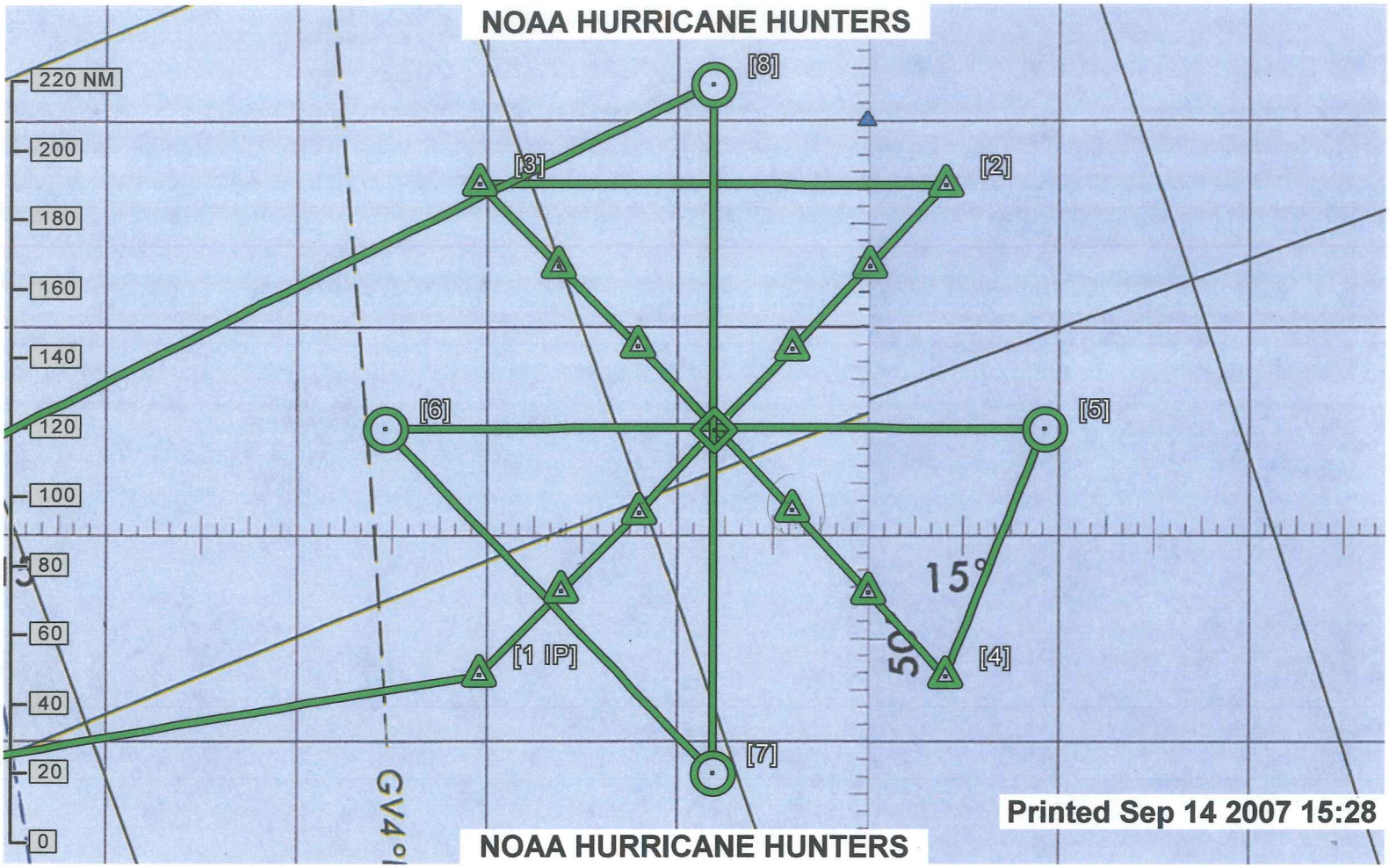


Mission Synopsis: (include plot of actual flight track) flew ratuting figure 4 as planned. were several instances where we had to deviate from planned track to avoid convection. Center was very hard to find, never really able to find it. System was evidently tilted, w/ the surface low displaced to the northwest of slightly mid-level center. Convection was mostly south + southwest of center, some stratiform around southeast side.

