

# **THE SIX AND TEN REPORT**

**July  
2005**

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**Editors. Martin Harrison G3USF and Steve Reed G0AEV**

## Analysis of 28 MHz reports from the UK

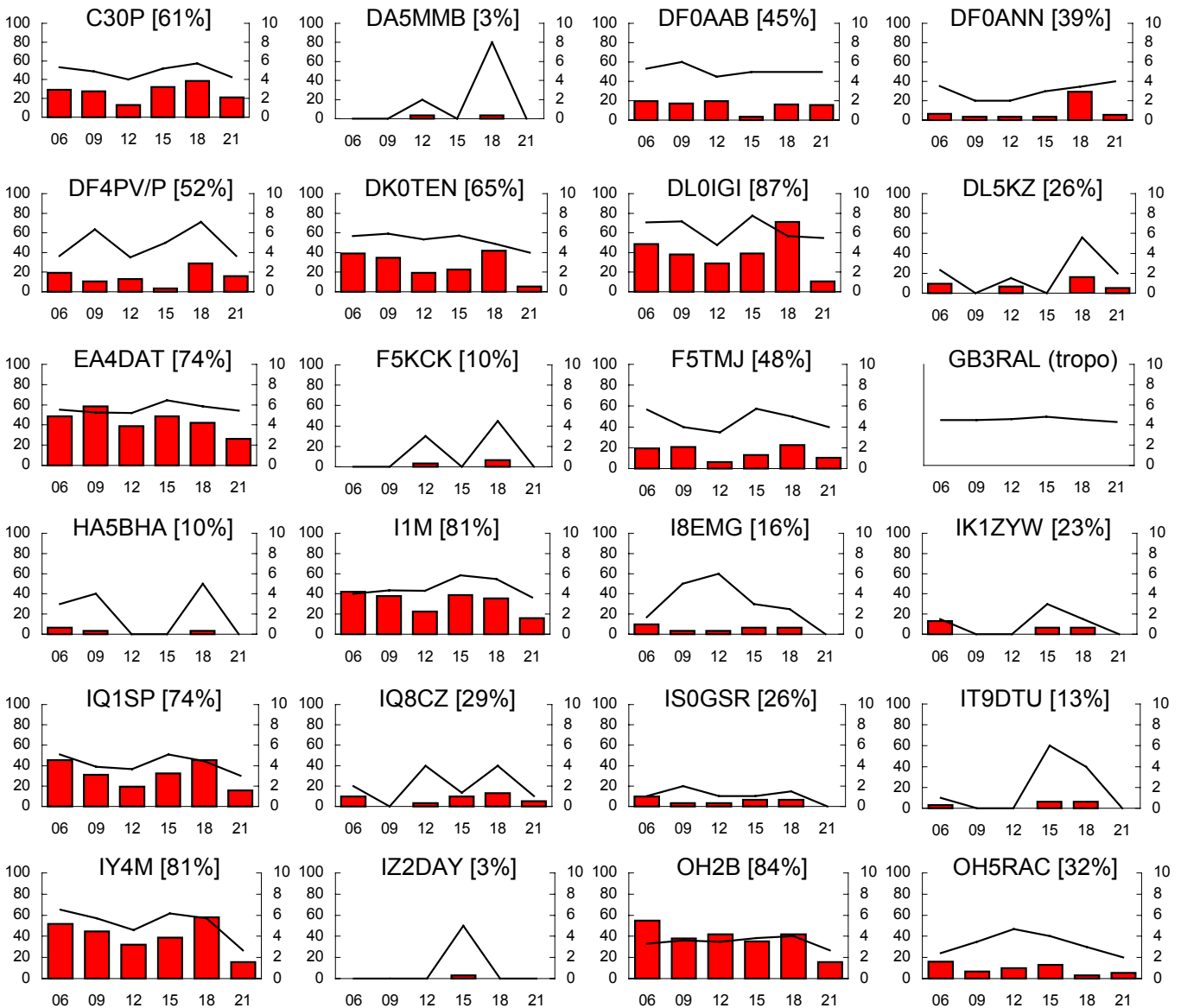
28 MHz reports and logs for July 2005 from G2AHU, G3HBR, G3IMW, G3USF, G3YBT, G4JCC, G4TMV, G4UPS, G0AEV, G0IHF and packet cluster reports. Compilation and commentary by G0AEV.

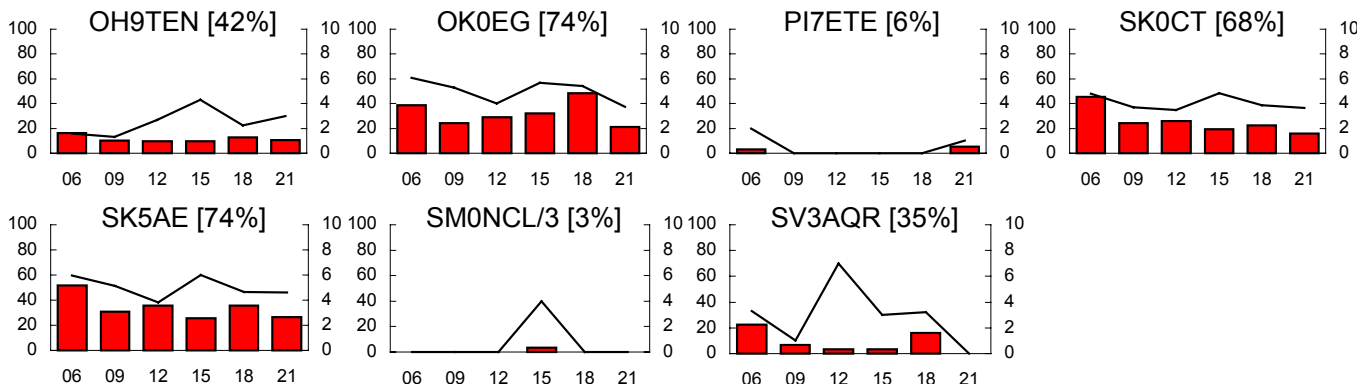
In the March 2005 Report we presented graphs of the 14 MHz IARU/NCDXF beacons prepared from the monitoring results of Ray G2AHU. This will be a regular feature from October 2005 – at least for the period when 10m propagation is poor. If you listen to the 14 MHz beacons please send us your results in the usual format – forms are at [http://www.explore.plus.com/6and10/beacon\\_forms.htm](http://www.explore.plus.com/6and10/beacon_forms.htm)

### Beacon graphs legend

Legend for all beacon graphs in this Section: - graph bars (left Y-axis): beacon reliability as the percentage of days a beacon was heard by any UK observer within each time band. Graph lines (right Y-axis): Signal Strength as the average of the daily maximum Signal reported by any observer in each time band. Time band codes (X-axis): 6=0600-0900, 9=0900-1200, 12=1200-1500, etc. Callsigns are followed by daily reliability figures, the percentage of days per month when the beacon was reported.

### European Propagation / Beacons





Propagation modes for European beacons.

Sporadic was, of course, the mode by which European beacons were heard. The exceptions are few: OH9TEN was heard by aurora (15z period, 10<sup>th</sup> July) and the chart of GB3RAL is, as usual, for tropo reception at G0AEV. Reports received included nothing obvious by Es backscatter, meteor scatter or by auroral E.

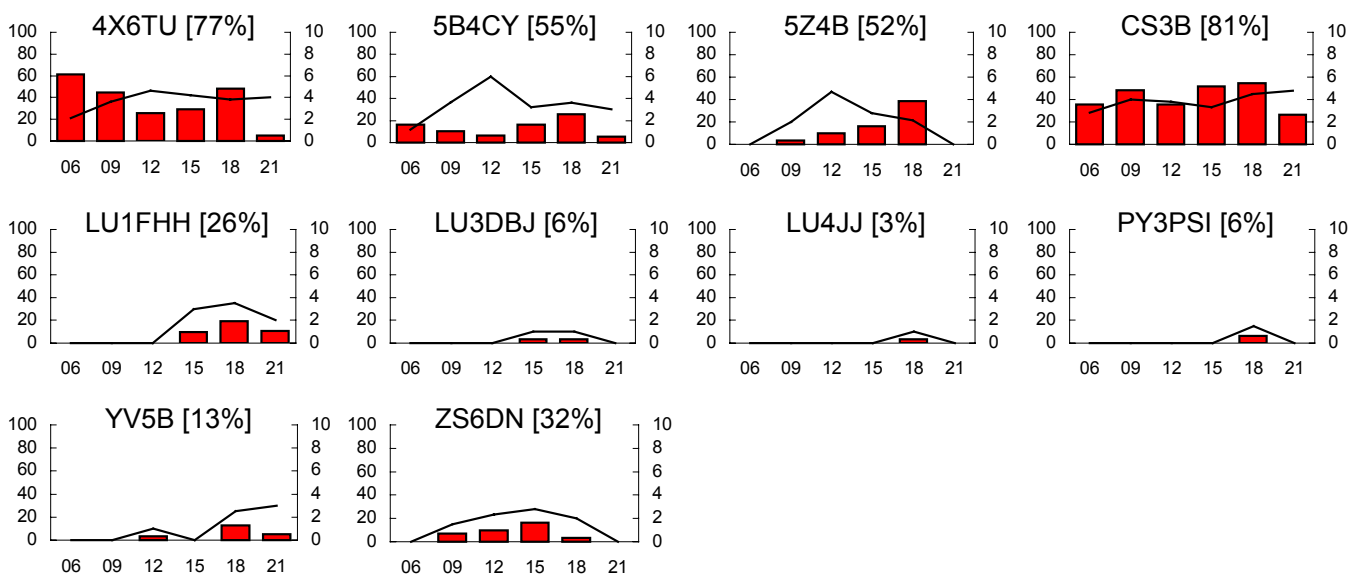
European Beacon Notes.

“All” the active European beacons were heard by UK beacon monitors this month, including the much under-reported (but out-of-band) multi-mode beacon DA5MMB (28.702). LA6TEN (28281) was spotted on the DX cluster but could not be included in the charts because no signal strength was reported. IZ2DAY was heard on one day only – a very occasional visitor to the band!

The QRSS QRP beacon I0X is missing from the list, but it is not clear if it is still transmitting. The same is true of YO2X. EI0TEN is off. Only a single report of SM0NCL (compared with the high reliabilities exhibited by the other Swedish beacons) suggests this beacon has problems, perhaps outages.

**Propagation to Asia, Africa, Oceania, South and Central America**

Beacon Graphs.



## Suggested propagation modes.

Beacons in 4X, 5B and CS were predominantly by sporadic E – the contribution from F2 on these paths is unknown but probably small. F2 paths to the south (to Africa and southern South America) including via TEP, and with or without a sporadic E first hop, were open at times but daily reliabilities were as poor as those seen in June. It is possible there were some beacon outages – on LU4JJ for example – but these are difficult to pin down. YV5B could be via F2 or multi-hop Es (or a combination of both) – the diurnal pattern (though based on very limited data) is suggestive of Es but the openings occurred in the first part of the month when F2 conditions were at their best.

## Beacon Notes.

LU4AA and OA4B are still QRT, the status of other beacons is not known. Of the new LU beacons reported last month, LU7VCH (28.191) has not reappeared but LU3DBJ (28.167) was heard again on a couple of occasions

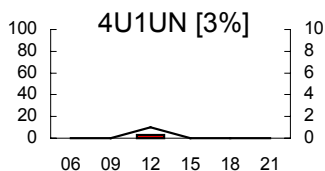
## 10m DX in July 2005

The following list of DX countries worked or heard in the UK comes from packet cluster Spots (DX Summit: <http://oh2aq.kolumbus.com/dxs/>) and from the logs of Six and Ten reporters. A slight improvement in the number of DX countries reported in July compared to the June total might be the result of additional spotting during the IARU and IOTA contests. The geographical areas covered – Africa and southern South America (by F2) and Caribbean/Atlantic North America (by Es) are unchanged

DX in July: 4X, 5B, 5N, 9G, 9K, CN, CX, CY9, EA8, EA9, KP2, LU, PY, VE, VU, YI, YV, ZP.

DX in June for comparison: 4X, 5B, 7X, 9G, CN, CY9, EA8, EA9, KP2, LU, PY, TT, TZ, W, XT

## Propagation to North America



A single report of 4U1UN (thanks to G3IMW) saved us from a second mid-summer month without anyone hearing 10m multi-hop sporadic E to Canada or USA. In most years, several dozen openings “across the pond” can be expected. Six metres also experienced poor propagation of this type. Although there were openings on several days these were all marginal and restricted in area coverage – most 6m operators heard nothing. Openings to the Caribbean were slightly better, but in the absence of beacons (I believe the KP4 beacons are no longer active) it is difficult to quantify the propagation. YV5B was heard but how much was Es is unclear.

## Analysis of 50 MHz reports from the UK

UK 50 MHz reports for July 2005 from G2ADR, G2AHU, G3HBR, G3IMW, G3USF, G4UPS and via packet cluster spots. Compilation and commentary by G0AEV.

July 2005 was another good month for sporadic E – perhaps a little better than June, and perhaps a little better than an “average” July. Es propagation was excellent in the first week of July, and there were other good periods in the middle and at the very end of the month. The best day was probably 6<sup>th</sup> when over 40 different country/areas were worked and high levels of activity were reported throughout the day and well into the evening. On 2 days – 18<sup>th</sup> and 20<sup>th</sup> – no sporadic E was recorded at all, and there were several other days with only short and geographically restricted openings.

Transatlantic E was a little more prevalent than in June but still seems to have been very poor compared with previous years. Although N. America was reported on 8 days, many stations heard nothing at all from W or VE. DX worked via Es linking to F2/TEP was limited to two spots of 9Q0AR by G4IGO.

Other modes provided some alternatives to working sporadic E but there were no outstanding events. Troposcatter was quite good on a few contest days but the full potential of this mode was untested at most other times. There were many weak “Scottish” auroras but only one aurora event (on 10<sup>th</sup>) was available to stations in southern G. Auroral E also appeared to be restricted to GM. Relatively few people tried meteor scatter and the contacts that were made were almost exclusively via JT6M.

Ted G4UPS found July to be “a more interesting month on 6 metres, while Eric G2ADR thought it “quite a fair month. Not complaining!” G3IMW had no good openings to North America - although Jeremy was the only person to report hearing 4U1UN on 28 MHz.

G3HBR’s comments on 6m July conditions reads “Conditions were very varied, with some good long distance propagation and long periods with no propagation at all”. Brian heard the CY9SS dxpedition on 3<sup>rd</sup> when signals came “through as a typical MS burst for nearly a minute. I heard them work a VE but they went down again to the noise before I could tail end on the QSO. I just heard a trace of them again on 4<sup>th</sup>”. Good conditions to the Middle East were present on the morning of 6<sup>th</sup> but the band then seemed to go quiet for a few days. From 17<sup>th</sup> onwards conditions were about what I would expect from a ‘normal’ summer on six. The 27<sup>th</sup> started off as a CN8 day with 3 CNs plus the beacon all at S9”. Brian heard no VEs or Ws here – “the second year running when there hasn’t been much doing, although there has been plenty of activity from looking at the ‘cluster””.

### Sporadic E

Sporadic E results tabulated below ordered alphabetically by country prefix. Percentages following the country name are the daily reliability values (the number of days when propagation was reported). The first row of each table, “D” is the day of the month, subsequent rows give the maximum signal strength reported from the UK in each of three hour time bands (“06” for the band 0600 - 0900, “09” for the band 0900 - 1200, etc.). A figure of “0” indicates that signal strength was not reported.

	4X Israel (26%)	5B/ZC Cyprus (23%)	5T Mauritania (16%)	7X Algeria (13%)
D	2 7 8 13 15 16 29 30	4 5 6 7 14 16 31	1 6 9 17 23	1 3 8 13
03	7			
06	7 7 7 7	9 9		
09	9	7	9	
12		5	7	0
15	9 4 5 5	0 0 7	5 7 1	0 0
18	5	9 9 5	0	9 9
21				

9H Malta (35%)											9Y (3%)		A4 Oman (3%)		A6 UAE (6%)		A7 Qatar (6%)	
D	2	4	5	6	7	12	13	15	23	27	31	8	6	4	6	1	4	
03					0													
06													5					
09	5			0									9	8				
12								5					3	0		4		
15						5					9	4						
18		0	7				1	0	0	9		6				0		
21					0													

CM Morocco (81%)																														
D	1	2	3	4	5	6	8	9	10	12	13	14	15	16	17	21	22	23	24	26	27	28	29	30	31					
06									2				5		5		5													
09		9	3			5	7	7	3				0	9			9	9	5	9	9			6						
12		5			7	7	9	7	5									5	2											
15		6		1	9	6	3	9	9						3		9			9				7						
18	9	7	6		9	3			0	3	6	5				7						9	9	8						
21						0						7											0	0						

CT Portugal (71%)																														
D	1	2	3	4	5	6	7	8	9	10	14	15	16	17	19	21	23	24	26	27	29	31								
00										3																				
06								6	9																					
09				7		9		9	9	9				0				9	9											
12					7		9			5							9													
15	0	0	9		9	6		9	9	7		6			9	9	9					9								
18	0	6	9				0	0	9	7		5	9			0			5	0	9									
21					5					9												0								

CT3 Madeira (32%)											CU Azores (42%)												
D	1	2	5	6	7	8	9	16	17	30	1	2	3	6	7	8	9	10	12	14	24	27	31
06											5							3	9				
09						7	9							0				4				7	
12		9	0	0						9	0	0		0	3			0				7	3
15	9		9	5	9		9	2	9		3			7	5						5		
18	1	0			9		9	9	9	9	3	9		3	9						8		
21									9					5							3		

DL Germany (61%)																	EA8 Canary Is (13%)				EA9 (3%)			
D	1	2	4	5	6	7	8	13	14	15	17	22	23	25	26	27	28	30	31	1	2	7	8	14
06			9		5	9					0		0	9			9						0	
09		9	9		7	9			9								7			9				
12					9				9													3		
15			9	0	9				0			9					9			7				
18	9		5	9	9		7	0	9	9		9			9	8	0	9			9			0
21					9													9						

EA Spain (68%)																	ES Estonia (29%)														
D	2	3	5	6	7	8	9	10	12	13	14	15	16	17	21	22	24	27	29	30	31	3	4	5	6	14	27	28	30	31	
00								9					0																		
03								9																							
06				0		9		9				4					9			5			0		6		9		9		
09	9			9	9	9	9	9			9		0	9			5	0		9							0	9			
12	9		9	9		8					9						9			9							0	0			
15	0	9	9	7	5	9	9			0		5		0	9	9				9			0				9			9	
18	0	9	9		9	0	9			0	9	4		9				9	9	9	9				3	0				0	
21			9			9			7		9			7																	0

	EI (10%)	F France (45%)	FM (6%)	G<>GM/GI Inter-UK (19%)
D	4 6 7	2 4 5 6 7 10 14 15 17 21 22 23 25 31	7 23	2 4 6 7 23 30
06		0 5		9
09	4	5 7 9	9 6 9	0 9 0
12	5	0 0 9	0	9 9 9 7
15	2	9	5 0 7 9	9 9 7
18	9	9 9 9	0	9 9
21			5	

	HA Hungary [rx and xband] (48%)	HB Switzerland (39%)
D	3 4 5 7 13 14 17 21 22 23 26 27 28 30 31	3 5 6 7 8 10 14 22 23 27 28 31
03	7	9
06		0 9 9
09	6	9 9
12		9 9
15	0	9 0 9
18	0 7 8 9 9 9	9 9 9 9 7
21		9 7 7 7

	I/IS/IT Italy (84%)	J3 (3%)
D	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 21 22 23 25 26 27 29 30 31	1
00		3
03	7 0	
06	6 0 9 9 9 9 0	9 9 5 9
09	9 9 9 0 9 9 7	7 9 9
12	7 7 9	5 9 9 9 9
15	5 9 9 6 9 9 9 7 7	9 9 6 9 9 9 8
18	0 9 9 9 0 9	9 9 9 9 9 5 9 9 9 9 5
21	9 9	7 9 6

	JW (3%)	JX Jan Mayen (39%) [all for JX7SIX]	KP2 (3%)	KP4 (3%)	LX Luxembourg (3%)
D	14	3 4 6 7 13 15 16 17 19 22 23 31	7	7	22
06		0			
09		9 5	0 9 5 7		
12		5		5	
15		7		7	
18	5	7 6 0 7	9	9	9
21		3 3 9 7	5	9	

	LA Norway (52%)	LY Lithuania (23%)
D	3 4 6 7 10 11 14 15 16 17 23 26 27 29 30 31	4 6 7 8 14 23 30
06	9 0	9 9 9 9 9
09	9 0	8
12	0 0 5	0
15	2 0 9	0 9
18	9 9 0 7	9 9 9 0
21	9 9 9 5	0

	LZ Bulgaria (39%)	OD Lebanon (16%)
D	1 2 3 4 6 7 13 14 15 26 30 31	4 6 7 8 13
06	9 0	6 6
09	0 8	7
12		7
15	0 6	4
18	9 7 7 7 0 9 9 6	
21	9	

OE Austria (45%)													OH Finland (52%)																		
D	1	2	5	6	7	8	14	17	21	22	23	26	27	31	1	3	4	6	7	11	14	15	16	17	22	26	27	29	30	31	
03				9	9														0												
06				0		9	9					6	6		9			9	9					7							8
09	9	5		9		4	0				9	9			9				9					5				5			
12																		0			9			0					0		
15	0							9		7				0	9	5				9					9	9			9		
18			7	9					7			9	9			5			9	9		7							9	5	
21				0											9	5						9									

OK/OM Czech & Slovak Republics (52%)													ON (6%)		OY Faroe Is (35%)																	
D	1	2	4	5	6	7	8	14	15	17	25	26	27	29	30	31	6	8	4	6	7	10	17	19	22	23	28	30	31			
06			4		0	9							5													9						
09	9				9	9		9				9		5	9							0		8	9	5			9			
12					0		0								9			0														
15		9	7		8			9	7	0					7				9	9		0									9	
18				9	7		9		0	9	0		0		0		0										9		9			
21					9																											

OX (6%)		OZ Denmark (32%)											PA Netherlands (16%)					PJ2 Ned. Antilles (3%)		
D	29	30	4	6	7	9	14	21	22	23	28	30	5	6	7	23	30	8		
00	0																			
03					9							2								
06			9	9	9					9		9			9					
09			9	9				9				9	0	9		0				
12						6														
15				6					0				9					5		
18				9				0			9	5	9			2				
21	9			9								8								

SM Sweden (55%)															SV Greece (42%)																
D	1	4	6	7	8	10	12	14	16	17	23	26	27	28	29	30	31	1	2	4	5	6	7	8	13	14	15	23	30	31	
06		9	9	0												9			9				9					2			
09		7	9	7		0					7				5			3			5										
12	5		0				6	9		9																8	0				
15		0	9					9					0				9			9	9	7		3		7			9		
18			9					9	0					9	9	9			9	1			9		6	9					
21			9		0							7																		3	

SP Poland (61%)															TA (13%)				TT Chad (19%)											
D	1	2	4	5	6	7	8	13	14	17	21	22	23	26	27	28	29	30	31	6	17	30	31	1	2	3	6	9	15	
03						2	9									9														
06	5		9		9									9				9			5		9				9			
09	9	7	2		6				9		3		9	9			9	7				9					7		0	5
12					0				9						0			9						1						
15			0					5	9				9		6				7		9		9	3	5	0				9
18			9	9	9	9	9	5	9	6	5	7		9		9	9	9			9				5					
21					0									9				5		7										

TF Iceland (29%)										UA (3%)	UR Ukraine (45%)													
D	1	3	6	7	17	23	28	30	31	27	1	2	3	4	5	6	7	13	15	16	26	27	30	31
00					7																			
03																	6							
06										0							0		7		5	9		
09				0		5		7			9						0				5	9	9	
12	5			9		5																	7	
15	9		9									0		8	5			0					9	
18			9					5	7				7	9				0		0	0		9	
21		9															9		9					



	VE Canada (19%)	W1 USA (13%)	YL Latvia (26%)	YO Romania (32%)
D	4 6 8 15 16 31	6 7 8 26	3 4 6 8 11 14 27 30	1 4 6 13 14 15 26 27 30 31
03				5
06			0 0	9
09	7	3	0	0 9 8 0 6
12		0 6 7	0	9 7 9 9
15			0	5
18	9 5		0 0 0	0
21	3	0	0 9 9	7 7 9 0
			0	6

	YU/9A/S5/Y0/Z3 Former Yugoslavia (58%)	ZA Albania (13%)	ZB Gibraltar (23%)
D	1 2 3 4 5 6 7 8 13 14 15 16 17 21 26 27 30 31	4 7 9 17	3 4 6 8 17 27 31
00	6		
03	9 9		
06	0 9 5 9 9 9 9 9 9 9 9 9 9 7 9	0	
09	5 5 9 7 7 8 9 9 9 9 9 9 9 9 9		9 0 8 0 7
12	0 9 0 9 9 9 9 9 9 9 9 9 9 9 9		9
15	7 9 0 7 5 7 9 9 9 9 9 9 9 9 9	0 9 0	9
18	0 0 9 9 9 9 9 9 9 9 9 9 9 9 9		7
21	9 7 9 9 9 9 9 9 9 9 9 9 9 9 9		0 0

### Es Propagation Summary.

The table below displays total counts of country/areas heard/worked via sporadic E by UK amateurs, a summary of the detailed tables presented above. 3-hourly periods in which 20 or more country/areas were heard or worked are shaded grey, and shaded yellow (or a pale grey if you read this in monochrome!) for 10-19 country/areas.

### Es Summary

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
00						1	1	1							1	1														1	1
03						3	9	2	1																		3			1	1
06	2	5	3	10	1	17	17	9	3	6			4	8	4					1	2	10		3	4	5			11	9	
09	8	12	5	12	1	24	15	9	6	6	1		9	2	3	8		2		3	3	9	2	10	6	2	4	12	10		
12	4	5	1	9	3	20	5	8	3	2		2	14	4	4					1	5	3		3		3	2	6	4		
15	13	9	7	15	10	19	8	12	4	5		3	9	8	7	2	10		1	5	9	5	1	2	6	3	6	19			
18	8	9	9	13	15	22	12	11	4	3	2	13	17	10	10	10				3	6	4	1	1	9	12	8	4	14	10	
21			4	1	2	17	4	6				1	1	5	4	3	2							2				1	8	5	

The 6<sup>th</sup> stands out as the best day for sporadic E in July (at least on the basis of country/areas heard/worked) at the centre of a period of high Es activity. In fact, there was good Es for most of the period of 26<sup>th</sup> June through to 10<sup>th</sup> July. From late on 10<sup>th</sup> to midday on 12<sup>th</sup> there was an almost complete absence of sporadic E, perhaps because this period was also one of geomagnetic storming. The following 5 days (13-17 July) provided moderately good Es before another magnetic storm apparently initiated several days of very poor conditions. The remainder of the month provided mixed conditions with consistently good propagation only on 30<sup>th</sup> and 31<sup>st</sup>.

