

THE SIX AND TEN REPORT

June 2003

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Analysis of 28 MHz reports from the UK

28 MHz reports and logs for June 2003 from G2AHU, G3IMW, G3USF, G4TMV, G4UPS, G0AEV, G0IHF and from packet cluster reports. Compilation and commentary by G0AEV.

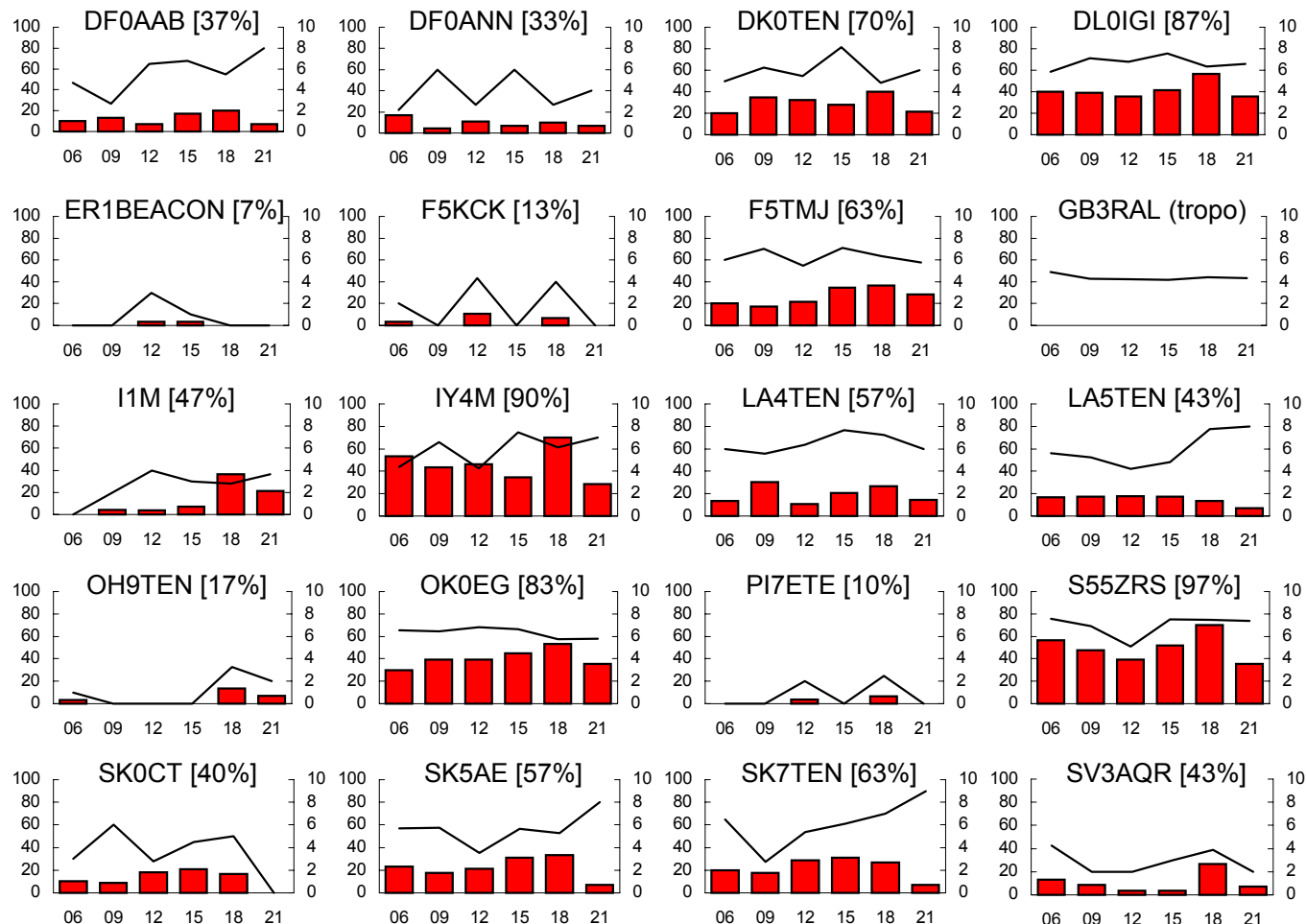
Solar flux increased slightly in June (compared to May) but this had no discernible effect on 10m. Season variations were, as always, the predominant control on the observed continued decline in the availability of DX and the reliability of DX propagation. Magnetic disturbances, characteristic of the current stage in the solar cycle, continued to feature strongly and had an additional dampening effect. The result was relatively poor propagation *via* F2 largely restricted to Africa and to southern South America.

Conversely, but also for seasonal reasons, sporadic E was very good, including openings on every day of the month. Reports received that indicated Trans-Atlantic multi-hop to North America were disappointingly small considering the significant number of such events identified at 6m, but this was partly because many of the openings were to the Caribbean, a region lacking in 10m beacons.

Beacon graphs legend

Legend for all beacon graphs: - 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. All reported beacons were heard by E-layer propagation (except GB3RAL – heard by G0AEV via tropospheric modes), this being very predominantly normal direct path sporadic E but including some Es backscatter and, in the late evenings, a little auroral E, as detected by the Scandinavian beacons. There was no inter-European F-layer propagation (a consequence of low mid-summer F2 critical frequencies).

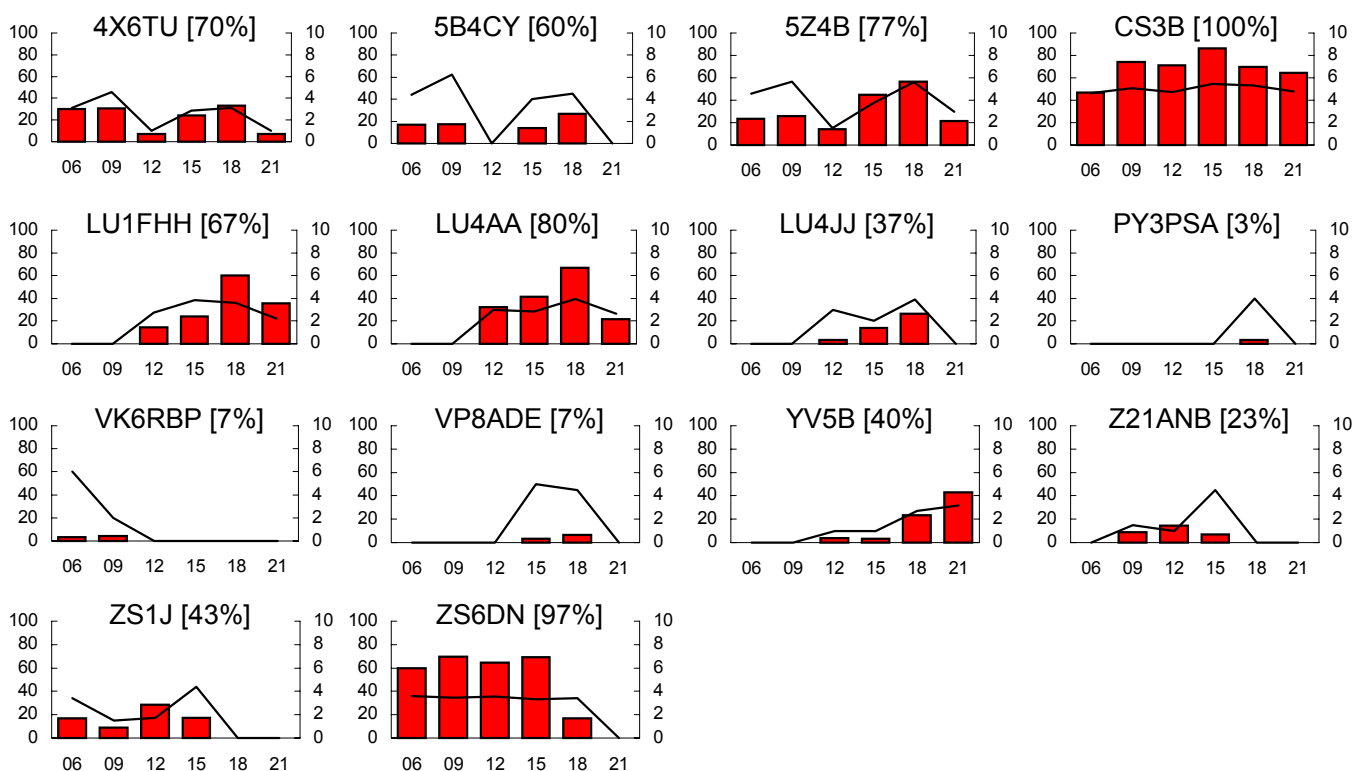
Beacon Notes. Four German beacons were reported in June but also transmitting (and logged in the UK) in July were DL5KZ (28.321) and DF0THD (28.325) – these are outside the normal beacon band limits so may not be heard unless one “listens up”. DL5KZ appears to be regular, DF0THD appears may be intermittent. Beacon observers please note that DF0AAB (28.287) and DF0ANN (28.265) have similar calls but are different beacons!

Also on the high side of the beacon band was ER1BEACON in KN46 transmitting on approximately 28.326 from May, but first reported in the UK in June. This beacon went QRT around the end of June but was replaced shortly afterwards by ER1AAZ on 28.220.

F5KCK (28.110) is very low in the band and is poorly reported as a consequence (and perhaps also because of the gaps in the “robot” transmission - compare with continuous beacon F5TMJ). IY4M is another “robot” beacon (i.e. receives as well as transmits) was heard on 90% of days in June. By comparison I1M, which also has transmission gaps, was poorly reported with only G0AEV hearing the beacon regularly – this explains the peak in reliability in the evening when I listen most often.

GB3RAL went QRT on 4 July. OH2B remains QRT after the theft of the beacon transmitter. PI7ETE was heard on only 3 days because it is too close to much of the UK for sporadic E except under very short skip conditions.

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



Suggested propagation modes. Most of the beacons reported above were heard by normal F-layer propagation except for 4X6TU, 5B4CY and CS3B, which were heard by a combination of F-layer and sporadic E. In the case of 4X6TU and 5B4CY, double hop sporadic E was probably the dominant mode. CS3B is a little more difficult to evaluate. CS3B was the only beacon to achieve a 100% daily reliability this month and on some days it was audible, apparently continuously, from sunrise through to late evening. This is not the pattern expected from sporadic E! The review of propagation trends in the

period 1999-2002 as shown by the IARU beacons (*Six and Ten Report*, February 2003) suggested that during mid-summer both F and E layer modes are operative on the G-CT3 circuit. By extrapolating the trends exhibited by F2 propagation in the rest of the year it is possible to estimate that reliability of CS3B in June could be attributed 60% to F2 and 40% to Es.