Evaluation: (did the experiment meet the proposed objectives?) Did accomplish collection of Doppler, though there were occasional deviations due to convection and center-finding. challenging case for automated Doppler processing, and for center finding as well, due to strong shear, weak, disorganized system. May make an interesting case for study of response of a weak vortex to strong shear and possible dry air.

Problems:(list all problems) no major problems. ovesonde on NE had trouble w/ winds. Couldn't keep winds in edit route, but can probably retrieve it on post-processing.

Expendables used in mission:
GPS sondes : 13
AXBTs : —
Sonobuoys: —


NOAA HURRICANE HUNTERS
220 NM
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180
160
140
120
100
80
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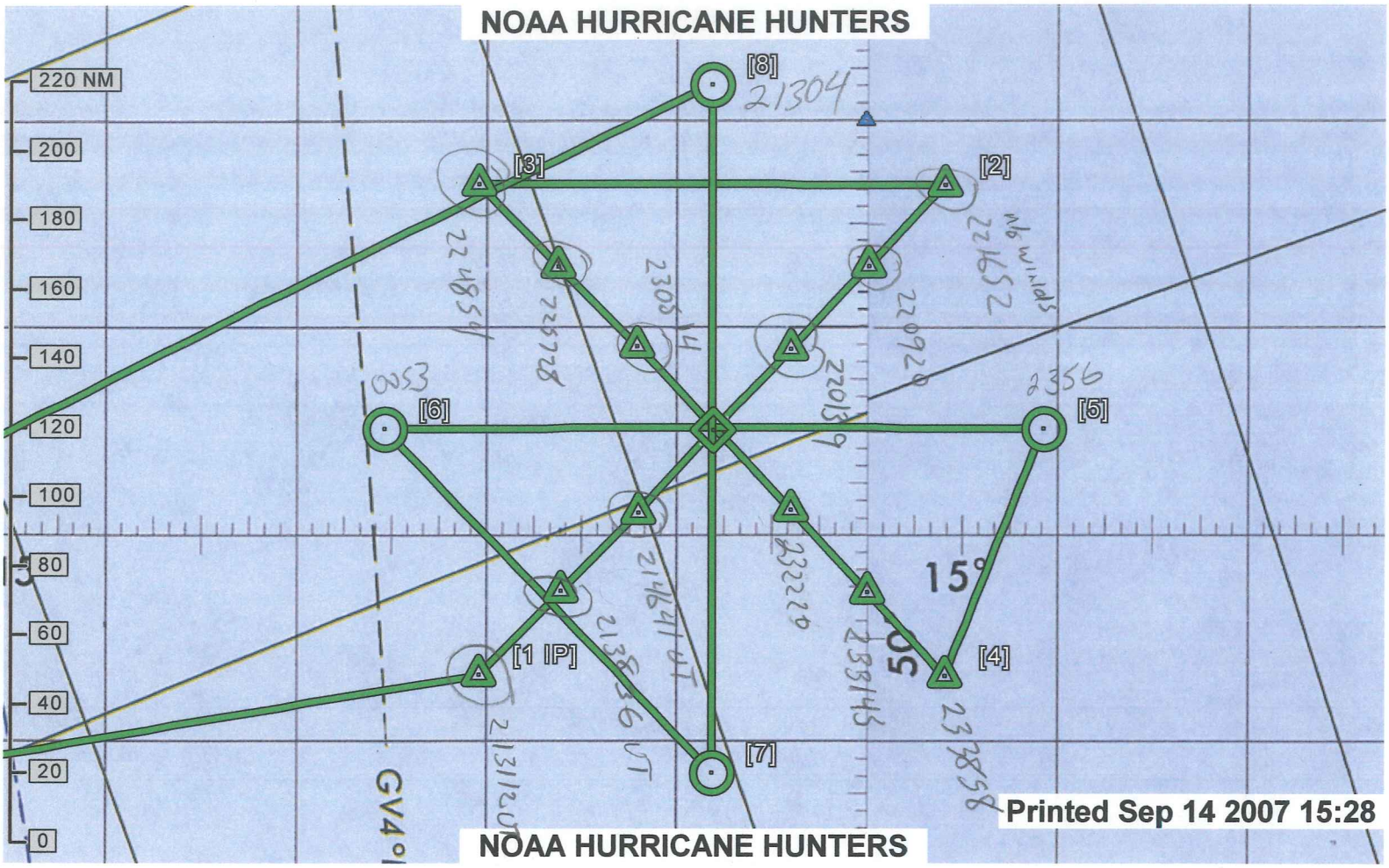
NOAA HURRICANE HUNTERS