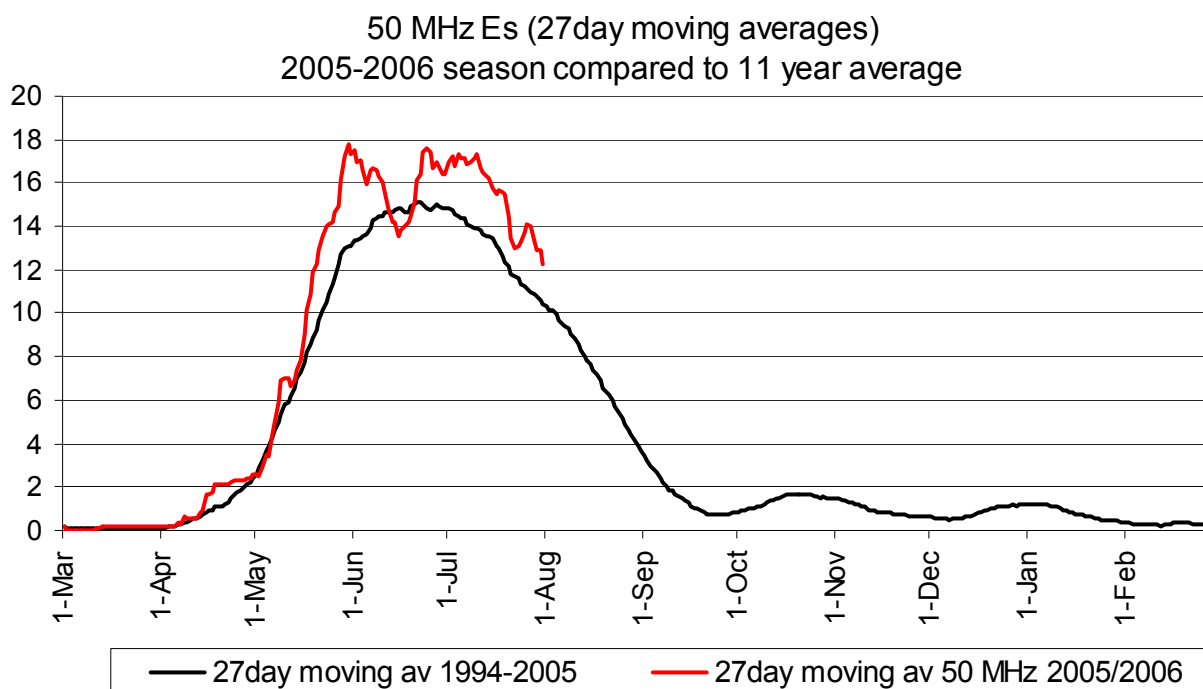
The anti-correlation of magnetic disturbances with sporadic E inferred in the discussion above is quite strong in the July data. Good periods for Es mostly coincide with quiet or unsettled geomagnetic conditions – for example, the 6<sup>th</sup> was both the best day for Es and one of the quietest days for the geomagnetic field – and *vice versa*. The periodicity seen in the sporadic E data this month can be explained most readily by a similar periodicity in the solar source of the magnetic disturbances, mainly coronal holes.

General trends in the July Es data (the daily country/area counts, can be seen in the following graph, which displays 27-day moving averages of the daily 6m country/area counts (from the Es data above, and tabulated each month in the data table in Section 3)), against a 10-year average of the same

measure. The May 2004 Six and Ten Report includes a detailed discussion of the use of the 27 day moving averages in this graph.

The line for 2005-2006 season data now shows a distinct double peak, the first of which lies at the end of May and beginning of June and second a rather broader peak but of similar amplitude covering the late June and early July. The tail of the July data is provisional as August data that should contribute to the moving average is not (yet) included.

This year appears, from the relative positions of the two lines, to be better than the “average” of the preceding 11 years, but this inference must be tempered with an understanding of the changing nature of the country/area index. Eleven years ago when these data were first collected in the 6&10 report there was probably less activity and certainly less reporting so, although trends determined from the data collected in the earlier years are valid the absolute values may not compare with those of 2005. The most recent data might be expected to lie slightly above the 11 year average – so the minimum in mid-June is clearly much poorer than average.



### Sporadic E backscatter

Es backscatter was most frequently reported, not surprisingly, at times of high direct path Es.

- 2 1848 ON4GG (JO20) > GB3MCB bs
- 4 0807 DL4ALI (JO50) > GB3LER 579 bs
- 4 1646 MM5AJW > EI5BMB 55 back scatter
- 5 1521 G3IMW > EI5FK 519 (*backscatter or tropo?*)
- 5 1838 G4FVP > G8LHT “good backscatter at 100 degrees”
- 8 0857 G0GMS > ON6AB “559 beaming EA”
- 8 0858 G4UPS > EI5FK 579 at 160 degrees
- 8 0907 G8IZY (IO91) > G0JHC (IO83) QTF 190
- 8 0924 G0GMS > G3TA 599 bs to South
- 8 0939 EI5FK > G8BQX “backscatter to EA direction”
- 8 1021 EI5FK > G0TSM 53 “via backscatter to EA”
- 30 0940 G7RAU (IO90) > G3RCV/P (IN69) bs.

### DX Propagation

The DX situation in July was much the same as in July – Es links to TEP only produced signals from 9Q0AR. There was plenty of Es to southern Europe capable of providing a first hop to southern Africa so the paucity of this type of propagation (or its absence altogether but for the ears of Ken G4IGO) may be due to summertime reduction in the propagating capacity of the F layer.

13<sup>th</sup> 1946 G4IGO > 9Q0AR 559 “tep”  
 15<sup>th</sup> 1949 G4IGO > 9Q0AR 419

**Meteor Scatter**

As reported in the introduction to this Section, G3HBR heard (at 11.38, 3<sup>rd</sup> July) signals from the CY9SS dxpedition by what he took to be a typical MS burst peaking S9 and lasting nearly a minute. This was long enough to hear the tail end of a QSO between CY9SS and a VE station but not long enough to call and make contact! Brian also just manage to hear (219 report) the dxpedition at 10.50 on 4<sup>th</sup> – but perhaps by Es as VE was reported by Es from elsewhere in the UK in the same period. But George G4PCI also spotted CY9SS (319) by MS at 1308 on 5<sup>th</sup> so the occurrence was not unique.

There is no evidence that multihop MS takes place – path geometry alone makes this improbable let alone the chances of simultaneous bursts at more than one reflection point – so these reports of CY9SS (on the Atlantic coast of VE) must be mixed mode. Sporadic E is the obvious candidate for the distance-spanning mode – there was plenty of Es on the dates in question – at least on the European side.

“Normal” MS activity in July was low. Enthusiasts of JT6M kept some MS activity alive despite sporadic E at high levels of activity much of the month - JT6M contacts via Es were almost as popular as those via MS. MS and JT6M activity is summarised in the tabulations below.

Table of MS QSOs (mainly via JT6M) in July 2005 by hour

<u>Hour</u>	<u>QSOs</u>	<u>Countries</u>	<u>Hour</u>	<u>QSOs</u>	<u>Countries</u>
05Z	0		15z	0	
06z	0		16z	1	HB
07z	1	OK	17z	0	
08z	2	F, G<>GM	18z	0	
09z	1	OE	19z	2	EA, PA
10z	2	DL, OE	20z	2	DL, LX
11z	0		21z	0	
12z	1	I	22z	1	F, G<>GM
13z	1	CY9 ( <i>mixed mode</i> )	23z	0	
14z	1	G<>G			

Table of MS QSOs (mostly via JT6M) in July by day. Weekend days are highlighted

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
MS QSOs		1	1		1							1					1		1	1					2	1	1	2	1		
All JT6M			2			3					1	1		1	1	4	5		1	2	2			3	6			3	4		

MS QSOs = all QSOs where MS mode indicated or inferred: mainly digital modes but some traditional

All JT6M = all JT6M QSOs/reception reports less those explicitly identified as tropo or Es

## Tropospheric propagation

Where possible I have calculated the distances between those stations making reasonable “tropo” contacts – which I take as covering a distance greater than 400 Km - and included this information in the list below. Calculations depend on knowing the station locators. Although many DX cluster spots include the locators of both participating stations (and the propagation mode) either informally or through using the new “standard” spot format, these are still a minority. Unfortunately I don’t have time to research missing locators so it is possible that some excellent 50 MHz tropo contacts to/from the UK are absent from these lists. But I think the picture below is probably representative.

The best distance reported in July (G7RAU > DH6JL) at 592 Km was almost the same as the maximum reported distance last month. But overall, there was much less tropo-DX in July compared with June, perhaps in part a reflection of fewer contest activities. Contests seem to provide the principal incentive to make tropo-DX contacts – so it won’t come as a surprise to learn that the preponderance of good “tropo” reported on 2<sup>nd</sup> - 3<sup>rd</sup> July coincided with a major contest.

2 1429 G4PCI > MM0CPS/P 57  
2 1658 G0TSM > G10RQK/P “S9 no QSB” ~ 500 Km  
2 1706 G4PCI > PA6M 41 467 Km  
2 1855 ON4GG (JO20) > GM3HAM/P (IO74)  
2 2033 G6CRV > MM0CPS/P  
2 2128 ON4GG > GB3IOJ “nice tropo”  
2 2324 G7RAU > PA6M (JO21) 59 436 Km  
3 0636 G4KCT (IO93) > PA6M 59 > 400 Km  
3 0654 G8VHB (IO93) > PA6M 466 Km, PA6V (JO22) 466 Km  
3 0905 G8IZY > PA4PA (JO22)  
17 1902 PC5A (JO21) > G3ROO  
19 1513 G4PCI > TM0BZH 53 419 Km  
19 1543 G4JZF (IO82) > TM0BZH “very weak with QSB” > 450 Km  
26 1817 DG5YIL (JO32) > GX7VHF 59 tropo  
30 0942 G7RAU (IO90IR) > DH6JL (JO31NI) 57 tropo 592 Km

## Aurora

There were 10 July days when the Kp or the UK K-indices reached 5 or higher and radio auroras (as observed in the UK at 50 MHz) were generated on each of them as well as on 2 days when K of 4 was the maximum. Stations in Scotland made use of these events, but most were weak and short-lived. Only on the 10<sup>th</sup> (during the period when the geomagnetic field was most disturbed – Lerwick K of 6 and 7) did aurora provide much scope for stations in the southern half of Britain.

1<sup>st</sup> 21z 2137 MM0AMW (IO75) reports LA video auroral  
9<sup>th</sup> 15z 1537 MM0BSM (IO86) > LA2RZ 55a  
1635-1658 G8LHT (IO93) > GM6VXB (IO97); MM0BSM > GB2IGS 55a (IP90)  
21z 2337 MM0AMW > GB3LER 53a  
10<sup>th</sup> 12z 1411-1423 MM0AMW > GB3LER 54a; G4FVP > GB3LER 53A QTF 020  
15z 1515 TF8GX > GB3LER “signal not clean as usual” (*assumed aurora! G0AEV*)  
1522-1526 MW1MFY (IO81) > G4DEZ (JO03) 57a; G4PCI > GB3LER 52a  
1531-1536 G0CHE > GM4WJA (IO87) 51a; LA5EKA (JO49) > G4DEZ (JO03) 55a  
1543-1558 GW3HWR > GM4WJA 59a; PA0KDV > GB3LER 57a  
1626-1629 G4VCJ > MM0AMW 55a; G8IZY (IO91) > MM5AHO (IO87) QTF 025  
1646 PE2JMR (JO33) > MM5AHO (IO87) 57a  
18z 1855 G7RAU (IO90) spots 49 MHz TV signals auroral QTF 035  
21z 2133-2139 MM0BSM > G4DEZ 55a; G7RAU > GM4WJA 59a  
2227 G4FVP (IO94) > GM4DZX (IO89) (*presumed auroral*)

11 <sup>th</sup>	12z	1311	MM0BSM > GB3LER 52a
12 <sup>th</sup>	12z	1346	LA4CQ (JP20) > GB3LER 56a
		1410-1429	EI7BMB > GB3LER 31a; MM5AJW > GB3LER 54a, GM4JYB 59a
		1443-1447	G0GMS (IO82) > GM4DZX; LA4CQ > GM4DZX 55a
13 <sup>th</sup>	12z	1341	LA2IM (JP43) > GB3LER 52a
17 <sup>th</sup>	21z	2300-2307	GI6ATZ (IO74) > GB3LER 53a; MM0AMW > OY6SMC 55a, OY1CT
18 <sup>th</sup>	21z	2248	MM0AMW (IO75) > OY6SMC 42A, also 48.256 MHz video auroral
20 <sup>th</sup>	18z	1859	MM0AMW > GB3LER 52a
	21z	2348	MM0AMW > OY9JD 54a
21 <sup>st</sup>	21z	2309	G4FVP reports weak aurora on LA and SM TV signals
		2311-2327	MM0AMW > GB3LER 52a, OY6SMC 53a
28 <sup>th</sup>	12z	1404	LA4CQ > GB3LER 56a
29 <sup>th</sup>	15z	1743-1756	LA4CQ > GB3LER 33a; MM0AMW > GB3LER 53a

### Auroral E

I had some problems determining what was Auroral E and what "high latitude Es" in some of the July data. I think the following is probably all auroral E but it is possible that I have mis-classified some Scandinavian auroral E as Es.

1 <sup>st</sup>	21z	2259	MM0AMW (IO75) > TF8GX
		2329	MM0CWJ (IO67) > JX7SIX 539
2 <sup>nd</sup>	21z	2229-2242	MM0CWJ > JX7SIX 599; MM0AMW > JX7SIX 579
9 <sup>th</sup>	21z	2231-2234	MM0AMW > VE8BY 439; G0FYD (IO83) > JX7SIX 579
		2250	MM0CWJ > VE8BY 559
20 <sup>th</sup>	21z	2313-2357	MM0AMW > LA7SIX 429, OH9SIX 539, VE8BY 539
21 <sup>st</sup>	00z	0005-0012	MM0AMW > TF3SIX 559, JX7SIX 549
	21z	2125-2158	MM0AMW > JX7SIX 559-579
		2248-2301	MM0BSM > JW9SIX 559, TF3SIX 559

### EME

For the record, these are the July moon-bounce reports from the DX cluster.

9 <sup>th</sup>	21z	2153	W7GJ > G0VSM/P -22 dB
10 <sup>th</sup>	18z	2043	G4PCI > W7GJ -25 dB
30 <sup>th</sup>	15z	1519	G4PCI > W1JJ

## Solar and Geomagnetic Data for July 2005

Data supplied by G0CAS (Sun Mag<sup>1</sup>) and from Internet sources. Compilation by G0AEV.

Sunspot numbers (SEC)	Mean 68.7	Max 192 (4 <sup>th</sup> )	Min 0 (18 <sup>th</sup> -22 <sup>nd</sup> )
Solar Flux (28 MHz)	Mean 96.6	Max 130 (3 <sup>rd</sup> )	Min 71 (19 <sup>th</sup> )

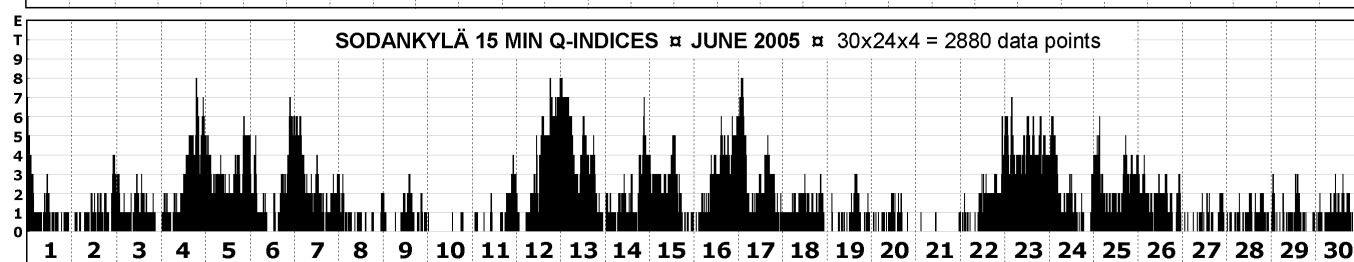
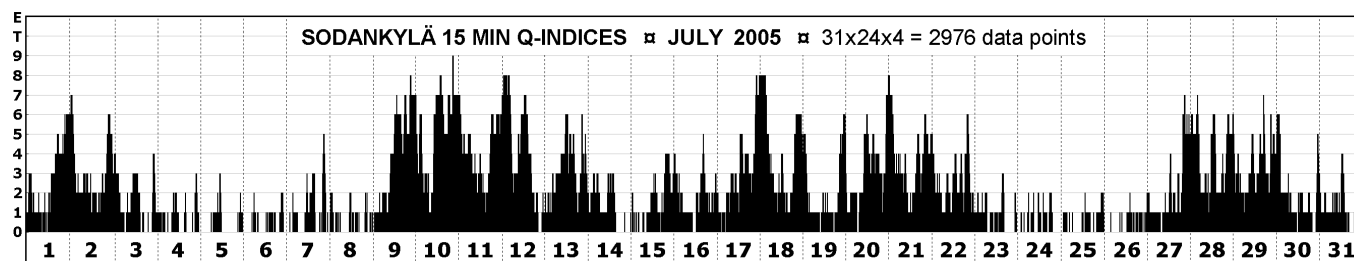
Solar data for July 2005 are presented in the table at the end of this section. Numbers in the 28 and 50 MHz columns of this table are the total daily "areas" worked/heard from the UK for each of several propagation modes and are a summary of the data presented in the first sections of this Report. On 28 MHz "areas" refer to the number of beacons reported via Es and F-layer; on 50 MHz the number of countries via Es, F-layer, Aurora and Auroral E. F2 critical frequencies are from Chilton in Oxfordshire. SIDC spots are from SIDC, and other solar data from the joint USAF/NOAA daily summaries or directly from SEC.

### Energetic Events.

The SEC summaries of solar data sometimes fail to report all energetic solar events: there may have been missing data in some recent 6&10 Reports as a consequence. I now check more than one source for the following data. There were 16 M class X-ray solar events and 2 of X class in July.

7 <sup>th</sup>	1610-1722	M4.9 Sn	13 <sup>th</sup>	1401-1538	M5.0	14 <sup>th</sup>	2250-2302	M1.1
9 <sup>th</sup>	2156-2238	M2.8 1n		1905-1918	M1.2 1f	16 <sup>th</sup>	0327-0345	M1.0
12 <sup>th</sup>	1247-1325	M1.0		2149-2158	M1.2	27 <sup>th</sup>	0433-0530	M3.7
	1550-1726	M1.5 Sf	14 <sup>th</sup>	0320-0329	M1.0 Sf	28 <sup>th</sup>	0001-0054	M1.0
	2240-2304	M1.3 Sf		0557-0743	M9.1		2151-2221	M4.8 Sf
13 <sup>th</sup>	0319-0323	M1.1 Sf		1016-1129	X1.2	30 <sup>th</sup>	0608-0940	X1.3 2b
	1203-1224	M3.2		1716-1728	M1.3	31 <sup>st</sup>	1215-1233	M1.1

### Q-indices

 from Sodankylä, Finland (Thanks to OH2LX)


Q-indices for July (top) with data from the previous month (below)

Geomagnetic data from the Finnish observatories for July are:

#### Monthly averages

Sodankylä: monthly Ak average = 25.3 (18.1 in June)  
 Nurmijärvi: monthly Ak average = 16.1 (12.7 in June)

#### Most disturbed July days:

Sodankylä: 10<sup>th</sup>, Ak = 114 (June 23<sup>rd</sup> Ak = 56)  
 Nurmijärvi: 10<sup>th</sup>, Ak = 94 (June 12<sup>th</sup> Ak = 72)

<sup>1</sup> Sun Mag: Sunspot and Magnetic data compiled by Neil Clarke G0CAS. Email [neil@g0cas.demon.co.uk](mailto:neil@g0cas.demon.co.uk)

**K-indices.**

The following four tables present the Kp index (from SEC) and the Lerwick (“KL”), Eskdalemuir (“KE”), and Hartland (“KH”) K-indices (from the British Geological Survey). Each table is set out with the day of the month in the top row followed by rows containing the K-values or each 3-hour period. The bottom row of each table is the sum of the K-values for the day. Pale (yellow) shading indicates K = 5, darker (grey) when K > 5. There were 10 July days when Kp or the UK K-indices reached 5 or higher.

**Planetary K (Kp)**

KP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
00	2	4	4	1	1	1	2	2	3	4	4	5	3	2	1	2	3	5	3	4	5	3	2	1	2	1	2	3	3	4	2
03	2	3	3	3	1	1	1	2	3	4	3	6	4	4	2	2	2	6	2	3	5	3	1	1	2	1	2	5	4	4	3
06	2	2	2	2	1	1	2	1	3	5	5	5	5	3	2	2	3	6	3	3	4	2	1	1	1	2	3	4	3	4	2
09	1	2	3	1	2	1	1	1	3	5	3	6	5	3	1	1	5	3	1	3	5	2	1	1	1	1	2	4	4	3	1
12	3	2	3	2	2	2	2	1	4	6	4	6	5	2	1	1	3	3	2	4	2	3	1	3	1	2	3	5	3	1	3
15	4	2	2	2	1	2	2	2	4	5	3	5	4	2	2	3	3	2	2	3	3	3	1	2	2	2	3	3	4	1	2
18	4	3	2	2	1	2	2	2	3	5	4	3	3	1	2	3	3	2	2	3	2	3	2	2	2	2	4	3	3	2	2
21	4	3	2	2	1	2	3	2	4	5	3	2	4	1	2	3	5	3	3	4	3	3	1	1	2	2	5	4	3	2	3
Σ	22	21	21	15	10	12	15	13	27	39	29	38	33	18	13	17	27	30	18	27	29	22	10	12	13	13	24	31	27	21	18

**Lerwick K (Shetlands)**

KL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
00	2	3	3	1	1	1	1	1	1	4	4	4	1	1	0	2	2	5	3	3	6	3	1	0	1	1	1	3	2	3	1
03	2	2	2	1	1	0	1	1	1	4	3	5	2	2	1	2	2	5	1	2	5	2	0	0	1	1	2	5	2	2	1
06	1	2	1	0	0	1	1	0	2	3	3	3	4	2	0	1	2	4	1	1	3	1	1	0	0	0	1	2	2	2	1
09	1	2	2	1	1	0	1	0	3	4	3	4	4	1	0	1	4	2	1	3	1	1	0	1	0	0	0	2	2	1	1
12	2	2	2	1	1	1	2	1	5	6	2	6	5	2	2	2	3	2	1	4	2	3	1	2	1	1	3	3	3	1	3
15	4	2	1	1	1	1	3	1	4	6	3	5	4	2	1	2	3	2	1	3	3	4	3	1	1	1	2	3	4	1	1
18	4	2	1	1	0	1	1	1	4	7	4	2	3	0	2	1	2	2	1	3	2	3	0	1	0	1	3	3	3	2	1
21	3	3	2	1	1	2	2	1	4	7	2	1	4	1	1	1	5	3	3	3	3	2	2	0	1	1	4	2	2	1	3
Σ	19	18	14	7	6	7	12	6	24	41	24	30	27	11	7	12	23	25	12	22	25	19	8	5	5	6	16	23	20	13	12

**Eskdalemuir K (southern Scotland)**

KE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
00	3	3	3	1	1	1	0	1	2	4	3	4	1	1	0	2	2	4	3	3	4	3	1	0	1	1	1	3	2	3	1
03	2	2	2	1	1	0	1	1	2	4	3	5	3	2	1	2	2	4	1	2	4	2	1	0	1	0	2	5	3	2	2
06	1	2	1	1	0	1	1	0	2	3	3	3	4	2	1	1	3	3	1	2	4	1	1	1	1	1	1	2	2	3	1
09	1	3	2	1	2	0	0	1	3	5	3	4	4	1	1	0	4	2	1	3	2	1	0	1	0	0	0	2	2	1	2
12	3	2	2	1	2	1	2	2	5	5	3	5	5	3	2	2	3	2	2	4	2	3	1	3	1	1	3	4	4	2	3
15	4	3	2	2	1	2	3	2	4	4	4	4	5	2	2	3	4	2	2	3	3	4	3	2	1	2	3	3	5	2	1
18	4	3	2	1	0	1	2	1	4	5	4	2	3	0	2	2	2	2	2	4	2	4	1	2	1	2	3	3	4	2	2
21	3	3	3	2	1	2	3	1	4	6	2	1	4	1	1	2	5	4	3	3	3	2	2	1	2	2	4	3	3	1	3
Σ	21	21	17	10	8	8	12	9	26	36	25	28	29	12	10	14	25	23	15	24	24	20	10	10	8	9	17	25	25	16	15

**Hartland K (SW England)**

KH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
00	3	3	3	1	1	1	0	1	2	4	4	4	1	1	1	3	2	4	3	3	4	3	1	0	1	1	1	3	2	3	1
03	2	2	1	1	1	0	1	1	2	4	4	5	3	3	1	2	2	4	1	2	4	2	0	1	1	0	2	5	3	2	2
06	1	2	1	1	1	1	1	0	2	4	4	4	5	2	1	2	4	3	1	2	4	1	1	1	1	1	1	3	3	3	1
09	1	2	2	1	2	1	0	0	3	5	3	4	4	1	0	1	4	2	1	3	2	1	0	1	0	0	0	2	2	2	1
12	2	2	2	1	2	1	2	2	5	4	3	4	5	3	2	2	3	2	1	4	2	3	1	2	1	1	3	4	3	2	3
15	4	3	2	2	1	2	3	2	4	4	4	4	5	1	2	3	4	1	2	3	3	4	3	2	1	2	3	3	5	2	1
18	4	3	1	1	0	1	2	2	4	5	4	2	3	0	2	2	2	3	2	4	2	4	1	2	1	2	4	3	4	2	2
21	3	3	3	2	1	1	3	2	5	6	2	1	4	1	2	2	5	3	3	3	2	3	2	1	2	2	4	4	3	2	3
Σ	20	20	15	10	9	8	12	10	27	36	28	28	30	12	11	17	26	22	14	24	23	21	9	10	8	9	18	27	25	18	14

July 2005	28 Areas			-- 50 Areas --			2800			- Spots -			Max			X-ray			Min foF2			-- Particle Fluences --		
	Es	F	Es	F	Es	DX	A	AE	Flux	SEC	SIDC	Kp	Ap	Aa	b.gnd	MHz	Hour	Max foF2	MHz	Hour	2MEV Elec	1MEV Prot	10MEV Prot	
01-Jul	16	3	23	0	0	0	0	2	115	122	78	4	16	24	B2.0	7.8	21	4.1	03	5.2E+06	7.1E+05	1.4E+04		
02-Jul	23	2	20	0	0	0	0	1	124	168	95	4	13	21	B3.1	5.8	21	3.6	04	1.7E+06	6.5E+05	1.5E+04		
03-Jul	22	3	20	0	0	0	0	0	130	179	101	4	11	16	B3.7	6.4	21	3.9	03	2.6E+07	4.7E+05	1.5E+04		
04-Jul	12	2	33	0	0	0	0	0	124	192	107	3	7	8	B2.8	6.7	21	4.4	04	4.3E+07	5.2E+05	1.4E+04		
05-Jul	20	2	18	0	0	0	0	0	127	181	103	2	5	7	B2.9	6.8	19	5.4	04	4.1E+07	6.8E+05	1.6E+04		
06-Jul	22	3	41	0	0	0	0	0	123	143	84	2	5	8	B2.9	7.3	19	4.5	05	4.8E+07	8.8E+05	1.5E+04		
07-Jul	24	5	37	0	0	0	0	0	125	149	75	3	8	11	B3.0	7.9	21	4.3	03	2.8E+07	5.2E+05	1.6E+04		
08-Jul	28	3	26	0	0	0	0	0	110	111	64	2	5	8	B2.3	10.0	23	3.9	03	1.2E+06	5.9E+05	1.5E+04		
09-Jul	10	4	10	0	0	3	2	2	107	126	57	4	19	41	B2.1	8.4	12	3.9	03	7.4E+05	4.8E+05	1.4E+04		
10-Jul	7	1	10	0	0	5	0	0	102	78	42	6	47	81	B1.9	5.7	17	3.0	04	2.7E+06	4.4E+06	8.5E+04		
11-Jul	1	0	4	0	0	1	0	0	93	68	41	5	23	41	B3.2	6.2	15	2.4	03	2.6E+07	3.6E+06	2.6E+04		
12-Jul	13	1	6	0	0	4	0	0	96	52	38	6	48	55	B7.8	n.a	n.a	2.7	04	2.2E+08	5.1E+06	1.5E+04		
13-Jul	12	1	16	1	0	1	0	0	92	55	38	5	30	51	B5.8	7.0	11	2.3	02	1.2E+08	2.5E+06	5.0E+04		
14-Jul	25	1	26	1	0	0	0	0	90	61	28	4	11	13	C1.0	n.a	n.a	2.8	04	2.4E+08	1.4E+07	2.0E+06		
15-Jul	20	1	19	0	0	0	0	0	87	38	21	2	6	9	B5.9	6.5	20	3.1	03	4.0E+08	2.7E+07	7.2E+06		
16-Jul	11	1	14	0	0	0	0	0	76	16	11	3	9	16	B1.0	5.8	21	3.1	04	5.9E+07	2.8E+07	2.0E+06		
17-Jul	19	2	22	0	0	2	0	0	74	12	8	5	22	39	A5.4	7.6	13	3.2	04	1.1E+07	1.5E+07	6.5E+05		
18-Jul	2	0	0	0	0	1	0	0	72	0	0	6	34	34	A2.9	4.5	21	2.6	04	6.6E+06	1.4E+07	7.9E+05		
19-Jul	3	0	3	0	0	0	0	0	71	0	9	3	10	13	A1.3	5.4	21	2.3	04	1.8E+07	2.6E+06	1.5E+05		
20-Jul	4	0	0	0	0	2	3	3	72	0	0	4	20	36	A1.3	6.5	20	3.0	04	8.7E+06	7.4E+05	2.8E+04		
21-Jul	18	0	10	0	0	2	3	3	73	0	0	5	29	31	A1.3	5.2	21	2.1	03	3.9E+07	9.4E+05	1.5E+04		
22-Jul	21	0	14	0	0	0	0	0	74	0	8	3	13	25	A1.8	5.4	20	2.3	03	1.3E+08	8.0E+05	1.5E+04		
23-Jul	15	1	22	0	0	0	0	0	80	20	16	2	5	9	A4.2	5.1	22	2.9	04	2.1E+08	9.6E+05	1.4E+04		
24-Jul	7	0	4	0	0	0	0	0	80	18	11	3	5	8	A4.3	6.1	21	3.3	04	3.0E+08	2.7E+06	1.5E+04		
25-Jul	13	1	4	0	0	0	0	0	84	23	12	2	6	7	A6.3	6.0	21	3.2	04	2.0E+08	2.5E+06	1.8E+04		
26-Jul	13	1	16	0	0	0	0	0	87	29	15	2	6	8	A8.9	6.1	19	3.2	04	9.2E+07	2.5E+06	3.9E+04		
27-Jul	19	0	21	0	0	0	0	0	91	19	11	5	17	22	B1.7	8.9	18	2.9	03	7.6E+06	2.9E+06	4.1E+05		
28-Jul	13	0	10	0	0	1	0	0	96	29	18	5	28	38	B1.8	5.5	15	2.8	04	2.4E+06	1.2E+07	2.2E+06		
29-Jul	11	2	11	0	0	2	0	0	104	69	34	4	19	33	B1.8	7.0	21	2.7	03	1.4E+07	2.6E+07	2.8E+06		
30-Jul	16	0	27	0	0	0	0	0	105	62	43	4	16	18	B2.6	5.7	21	2.6	03	7.2E+07	2.9E+07	2.3E+06		
31-Jul	26	2	29	0	0	0	0	0	110	110	69	3	9	14	B2.2	6.8	15	2.8	03	8.4E+07	2.4E+07	1.5E+06		
Sum	466	42	516	2	24	11																		
Average	15.0	1.4	16.6	0.1	0.8	0.4			96.6	68.7	39.9	3.7	16.2	39.9	B2.4	6.6	21	3.2	04	7.9E+07	7.3E+06	7.2E+05		
Maximum	28	5	41	1	5	3			130	192	107	6	48	107	C1.0	10	23	5.4	05	4.0E+08	2.9E+07	7.2E+06		
Minimum	1	0	0	0	0	0			71	0	0	2	5	0	A1.3	4.5	11	2.1	02	7.4E+05	4.7E+05	1.4E+04		



## 50 MHz Outside Britain

Compilation and Commentary by G3USF

### Continental Europe, Middle East and Africa

#### Auroral-Related Modes

With the exception of the 10th, the most disturbed day with an Ak of 114 at Sodankyla, although there were ten days that were geomagnetically active by our customary yardstick, any resulting auroral disturbances were for mostly fairly brief and not markedly strong. Even the event on the 10th produced only a modest number of mid-latitude reports. The most noteworthy was between southern Germany and Hungary. If confirmed, this may well have been the first 50MHz auroral contact from Hungary, seeing that the Hungarians had access to the band only a few days earlier. Thanks as usual to OH5IY and OH2LX for data. Without their assistance this listing would have been much less substantial. Events reaching mid-latitudes were reported on the 9th (UK only), 10th, 12th and 21st (UK only)

As in June, it is possible that some reports in this section may have been attributable to normal Es, while others in the later section may actually have been due to AE.