Reliability on the F2 paths to southern African and to southern South America continued to do reasonable well considering the season, and the lower solar activity and higher geomagnetic activity present at this stage of the solar cycle. ZS6DN was reported on every day in June bar one, and the chance of hearing that beacon in any one of the 3 hourly time bands between 06 and 18z was around 60%. Longer paths to ZS1 and to VP8 were rather more reduced in reliability.

In recent months VK6RBP has not been reported or reported less often than might be expected. In June, VK6RBP was reported on two days, which is about the right sort of level of reliability expected at this time of year and position in the solar cycle.

Beacon Notes. OA4B is still QRT. The absence of signals from 4S7B in recent months suggested a continued problem with this beacon, but in mid-summer the lack of propagation prevents any sensible analysis of the situation from the UK. The report of PY3PSA may have been in error – if active, beacons in Brazil should be heard at similar or slightly lower levels of reliability to the LU beacons.

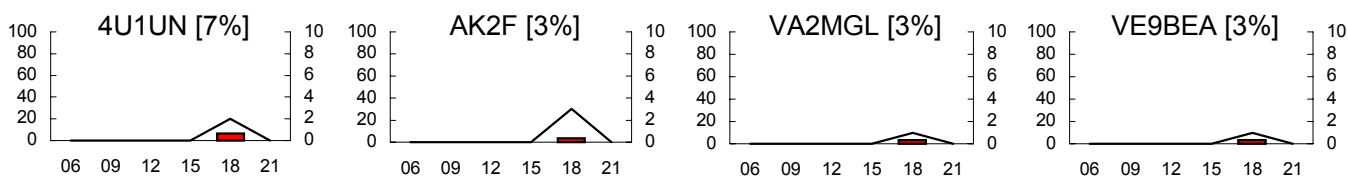
10m DX in June 2003

The following very reduced list of DX (non-European) countries recorded as worked/heard in the UK list comes from DX packet cluster spots and from contributor logs. Although partly a reflection of lack off amateur activity rather than lack of propagation, the list does indicated the relative difficulty in working outside of Europe during the middle of the summer. Of the countries listed several (4X, 7X, 5B, OD, W) were worked by sporadic E.

4X, 5B, 7X, A4, A7, CE, EA8, LU, OD, PY, W, YV, ZP, ZS

Propagation to North America

The seasonal decline in propagation by F2 to North America reached its nadir in June – there was no propagation by this mode at all. This is normal, even in years of high solar activity. However, there were openings to North America on 10m but these were by multi-hop sporadic E. Six metre operators identified Es openings to USA, Canada or the Caribbean on around half of June days, a remarkable statistic. It has to be admitted that many of the openings were very restricted and almost certainly only detected by dedicated listening. 10m beacon monitoring performed poorly in comparison, with only one event (26th) being reported. In past years when I was able to test for trans-Atlantic events in a rigorous way I could hear 10m beacons on nearly all occasions when openings were reported on 6m, and I sometimes heard 10m beacons when no propagation was reported at 50 MHz. It seems likely, therefore, that the results charted below represent a minimum view of Trans-Atlantic Es in June 2003.



In addition to the above, GM8LFB spotted hearing N9RET at 2237 on 26th.

Analysis of 50 MHz reports from the UK

UK 50 MHz reports for June 2003 from G2ADR, G2AHU, G3HBR, G3IMW, G3USF, G4UPS, G0AEV and via packet cluster spots. Compilation and commentary by G0AEV.

Tabulations 50 MHz compilations are presented in tables ordered alphabetically by country prefix. Percentages following the country name are the daily reliability values (the percentage of days when propagation was reported). The first row of each table labelled "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 UTC, "09" for the band 0900 - 1200 UTC, etc.) A figure of "0" indicates that signal strength was not reported.

Sporadic E

I wonder what readers think of the 2003 sporadic season so far? I am quite impressed. There has been a lot of activity: some sporadic E on every day in June, especially good multi-hop to both east and west (including an almost unprecedented number of trans-Atlantic openings), some short skip, and one or two excellent Es backscatter events. If the amount of data requiring compilation is any kind of indicator (3.5 pages of tabulations follow), then it has been a record month!

Brian G3HBR thought six had been a "mixed bag" with some good stuff about but openings appearing to be increasingly selective. Brian makes a valid point that there are some very well equipped stations about these days. With high stacked antennas these stations are able to hear (and work) weak signals under marginal conditions not available to the rest of us. This has, no doubt, contributed to the high numbers of country areas reported.

	4X Israel (47%)														5B/ZC Cyprus (33%)										5T (10%)					
D	3	5	7	9	17	18	19	20	22	23	26	27	28	30	3	7	8	10	17	20	26	28	29	30	7	29	30			
03	9																													
06	6				6				7				3						7	4										
09					9	9		8	7	7		4	7		9		8		9		6	9						7	9	
12					5		8																							
15					7	1				5	5	6	0										5							9
18		0	9											0	9		0							9						0
21																														

	8P (3%)		9H Malta (77%)																	9Y (7%)							
D	12		2	3	4	5	6	7	8	9	10	13	14	16	17	18	20	21	22	24	25	26	27	29	30	12	30
06									9	0					9								9				
09				0					8			5	3	9				0			5						
12			5					9		9	0		0				9	9									
15					9		0			9	4		0				9	9		9				0			
18						7						9				9	7	9		9	0			0		0	
21	5		0	2																9					9		

	A6 (3%)	C6 (3%)	CN Morocco (77%)																										
D	9		29		4	5	6	7	9	10	12	13	14	16	18	19	20	21	22	23	24	25	26	27	28	29	30		
00																													
06						8	8						7												7				
09						1	7		9				9					9	9	7			9	9					
12	0		6			9	9	7						2				0							0				
15						8		7					6	9				9						9	7		7		
18						9		5				9	7	5		7	5	9	9				9	9	7	6	9	5	0
21						7	9	9		9	7		5	9									4	0			9	9	

CT Portugal (73%)		CT3 Madeira (13%)
D	1 4 5 6 7 9 10 12 13 14 15 20 21 22 23 24 25 26 27 28 29 30	7 11 25 28
00	9 6 0	
06	2 9 2	
09	1 9 9 9	
12	9 9 9 5 9 5 9	
15	9 9 0 9 9 9 7 9 9 9	7 9
18	9 9 9 9 9 9 9 7 9 0 5 9 9	9
21	9 9 9 4 9 9 8 6	5 0

CU Azores (27%)		DL Germany (57%)	EI (10%)
D	10 11 12 14 22 23 26 29	5 6 7 9 10 12 14 16 17 18 19 20 22 23 24 26 29	5 8 17
00		9	
06		9 9 9 9	9
09		5 4 3 9 9 5 9	
12	5 6	0 0 0 9 8 9	9
15		9 9 0 9 9 9	
18	2 9 9 5 9 0	0 9 9 9 0 9	9
21	2 5 0 5	0 9 9 9 0 9 9	4 5

EA Spain (80%)	
D	1 2 4 5 6 7 9 10 12 13 14 15 16 20 21 22 23 24 25 26 27 28 29 30
06	9 9 9
09	0 8 5 9 9 9 0 9 7
12	9 9 9 9 9 9 4 9 5 6 9 6
15	0 9 9 9 9 5 0 9 5 9 0 9 9 9 3 9
18	9 4 9 9 8 9 9 9 9 6 9 9 9 0 9 9 9 6
21	9 5 9 5 0 9

EA8 Canary Is (33%)		EA9 Ceuta/Melilla (33%)	ES Estonia (30%)
D	4 5 6 10 13 14 15 21 25 26	4 6 12 13 14 15 19 21 22 26	9 10 17 18 19 23 24 26 29
00			9
03			9
06	9		9
09		9 8	5 7
12			7
15	4 9	0 0 9 0	6 6 7 9 9 9
18	9 0 7 5 9 0 9	5 9 5 9 9	9 6 7 9 9
21	9	9	9 7

F France (53%)		FG (3%)	FJ (7%)	FM (10%)	FP (3%)
D	4 6 7 9 13 14 15 16 17 21 22 25 26 27 28 29	29	5 15	4 12 29	7
03	0				
06	9 0				
09	1 5 0 9 9 9				5
12	9 5 0 7 9 9				4
15	9 9 7 0 9 9 9				
18	9 0 6 9 9 9 9 9	2	3 7	9	
21	9 9 7 0			4 7 0	

FY (3%)		GM <-> G (20%)	HB Switzerland (50%)	HI (3%)
D	14	4 5 8 16 26 28	5 6 7 8 9 11 16 20 21 22 24 26 27 28 29	5
06		4	9 9 0 5	
09		0 9	9 0 9 5 9 9 9 7	
12		5	8 0 0	
15		3 0	9 1 9 5 7	5
18	9	9 9	9 0 0 9 6 9 9	
21			9	

I/IT/IS Italy (87%)																														J6 (3%)	
D	2	3	4	5	6	7	8	9	10	13	14	15	16	17	19	20	21	22	23	24	25	26	27	28	29	30	12				
03		9																													
06	0	9							5			9		9		9	9					7	9	3							
09	0	8			7		0					8	8	6	6	9		9				9		7							
12	5					9		9	9		7		9	5			9	9	6				9								
15	9		9	0	9				9	9		9	9		9		9	9	9	0	1	9	9	9	9						
18	9		9	9	9	9			9			9			9		9	9	9	9	7	9	7		9	9					
21			9		9	9		9							9				9			6	9	9					0		

HA Hungary (Rx only – 30%)										JW(7%)		JY Jordan (30%)						KP4 Puerto Rico (20%)											
D	4	5	9	17	20	22	24	26	29	9 28		3	5	7	10	17	20	26	28	30	5 6 10 11 12 15								
06				7	9	9										9	9		9										
09		7			9							9		7			4		9										
12	9		5					9																					
15		6						9		9					4	0		9						9	5				
18							9	0			5			7								6				5		6	
21																									5		3		

KP2 (7%)			LA Norway (30%)						LX (13%)				LY Lithuania (27%)										
D	12	15	7	8	17	20	22	24	25	26	28	17	20	24	26	7	9	10	17	19	21	22	26
03																						9	
06																							9
09					9							9				9			6			9	
12				7		0	9												9				
15				0		0			9									9	9				
18	9	9				9		9		9	7	0	0	9		9						9	
21	7					9	2		9							5				0			

LZ Bulgaria (47%)												OE Austria (40%)														
D	2	3	4	5	7	8	9	10	17	18	21	27	29	30	6	7	8	17	19	20	22	23	26	27	29	30
06		9		7		9	0													7		9				
09		0					9		9							9			6	9	6	9				
12			0				6									6		7								
15	9						6	0		9	9	9	9	5	9		9							9		
18		7			9		0		9				0	5	9		8			5	9	9	9	6		
21																										