NOAA HURRICANE HUNTERS
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NOAA HURRICANE HUNTERS

Turn Pt	Type DTD	Fix/Point Description	Latitude Longitude	Elev MV	Aspd Bank	Altitude Wind	Temp FF	MH MC	TH TC	Leg Time Clock Time
1	ST	**TBPB/A**	**N 13 04.48**	169FT		169M	-25C	091	076	00+00+00
*M		GRANTLEY AD	W059 29.55	15.2W			0	091	076	00:00:00
2			**N 13 10.00**	unk	270T	20000M	-25C	094	079	00+06+31
*M			**W059 00.00**	15.4W			0	094	079	00:06:31
3	TG		**N 14 29.75**	unk	270T	12000M	-9C	094	078	01+34+44
*M	1 IP		**W051 49.51**	17.3W			0	094	078	01:41:15
4	TG		**N 14 52.87**	unk	270T	12000M	-9C	063	046	00+07+21
*M			**W051 25.03**	17.3W			0	063	046	01:48:36
5	TG		**N 15 15.99**	unk	270T	12000M	-9C	063	045	00+07+16
*M			**W051 00.99**	17.3W			0	063	045	01:55:52
6	VP	Bullseye11	**N 15 40.00**	unk	260T	12000M	-9C	061	044	00+07+41
*M			**W050 37.00**	17.3W			0	061	044	02:03:33
7	TG		**N 16 03.05**	unk	260T	12000M	-9C	063	045	00+07+32
*M			**W050 12.90**	17.3W			0	063	045	02:11:05
8	TG		**N 16 27.39**	unk	260T	12000M	-9C	062	045	00+07+56
*M			**W049 47.54**	17.3W			0	062	045	02:19:01
9	TG		**N 16 50.51**	unk	260T	12000M	-9C	063	046	00+07+40
*M	2		**W049 22.62**	17.3W			0	063	046	02:26:41
10	TG		**N 16 50.51**	unk	260T	12000M	-9C	288	270	00+33+00
*M	3		**W051 51.70**	17.1W			0	288	270	02:59:41
11	TG		**N 16 26.98**	unk	260T	12000M	-9C	151	134	00+07+48
*M			**W051 26.34**	17.2W			0	151	134	03:07:29
12	TG		**N 16 03.05**	unk	260T	12000M	-9C	152	135	00+07+48
*M			**W051 01.43**	17.2W			0	152	135	03:15:17
13	TG		**N 15 16.40**	unk	260T	12000M	-9C	152	134	00+15+17
*M			**W050 12.46**	17.4W			0	152	134	03:30:34
14	TG		**N 14 52.06**	unk	260T	12000M	-9C	153	136	00+07+49
*M			**W049 47.98**	17.5W			0	153	136	03:38:23
15	TG		**N 14 28.53**	unk	260T	12000M	-9C	152	135	00+07+42
*M	4		**W049 23.50**	17.6W			0	152	135	03:46:05
16			**N 15 39.12**	unk	260T	12000M	-9C	040	022	00+17+34
*M	5		**W048 53.33**	17.4W			0	040	022	04:03:39
17			**N 15 40.33**	unk	260T	12000M	-9C	288	271	00+46+08
*M	6		**W052 20.55**	17.1W			0	288	271	04:49:47
18			**N 13 59.73**	unk	260T	12000M	-9C	152	135	00+32+39
*M	7		**W050 37.38**	17.5W			0	152	135	05:22:26
19			**N 17 20.12**	unk	260T	12000M	-9C	018	360	00+46+03
*M	8		**W050 36.94**	17.1W			0	018	360	06:08:29
20			**N 13 20.00**	unk	290T	12000M	-9C	262	245	01+52+04
*M			**W059 00.00**	15.4W			0	262	245	08:00:33
21		**TBPB/A**	N 13 04.48	169FT	290T	12000M	-9C	257	242	00+06+46
*M		GRANTLEY ADA	W059 29.55	15.2W			0	257	242	08:07:19