July 1 2137 LA tv>GM but no continental reports

July 9 1320-1600 Au>OH5IY 15-1600 OH9SX>ES1(69a KO9) SM7>SM0(55a) 16-1700 SM7(JO77)>LA(JO58) 19-2000 OH9SIX>LA(41a) JW9SIX>LA(559) 21-2200 JW9SIX>LA(549) JX7SIX>LA(579) 2210-2230 Au>OH5 2231 VE8BY>MM0AMW(439 AE) 2340-50 Au>OH5

July 10 0010-50 Au>OH5 0020-30 AuFM>OH5 0130-40 AuFM>OH5 1210-1620 Au>OH5 1340-1530 AuFM>OH5 13-1400 OH9SIX>EA1(KO29 57a)14-1500 SM7>SM0(JO99 59a) SM1>SM)(JO99 59a) LA(JO48)>SM5(JO99 mode?) 15-1600 LA(JO59)>PA(JO22 58a) LA(JP20)>SM5(JO99) OH4>DL(mode?) LA(JO69)>SP2(JO94) G(JO03)>LA(JO49 55a) DL>LA(mode?) SM4(JO69)>PA(JO22) LA>DL(O42 55a) OZ>PA(55a) OH0(JP90)>ON(JO21 57a) OA>DL(JN58 55a 000) GB3LER>PA(57a) 16-1700 JX7SIX>LA(539) LA>PA(55a) LA(JP30)>OZ(JO55 59a) DL1HTT>HA1FV(JN87 52a) LA(JP50)>SP2(JO94 020) OH0(JP90)>ES1(mode?) OZ(JO55)>PA(JO21 55a) OH0>OH3(mode?) OA>PA(JO21 55a) 1954 JW5SIX>SM0(539) 20-2100 OH2>SM0(JO99 55a) JW9SIX>SM0(519) ES0SIX>SM0(53a) OH5RAC>SM0(53a) 2140-2230 Au>OH5 2240-2310 Au>OH5 2340-2400(Au>OH5

July 11 0030-0200 Au>OH5

July 12 0250-0420 AuFM>OH5 0310-50 Au>OH5 0400-0510 Au>OH5 1230-40 Au>OH5 13-1400 OY6SMC>LA(JP20 53a) GB3LER>LA(JP20 56a) 1320-1510 Au>OH5 1350-1420 Au>OH5 14-1500 LA>DL(59a) SM7>LA(JP20 47a) OH9SIX>OH2(AE) GB3LER>EI(31a) SM5>DL(55a) GM(IO89)>LA(JP20 55a) OH9>ES1(mode?) 15-1600 OH3>SM0(JO99 57a) 1930-40 Au>OH5

July 13 1250-1340 Au>OH5

July 15 20556 E2(LA)>OH5(AE) 2350 E2(LA)>OH2,OH4(AE?)

July 17 0740-0900 Au>OH5 0940-1020 Au>OH5 2250-2330 Au>OH5

July 18 0000-0050 Au>OH5 0100-30 Au>OH5 0120-30 AuFM>OH5 0300-10 Au>OH5 0300-10 Au<>OH5 0320-0400 Au>OH5 0320-0410 AuFM>OH5

July 21 0140-50 Au>OH5

July 27 21-2200 SM3>OH1(57a) LA>SM0(55a) JW9SIX>SM5(JO99 599) JW5SIX>SM0(539 JO99) 2130-40 Au>OH5 2310-2400 Au>OH5

July 28 0000-20 Au>OH5 0000-10 AuFM>OH5 1050-1100 AuFM>OH5 1250-1310 Au>OH5 1800-10 Au>OH5

July 29 1730 Au from N and AE from NE OIRT FM>OH2

July 30 1240-1320 AuFM>OH5 E4(LA)>OGH4(AE?)

**Other Modes**

As was to be expected, the prevailing propagation mode was sporadic-E, which was reported every day from some part of Europe - though nowhere would have been fortunate enough to have it available in all the time periods shown below. It was also almost certainly the dominant factor in all DX working, whether as multihop Es or in mixed-mode events in conjunction, say, with tep.

On many days, right up to the end of the month, an impressive number and range of loggings were reported. Activity levels were high. However, fewer contacts were made during the most disturbed period (the 9th to the 13th). The days with the fewest reported contacts were the 18th and 19th. These were somewhat disturbed (though not the most, and more at high than medium latitudes.). The sun was spotless at the time, with the lowest solar flux figures to date in the present cycle.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
UTC																																
00-03	+		+				+																									
03-06		+	+		+	+	+	+		+			+	+	+						+	+					+				+	
06-09	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+				+	+	+	+		+	+	+			+	+	
09-12	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+		+	+	+	
12-15	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+	+	
15-18	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
18-21	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	
21-24	+	+	+	+	+	+	+	+					+	+	+		+			+	+	+					+			+	+	

The 20th, though unproductive in the UK, as G0AEV has noted, did attract some reports from the continent.

Cyprus, unsurprisingly, had the best of eastward multihop, with notable openings to JA and VR as well as the somewhat easier EX and UN. Eastern Europe, again unsurprisingly, also had openings in that direction. At least one opening to UK and JA signals reached both northern Europe and the central Mediterranean. The longer haul contacts were concentrated in the first week or so. So, too, were openings to the Arabian Gulf, apart from a flourish at the end of the month. Several of these openings reached a wide swathe of Western Europe and the Mediterranean, though there were no reports from LA. The daily table over the page does not include 5B openings (or openings to 4X/OD)

### Europe<>Asia

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Med				+	+	+	+																							+	+
Iberia				+		+																									
North	+	+		+	+	+	+							+		+														+	+

### Europe<>Asia

A4 4 days 4(DL,I9,SV) 5(DL,LY,OZ,SM,SP) 6(CT,DL,EI,F,G,ON,OZ,SP,SV,9A) 7(SM)  
A6 5 days 4(EA,F,G,I,LZ,OK,OM,OZ,SV,9A) 5(I,SV,9A,9H) 6(DL,F,G,I,LY,OH,OK,ON,OZ,PA,SP,SV,YO,9A) 7(OE) 29(F,I,I9,PA,S5,SV,9A,9H) 30 (DL,I)  
A7 3 days 1(G) 4(G,I,IS,SV) 14(YO)  
EX 1 day 2 (OH+5B)  
JA 3 days 4(I,YO+5B) 5(DL,I9,OZ+5B) 7(I9) +6(5B)  
UK 1 day 5 (F)  
UN 1 day 16(OH) + 2(5B)  
VR 1 day 6(5B)

Reports of operation from Gabon (TR) remained frustratingly absent but fortunately TT8M in Chad remained active, working most of Europe at one time or another, with contacts as far north as LA, OH and SM as well as 'easier' areas like EI and G by multihop Es. The majority of openings for both TT8M and 5T5SN came in the first half of the month. Less was heard of 5T5SN than in June but it is not known whether this was because Nicolas was less active or because the propagation was not sustained. 9Q0AR was mostly copied over a relatively restricted area, probably by tep. Overall, however, this was a better month for African contacts than July 2004, and much in line with last month's results. But was the decisive factor activity or propagation?

### Europe<>Africa

TT 12 days 1(EI,F,G,I,LA,OH,PA,SM,SP,9A,9H) 2(DL,F,G,I,LA,OH,ON,OZ,PA,SM,SP,S5,YO,9A) 3(EI,F,G,PA) 5(DL,OK,PA,9A) 6(DL,EO,G,I) 8(DL,I,OZ,9A) 9(DL,EI,F,G,HB,I,OE,SM,9A) 11(I,IS) 13(DL,G,OE,PA,SM,SV,YO) 15(DL,G,HB,I,ON,OZ,PA) 25(I9) 26(HA) 27(OH)  
TZ 1 day 6(I)  
5T 9 days 1(G) 5(F) 6(DL,F,G,LA) 7(CT) 8(PA) 9(CT,DL,F,G,PA,SV,S5,YU) 10(I) 17(G) 23(G)  
9Q 7 days 1(EA) 9(9H) 10(9H) 11(I9,9H) 12(G) 14(I9) 15(DL,G,I,PA,S5,9A)

June 2005 had been somewhat disappointing for trans-Atlantic openings, with - apart from the W4 path, which had more in common with Caribbean openings - propagation apparently more confined than usual to the Atlantic states. July followed a similar pattern, with no reports from the mid-West and few from deep into continental Europe, apart from a single strong opening featuring CY9SS. Mediterranean countries had openings on 8 days (2004 7), Iberia on 11 (12) and northern Europe on 12 - though a couple of these were probably auroral-related) compared with 10 in 2004. So, not a vintage month, yet not a lean one either..

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Med		+	+	+		+		+							+	+															+
Iberia		+	+	+		+		+	+						+	+		+			+			+							
North		+		+		+	+	+			+				+	+				+	+					+					+

### Europe<>North America

CY 3 days 2(CT,EA) 4(DL,EA,EI,F,I9,IS,OH,OZ,PA,SM,9A,9H) 31(DL,F,I)  
 VE1 5 days 3(EA) 4(F) 6(DL,EA,EI,G) 15(CT,EA) 16(CT,EA,I,9A)  
 VE2 1 day 6(EA)  
 VE8 1 day 20(G)  
 VE9 2 days 3(CT,EA) 16(EA) 21(JX7)  
 W1 8 days 2(EA) 3(CT,EA,I,I9,IS) 6(CT,DL,EA,G,ON) 7(DL,G,I,OZ,PA) 8(EA,G,9A) 15(EA,LZ)  
 16(CT,EA,9H) 24(CT)  
 W2 5 days 3(EA) 11(JX7) 16(EA) 18(EA) 21(EA)  
 W3 3 days 2(CT,EA,YU) 3(EA) 8(F,9H)  
 W4 5 days 2(DL,I9) 8(CT,EA,9H) 9(CT,EA) 16(EA) 18(EA)  
 W8 2 days 2(CT,EA) 3(F,I)

Openings to the Caribbean, which predominantly occurred in the first week, were well below the levels of both June 2005 and the previous July, although the best of them reached a wide area and ran for a considerable period. Northern Europe was slightly the more favoured, with openings on 8 days (2004 12 days). Iberia had propagation on 4 days (6) and Mediterranean countries also 4 days (8). Countries bordering the Atlantic had more of the propagation. On the 2nd and 8th an extra hop reached into Eastern Europe. There was only one report of a contact with South America - from the northern coast and doubtless, like the Caribbean openings, attributable to multihop Es.

### Europe<>Caribbean and South America

CO 2 days 2(EA) 8(EA)  
 FJ 2 days 1(EA,SV,S5,9H) 7(PA)  
 FM 6 days 2(DL,EI,F,I,LZ,S5,T9,YO,9A) 6(F) 7(EA,EI,G) 8(DL) 21(LA) 23(F,G)  
 J3 2 days 1(CT,DL,EA,G,I,I9,SV,S5,9A,9H) 2(DL,F,I)  
 J6 2 days 1(DL,EA,ON,PA,SV,9A) 2(DL,F,I,S5)  
 KP2 3 days 7(CT,DL,EI,G,PA,9A,9H) 8(F,S5) 18(?PA)  
 KP4 3 days 1(CT,EA) 7(DL,EI,F,G,9A) 8(EA,F,I,I9,LZ,9A)  
 PJ 8 days 8(DL,EA,F,G,HB,I,S5,9A)  
 9Y 3 days 1(DL,EA) 8(DL,G,ON) 24(EI)  
  
 8R 1 day 1(CT)

With the ready availability of Es and high levels of activity during the main operating hours, JT6M contacts were mainly reported in the early morning - when beacons were also often reported because, the band appeared otherwise unoccupied. Most of these reports would appear to be for ms.

As usual, beacon call signs and DX calls are given in full.

July 0004 JX7SIX>LA 06-0700 OH5RAC,OH8,OH9SIX>SP6 UU5SIX>OH5 07-0800 UU5SIX>OM3 08-0900 OH3>OH5,PA,OE5 OE5>SP6(jt) OH9SIX>SP6,OE5 OH8>PA OH9>DL 09-1000 OH8>PA,DL OH7>OZ,PA EI,GB3LER>OM3 UR>9A G>SP9 10-1100 LZ2CM>YO7 OH1SIX>DL F>OM3 G>9A UR>EI,SP2 OH3,OH2>PA OH1SIX,OH9SIX>DL GB3LER>SP2,9A,OE5 F>OH5 G>I8 OH2>OZ EI,OH2>DL GB3MCB>OE5 11-1200 PA>OH6 LA,OH9SIX,EH1DVY>DL OH4>PA,DL OD5SIX>9A I0>OZ GB3LER>SP2 CN8MC>OE5 GB3BAA>YO7 12-1300 OH9SIX,UT5G>DL GB3IOJ>I0 OH9SIX>PA,SP9 EH1DVY>DL G>SM3 CT>I3 CN8MC>I3,I5 TT8M>G0CHE UT5G>OE3 13-1400 UU5SIX>SP6,OH2 F>I8,9A UT5G>SP6 DL>EA7 EH1DVY>DL TT8M>PE1CZG I1>F 14-1500 EH7>OZ I7>9A UU5SIX>DL UR>PA 15-1600 TT8M>SQ6ELV,9H1TX,IK0FTA,IZ5EME,SP6MLK, F8OP,G4FVP, SP6GWB,9A5ST,IW4BET,F6FHP CU3>F LA7SIX>OZ CU3URA>DL 16-1700 TT8M>9H1TX,G4FVP,I0JX,SM0KAK,LA8AV,F5OIU,F6FHP,IZ5EME,G0FYD,G3IBI,EI7X,G0CHE, G0JL,G4AJC,G7RAU YZ1>EI CT>9H CN8MC>I5 EH9>I9 EH1>EH8 J3/K5AND>IW9CER,9H1TX 5T5SN>MW1MFY ZB2>IS0,9H CU2>DL,OM5,I9,9A CT>EA8 9Y4AT>DL7QY 17-1800 J3/K5AND>DK5PR,DJ6RN ZB2,CU3URA>9A FJ5DX>9H1TX CT>4X 7X>9A CU2>F LA>EA8,9A I9>EA7 EH8>EH1 SV1DH,EH5HB,S51DI>FJ5DX CU3URA>DL,9A 9Y4AT>DK2EA F,UT5G>DL YL2>I4 7X2RO>EA7 SM5>9A CT3>OZ J68AS>DL3DXX,9A1Z,9A4K GB3MCB>9A CU2>9H EH8>CT J3/K5AND>DL3DXX,9A4K, DJ5WL,DL3AMA,CT1ILT 18-1900 J3/K5AND>G4AJC, CT3DL,IZ5EKV LZ1JH, CU3URA, LX0SIX(short)>F Z3,I2,CU2,YO6,4N1ZNI,SV1SIX>DL J68AS>PH7A,ON4GG, DL3DXX LZ2,YO6,YO7>ON IZ1EPM>EI YO2>ON 5T5SN>OH2RF PI7SIX>YO7 YO4>I3 19-2000 CU3URA>EB1 G,I2>LZ2 UT5G>OH1 EH8>EA5 LZ2>OZ,OH2 OZ>9H YO4>OZ CT3BD,KP4EIT,9Y4AT>EA7KW EH5>DL J3/K5AND>S57RR,IZ5EKV,EA7RM, 9H1LE,F6FHP YO3KWJ>PA CT3>CN SV1SIX>ON 20-2100 9Q0AR>EA7KW CT3>9H 9Y4AT>EA7RM YO9>SM0 WP4NIX>CN8LI EH7,CT3>EH8 J3/K5AND>CT3DL,EA8EE,EA4SV, EA3AKY 21-2200 J3/K5AND>IT9TJH,F5OIU,EH8BPX, CT1EEB,CT3DL,EH1TA,F6FHP EH5>EH8ES2>OH2 NP2/W9UI>EH8BPX 8R1RPN>CT1EEB,5T5SN 22-2300 J68AS>EA3AKY,EA5YU,EA3GP 9Y4AT>EA3AKY UU5SIX,JX7SIX>OH2 TF3SIX>LA

July 2 05-0600 UU5SIX>S5,OH1 EX8MLT>5B4FL SV1>UR SV1SIX>DL UT5G>PA UR>9H 9H>YO7 LZ1JH>ON 06-0700 9H>I0,9A UR>9A,I8 HB>SV1 SV1>SM7 I7>PA LZ2CC>EA3 SV1SIX>ON,I8 TT8M>YO7LXT,DK1MAX,SP6GWB,G4FUF,PF7M,DL3DXX,YO7VS,G4IGO, OH3XR,DL7QY 9A0BHH>I9 Z3>EA3 07-0800 TT8M>LA6PV,YO7VS,OZ1DJJ,SP6MLK, OH3XR,ON4GG,G4FUF,PA3GND,IV3JCC,M0BJL,OZ5AGJ,PA0KDV IT9X>OE5,S5 4X,I9,LZ2CM,IS0.SV1SIX,Z3>ON DL>I8 EX8MLE>OH3XR SP9>I9 I9>S5,SP7,OE3,I3 Z3>PA,EA3 UR,4X,YO5,I9>DL HB>LZ2 PI7SIX>9A 08-0900 TT8M>DK5WL,S57TA,IK8BIZ, SP5SS,SM6CMU,PA3ECU,SM7AED,EA7KW,GI4OWA,DL6AMI,M0BJL IS0,Z3>DL 4X>ON,EA3,9A OE1>I2 LZ1>PA ON>9A ER3>EA3 LZ2,IS0,I7>ON 9A>EH1 Z3>OK1 UT5G>OH1 OD5SIX>EA3 I6>DL 09-1000 CN8MC>EA7(short),PA TT8M>F5VJF,PA3ECU, MM0AMW,PA7MM,DL8PM G,CN8MC,LZ1,LZ2>DL 4X>I3 I9>SP5 EH3>4X CN>IS0,EA5,EI EA6>ON,SP7 G>SP7 10-1100 CT3>4X TT8M>G0JHC EA6>I0 CN8MC>ON,PA EH7>PA SV1>SV3 EH1DVY>I3,PA CT0SIX,EH4,EH7>PA CU3URA>I0 CT3>I3 EH4>SM7,DL CU3URA>I5 11-1200 EH8>PA,ON,HB,F EH2,EH4>ON GB3BAA>9H CU3URA>DL,9A EH5>PA EH2>I2 EH1>DL CT>PA,I2 RV6>DL 12-1300 EH1DVY>PA CU3URA>DL,I2,PA EH8>F LX>EH7 CY9SS>EA7RM CU7>I5 CO8DM>EA7KW,EH7RM EH6>DL CT3>ON 13-1400 F>EI(t) UR>DL S5>9A CY9SS>CT1EEB EH4>F CT3>PA I0>EA7 CT>PA 14-1500 EI>ON,PA UR>PA,9H OZ>PA GM>EI 9H>I9 G>PA GM>EA4 15-1600 UR>DL 16-1700 EH7>LX W1JJ,K8RA>EA7RM OD5SIX>DL N4BAA>DJ9YE K3KTJ,W3BTX,I8>EA7RM J3/K5AND>DL7QY TT8M>DJ9YE 17-1800 CY9SS>EA7KW TT8M>G4IFX,MM5AJW ,OK1MP,F5TND S5>ON GM>9A UR,ZB2,EH4,OZ>DL GM,GW>9A EH4,SV1>HB UT5G>PA OZ>LZ2 VO1AU>EH7KW CN>F SV1>EA7 ZB2>SP2 EH9>I3 J3/K5AND>DL7QY,DK1MAX FM5JC>DK1MAX,F6HRP DL>HB CT>F G>9A 18-1900 SP7>F TT8M>PA2V,G3HTA F>HB EH9>PA,I3 PA>DL ZB2>I4 9H>PA G>I0,PA FM5JC>F6FHP,F5TND,F5OQK,YO7VS T9>YU4 GB3MCB>ON GI>9A J3/K5AND>IK0FTA,DK1MAX,F5TND,I7CSB G>EA7 YT5>9A J68AS>S57TA,DL7QY 19-2000

TT8M>9A5ST,PA2V G>I5 GI>I6 J3/K5AND>IK1PAG,F5CWU LZ1>SM0 CT>I6 EI,OZ,PA>CN  
J68AS>F5CWU,I5MXX,DK1MAX,F5TND FM5JC>9A1CCY,YU4WU 20-2100  
FM5JC>9A6R,9A5CY,EI5FK,F6HRP CT>PA G,EA3,EI>CN CU3URA>I0 CY9SS>EA7RM,  
EA3AKY,EA1EXV OE5>9A 21-2200 CU3URA>EI,F GB3IOJ>ON PA>F 22-2300 EI>F,PA

July 3 0239 UT5G>IK0FTA(599) 0354 LZ1>F 04-0500 OZ>9A 05-0600 LZ1>UR T9,UT5G,UU5SIX>9A  
UT5G>EA3,I6 PA>I6 06-0700 PA>EA7 YT5>UR UT5G>DL CN8MC>I0 07-0800 YT1>YO7 PA>DL  
Z3,LZ1,T9>DL I9>9H LZ1>PA,LA YT5>PA,9A,HA5 PA>CN YT2,YU7,EI,Z3>9A OZ>I8 SP9>OH7  
YT0>HA5 08-0900 I9>I2,DL PA>ON,9A,LX,DL,EA3 EI>I3 I6>I0 CN8MC>EI  
TT8M>PA5FM,EA7RM,EA5NI YZ1,LZ1>PA 09-1000 CT3>F 9A,OZ,YT2,YT5,LZ1>DL  
9A,J4,YZ1>PA TT8M>PA2V UR>I2 ON>LX EH4>I9 OZ>EA7 I9>EA5,F EI>CN CU3URA>I0 10-  
1100 T9,S5>DL CT0SIX>9H EH4,LZ1>PA EI,CT3,PA>9A I0>LY OZ>EA7 CN>9H CN>EA7,DL  
GB3BAA>IS0 11-1200 EI>IS0,CN YT2,Z3,G>PA OZ>IS0 CY9SS>EA7KW,DJ6TK PA,G,EI>9A  
CU3URA>EA3 K3TKJ>EA7RM,EA7KW EH1>CN VE1YX>CN8LI 12-1300 T9>EI YT5>LA  
EI,GW>9A 9A>S5 EI>9A,ON CU3URA>EA3 W1JJ>EA7RM K7BV/1,W3EP>EA7KW  
VE1ZZ>EA4EHI 13-1400 KM0A>5T5SN OZ>9A EI>F JX7SIX>OH2(KP20)14-1500 5B4CY>PA  
HB9SIX>OH1 15-1600 EH1DVY>DL,I9 CU3URA>I9 I9>HB CN>I4,HB,F  
OH1SIX,EH5,OH1,OH3>PA OH9SIX,OH1SIX>DL 16-1700 OH1>EA7,PA OH3>CN EH5,EH7>9A  
OH3>PA OZ6VHF,PA>LA EH7>9A,I2,I3,I4,DL LX,CN,OH4,OH1,EH1>DL  
TT8M>F6FHP,F5OQK,G0CHE ON>OH7 OH5>PA EH2>I3 CN>I3,LA,DL I2>EA5 EH4>I8  
EH5>EI,I3 GM>EA1 W1JJ>IW9CER 17-1800 9H,CN>F OZ,G,I7,GM>EA1 EH7>LA,I7 OD5SIX>9A  
EH5>HA5 JX7SIX>PA,EA3 OZ>CN EH2>LA,EI EI,7X,CU3URA>DL 7X>I3 SP4>LA  
GB3LER,7X>EA7 EH1>PA 18-1900 EH5>EI,I1,I9 EH7>OH1,G,9A,HB 7X>ON,CT EH1,CT>PA  
EH4>I7 CU3URA>ON,EA7 F>OH2 EH1DVY,S5,EH2>LA OZ6VHF>9A JX7SIX>SM7,LA,OH2  
GB3LER>HA5 TF3SIX,JW9SIX>SM6 19-2000 EH4>OZ EH5>HB EH1,CT>DL CT>9H  
G,GU,EH7>F I9>EA5 F,EH3>LA CN>F,PA,I7,HB,ON,LA JX7SIX>SM0 EH7,ZB2>PA EH7>ON 20-  
2100 JW9SIX>LA,SM0 JX7SIX,JX9SIX>SM0 OH9SIX,YU1EO>LA G>EA4(t) I4>OH3 21-2200  
I3>SM0,OH3 9H>EA4 CU3URA>F HB.OH1>OH3 JX7SIX>SM0 CN8MC>F 9A1CAL>LA 22-2300  
CU3URA>EA7 GB3LER>LA