OD Lebanon (23%)						OH Finland (40%)										ON Belgium (20%)				OX (13%)										
D	3	17	19	22	26	29	30	8	9	10	16	17	19	20	21	22	23	24	26	5	7	16	20	24	26	7	24	26	29	
06	6	4															0													
09	1	5						9								9	1				9		9	9						
12			9	7									9			9						0								
15					6	7				9	4	0	5	9		9			9	9	5					9				
18							5						5						9	9					0		3	9	5	
21													9			9								9						

OK/OM Czech and Slovak Republics (60%)															OY Faeroe (20%)				OZ Denmark (23%)												
D	2	5	6	7	9	16	17	19	20	22	23	24	25	26	27	28	29	30	8	20	21	26	28	29	7	8	17	19	20	26	29
03								5																							
06									9	9				9		9		9													0
09		9								9	9	9			9				9						9						
12					9	7	9	9	9		5			9					9									0			
15			9				7						7	0		6			9								5	9		9	6
18			9	9			9				0	9	9	9	0	9					9	8	4	9		9			9		
21	7			5																	0				5						

	PA The Netherlands (30%)	SM Sweden (47%)	SV9 Crete (7%)
D	4 6 16 17 18 20 21 26 29	4 5 8 10 16 17 19 20 21 22 23 24 26 29	17 30
06	0	0	9 9
09		9	2 4
12	9 9	9	9
15	0 0	0 0 8 9	9 9
18	9 9	0 9	9 9
21			6

	SP Poland (67%)	TF Iceland (33%)
D	4 5 6 7 8 9 10 16 17 18 19 20 21 22 23 24 26 27 29 30	4 5 7 8 13 17 24 26 28 29
00		
06		
09		5 0 9
12	0 9 9	2
15	9 4 0 9	
18	0 5 9 7 5 9	5 9 9 9 9 9
21	8	5 9 9

	SV Greece (43%)	TA Turkey (20%)	TG (3%)	TI (3%)	TK (7%)
D	3 5 6 9 10 17 20 21 23 24 28 29 30	9 10 17 22 24 25	23	23	9 16
03	9				
06					
09					9 0
12	5 9		2	5	
15	9 9 9	5 0			
18	9 2 5 5 5	9			
21		5			

	UR Ukraine (57%)	V2 (7%)	VE1-2,9,VO Canada (33%)
D	3 5 7 9 16 17 18 19 20 21 22 24 26 27 28 29 30	12 15	3 5 6 7 19 22 23 25 26 27
06			
09	9		3 9 2
12	5 9		5 9 9
15	7 9 7 1 9		7 1 9 5 9
18	9 9	5 0	0 9 3
21	5	9	1

	VE3 (3%)	VE8 (10%)	VP9 (7%)	W1-4 USA E Coast (30%)	YA (3%)	YL Latvia (17%)
D	26	21 25 29	15 16	5 6 7 11 20 23 25 26 30	16	7 9 10 17 26
06						9
09			9	0		9
12			9	5 9 2		9
15				2 5		9
18			5	7 2	9 0	9 7 9
21	8	1 5 5			9	

	YO Romania (47%)	YV (7%)	ZA (3%)	ZB Gibraltar (13%)
D	2 3 4 5 6 7 9 17 18 19 20 21 22 27	12 15	2 3	5 7 15 22
03	9			
06	9 5			
09			0	0 5
12	5 9 0 0		0	4
15	9 9 9 9		0	0
18	0 9 9 9 9	7	0 9	
21	7	2		

YU/9A/S5/T9/Z3 Former Yugoslavia (80%)																														
D	3	4	5	6	7	8	9	10	13	14	16	17	18	19	20	21	22	23	24	26	27	28	29	30						
03	9																0													
06	9					0											9		9											
09	8		9	7		9					9		9	9			9	8				0								
12					9	7		5			9	6	0	9		0		5		0										
15		8		7				9			9	9				9	7	9		9	5		9							
18		9		9	9		5	9	7	9		9	7		9				9	5	9	9	9	9						
21				9	9		0		6							0														

Particularly good periods for sporadic E were 5th to 10th and 16th to 30th. June 26th was undoubtedly the best day of the month (see below) and June 1st the poorest.

Sporadic E Backscatter

The following lists contacts and SWL reports where the propagation mode was indicated as backscatter (presumably from the E-layer in all cases). Comments in brackets and italics are mine.

3 09z 0939 PA4PA > GW6TYO
5 12z 1346 F8DBF > GD0TEP 579
5 12z 1410 GD0TEP > MM1DHU "backscatter?"
6 12z 1444 F8DBF > GB3MCB
7 09z 1009-1030 Many G > GM, G > G, G > PA in excellent backscatter conditions
1115 G4FVP > MM0CTT "big backscatter now"
1149 EI5FK > GI6ATZ 55 "strong backscatter"
12 18z 2057 G3IBI (IO90) > GI6ATZ 55
15 18z 1807 MW1MFY > DL6AMI55
20 12z 1359 ON1LGS > GM3WZT/P (IO89) 59
22 12z 1302 G3IMW > ON4AO 519
23 15z 1618 GW3MFY (IO81) > SV1DH 579 "bs" (*but perhaps, at this distance, side-scatter*)
27 12z 1242 MW1MFY > HB9RDE 59 QTF 210
1309-1353 F8DBF (IN98) <> MW1MFY 59, GB3BUX 539, G3JHM (IO91) 539
15z 1634 G4VPD > GI6ATZ 55 QTF 180
18z 1925 PE1MZS > G3RPB 59 QTF 125
28 15z 1722-1749 MW1MFY > SV1DH 55 QTF 210, < F8DBF 549; EA5AGR > G8BCG/P 060
30 15z 1714 G1IOV > IH9/I2AND 59 QTF 224

Es Summary

The table below displays summary counts of country/areas heard/worked in the UK derived from the detailed data in the preceding sections. Text that is highlighted in bold indicates when 10 or more country-areas were reported. Cells with background shading are for times when the K-index for Hartland (Devon) was 5 or greater. Daily totals are recorded in the solar data table presented later in this Report where these number can be compared with solar, ionospheric and geomagnetic indices.

Es Summary (all data)

	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	
00					1	2	1										3														
03			5														1	1	1		4										
06	1	1	7	3	3	4	1	4	2	1				2	1	8	1		9	2	13	1				13	4	5	1	2	
09	1	2	8		7	7	6	13	11	1	1		1	3	4	4	11		5	16	1	18	11	1	1	12	4	8	1		
12		3		3	8	3	10	4	9	5	1	1	1	2	2	11	14	2	9	9	8	9	8		4	8	4	1	2		
15		4		4	10	11	9		9	14		3	3	4	3	12	17	6	11	4	13	7	5	5	3	19	10	5	17	5	
18		2	1	9	10	13	17	1	7	8	3	8	6	8	9	6	16	3	4	3	9	4	3	20	6	30	8	11	21	15	
21		2	1	7	4	8	4	1	6	2	2	9	3	2			3			1	4	4		4	7	10	3	1	5	5	

In most instances the table above shows that elevated geomagnetic activity had a negative effect on sporadic E - area counts are low (or lower than on adjacent days) where the Hartland K index was 5 or more. In two cases the reverse was apparent. On 17th, one of the best days for inter-European sporadic E, high geomagnetic activity coincided with high country/area counts. Countries from all over Europe were involved in the events of the 17th, but propagation to Scandinavia was pretty good and this might indicate that the sporadic E had received a contribution from an auroral E source. The second positive correlation between Es and magnetic activity was on 27th June.

Some propagation across the Atlantic was reported on two thirds of days during the month. This includes a large number of very localised openings detected by only one or two people and several widespread events. 50 MHz openings to/from the UK covered the length of the North and Central American east-coastal regions from Greenland through to Venezuela (southern South America normally requires the involvement of the F-layer). There were no instances (reported to me) of signals taking that extra hop in to the continental interior.

Es Summary for Trans-Atlantic openings only

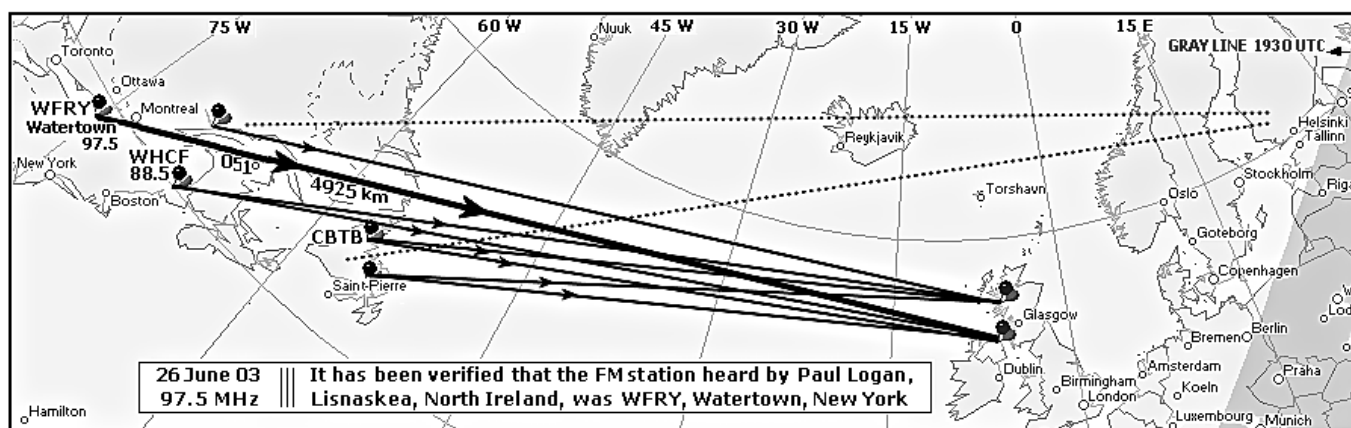
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
06																														
09		1					3								1						1	1								
12					2		2								1							3		2					1	
15					2	3	2												1	1		1				2				
18					1		1				2	3		1	6									1		3	1		1	3
21			1							1		8								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

(Data for: 8P, 9Y, C6, FG, FJ, FM, FP, FY, HI, J6, KP4, KP2, OX, TG, TI, V2, VE, VE8, VP9, W and YV)

The first opening of any note was to the Caribbean on 5 June. Ted G4UPS reports that at his QTH the opening starting at 1629z with HI8ROX and at 1639 WP4LNY both SSB. A more widespread opening to Caribbean occurred on 12th – 8 different Caribbean countries were worked. The 15th was also good, especial to Puerto Rico. The best opening to Canada and the States doesn't stand out well in the tabulation counts because the number of countries available is small compared with the areas involved - this event was on the 26th June

Es Propagation on 26th June

Sporadic E propagation on June 26th was exceptional for several reasons. Openings were widespread with both 6 and 10m experiencing highest recorded area/country counts (37 on 6m, 21 on 10m). Areas heard/worked included double hop to both east and west, with propagation to North America being the best of the season so far. Perhaps the most interesting phenomenon was the reception of band II FM signals from N America in GM and GI. The picture below (published in the Finnish magazine Radioamatööri.- thanks OH2LX) shows the paths involved. Details of this very rare event can be found at <http://www.dxradio.co.uk/transatlanticfm.html>



G3HBR wrote of the transatlantic opening "the W's and VE's were able to work well into Europe and it was no time for common old G's to be calling them and adding to the horrendous QRM. It seemed to me that the opening was quite scattered in North America as I was hearing a few very loud stations widely geographically spaced. He opening lasted quite a long time." Brian also noted the very strong Es from large areas of Europe during the transatlantic opening. It does seem that the best DX available would have been from the East coast of N America through to eastern Europe, or perhaps the Middle East

DX (F2 and TEP) Propagation

The following tabulation shows "DX" openings (i.e. those interpreted to have involved one or more F-layer hops) reported by UK operators in June. The tabulation style follows that used for the Es data.