Turn Pt	Type	Fix/Point	Latitude	Elev	Aspd	Altitude	Temp	MH	TH	Leg Time
	DTD	Description	Longitude	MV	Bank	Wind	FF	MC	TC	Clock Time
1	ST	TBPB/A	N 13 04.48	169FT		169M	-25C	091	076	00+00+00
*M		GRANTLEY ADA	W059 29.55	15.2W			0	091	076	19:52:40
2			**N 13 10.00**	unk	270T	20000M	-25C	094	079	00+06+31
*M			**W059 00.00**	15.4W			0	094	079	19:59:11
3	TG		**N 14 29.75**	unk	270T	12000M	-9C	094	078	01+34+44
*M	1 IP		**W051 49.51**	17.3W			0	094	078	21:33:55
4	TG		**N 14 52.87**	unk	270T	12000M	-9C	063	046	00+07+21
*M			**W051 25.03**	17.3W			0	063	046	21:41:16
5	TG		**N 15 15.99**	unk	270T	12000M	-9C	063	045	00+07+16
*M			**W051 00.99**	17.3W			0	063	045	21:48:32
6	TG		**N 16 03.05**	unk	260T	12000M	-9C	062	045	00+15+13
*M			**W050 12.90**	17.3W			0	062	045	22:03:45
7	TG		**N 16 27.39**	unk	260T	12000M	-9C	062	045	00+07+56
*M			**W049 47.54**	17.3W			0	062	045	22:11:41
8	TG		**N 16 50.51**	unk	260T	12000M	-9C	063	046	00+07+40
*M	2		**W049 22.62**	17.3W			0	063	046	22:19:21
9	TG		**N 16 50.51**	unk	260T	12000M	-9C	288	270	00+33+00
*M	3		**W051 51.70**	17.1W			0	288	270	22:52:21
10	TG		**N 16 26.98**	unk	260T	12000M	-9C	151	134	00+07+48
*M			**W051 26.34**	17.2W			0	151	134	23:00:09
11	TG		**N 16 03.05**	unk	260T	12000M	-9C	152	135	00+07+48
*M			**W051 01.43**	17.2W			0	152	135	23:07:57
12	TG		**N 15 16.40**	unk	260T	12000M	-9C	152	134	00+15+17
*M			**W050 12.46**	17.4W			0	152	134	23:23:14
13	TG		**N 14 52.06**	unk	260T	12000M	-9C	153	136	00+07+49
*M			**W049 47.98**	17.5W			0	153	136	23:31:03
14	TG		**N 14 28.53**	unk	260T	12000M	-9C	152	135	00+07+42
*M	4		**W049 23.50**	17.6W			0	152	135	23:38:45
15			**N 15 46.46**	unk	260T	12000M	-9C	029	011	00+18+16
*M	5		**W049 07.30**	17.4W			0	029	011	23:57:01
16	VP		**N 15 48.00**	unk	260T	12000M	-9C	288	271	00+27+45
*M			**W051 12.00**	17.2W			0	288	271	00:24:46
17	VP	Bullseye11	**N 15 24.00**	unk	260T	12000M	-9C	230	213	00+06+34
*M	0027		**W051 28.00**	17.3W			0	230	213	00:31:20
18			**N 15 23.77**	unk	260T	12000M	-9C	287	270	00+22+56
*M	6		**W053 10.89**	17.0W			0	287	270	00:54:16
19			**N 13 43.38**	unk	260T	12000M	-9C	152	135	00+32+36
*M	7		**W051 27.98**	17.4W			0	152	135	01:26:52
20			**N 17 04.15**	unk	260T	12000M	-9C	017	360	00+46+08
*M	8		**W051 27.98**	17.1W			0	017	360	02:13:00
21			**N 13 20.00**	unk	290T	12000M	-9C	261	244	01+41+31
*M			**W059 00.00**	15.4W			0	261	244	03:54:31
22		TBPB/A	N 13 04.48	169FT	290T	12000M	-9C	257	242	00+06+46
*M		GRANTLEY AD	W059 29.55	15.2W			0	257	242	04:01:17