July 4 06-0700 I0,YU7>OH3 JA2EXN(?)>5B4FL HB9SIX>SM1 OH3>DL I2>SM1 ES8>OE3  
OD5SIX>OZ,ER1 I4>SM0 SM7>9A,ER1 LA,LY,OH3,SM1>9A OZ6VHF>OE3 LA>SM7  
OH5RAC>HB 07-0800 JX7SIX>OH2(KP20 mode?) OE2>SM0 LA,SM1>I3 OH3>9A  
OD5SIX,OZ6VHF,LA>YO7 I4,5B>ER1 LA7SIX>DL OH3>LX GM>5B JW9SIX>SM7,DL,I4 DL>OZ  
SV1SIX>SP9 JX7SIX>SP2,9A G>SP2 SR5SIX>EI JH7XRZ>5B4AD 5B>YO7 JR2HCB>YO7VS  
YO3KWJ>OZ I4>RK3 08-0900 F>OH3 IQ4AD,LA>EI YO7>5B GB3LER,G>DL OH3>I5  
SP5SIX>ON JX7SIX>OZ,LA LA7SIX>SM6,LA LZ1,SM5>ON ES6,UU5SIX>9A I4>SM1  
OH2,OH7>OM5 RK3>PA 4X4SIX>YO7 09-1000 ES1>OM5 GM,G>DL UR>I6 GM,UR>9A OH7>I0  
GW>SM1,EI SV1SIX>OK1 JX7SIX,GB3BAA>OZ 10-1100 LA>F JX7SIX>OZ GB3LER>EI,DL  
EH1DVY>9A UR>S5 CY9SS>EI5FK,SM6CMU,OH1VR,OZ0JD SV1SIX>DL OY6SMC>DL,ES6 11-  
1200 GB3LER>9A,DL LA,JX7SIX>9A OY6SMC>PA CY9SS>OZ4VV,EI5FK,EI3IO,F6FHP  
UU5SIX,UT5G>DL GB3MCB>SM7 LA>SM6,G4BWP VO1ZA>G0CHE,G7RAU VE1YX>F6FHP 12-  
1300 I4>9A CY9SS>9A8A,DL7FF,PA0ZH(pings), 9A1Z,F8OP, EA7RM,F5LNU,9H1XT GB3LER>I2  
UT5G>OE3 GU,G,SV1>9A I9>9H EI>SM5 LA>EI SV1SIX>DL 13-1400 EI>OZ GM,ZC4>9A F>SP9  
ZC4>SP2 CU3URA,I9>EA7 OZ6VHF>EI GB3LER>F YO7>4X 14-1500 ZC4>4X SV1SIX,ZC4>EA7  
I3NVN>A61Q A61Q>G3PLP,OM3PC,G0CHE,F5GTR,G3JHM,9A5ST,OK1DDO,OZ1DJJ  
OD5SIX>9A,I0 UR>9A ZC4>OK1,SP9,EA5,I8 A71EM>G4IFX,IW7EBA,IZ5EKV F>I7 4X>SV1,PA  
GB3LER>I0 SV1DH>A45WD IT9X>9A I9>HB 15-1600 A45WD>9A5ST SV1SIX>F  
IT9IPQ>A45WD A61Q>EA3GP,LZ1ZP I9>OE3,HA5 I9,4X,SV1,SV3>9A A71EM>IS0GQX  
IW3FZQ>LA PA,4X,OD5SIX>HA5 4X>LA OK1>PA SP9>ON SV7,SP7>I9 UR>EA3,LA  
5B>HA5,EA3 16-1700 5B4CY>EA3,OE3 UR>EA3 SV3>YO5,HA5,ON Z3>I2 SV1,SV5>9A G>PA  
LZ1,5B,OD5SIX,4X4SIX,GB3LER>DL YO7>I9 CU3URA>EA7,EA4,EA3 CN>9H F>EA7 4X>SM0  
TA2>I0,I9 A45XR>DK2EA 5B,4X,UR>HA5 4X>OK1 17-1800 GM,SV1,OH7,LA>HA5 PA>4N 4N>F  
UR>EA3,DL,SM7,PA OZ,GB3LER,T9,UT5G,S5>LA 4X>OK1,OZ,DL,SM0 HA5,SV8>OZ

OH0>I2,I4 YL>I8 SP5>PA TA2,ES2>I0 Z3>ON YU1>OH1 LZ1>EA1 18-1900  
OD5SIX,YU1,LZ1>LA OH2,LZ1,OH3, UR>OE3 SV3>PA Z3>LY 4X>DL I8,4X>SP5 EI,OM3>OH1  
GB3BAA>SP9 SP9>PA YL>F,YU7 OH6>EI OH3>I0 SV1>OH2 SV3>ON UR,SM0>I6 19-2000  
YL2>I3 UR,YO3>F GB3MCB>LA,DL OY6SMC>DL,OZ GB3RMK,PA(t)>DL GB3BAA>9A  
SV1SIX>9A,EI OHSIX,SR5SIX>EI UR>I6 YU7>I0 I6>PA PA>I8 TA2>I1,I0 20-2100 I0>PA  
GB3LER>I0 SV1,F>9A,S5 YU1>LA,F CT3>EA8 OH6VHF>LA OZ>F CU3URA>5T5SN 9H>4X 21-  
2200 EH3>SM7 G>EI

July 5 05-0600 UU5SIX>SV1 OD5SIX>9A,I0 5B4CY>9A,SP6 LZ2>YO7 SV1SIX>SP6 I0>OH1 OH1>OH2  
06-0700 I0,4X>9A OD5SIX>DL,HB 5B4CY,UU5SIX.EH5>DL SV1SIX>HB,OE3 UR,SV5SIX,I9>9A  
JL8GFB>DL7CM A61Q>9A5ST,9H1XT,I4EAT JA5AIE>5B4FL DL>OH1 SM3>OM3 I9>PA 07-  
0800 IT9RZR>JL8GFB 07-0800 SV1SIX>SP9,SP6,OE5 A61Q>IK0NOJ,I8LPR OH1,T9,SM0>DL  
SK0,4X,UR>9A I9>I0,DL,SP6 UK9AA>F8OP 9A>EA1 4X>LZ2 JA5AIE>OZ1DJJ  
9H1SIX,SM3>OE5 SV5SIX,GB3BAA>9A I8>SP9 IZ1EPM>OM3 LZ1>SP6 08-0900  
I8,SV2,OH1,Z3>DL YU1EO>EH3 DL>PA EH1DVY>9A,DL IT9X,I8,I0>OE5 YU7>EA1 I0>OE3  
SV1SIX>EH3 UT5G>I2 I5MXX,OE5>EA1 EH6>9A,DL,ON OE6>EH7 SV2>SP6 09-1000  
I0JX,I3,S5,9A>EA1 9H>DL,I0 SV2>EA5 TT8M>DK1MAX I0>ON EH5>OE3 SV1SIX>OZ,ON  
EH1DVY>DL CT3>YO7 I5MXX>EA5 IS0>SP6 10-1100 OE5>9A EH1DVY>I0,S5 EH6>I0,S5,EA3  
Z3>OK1 I4,9A,I0>EA1 SV9SIX>HB CT3>I0,9A 11-1200 CT>OE5 I8EMG>OE5 OD>ON EH5>I7  
CN8MC>9A,EH3,SV1 12-1300 CT0SIX>9A EH1DVY>I4 CN>DL EH7,SV1SIX>PA  
JN1NDY>A45XR IS0>EA7 13-1400 9A0BHH>EA7 5B>9A EH1DVY,EH7>S5 JG2BRI>A71BX  
S5>9A VE3UBL>5T5SN 14-1500 5T5DUB>F8DBF EH7>PA,F CN>9H,PA I0JX,S5,I8>EA1  
EA1,CT3>F CU3URA>I0,DL 9H>EA5 15-1600 EH1DVY>9A,PA UT5G>OZ EH5>9A SV1SIX>I0  
F>EA1 I8,LZ2>EA5 EI>EA3 UR,I8EMG,IT9X,CT0SIX,9HSIX,SV1,SV5SIX>DL OH9>PA LA>4X  
GB3MCB>EA7 EH6>I3 CU3URA>OE5 16-1700 UR>PA,LX,EA4,ON UU5SIX,YU1,I9,SV1SIX>LA  
CN8MC>IS0 F>CN CU3URA>DL,I0 I9,EH6,OH8,CU2,UR,I0JX>DL EH3>9H 4X>I2 EH6>SP3  
OH3,OH5>I0 4X>EA3 SV8>EI SV1SIX>OE3 5B4CY>OZ YO8>PA 17-1800 SV8>OE3,PA  
SQ5>LZ2 GU,CN8MC>DL TT8M>9A5MT,4X5LA,PA4PA,PE1CZG,OK1MP,DK2ES,DJ3TF  
F,EH3>OZ 4X>S5 CN>LZ2,DL CT,I9>PA SV1>SP9,HB,EI Z3>LA,F CT0SIX>EI SV8>EA1,OZ  
EI>9A 18-1900 G>I8 EH6,HB>PA 9H>EI SV1SIX,IT9X,G>HA5 CN>OZ HB,4X,EH3,I3,I4,EH6,I9,  
LA, F>DL G>SP3 OM3>F G>S5 SV8>I3 I0>I8 Z3>I0 F>LA F,OZ>HB PA>I4 TT8M>DK1MAX,9A4K  
19-2000 GM,SV8,EH1>DL EI,UR>I4 G>9H TT8M>IZ0ADG,DK2EA IZ1EPM>LA I3>UR  
CT0SIX>PA 20-2100 UR>I4 YO5>I8 GB3LER,CN8MC>SV1 EH1DVY>PA UR>I0,I1  
LZ1JH,YO3KWJ,SV1SIX>OE5 I6>SM0 I3>LZ2,SM0 CT0SIX,EH1DVY>EI GB3BAA>EA3 I9>9A  
21-2200 LZ1>DL,OE5 EH1DVY>PA

July 6 05-0600 OY6SMC>S5,OE5,I3 GB3LER>S5,OE5 06-0700 GB3MCB,GB3IOJ>SM7  
JA5AIE,JO6EDD>5B4FL OY6SMC>I2 GB3LER>SP6 LA>F OH5RAC>YO7 UT5G>SM1  
YO7VS>OH3 VR2BG>5B4FL 07-0800 S55ZRS>9A HB9SIX,F>LA GB3LER>DL,9A 4X4SIX>YO7  
SM3>F A45XR>OZ4VV,DJ6TK,SM1TDE,SP9CCD,LY2BAW OH9SIX,EH1DVY>OZ  
OH9SIX,SP9>PA GB3MCB>HB EH4>I9 SM5>9A EY8MM>5B4FL OH5RAC>F LY,LA>HA3 08-  
0900 GM>OK1 HB9SIX>DL EI>HA3 A45XR>G3WOS, SV1LK,G0JHC,DG2TOM,DL8PM,  
F6FHP,G1AAR UU5SIX>OZ A61Q>OZ1DJJ,OH3XR, DL8PM,9A8A,G4FUF,F6FHP UR>ON,DL  
EH6>EH7 OZ,GM,DL>EB1 CN8MC,4X>9A A45WD>DL8PM 09-1000  
A61Q>LY2BAW,YO7VS,DL8PM,9A5ST GB3LER,UT5G>DL G>OE3,OK1,9A OM6>ON LA>9A  
A45XR>SP6MLK,G8BCG,9A5ST,EI5FK,CT1CBI G>OE3 I0,YU7,OZ,F>EB1 F,G>DL CT3,S5>LA  
LY>I8 5B4CY>EI,SV1,F 10-1100 G,F>EA1 A45XR>DL8PM,GW3LEW,G0GMS,G4UPS  
A61Q>IV3NVN,SP9CCD,OK1FFD OY,UR,CT3>DL I9>OK1,I1,PA LZ2>LA EI>OK1  
GB3LER,CU3SIX,OZ,G>I0 I3>I9 TT8M>DL8PM,EI5FK,GW3LEW OZ6VHF>9A IQ4AD,LY,4X>DL  
9H>EA1 GW>OK1 11-1200 4X,SR9FHA,GB3BAA>DL A61Q>GW8ASA,DK3RV,OK1FFD  
,ON6NL,I4AVG TT8M>G4OBK,DK1MAX,IW0FFK A45XR>DL8PM,ON6NL,DK3RV,G0LCS,  
G8VHB,OZ6OM G>LA,SK0 GB3MCB>DL OE5,CU3URA,GM>DL GB3BAA,GM>OE3 ZB2>DL,OZ  
OE5>EA1 LA>S5 EH1>PA I9>F 12-1300 I3>OZ LA7SIX>SV1 OY,GW,UR,GM,TF,I9>DL  
GB3LER>EA7 YO3KWJ,ES8>9A UU5SIX>9A F>I8 G>SM3 GB3LER>EA1 A45XR>DJ9YE

A45WD>OZ0JX CN8MC,F>EI 13-1400 A45XR>DL8PM,DL0RW.MM0BSM,DJ6TK,DG9FCV  
PA,SV3,ZB2>EI SV1>PA,SM1 YU1EO,9H,UR>DL CU3URA>F,EB1 CT,CN8MC,GB3LER>EB1  
CT0SIX>F OH5RAC>9A I7>OH1 A61AH>PA2V SV3>I4 UR>I9,I7,I4 OH2>I8 IZ1EPM>5T5SN  
EI>ON 14-1500 5T5SN>F5GTR A45XR>EI7IW ZB2>I4 OZ6VHF>YO7 UR>I8,I7,9A YU1>OH6  
UU5SIX,GU>EI YO4,F>9A EH7>I4,9A CU2>9H EI>OZ GI,CT,CT3,EI,CU2>DL K1TOL>MM0AMW  
DL>EA1 VO1ZA>EA7RM CT.CT3>OH3 G>I7 5T5DUB>DK1MAX CT3>SP6,PA UT5G>9A ON>I9  
15-1600 5T5DUB>DK2EA TT8M>DL8PM GU>9A VO1ZA>F6FHP CU2>EH5,SM6,9A,I5,OZ,SP6  
EI>9A I5,Z3,ZB2>DL OK1>I8 TF>EH1 G>SV1 TF>F I2>I8 SV1>9A EI>OZ 16-1700 G>OH2 F>DL  
UT5G>SM0 GM>PA TF>I0 CU2>OZ ,9A,LA VO1ZA>F5TND,DK1MAX OK1>I0 GU>DL,ON,PA  
LY,EI,ON,SV1SIX>9A OH1>SV3 LA,OY,TF>F G>OH2 9H>SP8 I7>I2 SP9,I6>OH2 DL>OH7  
LY>PA 17-1800 VO1ZA>F5TND TF>I0 CU3URA>EA4 LZ1JH,F,UU5SIX,TF>9A I6,I5>PA  
K1TOL>DK1MAX SP1>EH5 TF>S5,EI,DL PA>I2 OH3,JX7SIX,OZ6VHF,CU2,GM,OY,OK1,OZ>DL  
OH1SIX>SV1 PA>EI CU2>EH5,EH1 5T5DUB>MM5AJW GI,GM>EA4 EH8>EH5 YO7,I6>PA  
DL>LA TF3SIX>I0,I4 ES6>OK1 SM0>LX 18-1900 SM6>LX UR,LY,PA,CU3URA>9A SM7>ON  
OZ>EH5 4X>SM7 TF>9H,OX,S5,EI,I4,LZ2 VO1ZA>MM0AMW,GM0TGE SM6>YO5 OZ>I4  
EH8>EH5 CT3>OH1,OH2 GM>EI,ON UR>EA3,9A LA,SM6>DL VE1ZZ>DF9CY JX7SIX>EI 19-  
2000 LA>DL,PA,I4 VD2X>EA7KW,F5PAU LX,TF,EH8>LA GB3LER>EI SK6,LA>I4  
VE1ZZ>G4IGO,GM0TGE,9A1Z TA2>I2 9A>SP2 VO1ZA>DK1MAX,DK2EA,EI5FK,F6HRP  
GB3LER>9A OZ6VHF>DL VE1YX>EI7IX,G8BCG,EI5FK,GW6TEO TF,OD5SIX>9A G>SM7  
ZA>SM0 G>PA,DL 20-2100 EI>SP3,DL OZ>9A T9,GM,G,UR,GD>DL LY>EA3,SP8 SP4,TF,LA>F  
GM>LZ2 GB3LER,OY6SMC>F YL1>EA3 21-2200 OK1,GM,UR,I3>DL OZ>I0 OE3>LX TF>EI,F  
OM3>OZ TA2,LA,LX,SM3>F LA,OZ>I2 G>SP9,OZ GM,LA>9A  
OH7,OK2,OD5SIX,S5,YO4,LZ1,9A>PA GW>LZ2 UR>SV8 OM3>LA YO7>OK1 22-2300  
UR,OZ>I5 G,GU>SQ6,OK1 VO1ZA>F6FHP TA2,GM>9A OY6SMC>DL GU>SP2 GB3LER>I1  
LA>F 23-2400 GU>LA GM>I4,I3 YZ1>PA CU3URA>F OK1>EI

July 7 00-0100 SR5SIX>EI 04-0500 UT5G,UU5SIX,OD5SIX,SR5SIX,SM7>I0 JX7SIX>SP2  
YO3KWJ,UU5SIX,UT5G>9H,EA3 YO3KWJ,GB3LER,SV1SIX>4X  
4N1ZNI,LZ1JH,GB3LER,GB3BAA,SV1SIX>OE3 OE3>S5 PI7SIX>SP6 SR9FHA>EA3  
OE3BCA>A61Q OH0>OK1 05-0600 PA>OH1 I8EMG,JX7SIX,OZ6VHF,SV1SIX>9A  
OH7,UR,SM3>PA IQ4AD>OZ LA7SIX>F PA>OH6,DL I7,I0,Z3>OE3 GB3LER,SV1SIX,I0JX>HA1  
F,GB3MCB,IZ1EPM,T7>OZ I4>OH1 06-0700 GB3LER,GB3RMK,GB3MCB,GB3BAA,  
GB3BUX,OY6SMC,I0JX,IT9X,I8EMG,SV1SIX,PI7SIX,5B,T7,Z3,EI,I7>DL S5>I9 T7>HB UR,4X>PA  
GM>S5 5B>I2,PA SV3,5B,GM>HA5 I0JX>OE3 GM>9A I0JX>OE3 OE2>I9 07-0800 9A,OK1>I9  
GM>SV1,OH9 OK2,SP9>I9 I9,SV1SIX>ER1 UT5G,LA>PA F>I4,DL,PA,HB,OZ,OK1,I9  
JX7SIX>SM0,PA,SM7 OY6SMC>SM7 EH1DVY>HB EH5,TF3SIX>DL,SM7 OY6SMC>SM7 08-  
0900 LA,JX7SIX>PA,DL GB3BAA>I0 I8EMG,OD5SIX>ER1 F,TA2>I8 GB3RMK>SM0 EH1>SM3  
OY>SM7,LA,DL,OZ,SP2 CN8MC>F CN>ON TF3SIX>OZ JX7SIX>OZ,SP2  
EH6,GB3MCB,EH1DVY>DL G>OZ,I8,LA GM>OH6 09-1000 UU5SIX>I0 F>OZ,PA  
GM>OH6,SM0 EH9>EH3 ZB2>HB,EH3,F F>I8 JX7SIX,GB3LER,OY6SMC>PA OY>OH1,OZ  
EH1DVY>OE5 SV1SIX>OE6,OK1,HB 10-1100 K1TOL>OZ0JD,IK2GSO,PA2V,OZ1DJJ,  
G0TSM,DK1MAX EH1DVY, CT>PA I5,I0JX,9A0BHH,I4>EB1 CU3URA>DL OD5SIX>I5 SV1>9A  
K7BV/1>G0TSM 11-1200 CT>DL W1JJ>GW3LEW CN8MC>EB1 TF3SIX>SM7,EI, OY>F 12-1300  
TF3SIX>PA I1>I8 YT1>EA8 13-1400 K1TOL>G4PCI,G3SED K7BV/1>G3SED I9>PA  
EA3VHF>LZ2,9A LZ1JH>OK1 7X>9A UR>5B,YU7 CU2>EA8 14-1500  
KP2A>EI5FK,G8BCG,GW3LEW EH6>OM3 WP3UX>MW1MFY,G8BCG SV1SIX>S5 HV0>SV1,I8  
15-1600 WP3UX>G4PCI YO4>SM7 I8EMG>HB 16-1700 CU3URA>EA3,EI CN8MC>EI,EB1  
I9>PA,OK1 UU5SIX,LZ1JH>I5 I8>PA HV0>SM1,I8 EH8>EH4 SV8,SV3>LY YO4>9A 17-1800  
SV3>OM3,SP9 SV5SIX,IS0,I8>DL CT3>EA5 GB3LER>EI TA2>OE6,I5 I9>PA HV0>SP9,I,SV1  
9A>OZ,5B I9>OE6,OZ CU3URA,EH8,CT3>EB1 UR>5B YO8,YU1,LA>EA8 I8,I9>PA SV8>I5  
SV8>EI 9H>OZ 18-1900 Z3>I9,DL HV0>SV1 CN>I8,EA1 GM>EA1 F,HV0,I0>9A LZ2>HB  
SV2,I8,EH6,I6,IS0>DL LZ4,LZ2>I2 HV0>UR,PA CU3URA>PA WP3UX>DL3DXX  
KP2A>PA2M,DK1MAX, DL3DXX,9A4K KP4TB>DL3DXX FJ5DX>PA3GCV CN>I9 WP4N>9A4K  
I6>4X G>F CN>9H 19-2000 KP2A>MW1MFY,DD3DJ,9A4K,G3SED, PA7TWO,DL9NDC CU2>DL



WP4N>DL3DXX G,EH8,4X,7X>9A WP3UX>G8BCG,F5PAU, DK2EA F,SV1SIX>EI CU3URA>I5  
CU2>9H EH8>PA KP4TB>DK2EA,F6HRP,EI5FK,DK1MAX G>EA2,4X CN,EH8,CU2>I9 OZ>EA8  
7X>9H WP3YM>DK2EA,DK1MAX 9A>EA2 S5,DL>4X CU3URA>F  
NP2/W9UI>EI5FK,G8BCG,G7KHF,M0AWX 20-2100 NP2/W9UI>9H1LE,G4JZF,  
G4PBP,9A4K,DL1YD,T77EB WP3UX>G8BCG,DK1MAX,G3PLP CU2>IS0 KP4TB>G8BCG,  
F6FHP 5B>4X CT3>9A,I8 5B>EA3 EH8>I0,YU7 FM5JC>EI5FK I9,EH8>PA KP2A>G0TSM  
CT3>9A,EA8 CT2>EA4 KP3A>F6HRP WP4NIX>F6HRP,EI5FK GW>EI CN>EA8 21-2200  
EH1>EH8 9H>CN KP4TB>GW3JXN NP2/W9UI>G3IBI,G8BCG, CN8LI,CT1EEN CT1HZE>5T5SN  
CU3URA>F KP4EIT>G8BCG,CN8LI,F9IE,GW3LEW NP3CW>GW3JXN, GW3LEW 9H>CN  
JX7SIX>OH2 22-2300 KP4EIT>CN8LI,CT3DL 9H>CN FM5JC>G3SED

July 8 05-0600 SM7>OE3 9A0BHH>SM0 06-0700 I3>OZ 5B,SV1,YO3KWJ>4X GB3MCB>OE3  
GB3LER>9A I3>SM0 SM0,DL,PA>I8 F>PA EH5>9A,DL UU5SIX>4X 07-0800 YU1EO>DL  
UT5G,UU5SIX>HB DL,LA,SP2,SR5SIX>I8 SM0,SP2,GM>I4 SM1>SM0 DL,OZ>9A I0>SM1  
SV1SIX,I8EMG>OZ UR>SM0 A61Q>5B4FL 4N1ZNI,LZ2CM,I8EMG,EH1DVY>PA YU7>DL  
I0>SP9,LA 5T5DUB>PF7M 08-0900 I9,EH1DVY,4N1ZNI,HB>DL OK1>SP2 5T5DUB>PA2V  
SV1>DL,I1 4X,SV1SIX>9A EA3VHF>OZ I9>OK1 EI,I5MXX>4X PI7SIX,GB3BUX,  
GB3BAA,GB3MCB>I0 ON>EB4 I0JX>PA 09-1000 SV1SIX,EH1,I9>DL I9>PA IS0>SP2 ON>EA1  
G>EB4 TT8M>9A1CCY,OZ1DJJ,DJ9YE,OZ7JX,9A8A FX4SIX,G>EI EI>EB4 EA3VHF>SV1 10-  
1100 G>S5 OD5SIX>SV1 ZB2>F EH1DVY>DL,SM7 I0>PA G>EI(bs) F>OE3 4X>SV1  
EH5,ZB2>S5 SV1SI>I0 I0,UR>SM7 CT3>9A F,EA9>CT 11-1200 CT>SP2,9A  
EH9,ZB2,GB3BAA,PA>9A EH1DVY>PA SR9FHA>F F>OM3,SP9 IQ4AD>LA EH6>SP2  
I0JX>LA,OZ I5MXX>LA IW3FZQ>LA,OZ S5>OH1 IQ4AD>SM7 SM0>9A 12-1300 OH5RAC>9A  
LZ2CM,YO7>LA F>SP6 IQ4FA,I1,I0>LA K1TOL>9A8A,G3ZYY ON,EH1DVY>OE5 I1>SP8,DL  
KP4EIT>EA7KW,IZ5EKV PA>OE3 EH7>9A OM3>PA I9>EA7 3A,LA>I5 13-1400  
KP4EIT>I5IAR,IW1AZJ CO8DM>EA7KW CU3URA>I5 K4MM>9H1XT 7X>PA 14-1500  
CU2>EB1,9A W1JJ>EA8EE CT>I5 CU2>I9,I1 I5,I0JX,9H>EB1 UR,CU3>I8 EH7>DL,9A  
NW5E/4>9H1XT,9H1BT EH5>PA CU3URA>I0 NG4C>9H1TX 15-1600 EH6>SV1  
KP4EIT>I4EAT,F9IE,F6HRP,I5FLN,LZ1ZP,I2YWR W3BTX>9H1XT  
PJ2BVU>I4EAT,IZ5EKV,IK2GSO,MU0FAL EH1DVY,ZB2>I9 I1,I5>EB1 WP3UX>IZ5EKV,F6HRP  
9Y4AT>G4PCI,G4IGO CN8MC>PA WP4NIX>I4EAT 16-1700 PJ2BVU>F6HRP,S59A,  
DK1MAX,DL7QY KP4EIT>IK4IDE,9H1TX,IW9CER,I2WSG,9A6R PI7SIX>OH2 VO1ZA>F9IE  
CU3>9A,HB,DL EH1DVY,OH4>DL WP4NIX>9A6R,IW1AZJ NG4C>IK0FTA,9H1TX SO5>LA  
OH3>PA NP3CW>EA1DKV 7X>PA 4X,9H>5B OH2,OH5RAC,SM0>DL HB>EB1  
KP2A>S57A,F8OP GB3MCB,PI7SIX,9H>EA4 17-1800 GD>EA4 OH2>EA7 TT8M>IZ5EME,9A2ZH  
9Y4AT>G4IGO VO1ZA>F6FHP OH1>9A,PA EH4>OZ YO3KWJ,OH9SIX,OH7,OH2,EH1DVY,  
UR,EH5,OH0>DL PA>EA4 PJ2BVU>G3SED,9A8A K1SIX,K1TOL>EA7KW EA6,LY,EH1,OH3>PA  
9Y4AT>DL7QY,G3SED,ON4GG LA>9A G>LY CN8MC>IS0 18-1900 CT>OH6 9A0BHH>SM0  
YV4DDK>S59A,ON4GG,9A8A,DL7QY,9A4K,F8OP,9A2ZH,9A6R,9A5ST LZ1>SM7,DL  
EH6,EH1,OH9,UR>DL UR>OK1,9A,PA OH9>PA K1TOL>EA7KW SM5>OK1 LY>EI SP7,OH3>PA  
YL2>9A,SV1 LZ1,OH3>9A G>IS0 PJ2BVU>EA7KW 19-2000 SP8>PA Z3>S5 YL2,3A>CN  
OH2>OE3 PJ2BVU>HB9LBC S5,GM,G,LA,SV1SIX>9A LZ1,YL2>CN G>SP9 UR,SP9>PA SP8>F  
S5>5B LA>I3 F>OZ LA>I2 GW>EA5 9Y4AT>G3SED,DL3DXX 20-2100 I4>PA  
GB3IOJ,CU3URA>DL G>9A, I7>EH5 SM7,PA>EA3 SM7>F EI>S5 EH3>LA,9A LZ1>I9 OH3>LA  
EI>HB,9A 9Y4AT>DK2EA NP3CW>9A5ST SV1SIX>EI 5B>9A SV1>SV8 21-2200  
9Y4AT>DL7QY,DK2EA YU1EO,OZ6VHF>LA WP3UX>DL3DXX,DL7QY,DK2EA VO1ZA>F5TND  
KP4EIT>DK2EA 22-2300 PA>DL(bs) G,I5,IZ1EPM>SM7 EH1DVY,EH3>EI SV1SIX>DL  
OZ>PA(bs) SM0>I1 GB3BAA,GB3CMB>9A VO1ZA>G0FYD K7BV/1>EA3AKY 23-2400 EH3>PA