	7Q (7%)	LU (3%)	PY Brazil (13%)	TR (7%)	ZD8 (7%)
D	14 23	30	5 14 29 30	4 7	4 21
06					
09					
12					
15	9			1	
18	2	4	5 8 9 9	9	2 7
21					

The tables below displays summary counts of country/areas heard/worked in the UK derived from the detailed data in the preceding sections. Daily totals are recorded in the solar data table presented later in this Report where these number can be compared with solar, ionospheric and geomagnetic indices.

DX (F2 and TEP +/- 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	
06																															
09																															
12																															
15							1							1																	
18				2	1									1							1		1						1	2	
21																															

Considering how much sporadic E was about it is not surprising that the few "DX" events reported all occurred at approximately the same time as sporadic E events. It is very unlikely considering the season and solar activity levels that DX could be worked in the UK without the assistance of sporadic E, either alone or as the first hop leading to areas south of the UK with F2 propagation.

Meteor Scatter

The following MS instances were reported (mostly from the DX cluster). I have excluded most JT6M contacts from this list because this mode is not used exclusively for meteor scatter - to some users it has become a mode like any other and contacts are made regardless of propagation - hence JT6M contacts made during sporadic openings. Seems a little ridiculous to me!

- 6 1358 GD0TEP > YU1EXY "ms type bursts"
- 7 1223 SP3RNZ > G8PL "ms only" (UKSMG contest)
- 7 2231 LX2SM > G0VSM/P "rather weak burst in jn39bm"
- 8 0725 OK2KJT > G4PCI "nice bursts"
- 8 1144 SP3RNZ > G8PL "ms enhanced, contest"
- 12 1124 MU0FAL > PA2VST 319 ms
- 15 0931 SM2CEW > GM3WOJ "fb burst"
- 15 1455 SM0TSC > G4PCI "Several long nice bursts"
- 16 2225 DL3DXX > (JO61) > GW3LEW "many pings up 599+"

16 2230 G4FVP > TF/G4ODA "heard briefly: MS? Es over my head"
 22 0422 OK2POI > G5B "31-51 MS or iono"
 28 0555 PA0HIP > GB3MRK "long MS bursts"

The G4UPS – SM7AED morning skeds again provided interesting data on the availability of early morning meteor-scatter (and similar, but not easily categorised) propagation.

Aurora

Geomagnetic disturbances abounded in June - 20 days when either the Kp or one or more of the UK K-indices reached 5 or more. The extent of radio aurora indicated below do not seem to match in proportion. However, UK observatories should be a better guide to UK conditions and this month UK observatories identified notably fewer geomagnetic significant disturbances (14) than the planetary index (19)

1	18z	2000	GM4PLM (IO75) > GB3LER 41a; G4UPS (IO80) > GB3RMK 55a
3	21z	2116-2119 2307	GM4PLM > OY6SMC 51a; EI7IX > GB3LER 51a in io53 GM8LFB (IO88) > GB3LER 52a
7	21z	2147	GM4PLM > GB3LER/B 51a QTF 0
8	15z	1529-1548 1603-1640 1737	LA4CQ (JP20) > GB3LER; MM5AHO > GB3LER 52a G and GM <> GM; EI > G; GM4ILS > LA4CQ 52a EI7IX (IO53) > GB3LER 53a
9	21z	2125-2158 2338	EI, GM <> GM; GM4PLM > LA6HL 55a EI7IX > GB3LER 52a
16	12z	1418-1437 21.30	GM8LFB > GB3LER (going auroral at 1418), > OY6SMC/B 51a G4ASR (IO81) > PA0LSB 51a at 310 degrees
18	06z	0739-0800 0829-0834	G, GM <> GM; LA6HL (JO28) > GB3LER 59a GM8LFB > OY6SMC 55a, GB3LER 56a, GB3RMK 53a, G4DEZ
	12z	1444	GM4PLM > GB3LERb 53a QTF 0, > OY6SMC, >GB3RMK
	15z	1656	GM8LFB > GB3LER "going auroral again"
19	18z	1913	GM4PLM > GB3LER 51a
22	18z	1808	GM8LFB >GB3LER weak aurora
25	21z	2233	GM4WJA > OY6SMC 52a
27	21z	2259	LA4CQ > GB3LER 53a
28	12z	1449	LA4CQ >GB3LER 53A "on GP antenna"
28	15z	1555-17.34	LA4CQ > GB3LER, > G4DHF (IO92); GM8LFB > GB3LER
28	18	1844	LA4CQ> GB3LER "auroral again"

Auroral E

9	21z	2214-22.55	GM4PLM > SM3EVR 559, LA1IE (JP20) > G, G, GM <> LA
15	21z	2151-2226	GM8LFB (IO88) > JW9SIX (JQ94) 549
16	12z	1356	GM8LFB > OH9SIX 519
	18z	2039-21.00	G0CHE> LY2BAW 59 (presumed auroral E); G and GM <> TF 59
	21z	2100-2150 22.27-22.56	Many G and GM <> TF/G4ODA, TF/OZ5IQ, TF3EE, TF8VET; > TF3SIX G, GM <> TF, G > OH3XR, OH1SIX; G0PQO > OY6SMC; G4UZN > ES0SIX
23	21z	2121-2247	GM8LFB > JW9SIX 559, LA5TFA (JP99) 599, MM5AJW >JW9SIX 579
24	21z	2242	GM8LFB >JW9SIX 559
25	21z	2300	GM4PLM > OY6SMC 599, OH9SIX 559
27	21z	2230-2252 2341-2349	GM8LFB > OH9SIX 579, > OH8LAE (KP24) OH7KM (KP11) > GB3LER 599 in kp11, G4FVP (IO94) > OH9SIX 569

Tropospheric Propagation

A lot of "tropo" spots posted to the DX cluster this month, but most of these relate to contests (UK Six Metre Group on 7th/8th and the IARU /RSGB trophy contest on 21st/22nd). The majority of the contacts spotted are not particularly spectacular and seem to indicate a normal condition of the band that is only significantly exploited (and reported) during contests. I have discarded obviously short distance contacts but there's still plenty of medium range stuff (even some from G0AEV!)

3 2235 GM8LFB (IO88) > GB3LER 559
4 1857 F5NLY (JN08) > GW6TYO
4 2025 G3IMW > GD0TEP S5
5 1320 G3SVD (IO91) > F4TJE/P (IN98)
7 1442 G4OBK (IO94) > G8PL (JO01)
7 1929 DD3DJ (JO31) > G1ZJP (IO92)
7 2022 G0AEV (IO81) > ON4IQ (JO20) S7
8 0507 DL8PM (JO30) > G8PL (JO01) 59
9 0937 EI5FK > G4ASR 419
14 1140 G4IFX (IO91) > F6IKY/B (JN35) tropo? (*this would be an very good tropo distance for 6m*)
14 1653 G3SED (IO90) > TM6SME (IN99)
20 1532 DD3DJ (JO31) > G8TIC/P 59+
21 1404 DL1EAP (JO31) > G8T (JO01) 57
21 2006 DD5JK (JO31) > G8T 51
21 2030 G0AEV (IO80) > ON1BQI/P 503km S5; > PA6M 478km S5; > ON4LM 480km S5
21 2130 DK0UB (JO31) > GW6YB/P "permanently audible"
21 2204 DD3DJ (JO31) > M3S (IO91) 57
21 2220 G0AEV > ON7WR 463 km S3
21 2247 GM8OEG (IO86) > GW6YB/P (IO81) 57 "good tropo"
21 2251 G0AEV > PI4KGL 465 km S3
22 0518 PA5DD > MD6V
22 1029 G4OBK (IO94) > EI3IO (IO63) "Direct QTF Tropo?"
25 1349 PE1MZS (JO21) > G3SED (IO90) 529
26 1819 DJ3LE (JO44) > G4DEZ (JO03) 640 km tropo?
26 2221 GM8LFB > GB3LER/B 549
28 2217 MU0FAL (IN89) > GB3MCB "599 fb tropo"

Solar and Geomagnetic Data for June 2003

Data supplied by G0CAS (Sun Mag) and from Internet sources. Compilation by G0AEV.

Sunspot numbers (SEC)	Mean 118.4	Max 207 (10 th)	Min 54 (3 rd)
Solar Flux (28 MHz)	Mean 129.4	Max 193 (11 th)	Min 106 (4 th)

Solar data for June 2003 are presented in the table at the end of this section. Numbers in the 28 and 50 MHz columns are the total daily “areas” worked/heard from the UK, 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 and Aurora. F2 critical frequencies are from Chilton in Oxfordshire, SIDC spots from SIDC, and other solar data from the joint USAF/NOAA daily summaries or directly from SEC.

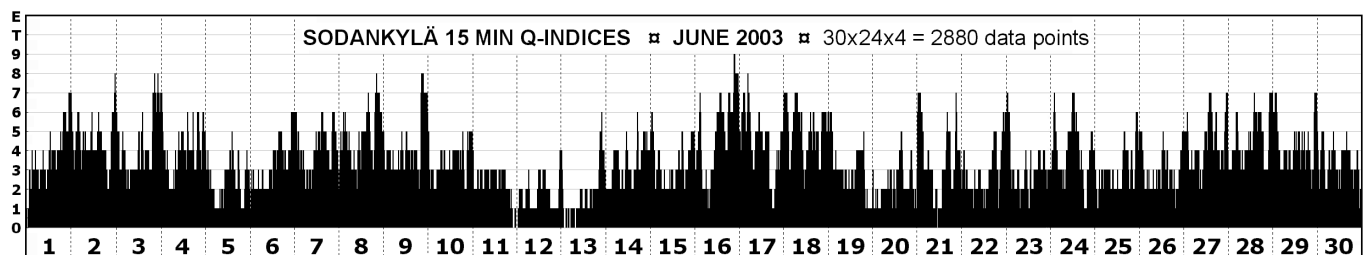
Solar flux and sunspot numbers are up from the monthly means seen last month (flux 116.2 to 129.4, SEC SSN 89.6 to 118.4) – but, of course, the overall trends are still downward!

Energetic Events

 (Flares of M and X class).

1 st	0223-0400	M1.4		10 th	1244-1317	M2.2		11 th	2141-2210	M2.9 SF
	1239-1256	M1.0			1408-1442	M2.2 SF			2319-0012	X1.3 2B
	1643-1659	M1.4 SF			1620-1627	M1.0 SF		12 th	0104-0152	M7.3 1F
	2058-2110	M1.0			1628-1632	M3.9			1358-1409	M1.0 SF
2 nd	0007-0043	M6.5 SF			1808-1826	M5.6			1706-1716	M1.1 SF
	0812-0852	M3.9 SF			2319-0012	X1.3			2122-2131	M2.6
	1722-1740	M1.8 SF		11 th	0301-0313	M1.8 SF		13 th	0154-0213	M3.1
6 th	2331-2358	M1.0 1F			1028-1035	M1.1 SF			0431-0443	M1.7 SF
8 th	1605-1615	M4.0 2N			1051-1132	M1.4			0628-0719	M1.8 SF
9 th	2131-2143	X1.7			1309-1337	M2.7		14 th	0507-0657	M1.5
	2219-2242	M1.4			1437-1547	M3.7 SF		16 th	1152-1204	M1.7 SF
10 th	0248-0301	M2.0 1N			1621-1650	M4.5		17 th	2227-2312	M6.8
	0834-0840	M2.7 1N			1727-1800	M1.8 1F		18 th	2227-2312	M6.8
	1055-1115	M5.1 2N			2001-2027	X1.6 1N				

Q-indices

 from Sodankylä, Finland (tnx Väinö, OH2LX)


The view of aurora from Finland suggests that June was another very disturbed month

Sodankylä: monthly Ak average = 38.5; most disturbed - 16 June with Ak = 70.

Nurmijarvi: monthly Ak average = 17.6; most disturbed - 18 June with Ak = 44.

K-indices. K indices for June 2003 for Hartland (British Geological Survey) are presented below

1	2	3	3	3	3	4	4	4	26	11	2	4	3	3	3	4	3	2	24	21	4	4	3	2	3	4	3	4	27
2	3	5	5	4	4	4	3	3	31	12	1	1	2	1	3	2	2	2	14	22	2	1	2	1	2	4	4	3	19
3	4	3	2	3	3	4	4	5	28	13	2	1	0	1	1	2	3	4	14	23	4	3	3	3	3	4	2	3	25
4	3	3	3	4	4	4	4	3	28	14	2	3	3	3	4	5	3	3	26	24	4	4	4	4	3	2	2	3	26
5	3	2	2	1	3	3	3	2	19	15	4	4	4	2	3	3	3	3	26	25	2	2	3	3	3	4	3	4	24
6	2	2	2	3	3	4	3	3	22	16	3	5	2	4	4	4	5	4	31	26	3	3	3	3	3	3	3	3	24
7	4	3	3	3	4	4	4	4	29	17	4	5	5	4	5	5	4	3	35	27	4	3	4	3	4	5	4	3	30
8	3	4	3	3	3	5	5	5	31	18	4	4	6	5	3	5	4	3	34	28	3	4	4	5	5	5	4	4	34
9	3	3	3	4	3	4	4	5	29	19	3	3	2	2	3	3	4	2	22	29	3	3	4	4	4	4	3	4	29
10	3	2	5	4	3	4	3	2	26	20	1	2	2	2	3	3	3	3	19	30	3	4	4	3	2	3	3	2	24

The UK or planetary K indices reach 5 or higher (i.e. at least minor storm) on 20 days

	June 2 nd	June 3 rd	June 4 th
Kp	5 4 6 6 4 4 3 4 36	4 3 4 4 4 4 4 5 32	4 3 3 4 4 4 4 3 29
Lerwick	3 4 4 4 4 4 2 6 31	6 2 2 3 4 4 4 4 29	3 2 2 3 4 3 4 3 24
Eskdale	3 4 4 4 4 4 3 5 31	5 3 2 3 4 4 4 5 30	3 3 2 3 5 4 4 3 27
Hartland	3 5 5 4 4 4 3 3 31	4 3 2 3 3 4 4 5 28	3 3 3 4 4 4 4 3 28
	June 7 th	June 8 th	June 9 th
Kp	4 4 4 4 4 4 4 5 33	4 5 4 3 3 4 4 4 31	3 4 4 4 3 3 4 6 31
Lerwick	3 3 2 3 5 4 2 3 25	3 4 2 3 4 5 4 5 30	2 3 3 3 3 4 3 5 26
Eskdale	4 3 3 3 5 4 3 4 29	3 3 3 3 4 5 5 5 31	2 3 3 4 3 4 4 5 28
Hartland	4 3 3 3 4 4 4 4 29	3 4 3 3 3 5 5 5 31	3 3 3 4 3 4 4 5 29
	June 10 th	June 14 th	June 15 th
Kp	4 3 6 4 4 4 4 3 32	3 4 5 5 4 5 5 4 35	4 5 3 3 3 3 4 3 28
Lerwick	5 2 4 3 3 3 3 2 25	2 3 3 3 4 4 3 3 25	3 4 3 2 4 3 2 2 23
Eskdale	3 2 4 4 3 4 3 2 25	2 3 3 3 5 5 3 3 27	3 4 3 3 4 3 3 2 25
Hartland	3 2 5 4 3 4 3 2 26	2 3 3 3 4 5 3 3 26	4 4 4 2 3 3 3 3 26
	June 16 th	June 17 th	June 18 th
Kp	4 5 2 5 4 3 5 6 34	5 6 6 6 4 4 4 4 39	5 6 7 6 4 4 4 4 40
Lerwick	3 4 2 4 4 4 6 6 33	6 5 4 4 4 4 2 4 33	5 5 6 6 4 5 4 3 38
Eskdale	3 4 3 4 4 4 5 4 31	5 5 5 4 5 5 3 3 35	4 4 6 5 3 5 4 4 35
Hartland	3 5 2 4 4 4 5 4 31	4 5 5 4 5 5 4 3 35	4 4 6 5 3 5 4 3 34
	June 19 th	June 21 st	June 23 rd
Kp	5 4 4 3 3 3 3 2 27	4 4 5 3 3 4 3 3 29	4 5 4 4 3 3 3 3 29
Lerwick	4 3 2 2 2 3 3 1 20	4 3 3 1 3 4 2 4 24	3 3 3 3 3 3 2 3 23
Eskdale	3 3 2 3 3 3 3 1 21	4 3 3 1 3 4 3 4 25	3 3 3 3 3 4 3 3 25
Hartland	3 3 2 2 3 3 4 2 22	4 4 3 2 3 4 3 4 27	4 3 3 3 3 4 2 3 25
	June 24 th	June 27 th	June 28 th
Kp	4 5 5 5 5 3 3 3 33	4 4 6 4 4 4 4 3 33	3 5 3 6 5 4 4 4 34
Lerwick	4 3 4 4 3 2 2 3 25	4 3 4 3 4 5 3 3 29	3 4 3 5 5 5 4 4 33
Eskdale	3 3 3 3 3 3 2 3 23	4 3 3 3 4 4 3 3 27	3 4 3 4 4 5 3 3 29
Hartland	4 4 4 4 3 2 2 3 26	4 3 4 3 4 5 4 3 30	3 4 4 5 5 5 4 4 34
	June 29 th	June 30 th	
Kp	4 3 5 5 4 3 4 4 32	4 4 5 4 3 3 3 3 29	
Lerwick	3 3 4 4 3 3 4 4 28	3 3 3 3 2 3 3 2 22	
Eskdale	3 3 3 4 3 3 3 3 25	3 3 3 2 2 3 2 2 20	
Hartland	3 3 4 4 4 4 3 4 29	3 4 4 3 2 3 3 2 24	