July 9 0659 UT5G>I1 07-0800 I8EMG>SM7 YO3KWJ,LZ1JH,YU1EO>EA3 I7>SM0,PA SV1SIX>SP6  
I0>HA5 UR>EA3,I1 I1,ZA,I0>9A I8,ZA>F TT8M>DL8VL,9A2TN ZA>I0,DL 08-0900 I8>I2,HA5,OK1  
I8EMG,SV1SIX>OE5 ZA>EA3 IT9X>DL 9A0BHH>IS0 LZ2>EA1 Z3>I4 I9>SP9  
TT8M>OE2UKL,9A4BT,DK1MAX EH6>LZ2 CU3URA>EI F,Z3,SV1SIX>I1 I9>HA5 J4>I2 09-1000  
J4>I0,EA7,EH1,DL,CT SV8,EH9>CT CU3URA>I5 4X>EA3 TT8M>DL7QY,OE2CAL,I0KNQ,

9H1TM,9A6R,IN3YGW,9A4K,SM7GVF,EI5FK,IW2NUI I9>DL I0>4X EH4>EH8 EH8>9A 10-1100  
TT8M>F1VJQ,G3ZYY,HB9PHJ EH1>I4 4X>5B,OK1 EH6>I8 EH8>PA  
5T5SN>YU7EF,PA4PA,PA0KDV,DL7QY,G8IZY,GW8ASA EH4,GD,F>EH8 J4>DL CT3>5B  
CN,CU3URA>EA3 TT8M>9A7DX EH9>I9 11-1200 CN>CT 5T5SN>CT1EEN,IT9FGA,  
M3SDE,GM0TGE,CN8KD,G7RAU CT0SIX>EA3 EH7>PA 12-1300 CU3URA>I5 CU3AK>5T5SN  
CU3URA>CN CN8MC>F EH8>EA3 13-1400 J4>SV3 IZ1EPM>I9 14-1500 G>OZ,CN J4>SV3 15-  
1600 J4>SV8 CT>EA7 aurora 17-1800 CT0SIX>DL 18-1900 G>EH3 IT9X>DL I4>I3  
CN8MC>PA,DL CT>HB,I1,PA EH1,EH4>I1 CU3URA>EA8 5T5SN>DK2EA,F8OP,S57RR 20-2100  
G>S5,EI 2345 CN8MC>PA

July 10 0557 GB3BAA>EA6 06-0700 GB3MCB,GB3IOJ,GB3RMK,PI7SIX>EH3 I0>I8 EH7,CT>PA 07-0800  
G>I0,EI GB3MCB>F I0>9A G>EA2 08-0900 CT>PA CU3URA>DL J4>SV3 I0>OZ 09-1000  
EH1,LX0SIX>PA I5>EA1 CT>I0 LX>DL J4>EA7 10-1100 S5>PA 5B>CN HB9SJE>5T5SN  
C3>EA1,9H,EH3 5T5SN>IZ5EME G>EA1 LX>CN OH3>LX 11-1200 C3>PA(ms),SV1,9A  
SV3>SV8 F>EA3,C3 LX>ON J4>EH3,EH5 12-1300 S5>DL 13-1400 I3>HA1 SV1SIX>EH3 14-  
1500 CN>9H,EA3,I1 aurora YU1>YO7 15-1600 GB3MCB>I5 aurora I0>I5 19-2000 HB9SIX>DL(t)  
W7GJ>OH7PI(eme) 9H1BT>9Q0AR

July 11 06-0700 UT5G>I2,9A UU5SIX,OD5SIX,SV1SIX>9A 07-0800 ER1SIX>I0,9H UT5G>9H,DL  
OD5SIX>YO7 08-0900 I4>YO7 LZ4,OE5>SM5 SV1SIX>I0 09-1000 I9>HA5 I0>DL 10-1100  
GB3BAA>I0 I0JX>F 11-1200 YO3KWJ>SM1 12-1300 SM1>LZ2,9A LZ1JH>SM1 OH2>LZ2  
LZ2>SM0 13-1400 UT5G>OH6 5B>I9 1459 SV1SIX>EA3 15-1600 I8EMG>EH3 I9>I1,EH5 16-  
1700 TT8M>I0KNQ 1750 TT8M>IS0GQX 18-1900 LA>PA GB3BAA,GB3MCB>OH6 OY6SMC>LA  
G>OH3 19-2000 JW9SIX>OH1 1945 IT9ESW>9Q0AR 20-2100 9Q0AR>9H1LE,9H1XT

July 12 06-0700 LZ2CM>YO7 07-0800 RA0FW>A61Q LX0SIX>PA 08-0900 I0>9A A71EM>5B4FL  
G>OE5(jt) 10-1100 YU1>LZ2(t) CN8MC>I0 12-1300 EH1DVY>IS0 CU3URA>SM7  
I0JX,I5MXX>EA4 EH7>I1 13-1400 GB3MCB>SM7 CT0SIX>9A 4X>YO5 aurora 15-1600  
SV1SIX>IS0 SV3,LX0SIX>EA4 16-1700 SV3,EH3,F>I9 17-1800 EH3>I0,I8 EH1DVY>HA0 1859  
I3>EA4 19-2000 CN>EA7,S5 S5>EA4 EH1DVY>S5 20-2100 CU3URA>SM7 PA>ON

July 13 0559 UT5G>I7 07-0800 SV1SIX>9A,EH3 08-0900 SV1SIX>9A,I5 09-1000 EH6>9A I8EMG>PA 10-  
1100 SV1SIX>DL EH1DVY>I0,9A I1>9A OD5SIX,LX0SIX(t),I8EMG>PA 9H,IZ2>I1 12-1300  
CU2>DL 14-1500 TT8M>YU7EF,OE6MBD,DLUSA EH6>OE6 15-1600 SV1SIX>PA EH6>YO2  
T9,I8EMG,SV8,S55ZRS>PA I1>OE6,SP6 G>9A LX0SIX>S5 I0>OZ,EA4 I9,I0>4X  
TT8M>YO5BIM,DL9USA UR>I5 HB>SP7 I5,I7,SV8>DL YU1>ON IS0>OE3 I4>SM1 16-1700  
I5>SM0 LZ2CC,IS0>IS0 PI7SIX,F>9A YU1>I3 EH3>SP6 SP8>CN TT8M>PA2M,SM6CMU,  
SM0KAK,DL8PM,G4IGO,PF7M LZ2CC,SV1SIX,IS0>DL HB>SP7 LZ1,9A>PA I3,S5>SM0  
9A,YU6>EA2 T7>OH3 S55ZRS,OE3>F 17-1800 YU1,SP7,I0>F IS0,LZ2,4N,YU7,EH6,LZ4>PA  
YO4>DL,I2 OH9SIX>DL I3>OH3 3Z>HB SV1>HA1 PA,SL7,EH1,F,LA>9A EH2>I5  
4N1ZNI,CN8MC,9H1SIX,SP4>DL SP8>I2 I5>SM0 T9>SM1 9A,LZ3>LX YU1>YO7 SP7>CN  
PA>LZ2 IZ1EPM>SP5 ON>9A 18-1900 LY,SM5,OZ,PI7SIX>9A EH6,9A>SM1  
EA1DVY,I5MXX,SP9>DL SR5SIX,UU5SIX,DL>9A EH6>OH1 YO2,S5,9A,LZ4,LZ2>PA LA>I3  
G,ON>HA5 3A>OK1 HA5,EH6>LX ES2,SP5,ES1,OK1>EA7 YO3>I9 I0>LA SU9HZM>F IS0>ON  
OK2>HB 19-2000 CN8MC>PA UT5G,3A,GD,EH6,EH3,LX0SIX>DL F>OK2,9A I1>EA7 OK1>SV1  
CT3,DL,PA,EH7,ES2>CN EH7>OH1 S5>F 7X>PA G>I8 GBBAA,GB3MCB,YU7>9A  
9Q0AR>G4IGO(tep) 20-2100 CT3,EH5,LY>CN F>9A EH9>DL,OH2,OH3 EH5>OH2 G>I8  
EH3>SM0 OH4>I5 LX0SIX,UR,EH7,CN8MC>DL YU1>SM7,9A SM7,SM5,LA>HA5 LZ2>SM7 21-  
2200 S5>OH1,SM0 LA>HA5 LZ2>OZ

July 14 0558 OH5RAC>I5 06-0700 LY0SIX>DL OH5RAC>S5 UT5G>I7 YU7,4N1ZNI>SM7 SR5SIX>DL  
SM7>9A,YO7 07-0800 UT5G>9A,PA UR>I1 YO3KWJ,LZ2CC>PA ER1SIX>DL  
SR5SIX,LZ2CC,LY0SIX,SP9>F SV8>SP7,OZ LZ2CC>HB SV1SIX,SV2,GB3MCB>OE3 08-0900  
LZ1JH,SV8,LZ2>SM1 OM5>OH7 UR>DL,OE3,I5 LZ1,UT5G,LZ2CC>PA SV1SIX>PA,SP9

EH6>OZ G>OE3 LZ2>DL, SM7, I2 F, LZ2, GB3LER, G>I5 YO3KWJ>SM7 9A>LA 09-1000  
LZ2, I0>SM7 S5>EI UT5G, I8>DL SV1SIX>S5, DL UR>4X SQ9>F I4>SM1, LA I8>OK1 LY>9A  
SM1, OZ>I2 YU7>I5, SM1 YU6, YO8, ZB2>F LZ2CC>I5 OE>PA 10-1100 PA>OE3 SP9>PA, F  
UR, T7, I0, 9H>DL T7>SM1, EI EH2, LZ2>OZ SV2. LY>F ON>I8 SP1>I7 PI7SIX, F>EB1  
IZ1EPM>SM7 UR, 9H>SP6 OZ>I2 EH2>PA OH2, OM5>9A 11-1200 S55ZRS, DL>EB1 S5>SM1  
LZ1, LZ2, EW3>I2 GU>DL, SP6 LZ2, YU1, GM>9AYO3KWJ>F, 9A LZ2, YL2, OZ>F G>SP6 OE5>I9  
GW, OH2, LZ1>OE3 SV1SIX, LZ1, I8EMG, SV8>DL OE6>YO7 EH1DVY EH4>PA, SM1 ON>SM1 12-  
1300 DL, F>9A GI, GW>I2 SV8, SV4, GI>DL DL>OH7 GU, UU5SIX>SM7 LZ2>HA5, OZ  
YO3KWJ>PA, DL I7, LZ2, 9A>PA SR5SIX, GB3LER, YO3KWJ>F GI, LZ1>SP6 DL, UR, YO8>I8  
LZ4>OZ YO8>OK1 13-1400 SM7>EI YO8, ZA, EI>DL LA, EI>F F>OZ, LA OH0>LZ5 UT5G>PA  
G, GW, 9A>OH1 GU>YO2 GM>SV3 LZ2>SP6 14-1500 YO8>I0 LZ1, LZ2>SP6 ER1SIX>OE6  
UT5G>PA, I5 9A>PA YO2>SP5 UT7UV/A>9A YU1EO>SP5 LZ2>OZ OY6SMC>F OE2>ON  
LZ2CC, 4N1ZNI, LZ1JH>SM7 15-1600 SM4>PA, ON LY0SIX, UR>9A, I5 LZ2, LZ1>SP6 LA, UR>DL  
LZ2, LZ1>SM1 OH6, OH9SIX>9A OH8>OM3 UT5G>SM7 16-1700 UT7UV>LA, PA  
OH2, OH5RAC>OE3 OH2, SM3, OH8>9A SM3>SP1 ES7, OH8, G, UR, OH9, LA7SIX, OH1>DL  
SM7>HA7 LA, OH1, OH9SIX, OH5RAC, OH2, OY6SMC>PA LA>EI OH5RAC>I0 LY0SIX>I1  
LZ1, OH9>RX3 SM2>SP6 17-1800 LA>SP7 OH0>OM5 OH2, SM3, OH5, OH3, UR, LA, OH6,  
OH8, JX7SIX>DL LA, OH2, OH6, OH3>9A S5, OH5RAC>I0 SM3, OH3, OH6, OH9>PA OH0>EI  
SK4>EH2 SK6, OH8, LA, I2>OZ 18-1900 JX7SIX>LZ2 EH3, SR5SIX, F>EI  
OH8, OY6SMC, CT, SV1SIX, LA, 5B, OD5SIX, OH0>DL SK6, CT>OZ F>LA OH0, SM6>I4  
ES4, JX7SIX, SM3, OH6, LZ2>PA I4>OZ OH0>I8, I0 G>5B LA>HB, EA4 SM7>EA2 GM>SP6 19-2000  
EH1DVY, GB3IOJ, GB3LER, EA7, JX7SIX, G, OY6SMC, CT, 9H, SM0, OH0, SM7>DL SM6>9A 3A>LZ5  
LA, SP9, ON, OZ, SK6, G>EB1 F>OZ OZ, PA, 9H, G, GI, SM7, GD, LA>EA4 EH6>LZ5 LA, SM5>LX  
GD>CN, OZ CT>SM7 OH6>OE3 EH5>SP9 EI>I5 G>HA5, LZ5 OH0>PA, I0 20-2100 EI>LA, OZ  
CT>OZ G>EA4 EH3>ON, PA CT>OZ 9Q0AR>IW9HLM OH0, F>DL OH0>S5, EA1 YU1>I1 S5>I0  
LA>HA5 EH9>OH3 21-2200 OZ, OH0>CN CN>I0 OH9SIX, CT>OZ CT>SM0, SM7 EH1>EH3  
ZB2>EA7 I0JX>SM7 22-2300 GB3LER, GB3BAA>EA4 23-2400 GB3BUX, GM>EA4 CU3URA>PA

July 15 05-0600 SV1SIX, T7>HB UT5G, UU5SIX>S5 06-0700 IZ1ERM>YO7 I8EMG>DL LZ2CC>S5  
OD5SIX>9A 07-0800 4X4SIX>DL, YO7 HA5, EH3>YO7 A71EM>YO7VS LX0SIX>PAS(t)  
5B4CY>DL 08-0900 LX0SIX>DL CN8MC>EI CU3URA>EI, I0 4X>F, I2 OH1>4X UR>OE3, OK1 09-  
1000 UT5G>SM0, SM7 F, SM, UU5SIX>4X I9>OZ, 9A 10-1100 UU5SIX, SV8, SV1SIX, I8EMG>SV2  
12-1300 CN>I1, 9H K1TOL>EA7RM LZ2CC>CN GB3BAA>I0 13-1400 CN8LI>LZ1 F>OM3  
W1JJ>EA7KW G>I0 G, I9>I4 DL, G>I8 I7>PA 14-1500 5B4CY>4X 9H>EA4 I9>9A  
K1TOL>LZ2HM(qf 310) I0JX>YO7 EH6>LA LX0SIX, PI7SIX>EA4 15-1600 EH1DVY>DL YU1>F  
IS0>YO7 I9, IZ1EPM>DL I5MXX>PA YT1, LZ1, LZ2>F GW>OM3, I9 OZ>I8 I8EMG>EA4 I0, EH1>DL  
G>I1 F, IS0, PA>LZ1 F>OM5 16-1700 I2>I9 I9>OE9 I3, Z3>I0  
TT8M>OZ1DPR, DK5WL, PA7FM, PA0DKV, DL8YHR, DL1EAP, ON4LN, G0CHE, HB9SJV, G3NPF, G8  
IZY I0>DL, PA 3A>OM5 17-1800 IZ1EPM>9A YO8>SP2 TT8M>DL3YEE, IW0HEX, G3IBI  
LZ2, YO8>OH1 I2>OH3 HB>CN I4, EH6, I0, I5>DL F, EH2>HA1 I2>9A, I8 CU3URA>EA7 F>LA. OK1  
EH2, CT3>HA5 CT3>DL, OM5, OZ, HA0 I1>HA0 18-1900 F>OK1 HB0, DL>I0  
OH3, F, EA3VHF, IZ1EPM, OH1, OH2, EH1DVY>HA0 LX>I8 S5, CN>EA4 HB0, I3>CN CT3, CT>OZ  
OE3>EH5 IZ1EPM>OH1, EI HB>9H OH8>DL CT3>SP2 YO2>OH1 HB>I5, CN OH3>EA3  
EH1, EH2, CU3URA>DL YU4>SM0 OH4, OH3>HA5 OH9SIX>EA7 9A>HA1 19-2000  
CU3URA>I5, PA EH1DVY>HA1 9H>DL, PA JW9SIX, F>HA0 GD, PA>DL VE1YX>S59Z, G3SED  
VE1PZ>EA7KW F>LA OK1>CN GW>9A GM>F 9Q0AR>G4IGO, S59Z LX0SIX>EI UR>I5 20-2100  
VE1YX>EA7RM 9Q0AR>PA4PA, IZ0AEZ, 9A2ZH, DG5YIL EH1DVY>LA JW9SIX>LA, SM0  
FX4SIX>LA LA7SIX>LA, SM0 VO1ZA>EA7RM LA>OH7 21-2200  
JW9SIX, GB3LER, JX7SIX, OH8>LA LA>OZ, SM0 CU3URA>9A OH9SIX, JX7SIX, LA>OH1  
TF3SIX>SM0 LA7SIX>OH1 22-2300 LA, JW9SIX>SM0 OH8>LA

July 16 05-0600 LZ2>YO7 06-0700 5B4CY>9A LX0SIX>DL UN8GC>OH3XR 07-0800 4X4SIX>YO2  
5B>LZ5, S5 OH7>OH3 DL>PA(t) 08-0900 ES2>OH3 UT5G>DL CU3URA>EA7 UR>SP6 09-1000  
UU5SIX>DL CN8MC>SP6 10-1100 VE1ZZ>EA7KW, 9A6R. EA7RM K1TOL, K2MUB>EA7RM

VE1YX>CT1EPC CT3>EA7 VE1PZ>CT1EPC,EH4EHI VE9AA>EA7RM 11-1200 OH9SIX>PA  
W3UR,KE2N>EA7RM VE1YX>EA7RM,G4PCI VO1AU>G4PCI K1TOL>9H1TX,EA4OZ  
CU3URA>EA7 12-1300 SV8>SV1 K1GUN>CT1EPC VE1YX>IW2OAZ SV1SIX>OM3  
AP2IA>UT7UJ(?) OD5SIX,5B4CY>I9 14-1500 S5>9A SV1SIX>I0,I7 15-1600 SV1SIX>EA3 YO4>I9  
UR>4X YO8>EH3 CN8MC>F,I0 16-1700 SV1SIX>HA5,4X,HA1 YO7>HA5 UR>9A 4X>SV1  
SV8>OE3 UR>9A S5,SV8,UU5SIX>HA1 ZB3>CN 17-1800 SV8>YO2,9A SV1>HA1 UR,SV8>HA5  
UR>HA1 I9>YO4 OD5SIX>SV1 UU5SIX,OD5SIX,UT5G,4X,SV1.SV8>HA0 4L1UN>Z37CXY  
UR>HA1,CN 4X>EA4 HA1>9H SV1,SV8>4X IQ4AD>LA 18-1900 ZC4>HA0,HA1  
TA2>DL,HA0,SP2 UR,YU7,SV8>HA0 UR>DL,HA1,9H,PA UU5SIX,F,I9,9H>HA5  
OK1,YO4,YO3>DL ER3>I1 OK1>9H UR>PA,4X I0>UR S5>HA1 OZ>I8 19-2000 I4>LZ2  
LA>DL,ON,PA JX7SIX>SM7,DL OK1>DL 5B>SV3 PA,ON>I8 UR>IS0  
ZC4>4X,HA1,YU7,SP4,EA5 EH3>HA5 EH2>HA1 TA2>SP2 20-2100 LA7SIX,OK1>PA OK1>ON  
ZC4>I9 22-2300 UR>SM5(ms) 23-2400 OK1>PA(t)

July 17 06-0700 OK1>F(jt) 07-0800 OZ>I5 I1,F,EH6>LZ1 F>SP7 I7>EA2 GB9SIX,GB3MCB,S5>CN  
Z3,SV1SIX>EA3 S5>I1 EH1DVY,PI7SIX>I0 G>9A TA2>DL I9>DL 08-0900 G>9A ,I1  
TA2,GU,OK1>DL EH3>OZ EH6>SP5,LZ1 TA2>UR HB0>CN LA>EH3 EH2,EH6>OZ EH6,EH3>DL  
I1>PA,DL I0>ON EH3>SP6 SP2>EA1,CT GU,S5>CN I9>I2 F>SP7 CT>SP2 UR>EA7 09-1000  
EH3,CT>SP2 EH1>PA OK1>EA1,DL EI>I9,I0 GB3LER>EH3 S5>CN EH3>PA CT>EH3,SV1  
JX7SIX>SP6 EH1>DL IT9X>EH3 EH5>9A S5>EA7 10-1100 CT,EH5,EH2>PA EH7,EH5,CN>DL  
ZB3>EA7 OY6SMC>EI G>EH2 CN8MC>F S5>HA0 IS0>I7 CT>I5 EH5>F,DL 11-1200  
EH1,EH2>PA JX7SIX>PA,OZ LA,EH2,OK1>DL EH7>F,EA1 Z3>EH3 EH2>EA7  
TF3SIX,LA,OY6SMC>PA 12-1300 OY6SMC>DL EH7>EH1 GM>OH2 OK1>OZ,DL I0>ON 13-1400  
TT8M>IK0FTA TA2>9A 14-1500 I0>HA0 15-1600 LZ2CC>EH3 YK1AO>EH7ACR  
EH3,UR,S5,EH2,F,G>HA0 Z3>F SV3>EH3 GB3LER>I5 I8EMG,YO4,CT,EH3,EH5>DL I0>PA  
F,YO7,EH2>9A I0>EI Gb3BAA>HA5 16-1700 UR>EH3 I9>HA0 OK1>HA0,DL IS0>DL,9A,HA5  
EH6,F,GB3MCB>HA5 EH3>EI F,I2>9A PA,SV3>9H EH6,TA7,C3>DL 9A,HB,DL>ON ON>I8  
F>OE3 HA3>F 9A>OH1 F>HA7 YU1>ON DL>EA5 17-1800 HA3,OE5,IZ1EPM,TA7,Z3,EH5>DL  
S5,9A>F TA2>I2,HB,9A G,EH2>EA5 EH2,EH6,G>HA1 GU,PA>I2 LX,OZ,DL>I5 DL>9A UR>LZ1  
F>4X,OH1 I1,EI,S5>F EH5>PA I3>ON EJ3>EI EH2>DL 18-1900 F,G>HA7 TA7,F,G>HA1 EH4>DL  
CU3URA>PA,DL SV1>EH3 TA2>9A SV1SIX>DL 19-2000 G>PA OK1>DL TA2>9A F,G>HA4 G>I0  
SQ6,PA>DL IZ1EPM,I5>SM0 CU3URA>EA7 9A,YU7>PA SR5SIX,CU3URA>EA3 OK1>HB  
SM7>I1 20-2100 G>HA4,OE3 CU3URA>CT LX0SIX>DL(t) LY>SP2 EH3>EI OK1,PA>DL  
CT,EH1>PA EI>HA4,I2 CT>OZ 21-2200 GB3LER>EH3 I8EMG,I0JX>PA ZB3>CN CU3URA>EH3  
GB3BAA,PI7SIX>I5

July 18 15-1600 5B4CY>SV1 2212 WP3UX>PA2DB(?)

July 19 14-1500 HB9SIX(t),LX0SIX(t)>DL 15-1600 CU3URA>EA7 UT5G>SV1 1746 UU5SIX>HA8

July 20 07-0800 UT5G,UU5SIX>I0 08-0900 SV1SIX>I3 LZ2CC,LZ1JH>I0 LZ2>I9 JX7SIX>PA 09-1000  
YO7,9A,LZ2CC,Z3>I9 SV1SIX>I1,I0,9A SV3>I0,9A LZ2>9H IT9X>LZ2 10-1100 I8>LZ2 SV1SIX>I0  
1457 SV1SIX>DL 1515 ON>LX(jt) 16-1700 UT5G,UU5SIX>I5 17-1800 LZ2CC>I5 SV1SIX>I000  
1851 SV1SIX>S5 19-2000 JW9SIX>OH6,ES6 IQ1SP>S5 20-2100 JW5SIX>ES6,SM0  
JW9SIX,LA7SIX>SM0 JX7SIX,LA>OH3 LA>ES6 21-2200 LA>ES6 JW9SIX>SM0,ES6  
JX9SIX,JW5SIX,OH5RAC>ES6 JW9SIX,JX7SIX>OH3 G>OZ(jt) 22-2300 I7>LA(jt) JX7SIX>LA,OZ  
23-2400 LA7SIX>PA VE8BY>MM0AMW

July 21 00-0100 TF3SIX>EI JX7SIX>PA 05-0600 SV1SIX>DL UT5G>I2 4X4SIX>9A 06-0700 LZ1,LZ5>9A  
OZ7IGY>I3 UR,LZ1>4X 07-0800 SV1SIX,SV7>SP9 PI7SIX,F>S5 UR>I0 GB3BUX>I3  
SR9FHA,OZ7IGY>F LZ2CC>9A 08-0900 IZ1EPM>IS0 LZ1JH>DL OZ7IGY>EH3 I5>PA  
G,UT5G,SV1SIX>I0 I0,PA,EH1DVY>OZ LX0SIX>LZ2 OE3,LZ1>LZ2 09-1000 I0>9A F>DL  
GB3MCB>OZ DL>EB1 G>9A 14-1500 LZ1>OH5 G>S5 15-1600 UT5G>OH1 UU5SIX>SP5  
OK1,SR5SIX>EH3 YZ1>SM1 UR>DL OH5>OH3 16-1700 UU5SIX,ON>DL UR>ES6,SM1,OE3

GB3LER,GB3BAA,GW>EB1 UT5G>SM0 EH1DVY>EI SM7>OZ LZ1>DL,OZ,PA I8>ES6  
4N1ZNI>DL 17-1800 ON>I9 PA>SV8 LZ2CC>EH3 UU5SIX>DL EH3,EH1DVY>9A 18-1900  
EH5>HA5 YU1,SV1SIX>EH3 UR,GB3LER,EH3>HA0 LZ1JH>IS0 G>SQ9,HA0 HB>LA  
UU5SIX>DL 19-2000 CN8MC,CU3URA,CT0SIX>EI JW9SIX>OH7 JW5SIX>SM5,SM3  
CU3URA>EA3 20-2100 LA7SIX>OH5 CU3URA>EA3 JX7SIX>OH5,LA JW9SIX>SM0,LA  
OH9SIX>SM0 21-2200 TF3SIX,JW9SIX>OH3 LA>SM0,ES6 JX7SIX>ES6 OH9SIX>OH5  
OH5RAC>ES6 22-2300 LA>OZ LZ1JH>ES6 OH8>LA JX7SIX>PA,OZ,,EI,SM2 OY>OH2  
TF3SIX>OH2 OY6SMC>OH5

July 22 0522 OH5RAC>I2 0656 GB3LER>OH5 07-0800 F>OE3 IZ1EPM>OZ OZ7IGY>EI UR>SM5  
EI>SP9 08-0900 JX7SIX>PA OY>OZ 09-1000 OH9SIX>SQ9 OY>DL,OZ,PA ES0,OH5>DL  
OH6>OE5,DL 9A0BHH>SM3 10-1100 OH6,OH4,SM1,SM5>DL LX0SIX>OH5 ES0>DL,ON,PA  
CN8MC>EI 1348 CU3URA>EA7 14-1500 UU5SIX>9A EH1DVY>DL,PA PI7SIX>EA3 EA3>DL 15-  
1600 OZ6VHF>EH3 OZ7IGY>EA5 SM7>SM1 GB3MCB>I1 F>DL GB3BAA,GB3MCB>I2 GM>I1,I0  
F>PA G>I5 GB3LER>F 16-1700 GB3LER>EH3 F>PA,OZ,DL,SM7 EI,G>I2 OZ>EA1 GB3MCB>9A  
GM>OZ GW>I2 LZ1>SM0 LZ2>SM6,SM0 YO2>SM0 17-1800 HA0>SM0 YU1EO>EH3  
SM5,G>HA0 SM5>I1 CN8MC>DL,I4 GM>I1 I8EMG>EH3 I0,GB3MCB>DL 18-1900 GW>SQ9  
EH9>I9 LX0SIX>EI G,IS0>DL G>HA0 7X>ON,PA,DL LZ1>EI 19-2000 GI>HA8 IS0>ON 7X,EI>DL  
GW>SQ9 F,OZ>I7 EI>I3 IS0>PA YU1,UR>SM7 20-2100 EH7>YU7 EH1>IS0 EH5>I5  
GB3BAA,YU1>HA0 JW5SIX>OH5 21-2200 JX7SIX>LA JW9SIX>SM0

July 23 06-0700 SV1SIX>DL,PA IZ1EPM>LA LA>EH3 07-0800 OZ7IGY>PA(short) GB3LER>DL,HA4  
OH5RAC,LZ1JH,SR9FHA,OY6SMC>PA F>YO2 LY0SIX,SR9FHA>EI OZ7IGY>I0 LZ2>F,EH3 08-  
0900 I9>SP9 GB3LER>PA,SV1 LX0SIX>SV1 LZ2,YU1>I0 IT9X>OE5 OE3>9H LZ2>4X  
OD5SIX>HA4 I9,9H>SP6 SV1SIX,9H1SIX,I8EMG>OE5 09-1000 OY6SMC,GB3LER>OE5 G>SM5  
9H,SV1SIX,SV5SIX>DL IT9X>OK1 OH5RAC>HA5 SV1SIX>DL,SP6,HA4 YO4>I2 OK1>9H  
SM1>EI TA2>9A,OE5 10-1100 SV1SIX>DL,I3,S5 SV3>DL OY6SMC>PA JX7SIX>EI LZ2>IS0  
GB3MCB>LA GB3LER>F 11-1200 OY6SMC>F G>LA 5B,4X4SIX>9A EI>OZ 1346 CN8MC>EI 15-  
1600 SV8>I1 YO7>C3 16-700 SV8>I2 CN8MC>I9 17-1800 GB3BAA>5T5SN SV1SIX>DL 18-1900  
UT5G>I4 G>9H FM5JC>G3SED,G4IGO,F8OP,G4PCU S55ZRS>EA4 19-2000 IZ1EPM>I2 I3>I5(jt)

July 24 09-10900 I2>F(jt) F>OZ(jt) OY6SMC>PA 10-1100 CU3URA>EI OZ>SM7(t) EJ7>F 11-1200  
GB3BAA,GB3BUX,GW>EA4 CT0SIX>PA 12-1300 G>EA4 CT0SIX,EH1>PA EH1DVY>EI EH1>F  
CN8MC>EI 14-1500 9A1CAL>HA1647 CU4>EI 1858 VE1ZZ>CT1ILT 19-2000 N1RAM>CT1CJJ  
GW>EI 9H>I9 20-2100 G>PA CU4>F 9Y4AT>EI5FK 22-2300 9Y4AT>CT3DL

July 25 08-0900 OZ7IGY,GB3LER,OZ6VHF>F TT8M>IT9VVM GB3LER>I5 F>SM5(jt) UU5SIX>EI 09-  
1000 SM5>F(jt) EI>PA,OE5 UU5SIX>LZ2 UT5G,LZ2CC>9H 10-1100 EI>I4(ms),DL  
OE5,S55ZRS,HB>EI SV1SIX>I0 YU1>9H EH1DVY>OE5 1255 4X>I4 13-1400 4X>I9 UR>SV8,9A  
14-1500 LZ2CC>IS0 UU5SIX>9A UU5SIX>HA0 15-1600 UR>SP5,9A,HA4,SP2 OD5SIX>9A  
YO8>SM7 16-1700 LZ1>SQ9,DL LZ2CC>DL LZ4,UR>9A UR>I0,I8 YO8>I0 17-1800 UR>YO7 18-  
1900 UR>YU7 LX0SIX>PA 19-2000 GW,UU5SIX>OM7 2127 PA>SM5(jt)

July 26 06-0700 UT5G,YZ1,YO7>I1 UU5SIX>SP6 07-0800 LX0SIX,HB9SIX>SV1 SV1SIX>I1 UT5G>OH2  
ON,I8EMG>DL UR,SM5>SM1 LZ2CC>I2 IT9X>OE5 I0JX>OZ OH9SIX,IZ1EPM,IS0>OM7 08-0900  
I7>ON IZ1EPM>OM7 OH9SIX>SP8 OH9>SP9,I9 YU1EO>F OH1>I9,SP9,OM7 9A>ON  
T9,SM3,OH2,ON,9A>DL T9>EH3 YO7,SR9HFA>F SP9,SR5SIX>RX3 DL>I8 I8>OE5 I9,UR>OM7  
F>HA1,HA6 UR>SM1,OE3 09-1000 OH4,LZ2,SP1,OM3,OH2,OH8,OH9,UR,I9>DL UR>SK2  
F,G,GB3IOJ,SM3,PA>HA0 GB3BAA,GB3MCB,GB3BUX>OE5 I1>OZ TT8M>PA2V,DG5YIL  
OH2>OK1 GW,EI>HA6 UU5SIX>HA1 GB3BAA>HA1,OM7 G>OM7 UR,OH9SIX>F I3>PA 10-1100  
SM3,SM5,G,GI>OM7 SM7,G>HA0 UR>EI OH4>PA,DL,OZ UT5G,OH1>DL GB3LER>OE5  
OH1>SM7 SP2,OE5>EI LA7SIX>OZ UR>PA LA>LY 11-1200 OH2>I0,LZ2 OH1,UR>OZ CU4>EI  
OH8>OZ TT8M>HA0DU SM5>HA0 LA>LY UT5G,LY>DL ES2,OH2,UU5SIX,SM5>OE3 G>EI  
OH2>I3 TA7>OH6 12-1300 TA7>SP2 LZ4>LZ2 UU5SIX,OH9SIX>RX3 13-1400 UT5G>RX3

UR>OZ 14-1500 OY6SMC>DL G>EI,LA EH6>9H 15-1600 G>DL,EI LA>GW 16-1700 OH1>SK2  
LA>PA,SM0 17-1800 OZ>DL,PA 18-1900 G>DL,PA OH3>RX3 4N1ZNI,LZ2CC>SM7 S5>SP2  
LZ1JH>SM7 YL2,LA>I5 I3>I4(jt) UR>PA,DL,RX3 CU4>F 19-2000 LA>I4 SP8,S5>I5  
UT5G,LZ2,UR,G>PA I5>SP5 G>SP5,PA S5>I6,OZ,OK2 OE3XLB>EI SV3>9H IQ4AD>OH1 GI>S5  
IW3FZQ>OH1 LZS1JH>PA G>LZ1 GW>SP5 I)>SM0 20-2100 S5>OH0,OH2 G>I8,S5 G>HA0,I1  
OE3,9A1CAL>EI OH1>OK2 21-2200 UU5SIX>SM5 LZ2C>EH3

July 27 05-0600 UT5G>OH2 PI7SIX,LX0SIX,GB3BAA>HA0 UT5G>I1 SV1SIX,OH5RAC>OE5 UR>I8  
YO7,OH9SIX>DL 06-0700 ES0,SSM3>DL LA,GB3LER,OH5RAC,I1,ON,OH6>HA0 UT5G>PA  
SV1SIX,ES2,OM7,S5>HA1 OH9SIX>SP2 LA,OH1>I8 OZ7IGY>RX3 ES0,OH7>ON OH9>OK1 07-  
0800 ES0,LA>HA0 LA,OH3>HA7 OH3>ON SM3,LA>9A UT5G>OK1 OH4,OH3>OM7  
UR>OZ,OH7,DL,OE5 DL>OH3 I9,OH2>DL SV1SIX>I2 LY0SIX>OE5 OH5RAC>PA,OE5 08-0900  
SM3,SM5,UR,LA>OM7 UR>DL,ON,LX ES2>I5 UT5G,I9,LZ4>PA I9>SM7,LX ZB2>DL CN,I9>ON  
SM7>HA7 09-1000 UR,OH5RAC,OH7,EH3,OH2,OH7>PA ES0,ES8>I4 9A>I4 LA>9A  
CN>DL,I5,I3,I2,SP2 EH1DVY>DL EH3>OZ 10-1100 CT>F,I2 CT0SIX>F CN>DL OH4>I4 EH1>I2  
ES8>HA7,OM7 11-1200 SM4,OH2,OH1,OH6>OM7 OH5RAC,ES6,ES8>DL G>EA4  
EH1DVY,CU3URA,CT>EI SM5>HA7 12-1300 OH1,OH6>DL ES6,UT5G,YO4,SM5>PA  
CN>I5,I3,OH2 SM3>SP9,HA7 I1>SP2 I3>OH2 13-1400 YU7AZ,GU>F G>PA OH9SIX>HA0 14-  
1500 IZ1EPM>OZ G>SP9 UT5G>DL UR>SM1 OH5RAC,OH8>OM7 15-1600 OH7,SM3>SQ9  
ES1>OM7 SM3>S5 TT8M>OH3XR,OH1MLZ ES8,OH9SIX,SM2,OH3,OH5>DL SM3>HA0  
OH3>OE3 ES2>ON 16-1700 SM2>I4 OH1>I3 I1>I2 UT5G,SM3,SM2,OH5>PA  
YL2,SM2,SM3,OH6>DL LA,ES4>OM7 SM3,LA,OZ>HA0 SP5>OZ LY>PA OH0,OH6>OM7  
OH1,LA>HA7 SP2>LA 17-1800 I3,LA,SP4,SK7,OH1,SM0,CT,SP9>DL Z3>I9,DL OZ6VHF>HA7  
OH6,LA>HA1 SV8,OH6>OM7 SM0,IT9X,I8EMG,9H1SIX>HA0 SM3,ON>HA6 LA>EA1,OE3  
SP5,SP9,OH3,SP8,SM0>F SP8,DL>PA 9H>HA7 OH3,SP8>LX ON>OE3 T9>SM7 18-1900  
GW,OH3,ON,G,SM0>OM7 S5>LA EH7,F>SP5 G,YU7,CN8MC,FX4SIX>DL GU>SP2 OY>OE2  
DL>I0,F GB3LER,OZ7IGY,PA>EH3 LX0SIX>EI RA3,I3,S5>PA G,GM>OE3 EI>SM0 HA2>EI  
EH3>SQ6 19-2000 EH3>OZ PA>I2 GM>9H G,EH2>HA7 G>HA1,I1 GM>I9 GM>EH3 GW>I8 20-  
2100 G>I5 LA>OH1 21-2200 JW5SIX,JX7SIX>OH1 aurora

July 28 0815 F>GM(jt) 1237 OD5SIX,5B4CY>SV1 1445-7 EH6>F CN>I1 15-1600 OZ7IGY>DL CN>I4,I5,F  
16-1700 CN>F 1838 GB3LER,OY>HA1 SM3>EI 1954 OYSMC>EI 20-2100 TF3SIX>EI G>SM0 23-  
2400 GB3LER,OY6SMC>OX

July 29 00-0100 09-1000 JX7SIX,GW,OY6SMC>EI TF3SIX>PA OH4>DL LA>SP2 ES8>OZ 10-1100  
SM4>9A OH5RAC>PA OH9>DL,PA OH8,OH6>PA EI>OX LASIX,SM2>DL SM2>OZ GM>OM7  
LA>I1 11-1200 OH8,OH9,SM2,LA7SIX>DL SR5SIX>EI OH1>OZ OH9>SM6 GB3LER>OH2(Es?)  
12-1300 HB>YO4 JX7SIX>PA,SM7,LY,SM0 LA7SIX>SM0 OH3>ES6 LA>PA,ES6 JX7SIX>OZ 13-  
1400 GM>OH6 JX7SIX,JW9SIX,LA7SIX,JW5SIX>OH1 LA7SIX>PA SM2>LA  
A61Q>IK0FTA,I0JX,9H1TX,9A8A,I8LPR OD5SIX>I0 UT5G,UU5SIX>I5 OD5SIX>9H LA>DL  
YO4,4X>9A 14-1500 5B4CY>DL,OZ,HA4 OD>DL,HA1,PA,YU7 OD,4X>9A LZ1>PA LZ2>ES6  
A61Q>9A8A,IW0GPN,PA4T,PE1BTX,PA2JWN,IT9FGA TA0>DL UT5G>I8 SV3>HA4,OM7  
UR>OM5,9A SV1>9A,DL LZ2>SP5,OZ 4X>OM7,PA 15-1600 LZ2>DL,SP5,OZ SV1,9H>OM7  
LZ1>EA3 4X,TA0>DL YO9>DL,I8 TA0>SP2,I4 SV3>HA4 I7,I8>LZ2 OD>S5 4X>I9 16-1700  
Z3>S5,PA,I2 LZ1>I5 I9>HA4 A61Q>S57RR,F8OP,I2WSG GB3MCB>IS0 4X,4N,LZ2>PA  
SV1>HA4,PA SR5SIX,LZ1>EA3 TA0>I0 YO8>I2 I9>OM7 G>EI 9H>DL 17-1800 4X>PA UT5G>S5  
TA0>9H A61Q>IK0FTA G>F GB3LER>LA JW9SIX>SM0 19-2000 GW>EA5 20-2100 EH5>I3(jt)  
CN>I4 22-2300 JX7SIX>OZ UU5SIX>OH2 2329 OY6SMX,GB3LER>OX

July 30 0016 GM>OX 05-0600 OD5SIX>HA4 UT5G>I0 OZ7IGY>RX3 06-0700 YO8,I3>I0 OH1,OH6>HA4  
T7>I0,I3 G>DL YU7>OH2 LZ4>PA 07-0800 SM3,OH6,UR>HA4 SP5,9A>OH2 UR>LA,F,I1  
YZ1,Z3,OH7>DL SM3>F OK1>RX3 OD5SIX>I0 LA>F,SP5 4X>I2,PA SV1SIX>EA3 TA0>I2 08-  
0900 CN>I9,I8,EA3,EA5,LZ1 T7,SM3>SP5 LA>I1,F UR>4X SP5,YU7,SP8>RK3 SM5>F  
T7,OH9,CN,OY6SMC,HB9SIX,SV1SIX,ON,TA0,GI>DL G>HA5 GB3LER,PI7SIX,SM3>9A

TA0>OK1,I2 T7>SM0 4X>S5 5B,OH7,SM2>HA0 LZ4>HA1 09-1000 YO2>TA0 YO7,TA0>HA1  
YO7>EH3 5B,OH9,GM,SM3>DL LY,YL2>LA CN>I0 LA>F UR>YU7 4X,YO2>9A,OH2  
A61Q>OE2LCM SV1SIX>HA4 GM>OK1 G>OZ OY6SMC>HB,F GB3LER>F IT9X>HB 10-1100  
SV1>9A A61Q>DK1MAX YO7>F LA, SV1,OH9,TA2,YU1EO, YO7,LZ1JH>DL TA0>I3 LA,I7>SP2  
UT5G>I9 ER3>I0 TA2>HA7,HA5 SP8>I8 UR>SM5 11-1200 G,OY>F UR,LA>ES6 TA2>OK2  
OH9,TA0,I0,LZ2,OH9,S5,T7,YO3KWJ>PA YO3KWJ,OH9SIX,TA0,TA2>DL LA>OZ SP8,UR>I5  
OH9>SV1 SR5SIX>EH3 12-1300 LA>LY UR>I2 OH9SIX>SM0 T7>DL,OH3,SM0 OZ7IGY>I2  
PA,OH1>I5 I3,I0,9A,ES8>DL UR>PA F,G,SM7,LA>HA6 ES6>EA3 OH4>I3 I1,I2>LA ON>9A  
S5>SM0 G>YU7 F>ES6 G>HA4,HA1 13-1400 SM7,PA>HA4 UT5G,ES0,UR,I1,HB,I2,EH3>DL  
SM7,LA>OM7 DL>F G>OM5 I7,HB>LA EH3,S5>SM0 SP9>OZ OZ7IGY>EA3 9A>EI 14-1500  
OZ7IGY>EI W1JJ>ON4IQ(eme?) 15-1600 9A1CAL>EI GB3MCB,GB3IOJ>9A EI>OK2 IS0>OZ 16-  
1700 OH1,OH6>OK2 EI>I3 ES0,OH4>OK1 OH9>OZ LA7SIX,YU7>SM0 LZ2,OH1>F OH9SIX>LA  
G,TA0,TA2>ES6 LA>DL 17-1800 G>I2 UR>ES6,HA6 TA2>HA4 OH9>SM6,OZ LY0SIX,OH9>F  
LA>SM5,SM0,DL,I7 OH1,OH9,YU1>OZ ES3>I3 I8>SM0 YL2,UR>I4 OH8>PA OH2>HA6 18-1900  
LA>DL,SM5 OH1>DL,PA OH2>OK1 OH8,OH9>I0 OH1,OH6,OH7,ES0>HA6  
CU3URA,GB3LER>EH3 UR,DL(t),SM3>ON YO9>SM0 ES8>PA,ON OH6>OZ OH9>PA,OZ 19-  
2000 ES8>S5 LA>DL,ON GB3LER>UR OH8,OH1,LA>PA F,G>SM0 S5>9A 20-2100  
YU1,LZ2>EH3 EI>CN TA0,LA>S5 GB3LER>DL,PA GB3MCB>SM0 OZ,YU1,YU7,S5>EI  
EH3,GM>OZ GB3IOJ,G>LA HB9SIX>LA OZ7IGY>EA3 G>F EI>CT 21-2200 G>CN,LA  
S5,OZ7IGY>EI I1>SM0 SV1SIX>DL ,EA3 SP5,5B4CY>EH3 TA0>I1 22-2300 TA0>OZ,EH3  
PI7SIX>EH3 I9>DL 23-2400 TA0,I9,OY,PI7SIX,LX0SIX,GB3LER>DL

July 31 0003 OY>OZ 06-0700 OD5SIX,SV1SIX,I8EMG>EA3 9A>LA TA0>LY UU5SIX>HA1 YT4>UR  
F>HA4 UT5G>I3 07-0800 I3>F F>HA6 5B4CY>EA3 UT5G>HA1 HB9SIX,S55ZRS,9A1CAL>EI  
OH9SIX,TA0,YO4>PA Z3,ZA,LY,TA2>EA3 EI,UU5SIX,TA2,LZ5,F,EI,UR>HA4 TA3>DL  
EH1DVY>SM3 UR>I8 TA2>HA5 08-0900 EH6,LZ1,ER3>HA4 TA2>OE8,DL,EA3 PI7SIX>IS0  
TA0>HA7 ER3>I2 LZ4>I3 F,OM3>HA6 TA0,LZ1>EI DL>EA1 OE6,UR,SV1,LA,YO9>DL T7>UR  
EH5,EH6,EH7>F CT>I5 EH1DVY>PA I3>S5 TA2,YO9>OK1 OH9>PA ES8>9A I2,S5>EA1 09-1000  
UR,CT>PA T7>OH2 CN,LA,EH6,CT>DL YL2>EA7 JX7SIX>SM7 SM7>EA3 OK1>EA7 TA0>OK1  
TA2>YU7F>HA5 PA,OE6,ON>EA1 G,CN>F ER3,UR>PA S55ZRS>SM7 G,UR>I2 ON,PA>HA0  
G>I9 10-1100 OZ>HA5 OM7,SP9>DL UT5G>DL,EI PA,DL,ON,F>HA0 CN>EI,EA1,HA0,PA S5>OZ  
LZ4,EA7,LZ1>ON LA>I2,I3 G>OM7 UR>9A EA1>EA9 EI>F 11-1200 UT5G>DL,PA,LA  
EH1DVY>DL,F UR>HA7 EI,ES1>F ZB2>EI CT>SP5 EH4>F,ON CN>ON,F,PA EI>EH3 OH4>I3  
UR>OE3 EH4>EH1 12-1300 UT5G>SM7 YU1,4X>LA DL>PA T7>I3 I8EMG>ON I0JX>PA 13-1400  
I0,I8>PA I8EMG>LX UT5G>I9 OE3XLB>EH3 14-1500 IW3SQY>OH2 5B4CY>SV1 TA0>YU7  
WZ8D>IK2GSO,F8OP TA2>HA4,HA5 G,OD5SIX>I0 GM>9A UR,IS0>PA UR>SM0 UTY5G>SM3  
15-1600 GM,UR,OH3>9A EH1DVY,DL>HA0,HA5 TA2>I0 EI,UR,GM>HA4 I9,UR,ES0,  
SV1SIX>HA5 FX4SIX,UT5G>EI YL2,UR,TA0>DL EI>DL,I0 EH6>DL CY0AA>DK1MAX,I4LCK  
GU>I0 LZ2,YU7>I9 ZA>OK1 16-1700 CY0AA>F8OP,DL7QY EH1,ZA,GU>DL I9,G,S5,GB3LER>F  
I9,I8EMG,UR>HA5 I9>HA6 SV1SIX>I3 G>CT F>9A,I5,EI G,PA>I5 GU,CU3URA>PA  
GM,YU7,SV3,YZ1>I2 VO1ZA>G8BCG UR,SV1SIX>EI YU7>CT I5>HA0 TA0>9A 17-1800  
LA,HA0,ZA>EI GM>I2,I4 I0>OM7 OH5RAC,4X,I5>HA5 5B,UR>HA6 S5>CT I3>EA7 GW>I9  
EI,F,TF,CU4>DL YZ1>I4 I9>I3 G,PA,S5>EB1 EH7,F>HA0 UR>PA CU4>F TA0>OE3 18-1900  
EH7>I2 OH1>HG9 5B,LA>PA TA2>9A UR>EI PA,OH1,OZ>EB1 GW>OM7 CU4>I8,SV1 EI,F>I4  
ES2,OH9>HA3 OH9,EH7,UR>DL ES2,ES8>OE3 LA>EH3,DL ZB2>PA OH1>HA5 19-2000  
OH9>CN,9A,EA7 OH6>HA3,EA7 UR>DL,SM6 YU7>HA0 EH1>DL,EI LY>HA5,HA6 LA>OZ,CN,DL  
G>EA3 ES3,ES8>OM7 EI>HA6 EA1>HG4 ZB>CN OH9SIX>PA JX7SIX,OH6>DL OH8>OZ  
OH6>HA5 CN>I8 ES3>HA5 20-2100 SM3>OM7 OH8>DL,PA OH1,LA7SIX,JX7SIX,OH9,SM2  
,ES0,SM5>DL UR>LA S5>HA4,SM0 OH7,OH3>HA5 CU4>EI,ON,DL SR9FHA>LA OH3>S5  
ES1>F 21-2200 OZ,OH1,OH7>HA0 ES6,JX7SIX,OH7,OH6,OH5RAC,OH1,ES2,OE2,S5,OY>DL  
OH1>I1 SM4>HA1,HA5 UR,SR9FHA>LA ES2>PA HB9SIX>SM0 OY>S5 S5>HA4 GB3LER>9A  
SM3,SM6>HA5 22-2300 HA1>DL OE4>HA1 LA,SM3,I1,S5>HA0 SM3>HA4  
HA1,HA3,HA0,SM3>9A SM5>HA5 UR>OZ HA6,HA7>LA HA0>I1,DL,SP2 SM3>HA7 UR>OH2 23-  
2400 HA1,HA4>9A HA7>SM3 HA3>LA JW9SIX>OY HA1,JX7SIX,OY>OH2 S5>HA5 HA3>PA

## 50MHz PROPAGATION REPORT FOR JULY 2005 BY SV1DH

1. Data for 29 days, 30-31 Internet data.
2. Relatively good days on: 1,4(+),5,6(+),7,8,9,14,17,29
3. 48 MHz AF video (9L+3C) on: NIL
4. 55 MHz AF video (5N) on: NIL
5. " EH8 on: 5,9 (2E)
6. " CT3 on: 1,7,8,9,17 (2E)
7. " CN on: 1,2(0630!),5,7(up 2130),8,9,15,16 (2E)
8. " 7X on: 1,7,8
9. " 5T on: 9 (2E)
10. " TT on: 13 (2E)
11. " A4 on: 4,6 (2E)
12. " A6 on: 4,5,6,29 (2E)
13. " A7 on: 4 (2E)
14. " 4X on: 2,3,4,7,8,9,11,16,22,28,29
15. " OD on: 2-5,7,8,16,18,28,29
16. " 5B on: 4,6-8,18,28,29
17. " ZC4 on: 4
18. " TA on: 4,29
19. " FJ on: 1 230th DXCC entity worked
20. " J3 on: 1
21. " J6 on: 1
22. " CU on: 1,2,4,5,7,8,9(0830),15,17 (3E)
23. " CT on: 1,2,8,9,12,17 (2E)
24. " C3 on: 10 231st DXCC entity worked
25. " EH on: 1,2,4,5,7-11,13,15-17
26. " EH6 on: 2,5,7-9,17,27,28
27. " IS on: 1,2,4,7-9,12,17,29
28. " 9H on: 17
29. " I on: 1,2,4-17,20,21,23,25-27
30. " HV on: 7
31. " F on: 2,4-9,13-17
32. " 3A on: 9,15
33. " HB on: 2,5-8,13,15,23,26
34. " OE on: 2,4,5,7,9,14,27
35. " G on: 1,2,4-6,8,14,15,23
36. " GD on: 8
37. " GW on: 4,5,8 (2E)
38. " GM on: 2,6 (2E)
39. " EI on: 1,4-6,8
40. " PA on: 1,2,4-8,13,14,23,29
41. " ON on: 1-6,15,23
42. " LX on: 2,8,14,23,26,27
43. " OZ on: 1,3-6,8,13,14
44. " DL on: 1,2,4,5,7-9,13-15,17,20,21,23,27,29
45. " SP on: 1,3-9,11,14,15,21,25,29
46. " OK on: 2,4,5-7,9,14,17,23
47. " OM on: 4,5,7,9,14,16,29
48. " HA on: 4,7,16,23,27,29
49. " LY on: 6
50. " ES on: 4,14
51. " OH on: 1,4,6,14 (2E)



- 52. " SM on: 4,6,8,14
- 53. " LA on: 4,6 (2E)
- 54. " JX on: 4,14 (3E)
- 55. " JW on: 7 (3E)
- 56. " OY on: 6 (2E)
- 57. " TF on: 6,14 (3E)
- 58. " S5 on: 1,4,6-8,14,20,23
- 59. " 9A on: 1,4,6,7,11,13,15,20,23,29
- 60. " YU on: 4
- 61. " UA on: 2,4
- 62. " UR on: 2-7,17,19,23
- 63. " ER on: 2,7
- 64. " YO on: 5-7
- 65. " LZ on: 4,5,7

66. Special events on:

- 1 (1630 IT to J3 +2100 9H to J3 still in!+ 2200 EH7 to CAR)
- 2 (0430 JA to KL7 + 0500 5B to UN+EX + 0715 OH to EX + 1000 4X to CT3 + 1030 I0 to CU/B +1130 EH7 to CY9 + 1230 EH7 to CO + 1530 EH7 to W1,2,3 +1900-2030 I+9A+S5+T9 to FM)
- 3 (0345 UN to JA +0930 I0 to CU/B + 1100 EH7 to W1,2,3+VE1 + 1630 IT+IS to W1)
- 4 (0600 5B+I0 to JA+ 0715 5B to JA again+ 1200 9A to CY9+ 1230 9H+IS to CY9 +1415 JA to ME video+1545 V3 to LA+SM video)
- 5 (0415 JA to KL7+ 0630 5B to JA+ KL7 to EU 48Mhz video!+ 0645 DL to JA+ 0700 IT+OZ to JA + 0815 I0 to JA+ 0945 YO to CT3+ 1215-1430 A4+A6 to JA)
- 6 (0530 S5+OE to OY early+ 0630-0700 5B to JA+VR+ 0745 5B to EY+ 0815 G to A4 +PA to A6 3Es+ 0830 JA to ME video+ 0845 EI to A4 3Es+ 0930 SM to CT3 +1000 W1 to CT video+ 1230 A4 to JA + 1515 LA to 5T/B +1645 ON to W1+ EH7 to VE1+ 1700 F TO FM+ 1845 I5 to TZ)
- 7 (0345 JA to ME video, early! +0415 SP to JW+ 0500 G to A4 3Es+ 0600 JA to ME video+ 9H to JW+ 0715 IT to JA +0815 SM to A4+ 0900-1000 A4 to JA+ 1000 W1 to I2+OZ+PA +1230 JA to ME video strong+ 1629 M4.9 flare)
- 8 (1130 CN to W1 +1230 9A to W1+ 1245 I5 to KP4+ 1245-2200! W.+N. EU to CAR+1230-2300! W.+N. EU to W)
- 9 (0300 JA to ME video+ 1100 W1 to EU video+ 1145 CT+EH7 to W4+ 1515 CT+EH7 to W4 again+ 2045 9H to 9Q+ 2206 M2.8 flare)
- 10 (1100 W4 to EU video + 1915 9H to 9Q)
- 11 (2000 9H+IT to 9Q)
- 12 (11C+3M flares+ 0400 JA to ME video+ 0845 5B to A7+ 1230 SM to CU/B)
- 13 (6C+5M flares+ 1930 G to 9Q ~6000Km N-S Es?)
- 14 (3C+4M+1X1.2 flares! + 2345 PA+G to CU/B late)
- 15 (1215 EH7 to W1+ 1600-1640 SV1 to F on 2m+ 1930 N.EU+I to 9Q)
- 16 (4C+1M flares+ 0615 UN to JA+0700 OH to UN +1000 EH7 to VE1+W1 +1030 PA to 9Q!?!+ 1130 9H to W1)
- 18 (Poor Es day and afterwards up to the end of month)
- 19 (1130 W4 to EA+CT video+ 1430 W2 to CU/B)
- 20 (0345+0515 JA to ME video)
- 22 (Poor Es day)
- 23 (1745 FM to EU video+1845 G+F to FM)
- 24 (Poor Es day+ 1830-1930 CT+EH to VE1+ 2015 EI to 9Y+FM)
- 25 (1700 W2 to EU video)
- 27 (0502 M3.7 flare)
- 31 (1600 W+Central EU to CY0)

67. DXCC entities heard/worked during July 2005 : 61 on 4 cont

68. DXCC entities heard/worked on 4th July 2005 : 35 on 2 cont.

73 COSTAS

## The Americas

### Auroral-Related Modes

The auroral event on the 10th made little impact. The one on the 18th appears to have been more productive, with reception of JX7SIX and TV from SM0, reportedly by auroral E, in VE9 and contacts between Alaska and W6/W7 - though it is possible these arose from normal Es even though auroral activity was in progress. The same could be said of KL7<->W7 reports on the 2nd. There must be a presumption that KL7<->W6, W7, W9 on the 19th was auroral-related, but KL7<->W7 on the 23rd is less certain.