June 2003	28 Areas			-- 50 Areas --			2800		- Spots -		Max Kp	X-ray		Min foF2		-- Particle Fluences --					
	Es	F	Es	F	Es	AE	Flux	SEC	SIDC	Aa		b.gnd	Max foF2 MHz	Min foF2 MHz	Hour	Hour	2MEV Elec	1MEV Prot	10MEV Prot		
01-Jun	5	6	2	0	2	0	112	66	42	4	19	35	B6.8	n.a.	n.a.	1.8E+07	2.8E+06	6.7E+04			
02-Jun	3	5	7	0	0	0	121	61	38	6	39	60	C1.1	5.8	21	n.a.	1.1E+06	4.8E+05	1.2E+04		
03-Jun	6	9	13	0	3	0	115	54	40	5	26	44	B3.8	7.2	18	3.9	03	6.5E+07	7.6E+05	1.0E+04	
04-Jun	10	11	18	2	0	0	106	74	47	4	21	37	B2.4	7.4	20	3.8	06	1.2E+08	2.1E+06	1.0E+04	
05-Jun	13	11	28	1	0	0	114	95	59	3	13	23	B3.6	7.9	20	3.8	03	2.7E+08	1.3E+06	1.0E+04	
06-Jun	12	8	19	0	0	0	126	98	86	3	13	25	B5.7	7.7	21	3.8	03	2.6E+08	8.9E+05	1.1E+04	
07-Jun	13	7	30	0	1	0	133	125	98	5	24	40	B6.2	7.3	20	4.5	05	1.2E+08	8.5E+05	1.0E+04	
08-Jun	8	8	16	0	4	0	153	167	101	5	27	53	B7.9	7.2	19	3.7	06	2.5E+07	9.7E+05	1.0E+04	
09-Jun	10	4	25	0	3	2	158	176	111	6	28	46	C1.8	7.4	21	3.4	04	6.4E+07	7.0E+05	1.1E+04	
10-Jun	9	7	20	0	0	0	177	207	111	6	27	37	C2.1	7.0	20	4.1	04	1.3E+08	5.0E+06	1.1E+04	
11-Jun	2	6	5	0	0	0	193	178	116	4	15	26	C3.3	7.9	21	4.5	04	1.3E+08	5.9E+05	1.1E+04	
12-Jun	2	6	13	0	0	0	164	168	115	3	11	13	C1.8	8.0	20	5.6	04	2.2E+08	9.2E+05	1.1E+04	
13-Jun	10	8	10	0	0	0	151	149	96	4	11	15	C2.1	8.4	20	5.2	04	2.1E+08	1.1E+06	1.2E+04	
14-Jun	6	12	11	2	0	0	134	91	81	5	32	46	C1.2	7.8	10	5.1	04	8.3E+06	7.5E+05	1.1E+04	
15-Jun	12	9	13	0	0	1	129	111	63	5	20	37	B5.8	7.9	21	3.7	03	6.4E+06	3.2E+05	1.3E+04	
16-Jun	12	5	18	0	3	5	123	91	57	6	32	63	B3.6	n.a.	n.a.	n.a.	n.a.	1.8E+06	1.8E+04	1.7E+04	
17-Jun	17	7	29	0	0	0	122	80	56	6	50	71	B2.8	n.a.	n.a.	n.a.	n.a.	8.0E+06	7.9E+05	1.8E+04	
18-Jun	12	3	10	0	4	0	120	99	68	7	54	81	B3.2	5.4	07	3.9	03	2.3E+06	2.5E+07	1.4E+06	
19-Jun	12	3	16	0	1	0	123	108	76	5	18	23	B2.9	5.8	18	2.9	03	1.6E+07	n.a.	n.a.	
20-Jun	17	8	26	0	0	0	117	121	74	3	12	23	B2.0	7.4	17	4.1	03	n.a.	n.a.	n.a.	
21-Jun	15	6	21	1	0	0	115	118	62	5	23	45	n.a.	6.0	20	3.9	03	n.a.	n.a.	n.a.	
22-Jun	15	7	25	0	1	0	110	94	61	4	16	27	n.a.	7.8	20	4.4	04	n.a.	n.a.	n.a.	
23-Jun	13	5	18	1	0	2	114	104	66	5	20	36	B1.9	7.0	22	3.9	03	1.4E+08	3.1E+06	1.2E+04	
24-Jun	11	4	21	0	0	1	115	131	68	5	31	44	B2.9	6.6	22	4.1	03	2.3E+07	1.7E+06	1.0E+04	
25-Jun	9	8	14	0	1	2	116	115	76	4	19	34	B2.4	7.1	20	4.9	04	8.7E+07	1.2E+06	9.4E+03	
26-Jun	21	7	37	0	0	0	119	122	82	4	19	34	B3.7	6.8	22	n.a.	n.a.	1.8E+08	1.3E+06	9.3E+03	
27-Jun	9	8	16	0	1	1	124	128	93	6	28	50	B3.8	6.1	22	3.2	05	3.8E+07	1.4E+06	9.6E+03	
28-Jun	16	8	19	0	3	0	124	151	93	6	32	62	B4.1	6.9	18	3.7	03	4.0E+07	2.1E+06	9.8E+03	
29-Jun	18	7	30	1	0	0	127	112	94	5	26	41	B3.7	n.a.	n.a.	3.8	03	9.4E+07	2.3E+06	1.1E+04	
30-Jun	9	4	20	2	0	0	128	159	92	5	20	33	B4.5	6.9	20	3.7	04	1.7E+08	1.2E+06	1.0E+04	
Sum	327	207	550	10	27	14															
Average	10.9	6.9	18.3	0.3	0.9	0.5	129.4	118.4	77.4	4.8	24.2	40.1	B7.8	7.1	19	4.1	04	9.1E+07	2.4E+06	6.7E+04	
Maximum	21	12	37	2	4	5	193	207	116	7	54	81	C3.3	8.4	22	5.6	06	2.7E+08	2.5E+07	1.4E+06	
Minimum	2	3	2	0	0	0	106	54	38	3	11	13	B1.9	5.4	07	2.9	03	1.1E+06	3.2E+05	9.3E+03	

50 MHz Outside Britain

Compilation and Commentary by G3USF

Europe

Auroral-Related Propagation

As G0AEV has already noted, by our customary yardstick, twenty days were in some measure 'disturbed'. Propagation that appeared to be auroral-related was reported in continental Europe on twenty days. However, substantial geomagnetic disturbance was mostly confined to the higher geomagnetic latitudes. Putting it another way, geomagnetic activity was frequently substantial enough to affect 28MHz (and sometimes lower bands), while not being so high as to bring aurora down to mid-latitudes. The worst of both worlds! G0AEV's earlier comments appear valid for Europe as a whole. A cautionary word: most experienced operators can assess whether a signal is 'auroral' and report accordingly. However, during the summer, T9 signals from far-north beacons may be normal Es or auroral E, so misidentification can only too easily creep in.

June 1 2100-2230 Au>OH5IY 2240-2400 Au>OH5

June 2 0000-30 Au>OH5 1440-1520 Au>OH5 2250-2400 Au>OH5 2330-40 AuFM>OH5

June 3 0000-50 Au>OH5 0630-40 AuFM>OH5 1430-50 Au>OH5 2030-2220 Au>OH5 2100-10 AuFM>OH5 2119 GB3LER>EI(IO53 51a) 2230-2350 Au>OH5

June 4 2303 LA7SIX>LA(J50 AE)

June 7 1510-20 Au>OH5

June 8 15-1600 GB3LER>LA(JP20 55a) 16-1700 OY6SMC>LA(JP20 44a) LA>OZ(7a) LA>OZ(JO58 55a) 1610-30 Au>OH5 1700-10 Au>OH5 17-1800 JW>OH3(KP21 559) GB3LER>EI(53a IO53) 20-2100 OH8>OH5(KP53 57a) OH9SIX>LA(JP20 599) LA>SP4(57 KO03) OH9SIX>OZ(539 AE) TF3SIX>SM3 JW9SIX>LA(JP20 539) OH9(KP46)>LA(JP50) 21-2200 TF>SM3 LA7SIX>ES1(KO29 599AE) OH9SIX>ES1(KO29 57a) OH8>OH5(KP53) OH8(KP53)>SM5(JO89) 2230-2320 Au>OH5

June 9 21-2400 Au>OH5 21-2200 GB3LER>EI(41a IO53) OH3(KP10)>SP2(JO94 57a 020) LA>SP2(KP32 55a 350) 22-2300 LA>EI(IO53 559 AE) OH3>EI(IO53 AE) OH9SIX>DL(mode?) 23-2400 OH9SIX>LA(JP50 AE) LA7SIX>LA(JP50 AE) LA(JP99)>LA(JP50 AE) GB3LER>EI(52a IO53) LA(JO59)>LY(KO25 59a) LY(KO25)>LA(JP50)

June 10 0000-20 Au>OH5

June 14 0555 JW9SIX>SM3(JP82 529 AE) 2159 OH9SIX>OZ(JO54 AE?)

June 16 1250-1640 Au>OH5 13-1400 OH9SIX>ES1(KO29 55a) OH5>OH6(56a) OH2>OH6(59a) OH3(KP25)>ES1(KO29 59a) 1350-1440 AuFM>OH5 14-1500 OH3(KP24)>OH4(KP31 59a) OH9SIX>ES1(KO29 59a 350) OH3(KP23)>SM0(JO99 57a) ES2>LA(mode?) LA(JP32)>SM0(mode?) 1700 R1,R2(UA)>OHtv/fm group 2150-2200 Au>OH5 2210-20 AuFM>OH5 2220-2400 Au>OH5 2240-50 AuFM>OH5

June 17 0000-20 Au>OH5 0150-0300 Au>OH5 0500-20 Au>OH5 21-2200 48250>F(59a 310) 22-2300 LA7SIX>OZ(599 AE?) 23-2400 TF>PA(JO22 59 mode?) TF>EI(mode?) LA>EI(mode?)

June 18 0140-0230 Au>OH5 02-0300 GB3LER>SP2(599 JO93 AE?) GB3RMK>SP2(599 JO93 AE?) OY6SMC>SP2(599 JO93 AE?) 0308 OY6SMC,GB3RMK>SP6(599 JO80 AE?) 0357 48240/250>F(JN08 599 AE?) SM3(JP73)>F(JN08 mode?) 0458 LX0SIX>LA(mode?) 0509 GB3LER>DL(JO71 59) 0516 OH9SIX>SM2(KP15 57a) 0540-50 Au>OH5 0548 49750>OH6(KP02 57a) 0610-0750 Au>OH5 0710-30 AuFM>OH5 0748 GB3LER>PA(fl) 0800-0900 Au>OH5 08-0900 OH9SIX>OH3(KP11 51a) 0800-10 AuFM>OH5 0820-30 AuFM>OH5 1440-1500 Au>OH5 1810-30 Au>OH5

June 19 0010-50 Au>OH5 0030-40 AuFM>OH5 0130-40 AuFM>OH5

June 21 0110-30 Au>OH5

June 22 19-2000 JW9SIX>SM0(mode?) 22-2300 LA7SIX>SM0(JO99 599) LA7SIX>LA(JO59 599)

June 24 1150-1320 Au>OH5 1220-30 AuFM>OH5 1250-1300 AuFM>OH5 1400-20 Au>OH5

June 25 22-2300 TF3SIX>EI(AE?)

June 26 2320-40 Au>OH5

June 27 0130-50 Au>OH5 1310-1520 Au>OH5 1400-30 AuFM>OH5 2240-2300 Au>OH5

June 28 1330-1530 Au>OH5 14-1500 OH8(KP25)>SM2(KP15) SM3>SM2(59a) SM2>OH3 SM0(JO99)>OH3(KP11 59a) GB3LER>LA(JP20 53a) 1400-20 AuFM>OH5 1555 GB3LER>LA(53a/529) 1630-40 Au>OH5 1641-1700 OZ(JO54)>LA(JP20 54a) G(IO92)>LA(JP20 53a) 1650-1700 Au>OH5 2200-50 Au>OH5 2300-20 Au>OH5
June 29 0000-0200 Au>OH5 2220-50 Au>OH5

Other Modes

June, as usual, produced substantial volumes of mainly sporadic-E every day from breakfast (or before) until bedtime. (There was also considerable evidence of Es scatter.) Even the most disturbed days at the middle of the month reported a good crop of contacts. As always, many openings were brief and localised, particularly the more intense ones or those involving multi-hop - though the tabulations below also show many events that lasted for a substantial time across a wide swathe. Incidentally, it appears to have been quite a good month for very high Es MUFs. In addition to the trans-Atlantic opening discussed above, DL8EBW lists openings at 144MHz on the 2nd (1730-2030), 4th (1900-2040), 6th (0930-1030) 16th (1523-1636), 17th (1615-1800) 20th (0948-1151 1418-1617) 22nd 0830-1300 to 171MHz). Openings above 50MHz but below 144 included the 5th (1750-1830 90.5MHz) 18th (0500-0530 67MHz), 19th (0800-1130 93MHz) 20th (0900-1030 90MHz) 24th (1600-1730 93MHz) 25th (1800-1900 92MHz), 28th (1230-1400 95MHz) and 29th (16-1700 93MHz).

For the next few years, midsummer rather than autumn will be the peak period for east-west DX working, whether by multihop Es or Es linking with tep or what little F2 may occur. Eastwards from western and central Europe, the month brought almost daily openings to UR, 4X, JY and OD, many of which required 2xEs. Beyond there, the possibilities are limited by restrictions on 50MHz operations, low activity levels and, of course, ocean. Nevertheless, the record includes **YA4F**, into G, DL, ON on the 16th, and DL,F,I,O,ON, PA and SV on the 30th, **UN6P** into DL,OE,SM,SP,S5 and 9A on the 9th,and again on the 28th into I and S5, **9M2TO** into Italy on the 2nd, **VR2XMT** with 5B on the 3rd and IT9 on the 19th. **HZ1MD** was worked from the Mediterranean on the 1st, SP on the 3rd, 9H on the 25th and I and SV on the 26th. There were openings to **A61AJ** on the 9th from DL, ES, G,OK,ON,OZ,PA, SV1 and SV8, the 13th from CT the 19th from I, S5, T9 and 9A, the 26th from DL and F and the 28th from CT,EA,EA6,I,IT9,SV,YU and 9H. **A45XR** was into DL on the 9th. SV1DH reports **VK8MS** briefly on the 13th and **JA** weakly on the 28th. **YC1HER**, which might just be a mishearing for a YU station, was reported in 5B and IT9 on the 19th but **YB0DPO** into 4X around the same time looks sure enough. Among openings that appear not to have made it to the European mainland were **BG9BA**, **JA5AIE** and **9M2TO** into 5B on the 12th, **BG9BA** again into 5B on the 15th and 29th, along with **UK** and **UO** on the latter date. **VK8MS** was reported in 5B on the 19th. **JA** is also thought to have been worked from 5B on the 23rd, 27th and 28th, with an unidentified **UA0(SC?)** also on the 27th. In all, a reasonably impressive total, outshining 2002.

Africa was a different matter. Seasonal factors and cyclical decline resulted in meagre results. The only reports from the South were of **7Q7SIX** into F and G on the 14th, G on the 23rd and ON on the 29th. West Africa was rather more productive; **TR0A** was heard in G on the 4th and 7th, DL on the 5th and PA on the 10th, while the **5T6M** expedition caught some excellent openings at the end of the month with DL,EA,G,I,IT9,ON,S5 and 9A on the 29th and DL,EA,F,G,I,IT9,LY,OE,OK,ON,PA,SV,9A and 9H on the 30th. While expeditions invariably give rise to increased reporting, these results may hint at what might have been achieved had there been greater activity. **D44TD** was into DL,OE and 9A on the 10th, EA on the 11th, DL and HB on the 25th and SM on the 29th. Apart from CN, EA8 and CT3 the only other Africans were **SU1SK** on the 7th(I) and 13th(EA, SV) and **S01HA** worked from DL,ON and PA on the 16th.

However, the main DX of the month came from the West. What we know about propagation between Europe and W/VE overwhelmingly arises from European operators. Typically, openings attract ten times as many spots from Europe as from the US or Canada, albeit there is a handful of conscientious North American reporters. It is unclear just why this is the case, though it is a continuing pattern on which we have commented previously: this month the only known opening between Japan and VE7/W7, no routine event, was reported only from the Japanese side. A reminder, then, that this Report can only deal with what is reported and that propagation may actually have been a bit better than we find here. And, while on

reminders, callsigns given in full are either 'DX' or beacons. And, as far as possible, US stations have been assigned to their 'true' call area, with (eg) "/1" added in the detailed listings even though this may not have been transmitted.

Countries along the Mediterranean had a relatively good month, with openings notified on 8 days (2002 5, 2001 6, 2000 13), as SV1DH's report bears witness. So did Iberia with 11 days (2002 12, 2001 8, 2000 15). However, notwithstanding the remarkable propagation on the 26th, already discussed by G0AEV and not known to have been paralleled on the continent, countries further north were down a shade at 10 days (2002 17, 2001 8, 2000 12). All openings appeared to be over a direct path and by multihop Es.

Europe<>US/Canada

	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<>US/Canada

	'Mediterranean'	'Iberia'	'Northern Europe'
W1	6 days 6,13,21,24-26	6 days 6,7,10,21,23-25,29	4 days 6(DL) 20(G) 25(G,HB) 26(DL,EI,ES,G,LY,OK,OZ,SP)
W2	2 days 6,21	5 days 6,7,10,21,25	
W3	2 days 6,21	4 days 10,21,23,25	1 day 26(G,ON,OZ)
W4	4 days 6,20,21,23	7 days 6,10,11,16,21,23,25	3 days 20(G,OZ,SM) 23(DL,EI,G,PA) 26(G)
W5	1 day 6	2 days 21 25	1 day? 26(PA?)
W8	1 day 6	1 day 23	1 day 23(G)
W9		1 day 6	
VE1	4 days 6,7,13,26	4 days 6,19,24,25	4 days 5(EI) 6(DL,HB,PA) 25(G) 26(DL,EI,ES,G,HB,OZ,PA,SP)
VE2	1 day 26		1 day 26(DL)
VE3	1 day 26	2 days 11,21	1 day 26(G,ON)
VE8			3 days 21(G) 25(G) 29(G)
VE9			1 day 26(DL,LY)
VY2			1 day 26(ES,G)
VO1	1 day 26	2 days 23,29	3 days 23(G) 25(EI,G) 26(DL,G)
FP		1 day 7	1 day 7(G)

June was also a productive month for propagation between Europe and the rest of the Americas. South and Central America - indeed everything south of the Rio Grande - are grouped here because it seems reasonably clear that the primary mechanism was multihop Es. As usual at this period propagation favoured the northern fringe of South America rather than areas below the Equator, with northern Europe working into that region more readily than Iberia or the Mediterranean. However, all areas had a relatively good month into the Caribbean. The Mediterranean was up from 2 days in 2002 to 8, Iberia from 2 to 7 and northern Europe from 3(or possibly 4) days to 10. Openings also reached a wider range of countries than in most recent years. In addition to the compilation in the box below, PJ was worked only from France on the 12th, FM on the 11th, KP4 on the 6th and FG on the 13th. (Being both 'Mediterranean' and 'Northern' French results are not normally included in these tabulations though they are in the detailed record.)

The June pattern of ionization appears to have been somewhat more southerly than in the past year or so. Unusually, three stations were active from VP9, while W6JKV activated C6. Results from the region might have been somewhat better if there had been more beacons. The good news is that VP9DUB/b has subsequently begun transmissions and there are hopes of a Caribbean beacon.

Europe<>South/Cemtral America, Caribbean and C6,VP9

	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>South America-Central America-Caribbean+C6,VP9

	'Mediterranean'	Iberia'	'Northern Europe'
PY	3 days 12,19,30	1 day 12	5 days 5(4U) 12(DL) 14(G) 24(DL,LY) 25(DL,OZ,PA) 30(DL,EI,G,LX,ON,PA,SP)
LU			1 day 30(PA)
FY			1 day 14(G)
YV			2 days 12(EI,G) 15(G)
HC		1 day 29	
ZD8			1 day 28(G)
<hr/>			
C6	1 day 29	1 day 29	1 day 29 (DL,G)
FG	1 day 29	1 day 29	2 days 15(G) 29(G,OM)
FJ			2 days 5(G) 15(DL,G,ON,PA)
FM	3 days 12,26,29	2 days 12 29	4 days 4(G)12(EI,G) 26(DL,G,OZ,PA) 29(DL,G,HB,OK,OM,SP)
HI			1 day 5(G,ON)
KP2	3 days 12 14 15		2 days 12(G) 15 (DL,G,PA)
KP4	2 days 11,19	3 days 11,12,19	4 days 5(DL,G,LX,ON,PA) 10(EI,G) 12(G) 15(G)
TG			1 day 23(G)
TI	1 day 14	1 day 14	
V2	1 day 12	2 days 12,13	1 day 12(EI,G) 15(G)
VP9	1 day 29	3 days 13,16,29	3 days 15(G) 16(G) 23(PA)
ZF	1 day 5	1 day 29	
8P			1 day 12(EI,G)
9Y	2 days 11,12	3 days 11 30	2 days 12(G) 30(G)

June 1 07-0800 LY>DL,9A 4X>I6 5B4CY>I9 I0>CN,YU1 08-0900 TA2>IS0,CN SV1SIX>I0,T7,DL 4X4SIX>I0,11 4X>EA7,T7,SV1 LY>ON,OZ,PA SV9SIX>T7,I2,11 HZ1MD>IS0 I0>I2 LZ2>I9 I9>CN SV1>I4 09-1000 4X>I1,I5 LY>ON,YL2,DL,SP2 T7>SV1 UU6>I5 TA2,5B4CY>IS0 9H>I110-1100 9H>F,YO3,I3 TA2>I7 LY>PA SV9SIX>YO3 ZA3>EA5 11-1200 EH7>I4,I8,PA 9H>I4,EA1,DL LX0SIX>CN I2>I0(bs) 12-1300 I3>I0 SV1SIX>EA7 I2>DL EH7,EH1>ON I0>I9 9H1SIX>DL PA>F F>CN 13-1400 9H1SIX>EA5 ZA3>I2,I4,I7 EH9>9H SV9SIX>T7 TA2>OE6,9A,OE3 OE6>S5 16-1700 SV8>HB EH9>I9 4X>S5 UU2,TA2>I9 ZA3>I8 SV9SIX>YO3 2038 9H>IS0 22-2300 I9>I8 UR>I9 SV9SIX>HA5 23-2400 SV1SIX,SV9SIX>I1