- July 2 01-0200 K0KP>W0(55a en18) W0(EN26)>W8(55a) W0(N26)>W8(EN82) W9(EN56)>W8(EN26 55a) VE4SPT>VE7(52a) W7(CN88)>W7(CN85 55a) 03-0400 VE7(CO44)>W7(CN85) VE7(CO83)>W7(CN85) KL7GIH(CO45)>W7(CN85 mode?) VE7(CO44)>W7( DN06 mode?) KL7FH(BP51)>W7(CN85 mode?)
- July 10 00-0100 VE6EMU>W7(55a) VE8BY>W7(51a) 0552 VE4VHF>W7(CN88 51a) 15-1600 VE6(DO34)>W7(CN88) VE5(DN59)>W7(CN88 57a) VE4SPT>W0(EN36 AE) VE7FG>W7(CN88 59a) VE7(CO83)>W7(CN88 59a) VE6(DO33)>W7(CN88 55a) 21-2200 VE2>W2(57a) VE3(FN25)>VE2(FN46 55a) 22-2300 VE3(FN25)>W2(FN21 57a) W9(EN46)>W9(EN52)
- July 11 0124 VE8BY>VE9(519 AE)
- July 12 03-0400 VE7(CN88)>W7(CN85 57a) W7>W7(mode?) 0437 VE7FG>KL8DX(BP53 mode?)
- July 18 01-0200 W7(CN87)>W7(CN85 57a) W8>VE3(58a) W7(DN38)>W7(CN85) 02-0300 VE7>W7(mode?) W7(CN88)>W7(CN85 mode?) 03-0400 VE8BY>VE6(DO20 53a) SM0TV>VE9(41a) VE8BY>VE9(41a) JX7SIX>VE9(419AE) 03-0400 VE7(CO88)>VE9(FN66 55AE) VE7(CN88)>W7(CN85 59a) VE2(FN31)>W1(FN46 mode?) VE7(CO44)>W7(CN85 mode?) KL0RG(CO45)>W7(CN85 mode?),W7(CN85 59) VE7(CO44)>W7(55) 04-0500 AL1G>W6(CM98 mode?) VE7(CO44)>W7(CN87 59)
- July 28 0556 VE6EMU>W7(CN88 55a) 0834 VE6EMU>W7(CN88 55a)

### Other Modes

We have noted many times, but it merits repetition this month, that this Report can only report what is reported. Without JA1VOK we would not have known about one of the most interesting events of the month, namely the opening between JA and the West Coast on the 2nd. Many thanks, Hatsuo. An opening between JA and Alaska on the 5th similarly went unreported on the American side. Mercifully, everyone who makes a contact does not rush to the DX cluster, but it is a little surprising that interesting events can occur without any of the several operators involved alerting colleagues to them. Or do reports sometimes get stuck in the system and fail to reach DX Summit? A genuine KH6 (as distinct from several with the prefix but disappointingly operating portable within the continental United States) was reported on the 1st from W7. (There was also an incomplete report of KH6<->LU on the 9th.)

#### North America<->Africa

CN	3 days 2(VO) 3(W3,W8) 8(W4)
CT3	4 days 2(W1) 8(W1) 16(VO) 19(W1,W2,VE1)
EA8	2 days 8(W1) 16(VO)
5T	4 days 3(W1,W0) 5(W1,W2,W3,W4,VE3) 9(W1,W3,W4) 10(W4,W5)

Reported DX, such as it was, came very largely from the eastern states. In line with what has been noted earlier, contacts with Africa or the African islands, were mostly made in the first ten days of the month, essentially carrying over from June, and mainly with the aid of multihop sporadic-E.

Also as in June, while many contacts were reported between the US and the Caribbean, presumably by Es - sometimes by multihop - openings to South America were relatively scarce. The great majority were from eastern states and almost all were with the continent's northern fringe, most probably by sporadic-E. One wonders whether the LU opening on the 9th involved the sort of mechanism discussed by G3VA in the December 2005 issue of Radio Communication, drawing on N3DB's earlier articles in QST. But one can no more than speculate.

#### North<>South America

FY	3 days 8(W3) 18(W1) 19(W2)
HK	3 days 4(W5) 19(W3,W4) 31(W1,W4,W9,W0)
HP	4 days 9(W1,W2,W3,W5) 10(W4) 23(W3) 31(W4)
LU	1 days 9(W2,W3,W4)
PY	1 day 2(W4)
PZ	1 day 18(W2,W3)
YV	3 days 4(W4) 29(W3,W4) 31(W0)

Within the US the prevailing mode was of course sporadic-E, the bulk of which seems to have passed unreported and unremarked unless an exotic call was involved. Identifiable double hop contacts within the US/Canada proved elusive, though they must surely have existed.

As in Europe, the better days came mainly in the first week or ten days. The 10th to the 15th were relatively poor, doubtless due to raised levels of geomagnetic activity, as were the 20th to the 22nd for much the same reasons, and the 26th.

- July 1 00-0100 C6AFP>N8OB K4AHO,W5>W3 W0,W4,W5>W4 W4>W8,W9,W3 W4CHA>W2,W8 KE4SIX>W0 VE7,W5>W9 W7>VE2 W5,W8>W5 VE6,W9>W8 01-0200 W3,W4,W5>W3 W5,W4,W0>W4 W0>W0 VE5>W9 W2>W8 49750(UA)>W4 W5>W9,W8 02-0300 K5AB,W0,W4>W4 W5>W3,W5 VE3,W9,W4>W5 VE7>W6 W6>W7 K8UK>W0 03-0400 W5>W9,VE3,W5,W8 W9,W0>W9 KF4ODI,K4TQR>W5 W5RP,W0,VE6>W4 W4>VE7 04-0500 W4,W9>W0 W9>W9 W5>W5 WA7X>W7 0630 W7>VE7 0924 K2ZD>W3 1017 CY9SS>W2 12-1300 W4CHA>W5 KP4>W4 CY9SS>VY2 13-1400 CY9SS>W1 W4>W5 WB0RMO>W7 W4UDH,W5OZI>V31IV N0LL>W7 V31IV>K1LH XE3>W514-1500 CY9SS>W2 V31IV>N4JVP W7>W7 W4>W3 VE6,VE3>W9 15-1600 W5SIX>W4 W5>W6 V31IV>W2GFF,KA5BSE W6>VE7 16-1700 V31IV>W5OZI VE7>W6 W6,XE2ED>W7 W6>W8 EH5HB>FJ5DX 18-1900 W4>W9 W9,W5>W7 19-2000 W7>W7,W9 K8UK>W0 EA7KW>KP4TB 20-2100 W0>W9,W5 W7>W0 CT1APE>WP4NIX,9Y4AT,KP4TB J3/K5AND>9Y4AT W6>W7 21-2200 W0>W7 CT1EEN>WP4NIX NP2.W9UI>WB5KIA 8R1RPN>WP4NEG 23-2400 W4>W4 KH6RZ>W0RLI/7
- July 2 01-0200 aurora W4>W1 W1>VE9(t) 0254 W5RP>W4 0343 W5>W5 04-0500 KA7BGR>W7 W7>W6 05-0600 W6,XE2ED>W7 06-0700 JH2COZ>KR7O JA1RJU>VE7DAY 07-0800 JH2COZ>KR7O 10-1100 CY9SS>W2 11-1200 EA7RM>CY9SS 12-1300 48250>W1 KD4ESV,W0LC/5>V31IV VE1>VE9 CO8DM>K2PLF 13-1400 J3/K5AND>VE1YX,K8LEE, W1MU,KE4WBO,K7BV/1 9Y4AT>VE9AA,KE4WBO V31IV>K4RX V44KAI>KE4WBO W3>W3 VY9SS>VE1 W5RP>W4 14-!500 J3/K5AND>WZ1V,N1MIW,WD1V CY9SS>W1,W4 V44KAI>K4MM CT3FT>K7BV/1,W1RA,W3CMP VO1>W1 W0MTK>W7 16-1700 CT1HZE>AB3BK,WZ8D W4>W4 W1>W1 VE1>W4 IT9RZR>N4BAA 17-1800 W1>W4 VE7FG>W0

CY9SS>VO1 YU5SU>K3TKJ CN8YR>VO1AU EH9IB>FM5JC 18-1900 VE4>W7 VE6EMU>W0 W4>VE1 S57RR,IK1EGC,IK1RLI>FM5JC VE7FG>W0 W4>W1 19-2000 VE2>W4 NP2/W9UI,IZ1ANU,IZUIY,EUtv,IW1AZJ>FM5JC J68AS>YV4DDK 9Y4AT,I4SJZ>FM5JC J3/K5AND >WP3YM 20-2100 J3/K5AND>K7BV/1,N1DG,HI3TEJ T96C,IK4ICZ,IK4BHO,LZ1ZP,IZ4BEZ,IZ0AEZ,IZ0CGP,YZ1WW>FM5JC EA7RM>W1RA 9Y4AT>FJ5DX CU3URA>VE1ZZ,VE1YX FJ5DX,FM5JC,V44KAI>YV1DIG 21-2200 FJ5DX>YV1DIG YV4AB>FJ5DX PJ2BVU>FM5JC J3/K5AND>W4DTA,HI3TEJ,N3II, W4TJ,K7BV/1,N1NK HI3TEK>9Y4AT,YV4DYJ,FG1GW J68AS>W2GFF,K4RX W4SO>PY2RO 22-2300 J68AS>N1GC,VE2DFO,FM5JC,W1NG,K2MUB,K4RX J3/K5AND>AA6YQ/1,N1DL,W4DTA,KB1LKB,K4ADR.K3TKJ 9Y4AT>W4SO,K7BV/1 YV4AB>KE4WBO EA7RM>W1 VO1>W3 K3TKJ>FM5JC 23-2400 J68AS>K3TKJ,N3II,K2ERG CY9SS>W1CBI J3/K5AND>N3II,W3LPL,KB2WTB,KG4TPO,VE1YX,N3DB W4>W4,W1 VE5>W9 W7,W0>W9 W0IJR>W8

July 3 00-0100 KD4HLG,K0KP,VE4,W7.K0GUV>W0 W4>W4,W5 W7>VE5 W0>W9 XE3>W4 K5AB>W4,W9 KP4>W5 C6AFP>W5DN NOLL>VE5 01-0200 VE5,VE4VHF>W0 XE3,W4,W1>W4 W7>W9 W4>W5 V31IV>K4YMQ,AA5XE,K9VV CO8LY>AA5XE 02-0300 W1>W4 W5>W9 V31IV>WQ5W,KE4WBO,W5FKX,K1LH/4,AC5TM KD4HLG>VE9 W3DOG,N0UD>W4 03-0400 WA1OJB,W4,VE3UBL>W4 0438 WA7ACO>W7 10-1100 W3>VE1 CY9SS>W2 EA7KW>K7BV/1 11-1200 EH7RM>VE1ZZ W3>VE1 VA2MGL>W4 W1>VE1 CN8KD>K3JKTJ VE2>W4 12-1300 K1QVR,W4,W8,VE2,VE9BEA,VE3>W4 CT0SIX>VE9AA W9>W9 CN2R>K8LEE W1,C6AFP>WZ8D 5T5SN>W1MU,K1TOL 13-1400 VE3,VE2>W4 W1>VE1 J68AS>FJ5DX CT1FFU>K7BV/1,VE1ZZ J3/K5AND>W1MU VO1>W1 KR1ST/4>V31IV 14-1500 CT1FFU>W1JJ CU3URA>VE1ZZ W7>W6 W0>W3 J3/K5AND>FM5JC VE2>W4 CY9SS>W2,VO1 FY7THF>FM5JC 17-1800 EH5NI>K7BV/1 1951 J68AS>FM5JC 2159 J69EN>FM5JC 22-2300 J68AS,FJ5DX>FM5JC

July 4 00-0100 W2>W2 W4>W1 W3>W3 VE4SPT>VE7 0958 CY9SS>W2 11-1200 W4>W4 48242>W2 12-1300 9A8A,IW9HLM>CY9SS EH7RM>VE1YX W4>W4 13-1400 W4,KP4>W4 CY9SS>W2 1358 V31IV>K4RX 14-1500 V31IV>K4MM,N4BAA CO8LY>KD4SBM 15-1600 CO8LY>AG4ZE,N4PGW,KI4IH X YV4AB>KE4WBO 16-1700 V31IV>K4CIA,AG4ZE W3>W3 CO8LY>AF4OD,K4YMQ J68AS>AF4OD,AG4ZE,K3TKJ W5>W7 17-1800 J68AS>AF4OD TI2NA>W7CNK/5,KE5CDK V31IV>AB5K,KE5CDK W5>W7 KL7NO>KE7V KP3AP>K3TKJ NL7Z>KE7V 18-1900 TI8CBT>N5SJS TI2NA>K3TKJ W4>W4 V31IV>K0AZ,AA5XE W4>W9 19-2000 TI2NA>NA4M,W5OZI CO8LY>KI4IH X W4>W4 W5>W5,W3 HK4SAN>W5OZI 20-2100 V31IV>W7CNK/5 KL7GLK/3,WA1OJB>W4 9Y4AT>N8NXI,K3TKJ 21-2200 XE2>W5,W7 W4>W4 KS5V>W5 W5>W0 W1>W1 22-2300 XE2>W5 W5>W1 23-2400 HI8ROX>FM5JC K5AB,W5RP>W4 W6>VE7

July 5 01-0200 W5,W7>W5 V31IV>K4YMQ 02-0300 V31IV>KW4RZ,W4PGC W5,W0>W4 W4>W7,W9 03-0400 W4>W5 KS5V>W9 06-0700 W7>W9 48250>NL7Z 0734 WA7X>VE7 0934 CY9SS>W2 1058 CY9SS>W2 13-1400 CY9SS>W3,W2 5T5SN>K3TKJ,W1RA,K2ERG, K2OVS,N4BAA 14-1500 5T5DUB>K7BV/1.W3JO,K2ERG KD4NMI>VE1 W3DOG>W1 15-1600 VE9,VE1>W3 5T5DUB>K2OVS 16-1700 W3DOG>VY2 VA2MGL>W1 CY9SS>W3,W8 17-1800 W3>VE1 VE9BEA>W8.W4 19-2000 V31IV>KP4TB K5AB>W8 20-2100 CY9SS>W2 2158 J68AS>FM5JC 22-2300 FY7THF>FM5JC

July 6 0054 W8>XE2 01-0200 W5RP,KS5V>W4 W5>W9,W8 NOLL>W4 C6AFP>W8UVZ W9>XE202-0300 W0>W3,W8 K8UK>W0 W0IJR,W7>W8 NOLL>W9 W5>VE5 K8PLF>W4 03-0400 W4,W5,W7>W7 VE6>W6 04-0500 W7>VE7 AL7OC>VE7,W7 KL7NO,KL7/KG0VL,NL7Z>W7 NL7Z>VE7 05-0600 NL7Z,AL7OC>W7 W7>W5 WA7X>VE7 0620 VE7>W6 1332 EH7RM>K1DAT 14-1500 CO8LY>K4MM,K1AA/4 1639 W7>W7 W0MTK>W7 18-1900 VE7,W7>W6 WA7ACO>W7 19-2000 W1>W1 20-2100 VY2>VY2 V31UB>AE5B,AA5XE 21-2200 48250>FM5JC 2155 W4>W4 22-2300 V31UB>KC5ZJE 23-2400 W4,VE3,W1>W4 48242(CT)>W4 W4>W8

- July 7 00-0100 W4,W8,W3,W2,W1,XE3>W4 W2>W2,W3 W3>W3 01-0200 W3,W4CHA>W3 W4>W5,W4  
02-0300 W4CHA>VE3 W4>W5,W4 VE3>W8 W3>W3 1053 W1>W4 1236 W1>W1 14-1500  
KS5V>W4 15-1600 W5SIX,NM7D>W9 W6>W7 16-1700 W6,XE2ED>W7 W5>W6 W9VW>W4 17-  
1800 NM7D>W6 FY7THF>FM5JC 18-1900 VE3>W0 K5AB,W5RP>W4 XE2ED>W7 1958  
XE2ED>W7 20-2100 G3FPQ>WP4NIX 21-2200 NP2/W9UI,KP2BH>HP2AT CO8LY>FM5JC  
W4>W4 22-2300 48240,EH1YV>FM5JC 23-2400 W5,W3>W3 VE3,W2,W1>W4
- July 8 00-0100 KE4SIX>W2,W3 KD4HLG>W3 W4>VE3,VE2 W1,W8,W9>W4 W3>W2 01-0200  
W2,W3,W5>W3 W4>W1,W3,W4 K8PLF>W0 W5,W0,W8>W4 W3DOG>W0 W5>W2 02-0300  
VE4VHF,W5,K9MU>W4 N0UD,W3,W5,VE3>W8 W4>W0 W8>W3 W0>VE3 03-0400 VE3>W5,W8  
W0>W4 W3,W9>W7 W9>W5 K0GUV,WB0RMO>W4 W8>W0 04-0500 W9>W9 0540  
49750(UA)>W7 10-1100 W2>W8 11-1200 CN8MC>N4JJ 12-1300 W1>VE1 13-1400 9Y4AT>W1JJ  
K0UO>VE3 CT1CBI,EH7RM>N4XD CT1HZE>NW5E/4,N4JJ VE9>W2 EH7KW>N4BAA 14-1500  
EH8EE>W1RA CT3FT>K4MM,W1JJ 9H1XT>K4MM 15-1600 CT1FIJ>K4MM 16-1700  
EH1TA,EH1WZ>WP4NIX 1732 W6>W9 19-2000 K0UO>W6 2050 FY7THF>N3DB 21-2200  
WP3UX>W4 DL7QY>FM5JC V44KAI>K4MM 22-2300 WP3UX,W1>W4 23-2400 VE2>W3,W4,W1
- July 9 01-0200 W4>W4 V31UB>N5UXT,N5BO,K0GU,K4RX 11-1200 KP4>W4 CTtv>W4 W1>W3  
CT1HZE>K4MM NP3>W4 12-1300 KP4>W4 CO8LY>W4VQ,K4UTE,AK3E CO8DM>K4RX 13-  
1400 CO8LY>NM4O HI8ROX>K4RX 14-1500 FM5JC>W5FKX K5UO,W5DN>FM5JC W3>W2 15-  
1600 CO8DM>N3DB EH7KW,CI1HZE>W4SO XE3,XE1>W4 16-1700 W5>W5 XE3>W4 17-1800  
V31UB>WQ5W W4>W3 19-2000 W4>W4 C6AFP>AD4TJ 20-2100 C6AFP>K0HA W4>W2  
XE2ED>W7 V44KAI>W1JJ LU6DRV>AK3E J69EN>K8WWA W6>W7 LW3EX>AD4TJ,W2AJM 21-  
2200 J69EN>K9RJ FJ5DX>W5KI,K0FF,W2MMD,WA1NYV NP3CW>W1 W4>W0  
KP2A/KP2BH>W2,W1,VE3 FM5JC>KB0FHP,AK3E,K0FF, W2MMD,W3LPL  
HP2AT>W3LPL,K1DG,W2MMD,K1TTT,K2MUB K2SIX,KY5R>HP2AT 22-2300  
FM5JC>WA1NYV,W4TJ,N9IW,N3DB FJ5DX>N4BAA,W2MMD,N3DB,W3MEL 9Y4AT>W3JO  
KH6>LU6DRV K4AHO>W1 C6AFP>N5BO J69EN>N3DB,W3LPL V44KAI,FY7THF>N3DB 23-  
2400 J69EN>W4TJ W2>W1,W3 FM5JC>N4DB 5T5SN>N3DB,W3UR,N4CC,N1GC,W3JO,W3UR  
9Y4AT>W3JO,W3UR C6AFP>W2AJM W8>W3 W4>W5
- July 10 00-0100 5T5SN>AA4H,N5ZM,K4MQG W4CHA>W3 9Y4AT>N3DB W4>W4 W4CHA>W2 W0>W3  
01-0200 W4>W1,W0,W3,W2 W8>VE3 C6AFP>K8WW 02-0300 W4>W2 N3LL>W3 W3>W4 0516  
W9>W9 1053 CTtv>W4 11-1200 WP4KJJ>W8,W4 C6AFP>WZ8D,W3JI K5AB>W4 KP4EIT>W4  
KP2BH>W4 VE4SPT>W9 9Y4AT>KB4XK K0GUV>W9 W5>W5 FG5FR>N4BAA,E5KI,W1JJ  
W4>W9 HI3TEJ>N4BH 13-1400 W9>W4 V44KAI>WZ8D  
HI3TEJ>AG4ZE,N4BAA,KM0A,KY5R,N4NN,KR1ST/4,N4JVP KP4TB>W4 W5>W4  
FG5FR>W3LPL,AG4ZE FG1GW>N4BAA FM5JC>W3YY WP4KJJ>VE1 14-1500 WP4KJJ>W4  
FG5FR>K4UTE,KI4RO FM5JC>AG4ZE,N4PGW,K1TTT,K4SX CO8LY>N4JVP,N4NN,W4TJ  
KP2A>W4 KP4TB>W4 15-1600 CO8LY>AK3E 16-1700 aurora W0>W7 CO8LY>K4IK,N4NN 17-  
1800 CO8LY>N4JVP XE3>W5 XE2>W0,W6 KP4EIT>W4 18-1900 XE3>W4 XE3PNG>HI3TEJ  
HI3TEJ>K4DXA YN4SU>W4GCB,K4IK W7>W6 W4>W4 19-2000  
YN4SU>N4NN,K4MM,N3DB,W3UR,K8WK,K4JAF,WZ8D K4MM>HP2AT  
CO8LY>KE4OYS,W4JO,KR1ST/4 CO8DM>K4KWK,K4MM,K2PLF 6Y5IC,HI3TEJ>K4UTE  
W4>W8 W4>W5 20-2100 YN4SU>KI4RO,K0FF,KI4RO,FM5JC W3,W4>W4 aurora  
XE3>W3,W4,W8 WP3UX>W4 TI5XP>K4MM,WZ8D HI3TEJ>K2PLF FM5JC>W5DN 21-2200  
W5,W8>W4 XE3>W4 W4,W3>W0 W1>W1 CO8LY>N3DB 22-2300 K5AB>W4,W2 CO8LY>N0JK  
W4>W4,W0 23-2400 K5AB,XE3,W8,W4>W4 W4>W0 XE3>W5
- July 11 00-0100 W4,W3,W5>W4 W5>W9 W4>W8 K0UO>W4 JX7SIX>K2MUB W5>W2,W3 01-0200  
W1>VE9 W5>W4,W8 W0>W4,W8 02-0300 W5,W0>W3 W0>W4,W8,W7 W4,W7>W7 W5>W0,W8  
W4,W5>W4 W0>W6,W0 W9>W8 03-0400 W5>W9 NOLL,W7>W7 W0>W7,W9,W8 W7>W4  
C6AFP>W3UR 0427 W7>W9 05-0600 WA7ACO>W0 W4>W7 0602 W0MTK>VE7 12-1300

W3DOG,W9>W4 13-1400 C6AFP>W3UR W8>W5 14-1500 9Y4AT>K0HA,YV1DIG,AI9L  
9Y4TL>K0HA CO8LY>KE1F/4,K0HA WP4NEG>YY5PER W5RP>W4 WP3UX>W0  
WP3GW>YV1DIG W4>W0,W3 KS5V>W8 C6AFP>WT8R 15-1600 W4>W3 1657 CO8LY>K0HA  
17-1800 W5>W7 W2,W4>W1 18-1900 W5,W9>W3 W9>W4,W3 W1,W0,W8,W9>W1 W8>W4 19-  
2000 W5,W0>W1 W7>W7 W9>W3 20-2100 W5>W1 W4>W0 W8>W4,VE3 21-2200  
W4,W0,W5>W3 K0KP,W9,W8>W4 22-2300 W4>W9 W5,W3,W0>W3 W7>W6 W4,W5>VE3  
W8,W0,W4>W4 W0>W0 2301 W5>W3

July 12 03-0400 aurora 1527 9Y4AT>N4BAA 1750 W4>W4 20-2100 KP4EIT>W3 2154 HI8ROX>K4CIA

July 13 00-0100 W4>W4 14-1500 W3>W3 CO8LY>W3UR 1721 W0>W6 2239 W8>W4

July 14 1501 VE7FG>NL7Z 1752 W6>W7 18-1900 W6,W7>W7 VE7,W5>W6 20-2100 W5SIX>W6 2157  
VE5,N7LT>W6 22-2300 WA7X>VE7 W7,W0IJR>W7 23-2400 FY7THF>FM5JC

July 15 01-0200 K6FV,W0>W6 0257 W7>W7 03-0400 W5>W7 W0>W6 VE7FG>KL7 1558 VE7>W0 17-  
1800 W0>W7 VE6ARC>W0 19-2000 W1>W1 EH7KW,CT1FFU>VE1ZZ 20-2100  
EH4EHI,EH7RM>VE1ZZ FG5FR>FM5JC

July 16 0955 EH7RM,CT0SIX>VO1AU 10-1100 W1,EH7RU,EH1DVY,CT0SIX,CT1CBI,  
CT3DL,EH7RM>VO1AU 11-1200 CT1BXX>AA1K EH7RM>KE2N,W3UR  
CT3DL,CT1ANO,CT1CBI,EH7KW,CT3KU,CU3URA,CT0SIX>VO1AU CT1HZE>W3JO  
CT1DXQ>W3UR W1>W4 CT1ANO>WA1NYV 12-1300 EH7KW>K1DAT VE2>W4  
CT1FJC,EH7KW,EH8BPX,CT1HZE,CT3FT>VO1AU EH7KW>N4BAA,WZ1V  
CT1HZE>W3UR,K1GUN,W3JO CT1DZQ>K1GUN CT1FJC>K1DAT CT3FT>VE1ZZ 13-1400  
CU3URA,CN8MC,VO1>VE1ZZ 14-1500 CU3URA>VE1ZZ 1555 VP5VAC>N4BAA 16-1700  
VP5VAC>KU4YW,W8UV 17-1800 V44KAI>KE4WBO 18-1900 KP4>W4 W6>W7 W3,W4>W3  
W4>W4 48240(EU)>FM5JC 19-2000 W1>W1 W3>W2 20-2100 W1>W1 W4>W9 W4>W4 21-2200  
W4>W8 W2>W1 W6>W6 W1>W5 W3>W4 22-2300 W3>W4 W5>W0 W6>W6 W2>W3  
W1>W4,W1 23-2400 W3>W0 W2,W3,W4>W1 W4>W4,W5,W3,W8>N9JIM

July 17 00-0100 W5>W5 W2>W0 W6>W6 01-0200 W3>W0 VO1>VE2 W1>W9 W4>W4 02-0300  
W4,W1>W4 W9>W1,W9 VE2,W1,W9>W0 03-0400 W5>W4 W7>W7 VE1>W0 1030 W4>W4 11-  
1200 W1,W3>W1 W2,W3>W2 12-1300 W1>W4,W1 W4,W2>W4 W3>W0 W1,W3,W5,W8>W8  
48242>W2 13-1400 W1>W1,W4 W2>W0 W5>W9 W3,VE2,VE3,W4, W2>W4 W3>W1  
VP5JM>K3HX,WJ4VA 14-1500 W6>W6 W4>W4 15-1600 VP5JM>AJ9C, N0FW,K4ZOO  
VP9GE>AA4H CO8DM>K3OO,WB4IUW W7,W6>W6 16-1700 W7>W7 W3>W1 W4>W0  
VP5JM>AJ9C C6AFP>K4GHS W1>W1 17-1800 VP5JM>KA1OPD,KB0FHP W4>W9 W3,W4>W3  
W1>W4 18-1900 VE1,W1,W3,VE3,W2>W4 W4>W0 W1,W4>W9 W3,W4>W0 19-2000 W4>W3  
W0>VE3 W0>W0 W2>W2 W9,W8>W1 VE3,W4,W3>W4 W9>W9 20-2100 W8>VE2 W4,W1>W1  
W2>W9 W4>W4 W1.W0 2318 W8>W4

July 18 0002 W3>W0 0008 S59A>N3GH(?) 01-0200 W7>W7 W8>VE3 aurora 14-1500 W4>W1,W4  
W4>W8 VP2E>K4MM,WI1S,N5ORT 15-1600 VP2E>W3UR,WA1NYV,W9RM,WP4NEG,  
NA2P,WB9Z,KI4RO,KG9Z,W1RA 16-1700 VP2E>W1JR,K3OO EAtv>W4 17-1800  
VP2E>K2MUB,K4MM,WP4NEG,K1GUN,WK4Y,K4RX EH7KW>K4MM W4>W3 18-1900  
KP2A>K4MM VO1,W4>W1 W7>W6 VO1ZA>W4 19-2000 W4>W1,VE9 W1>W1 KE4SIX>VO1 20-  
2100 W4>W1 KP4>VE2,W1,W3 VP2E>K3OO,NA2P,W2AJM,VA3SPH WA4NFO,K1MS  
9Y4AT>W1RA VO1ZA>W3 VO1>W2 W3,W2>W8 W9>W0 21-2200 W4>W1 W1>W0  
VP2E>KBoFHP PZ5RA>W3JO,W2AJM,W3EKT FY7THF>W1RA,FM5JC W5>W2 KP4>VE2  
KP2A>W1,VE2,W3 22-2300 KP4>W3 HI3TEJ>K1MS,NA2P,W4DUP NP2CW>K2PLF,K2PS  
W1>KP4,W4 VP2E>W2AJM,K9RJ,K8WW,K9BZ,W3UR VE2,W3,W2>W4 23-2400  
W2,VE3,W3,W8,W1>W4 VP2E>N9IW,K2MUB VP5VAC>WA1NYV,N1DG W1>KP4  
JA6WFM/HI8>N2TK,K1JT W4>W3

- July 19 00-0100 KP2A>K2PLF,AJ9C HI3TEJ>K2PLF N3LL,W5,W4,W2>W3  
VE3UBL,K8UK,WA1OJB,W3CCX>W4 W5,WA1OJB>W1 C6AFP>KE9I,AJ9C W4>W0 W5>W2,W1  
01-0200 W5,W8,W4>W3 W2,W8>W4 W4>W9 02-0300 WA7X,W3>W5 03-0400 W6>W4,W6  
W5>W3 WA7X>W6 XE2ED>W7 04-0500 WA7ACO,W0IJR>W6 W3>W3 KL7NO>KB6NAN,N6KJ  
W6>W4 VY1,W7>W7 KL7FH,VE7,VE6ARC>W9 K6FV,W9>W7 05-0600 VY1>W6  
W6,NL7ZW,KL1SF,KL7NO>N9JIM KL7FH>K7JA 11-1200 KOP2A>N4JJ 48242(CT),W4>W4  
W4>W112-1300 W4>W1 W0,W5>W5 13-1400 W9,W8>W4 W9>W5 CU3URA>W1RA,VE1ZZ  
W4>W0 W5>W3,W1,W4,VE3 W0>W3,W5 W1>W1 14-1500 W5>W4,W3,VE3,W2 W1,W2,W9>W0  
W8,K0KP>W5 VE3>W4 W0,W9,WA1OJB>W3 CU3URA>K2MUB W4>W8 VE4VHF>W7 W1>W2  
15-1600 W0>W2 XE2ED,W7>W7 W1,W7>W0 KA7BGR,W9>W6 W5>W1 16-1700 W0>W9  
VE5,W5,W4>W3 W8>W0 W6>W7 17-1800 W3,W1>KP4 CO8LY>K1GUN 18-1900  
KP4>W1,W3,VE2 W2>W2 CO8LY>VO1AU,KB4ET,VE2QRA 9Y4AT>K4RX,K4BI V44KAI>K2MUB  
FY7THF>K2MUB VP2E>K9ES KP2A>W2 19-2000 KP4>W2 FG5FR>K4BI,N9IW,K2MUB W8>W9  
20-2100 KP4>W4,W9,W2 FG5FR>K4RX CO8LY>KB4ET TI8CBT>K9ES,K7BV/1,AA2DR  
,K4CIA,N3DB HK3JRL>N3DB,NM4O YN4SU>W3UR,K7BV/1,WA1NYV,K2PS 21-2200 W4>W0  
KP4>W4 YN4SU>NA2P,WZ1V,N4JJ,FM5JC TI8TBT>W3PT,WA1NYV,WZ1V W4>VE3  
W4WTA,NM4O>FM5JC KP2A>K4SE FG5FR>K4SE VP5VAC>N4BH W3>W3 22-2300  
FM5JC>W4DUP KP4>W1 FG5FR>AA4SC VA2MGL>W0 TI8CBT>AG4ZE HI4TEJ>N4YDU  
YN4SU>N3DB,N3II,AJ9C W1,W3DOG,W3VD,VO1ZA>W4 CO8LY>N3II 23-2400  
HI3TEJ>KI4RO,WA1NYV 23-2400 W3CCX>W4 CO8LY>KI4RO,W4DUP HI8ROX>AJ9C  
YN4SU>N3II JA6WFM/HI8>N3II KP4>VE2,W4
- July 20 00-0100 KP4>W1 VE9,W1>W4 V44KAI>KE4WBO 01-0200 VO1ZA,W3>W3 W1,VY2>W4 02-  
0300 VE1,VE2>W4 W0,W9,W8>W9 XE2ED>W7 03-0400 KS5V>W4 W1,W8>W9 04-0500  
W1,W9>W9 12-1300 W5>W4 W1>W3 13-1400 W1>W1 W1,W2,W3,W4,W8>KP4 W3>W3 17-1800  
W5>W9
- July 21 00-0100 VE8BY,JX7SIX>VE9AA N0UD>W0 W3>W3 VE3>W0 17-1800 W3>W3 1938 Eatv>W4  
20-2100 48242,48250>W2 W9>W3 FY7THF>FM5JC(qtf NW) W4>W1 21-2200 W3,W0>W3  
W1>W0 W1>W1,W5,W8 VO1>W3 22-2300 W4>W3 2303 LA6Q>FM5JC
- July 22 00-0100 W3,W3>W4 01-0200 W1,W3DOG>W3 W3DOG,KD4NMI,W4CBX>W4 02-0300  
KF4ODI,K4AHO,K4TQR>W4 20-2100 W4>W3 21-2200 TG9AFX>FM5JC  
KP2BH,FM5JC>KE4WBO 2234 W3>W3
- July 23 0142 W3DOG>W3 03-0400 AL7RT>W0RLI/7, K7AD KL1SF>K7AD KL0RG>K7AD,KU7Z  
KL7NO>W0RLI/7 VE8>W7 KL8DX,NL7ZW,VE6ARC,VE7FG>KU7Z W7,VE5,W9>W7 04-0500  
K0IP>KL8DX VE6EMU>W6,W7 VE6ARC,VE8>W7 VE7>W6,W7 06-0700 VE7FG>W7 12-1300  
W3>W3 13-1400 W4>W4 14-1500 9Y4AT>W3JO 15-1600 JA6WFM/HI8>N4BAA VP2E>W4DTA  
KP4,KP2A>N4KK KP4>W2 17-1800 W0>W7 18-1900 W4>W8,W9 19-2000 W9>W9 W4>W4 21-  
2200 W4,W5>W4 HP1DCP>N3DB 23-2400 VE1SMU>W3 W3DOG>VY2 VE1>W2
- July 24 00-0100 W4>W1 VE1SMU>W3 0114 VE7FG>NL7Z 0255 W6>W6 1126 K0KP>W1 1242 W1>W1  
13-1400 VE2,W2>W4 W1>W1 VE7>W3 W4>W5 W9>W3 16-1700 W5,KA7BGR>W0  
NM7D,W0IJR,XE2,W6>W7 17-1800 W6,W7>W7 W5,XE1>W5 18-1900 W3,KE4SIX>W3 XE1>W5  
W7>W7 W5>W4 CT0SIX>VE1ZZ 19-2000 KE4SIX>W2 VE6ARC,XE1>W0  
CT0SIX,EH1YV,EH7KW>VE1ZZ 20-2100 W7>W7,W6 KE4SIX>W5 YN4SU>K4RX W5>W3 21-  
2200 FY7THF>FM5JC('all day') W4,W5>W4 HC2FG>FM5JC 22-2300 VE3,WA1OJB>W4 23-2400  
KQ4E>W4 W3DOG>W3 W4>W5
- July 25 00-0100 W3>W3 01-0200 VO1>W1 VE8>W7 02-0300 VE7>W7 0330 VE7>W7 13-1400 W3>W0  
C6AFP>N3II W4>W1,W0 W4CHA>W2 14-1500 W4>W2 KD4HLG>W5 15-1600 W4>W5

C6AFP>N3II KP4>W3 16-1700 W0>W7 W4>W0,VE2 W0>W5 17-1800 48239>W2 W3>W1,W3  
W5>W6 W0>W5 W7>W0 18-1900 W7,W6,KS5V>W0 W4>W6 2211 W1>W1

July 26 0214 W0>W7 0356 W3DOG>W3 20-2100 W1>W1

July 27 00-0100 VA2>W4 K2ZD>W1(t) 0151 W5>W2 0432-9 W3DOG,W3CXX>W3 1346 W3DOG>W3 15-  
1600 49750,49740(UA)>W4 W4>W3,W2 C6AFP>KA3DQD 16-1700 W4,C6AFP>AB3BK 20-2100  
W4>W8 21-2200 W4>W4,W0,W2 C6AFP>KA3DQD 22-2300 WA1OJB>W4,W3 W4>W3  
VE3UBL,N0LL>W4 C6AFP>KA3DQD 23-2400 W3CCX,K2ZD,W1>W4 W2,VE3>W9

July 28 0315 W5>W4 aurora 13-1400 KS5V,W5RP>W4 14-1500 W4>W5 15-1600 C6AFP>K5CM W4>W5  
W5>W3,W9 16-1700 KS5V,K5AB,W5HN>W9 W4>W5 17-1800 K0UO>W3 W7>W9 N0LL>W3 18-  
1900 W8,W0>VE3 N0LL>W7 19-2000 W0>W9(bs) W0>W4 W3DOG>W9 W4>W0 20-2100  
W9VW>W0 K0KP>W4 W3DOG,VE3UBL,W3CCX>W0 W5>W8,W4 VE2>W2 W4>W8  
C6AFP>WZ8D W0IJR>VE3 21-2200 KF4ODI>VE3 VE4,KP4>W0 W8>W8,W4(jt)  
W3DOG,W4CBX>W0 W0>W2,VE3 9Y4AT>K0HA KP4>W0,W4 VE4VHF>W4 W5>W3 22-2300  
4U1WB>W3,W5 W5,W4>W1 W0,W5,W9,W4,W8>W4 KP4,W4>W0 HI3NR>N4TMZ W5>VE3 23-  
2400 W5>VE3 W0>W4 VP5VAC>NN9K,K0HA K0KP,VE4VHF>W8 W5>VE3 W5>W1  
V44KAI>K0HA,KE4WBO HI8ROX>K0HA W0>KP4 W8>W5 KP4>W3 WR9L,W5,W0,VE5>W4

July 29 00-0100 W4,W5,W0,KP4>W4 W0>W0 W4CHA>W0 K5AB>W8 C6AFP>K0GU,KB5EKX  
K0HA>FM5JC FM5JC>N4HL 01-0200 W0>W4 W5>W6 W8>W5 K5AB>W0 W3>W5 W4>W7 02-  
0300 W5>W4,W3 VC9,VE1>W8 15-1600 KE4SIX>W0 W5>W9 16-1700 W5>W9 18-1900  
VA2MGL,K2ZD>W9 W9>VE2,W1,W9 W3>W4 W1>W1 20-2100 HK5CZE,HK3JRL>FM5JC  
YV4DYJ>N4BAA,W3JO,N3DB,KC2MHU 21-2200 FM5JC>N3DB YV4DYJ>KA3DQD,W4TJ  
FG5FR>N3DB,K8KS W4>W1 C6AFP>KA3SQS,N5ORT W4,W9>W1 VE1>W3 VE3>W4  
VP9DUB>KA3DQD 22-2300 VE2>W3 W9>W2 PJ2BVU>W4TJ VC9,VE1,K0UO,K4TQR>W0  
VE1,W4>W4 23-2400 VA2MGL,VA2KYT,W1,WB5LLI>W0 W0,VC9,VE2,W4,VE3,KP4>W4  
W0,W8,W1,W5>W3 HK3JRL>K0HA VE4VHF,K0KP>W2 VE2YAT>W8,W0 VP2E>W4OV  
V25E>W4SO

July 30 00-0100 FM5JC>W4SO W5>W4 W9JN>W3 V44KAI>W4SO W0>W3,W2,W5 VE1>W9  
KS5V>W4,W9 01-0200 KS5V>W5 0357 K0GUV>W8 04-0500 W1,VE3>W8 0638  
VE7FG>NL7Z(Es) 1314 W0>W1 15-1600 VO1,W5>W4 16-1700 W5>W4 17-1800 W2>W9 2036  
W4>W4 2130 YV4DYJ>FM5JC

July 31 01-0200 W3>W3 1157 VE1>W1 12-1300 W1,W4>W8 48250>VE1 13-1400 VE4SPT>W8  
VE11>W1,W8 14-1500 W0>W4,W8 VE2,W1>W0 15-1600 W0>W3 49740, 49750,49760(UA)>W4  
W5>W2 KD4NMI>W0 WB0RMO>W4 16-1700 XE2ED>W7 W5>W4 17-1800 W7>W4 W4>W9,W0  
W5>W8 YV4DYJ,YV1DIG>FM5JC K5AB>W9 W0>W0 18-1900 HI3TEJ>FM5JC KE4SIX>W5 19-  
2000 YV4AB>K0HA ZF1EJ>SM5JC 20-2100 HK3JRL>KI4RO HP1AC>WP3YM  
YV4DYJ>WP4NIX,WP3YM 22-2300 HP1AC>K4RX W5>W3 W0,W5>W4 W4>W9  
HK3JRL>K0HA,AJ9K 23-2400 W3DOG>W5 YV4AB,YV4DYJ>K0HA HP1AC>K4KWK W5>W2,W3  
HK2JNL>KZ1Z HK3JRL>W4SO,K0HA XE3,W0>W4 PJ2BVU>N0JK W2>W9



## Asia/Pacific

### Japan

Openings to Europe and to North America, on a similar scale to those in June, have already been noted. Propagation seems to have been a shade better/more interesting. In addition, there were multihop openings to the Arabian Gulf (A4,A6, but not the more elusive A7. There were again no reports of VK or ZL. JA1VOK, as is his custom, does not report contacts within JA, which were doubtless numerous at this season.

### 6m DX results in JA during July from JA1VOK

DATE	TIME(UTC)	STATIONS
7/ 1	0130-0900	HL, VR2XMT,SIX/b
2	0045-0900	BU2AJ,BW3/JD1BKQ,BX2AB, HL, VR2SIX/b
	0500-0830	K6KLY,K6QXY,KE7V,KR7O,K6RWT,NN7J,WA7GCS, VE7XF,7DAY
	2230-0530	BG7BJR,BD9BA, BU2AJ,BX2AB, HL, VR2XMT,SIX/b
3	0340-0430	UN8GC
4	0608-0610	I0WTD (JA2)
	0722-0740	5B4FL,5B8AD
5	0410-0630	NL7Z,KL7NO
	0700-0830	5B4FL, DK2PH, IK0FTA,IT9RZR
	1000-1005	BD4XA
	1210-1440	A45XR, A61Q
6	1230-1300	A45XR
7	0721-0735	IT9RZR
	0855-1000	A45XR
8	0851-0900	HL1AEY
9	0100-0830	BD4XA, HL, NA8O/KH0
	1445-1700	VR2SIX/b
11	0300-0400	VR2SIX/b
12	0000-0230	3W3A,XV3AA, DU1EV/B, VR2SIX/b
17	0610-0620	BD4XA
19	0626-0700	DS1PCF,HL50HYF, VR2BG
21	0235-0400	DS1MFC,HL50VHF
22	1300-1400	VR2SIX/b (JA6)
23	1228-1230	HL2IPL
25	0220-0400	BD2LH, HL50VHF
26	0000-0030	DU1EV/b
	0240-0800	DS1PDF,HL1JV
	0425-0500	DU1EV/B
27	0415-0500	VR2SIX/b (JA8)

### Elsewhere

A somnolent scene, with VK experiencing a barren winter season

July 1 0318 BYtv>VK3(tep)  
July 2 0511 EX8MLT>UN8GC 08-0900 JA1>HL4  
July 3 0551 ZLtv(50750)>VK2  
July 4 0342 JH8ZND>HL1  
July 9 0249 BV9AA>HL1 0607 JA5KTY>BD7OH  
July 10 02-0300 BD4XA>HL4  
July 17 0306 VK4RGG>VK3

## Beacon News and 28 MHz Worldwide

Compilation and Commentary by G3USF

### Beacon News

Although this is the July report this section is 'out of synch, containing information from later months.

1810.5	YR2TOP reported (various)
3588	SO5GB with 500mw from Warsaw (G4TMV)
3686.3	SZ6P running 1 watt from KM08JX (Nov.)
7036	F/PA0PSA is located in Reims.but is unauthorized
14062	UA1AVA with 100mw of a1a, apparently from a balcony in St Petersburg (KO59EW). Antenna a 1/2 dipole @ 30m agl. He is seeking reports to ua1ava@qrp.ru (RA3GFV Oct.)
18100	VE2TKH reported here. Nothing further known. (Oct.)
24930.5 28191	GB3RAL two frequencies of four-band beacon (50 and 70MHz yet to come) sequence begins with 24930.5 on even minutes, followed 20-seconds later by 28191. Power around 20 watts to vertical. GB3RAL 28215 remains in continuous operation.
28167	LU3DBJ with 10 watts to vertical from GF05UG (EI5FK October)
28211	DB0FKS reported with callsign plus 51 seconds carrier (Sep)
28223.6	K6BA in DM13JF reported by KU6A.
28250	N4ESS Tampa FL (EL88TA) with 20w/2w/200mw/20mw to Ringo Vertical operating frequency/timeshare with W4SO, N4ES
28275	NP4AM reported here is in FK68MI (DL8WX Nov.)
28285	KA2KGP in FN02 reported by K0HA (Aug.). No further information.
28332	IK1ZYW temporarily QRT (IK1ZYW October)
50003	IQ6VP reported here (IW0GXY Oct.)
50007	ZD7VC now operational (CT1HZE Oct.)
50017	OH0SIX new beacon should become operational this winter (OH6DD)
50023	LX0SIX antenna is now a big wheel (LX1JX)
50030	PY5NN reported from GG54 (PP5XX)
50051	YO9FTR KN25XG 3 watts of a1 to 1/2 Vertical testing (Oct.)
50066.9	K4HRS reported here (AB3K Oct.)

### 28 MHz Worldwide

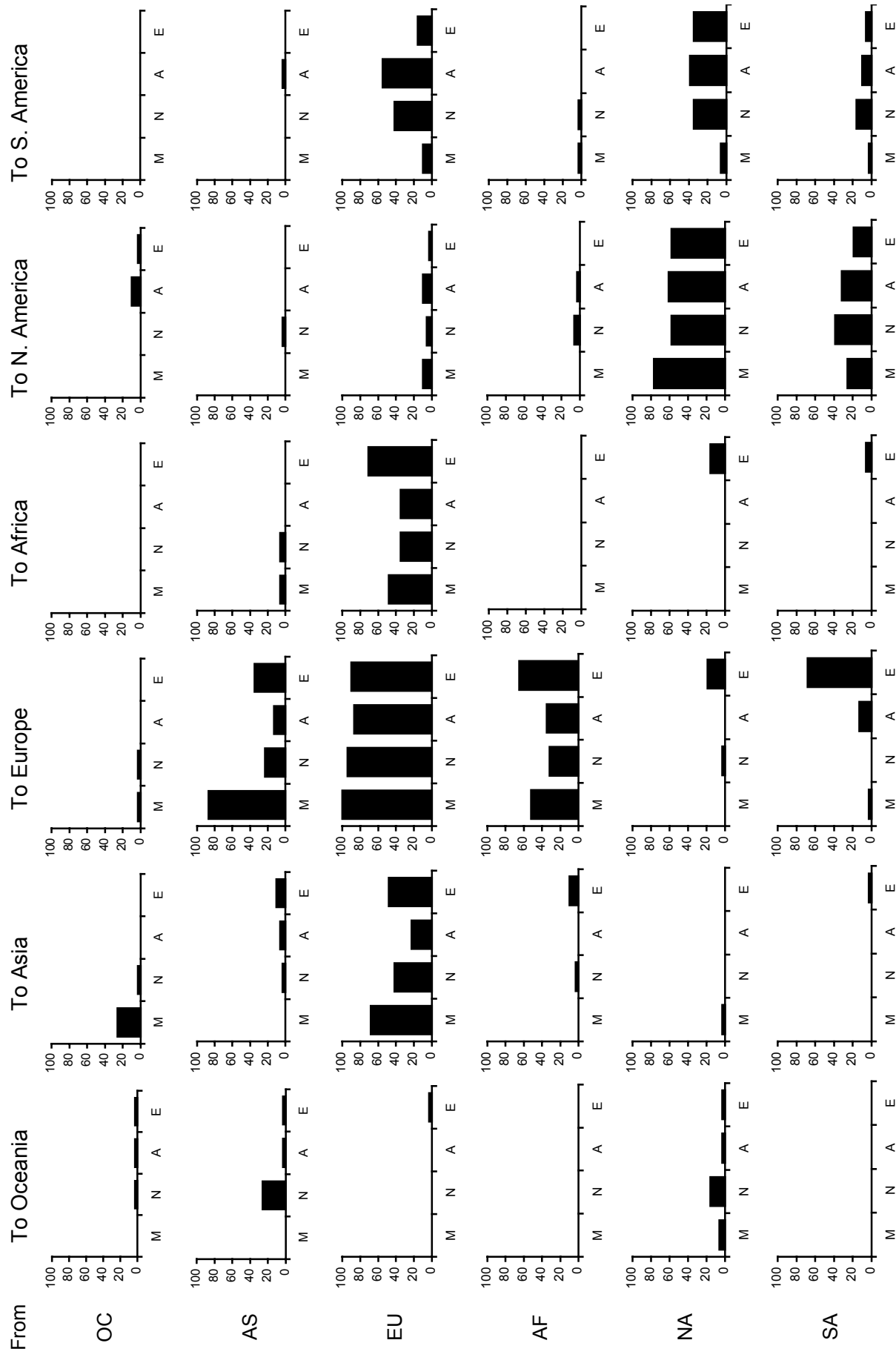
Sporadic-E continued unabated in the Northern Hemisphere, even on days when there was substantial geomagnetic activity. It was reported every day in Europe, although there were a few lean days - notably the 20th, when it was reported only during the morning period. There were no reports relating to North America on the 20th and 21st. This could have owed something to a disinclination to report contacts that were very clearly not 'DX'. However, since our team of dedicated beacon watchers there also returned a blank, it looks as if propagation was indeed wiped out. The two days were geomagnetically 'active' and the solar flux was in the low seventies. Es working within Europe was particularly intense during the IOTA contest on the 30th and 31st. SK0, OH5 and the DF0AAB beacon were copied by SM2LIY - another alert operator who knows how to read the signs - between 2233 and 2339 on the 11th.

As at 50MHz, multihop sporadic-E appears to have been a factor in propagation between Europe and Asia - chiefly the Middle East. Figures were actually better than in 2004, possibly due in part to the absence of the 4X beacon last year. There were reports for every day except the 19th and 24th, with the morning period very much the most heavily favoured. Signals from Africa were copied in Europe on 28 days, with evenings

(after 1700UT) the strongest period. South America was heard or worked in Europe on 22 days, again mostly after 1700UT. G0AEV has already commented on the paucity of North American signals this month. Across Europe as a whole there was some element of propagation on eight days, mostly with southern Europe. Continental Europe did rather better than the UK, with the 4U1UN beacon reported by DJ7KG at 1257 on the 6th and 1233-1330 on the 8th. W3RJ, one of a small band that perseveres with 10m, worked ZB2FK and 2E1HKC at 2238 on the 10th He was also heard by CN8YZ. An opening followed between W3 and W4 and 9A and DL between 2255 and 2312. On the 16th K1ZM worked CT1AXH at 1218 and K2LE<>CT1CJJ was reported at 1607. At 1737 on the 17th G6CRV worked VY2ZM.

Within North and Central America contacts were reported on 29 days, with mornings (before 1130LT) the most fruitful period. South America was heard or worked on 20 days but the path was erratic and patchy. However, other paths appear to have been even more marginal, with Africa reported on four days, Asia on only one, and Oceania on 6. Contacts within Asia were reported on only the 4th, 5th (contest days) and 25th. Africa was worked from Asia on only four days and Oceania on 9. The evening path from South America (LU) to Asia, which has held up quite well, was known to be open only on the 31st

# 28 MHz Worldwide - July 2005



Time bands: M=Morning, N=Noon, A=Afternoon, E=Evening - used for the "To" continent