June 2 05-0600 9M2TO>I7 06-0700 SV9SIX>I0,9A SV1SIX>DL,OM3 LZ1JH,I9>S5 S5>I1(t) 07-0800 ZA3>I0 9H1SIX>I2 I9,SV9SIX>I1 I6>S5 I4>F T9>I9 SV1IX>DL,I4,I7 OD5SIX>I0 UR>I9 08-0900 I9>ON,I1 ZA3>I8,I0,I9 OD5SIX>I0 SV1SIX>DL I9>YO7 SV3>I5 09-1000 SV1SIX>DL I9,SV3>YO7 9H1SIX,I9>EA5 SV9SIX>SP6 I7>I0 4X4SIX>I0 ZA3>F,IS0,DL,I7 EH6>I9 4X,I8,YU1>9A LZ1>I1,9H I9>SP6 10-1100 YT4>9H OE3>IS0 I9>I1,PA,SP6,SP2 ZA3>I7,I0,F OD5SIX,SV5SIX>OE6 EH5>I7 I8>9A 11-1200 SV9>ON,OE6,9A,I8,I2 Z3>I8,I4 ZA3>YO7 EH5>I5 9H1SIX>SP2,DL OE6>I9 I1,I0,I9>SV1 YO3KWJ>EA6 Z3,I8>EA5 SP7>I9 I8>DL 12-1300 Z3>I5 I8,I9>DL I0>I2(t) I9>9A 9A,S5,HB0>EA5 ZA3>DL,PA UR>I9 13-1400 9H1SIX>DL SV9SIX>DL,SP6 SV3,SV1SIX>DL I9>9A,DL I8>ON YU1>I9,IS0 EH7>I5,I1,9A SV3,ZA3>I5 LZ2>I0 YO5>IS0 ZA3>I1 LZ2>I0 I2>EA5 14-1500 9H>I2 SV9>OE2,SP6 I8,I9,ZA3>DL 9A1CAL>EA5 LZ2>I5 ZA3>F,PA,DL I9>SP1 I6>I5,PA 15-1600 ZA3,GU>F EH6>SP6 EA5>PA,I5 EH1>I2,I5 DL,F>I9 16-1700 ON>EA3 YO3KWJ>F I9>SP2,DL LY,EI,YL3,UR,ZA3>I9 EH1>I1 SV1SIX>SP2 I0>SP6 OM3>DL,SP2 EH8,I1,OD>9A SP8,YO8>I5 ZA3,SV1SIX> DL I8,9H,LZ2>PA T9>LX,ON UR>I8,IS0 4X>F I9>CT 17-1800 OD,T9>F 9H>DL,LY LZ3>I7 OE3XBL>I0 SQ8>EA3,I9,9H I7>PA IZ1EPM,EH3>9A SV8>OZ T9>HB,I2,DL,ON 9A>HB LZ2>I2 ZA3,I6,I8>DL PA>9A OM1,UR>EA3 I0>SQ3 S5>EA3 YO7,9A,YU1>HB OZ>I9 LZ2>EA3,LX F>ON LZ3>LX I7>PA I9>OK1 18-1900 T9>ON Z3,ZA3,YO3>I2 LZ2CC>LX UR>EA3,I3,I1,I5 I9>DL,LY,YO2 T7>EA3 LY>YL2 ZA3>I4,EA5,I0,I5,HB SV8>PA,DL YO9>EA3 LZ2>DL I9>HA5,S5 19-2000 9H>DL,HA5 OD>F,OE3 LZ1,LZ5>OE3 ON>9H EH5>I5 S5>I9,9H LY>YL2 9H,4X,JY>F I9>I1,HB,DL,OK1 SV7>OK1 I3>CT SV2>ON YO7>S5 20-2100 I8>PA,S5 4X>F,LZ2 SV2>I1 I9>OZ,PA,DL,S5,LX,9A EH9>HB F>I7 YO3KWJ>OZ 9H>ON,EA3,DL T9>EA7 I5>F TA2>I5 I0>DL,ON,PA 9A>EA5 Z3>CT 21-2200 I9,EH6,CT>9A 9A>EA1,EA2,OH2 9H>I2,EA3,OK2,SM6 SM3>DL I4>OH2 I9>F,EA3 OM3>EA3 YU1>EA7 YL2>I1,I2,EA3 F>I5 G,GW>OK2 YU1,ZA3>EA1 22-2300 ES2>OH2 ES0SIX>OE6 9H,I0JX>F LA>YU1 9H>CN LA,YL2,OZ6VHF>I5 EH7>I9 LA>EI

June 3 0516 F,OD5SIX>YO7 SV1SIX>SP2,SP6 SV9SIX>SP6 GB3IOJ,F,SM0>9A LA>I7 OE3XLB>HA1 06-0700 SV8>9A SV2,I9>YO7 4X>I9 G>I7,I5 LZ1JH,I8>SP6 I7>SP5 EH5>SP2,SP5 ON0SIX,EH5>HA1 LZ2CM,YU1EO,IZ1EPM>PA 9H1SIX>PA,SP6 F,G>YO2 4X4SIX>YO3 G>5B 07-0800 F>SP6 EH5>LZ2,DL LZ1,LZ2CC>DL LZ1JH,LZ2CM>PA LY>I9 PA,F>OK2 G>I0 OD>9H 4X4SIX,YO7>DL UR>EA7 08-0900 YU1,4X4SIX,5B,SV1SIX,JY>PA Z3>DL,ON 5B>DL LY>SP6 YT4>SM7 YO7>F SV9SIX,EH5>DL SQ8>EA5 JY>OM3,9A OH6>OH2 09-1000 LY,EH2>S5 I8,4X>PA F>I8 VR2XMT>5B GW,LZ3>PA IS0,4B>9A 10-1100 EH2,I8,I9>9A LZ2CC>I5 F>YO2,I0 TA2>OM3,I4 SV1SIX,9H1SIX>DL I8>S5 UR>4X 11-1200 ZB2>OE6 I5MXX>I9 UR,LZ2>4X OD>LZ5 CN8MC>HA1 9H1SIX>DL,OE5 LZ1>CN SV9SIX>DL CN>OE2 9H>DL,I5 I9>PA,I5,DL I8>PA 5B>LZ5,EH3,YO2 12-1300 9H>PA,OE5 HB>SV1 CN>OE2,EA7 I9>HA1 SV9>YO2,IS0 TA2>J4,I9 13-1400 LZ3>I5 TA2>I0 ZA3>EH3,I2,PA YT1>I5,EA5 Z3>I5 DL>I7,I0 I6>PA I9>I1 LY>DL,SP2 EH7,SV1SIX>S5 9AA>SV1 LZ1>I2 14-1500 I8>DL SV1>PA LZ1>9A SV1SIX,SV9SIX>SP6 LZ2CC,LZ1>I2 LY>SP,I9 15-1600 T7>9A LY>SP6,SV1,SP2 UR>I5,OE6 16-1700 LY>SP2 UR>I5 CN>EA5 HZ1MD>5B 17-1800 CN,IK5ZUL>S5 HZ1MD>SP4,5B EH4,CT,EH7,S5>EA8 UR>9A,SP6,SP9,S5,OZ,DL I6>SP9 ZA3>OZ,ON,DL LY>LZ5 LZ2CM>PA 18-1900 ZA3,OK1>DL,PA UR>DL,OK1,9A,SP6,OK1,S5 SV8>DL,PA Z3>ON,PA,DL SM7>I9 19-2000 LZ2CC,YO9,YO3>F LY,SM7>I9 LZ2>ON TA1>DL,OK1,PA UR>I1,I4,HB SV1SIX>OZ YO3>PA YU1>F OD5SIX,LZ3,4X4SIX,LZ1>DL YT1,DL>LX 20-2100 UR>DL,I5,ON 5B4CY>DL LY>I5,I7,I6,9A SV8>OK1,DL OZ>I7 YU1>PA TA1,YT7,LZ1,4X4SIX,LZ5>DL 3A>I5 YO3>F,DL,PA Z3>SP9 LZ5>OZ 21-2200 YO3>PA UR>DL,F,I2,I7,SM3 LY>I5,9A,I7,SP2,I9,SP6 ES1>I5,I9 SV8,ZA3>DL 9H>SP2 YU1>F Z3>I1 YU1>SM3 LZ2CC>F 22-2300 9H>OE1 SM4>I9 LY>I5 9H>DL

June 4 08-0900 GB3RMK>PA,SM3 SV9SIX,SX9G>I8 SX9G>9A,OE6,DL,OE5 SV1SIX>I9 SV9SIX>DL I8>I0 09-1000 OD>I9 SX9G>HB,DL,I2 9H,UR>LZ2 YO3KWJ>DL 10-1100 SX9G>I5,I9 9H1SIX>4U,DL,OE6 LZ1SIX>PA CT0SIX>I9 11-1200 9H1SIX>I2 SX9G>9H LZ2CC>PA,DL LZ1>PA YO3KWJ>DL 12-1300 F>9H 13-1400 I8>PA,I5 I9>DL,I0 14-1500 I9,I0JX,T7>OZ I9>SM7,OZ PI7SIX>9A SM7>I5 IZ1EPM>SP2 T7>I4 GW>HA1 15-1600 G>9A T7>DL CN8MC>I5 16-1700 F,GB3IOJ>9A G>I5 F>SP4 GB3MCB>I3 IW3FZQ>I5 I0,EH5>PA G>9H,I8 EH2>SP6 I0,I5>ON IS0,CT>DL 17-1800 GW,G>I8 CT>SP6 F>I3 PA>CT EH3,CT,EH7,EH1>DL G>EA5,I0 18-1900 EH5>OZ EH7,EH9>ON F>T7 IZ1EPM>I2 EH2>SP6 EH7>SP6 CN8MC>EI,F CT0SIX>EI,F 19-2000 CN,EH8>PA TR0A,3Ctv>G G>CN,SP2 I3>I5 CT>SM6,EI,F,HB,ON,PA,9A EH1>DL,F,ON F>SP6,SP9 EH1>F 20-2100 EH1,EH5,EH7,CT>PA EH2>F,CN EH9>I8 GB3MCB>OE3 EH7>EH1,ON I3>EH7 ON>CT EH1>HB,DL,F EH9>DL,ON I5>I1 EH2,EH4,EH8>DL F>EH5,9A GJ>F(bs),I1 GU>CN,9A,CT CN>EI,EA1 EH8>SM6 21-2200 EH9,CT3>I5 EH3,EH2>OZ EH5>OZ,9A G>CT CN>DL,I1,I5 CT0SIX>DL CT3,EH2,EH3>DL G>EA1 I5>F,EI,I1 EH1>DL I1>EI 22-2300 CN>PA,EI F>EH5,ON CT>I1 EH1>F,EI 9H>EI EH5>DL GM>CT F,9H>EI EH1>PA 23-2400 EH1>I0 I1>EI CT>PA

June 5 00-0100 GM,GB3MCB>CT 05-0600 ES3>LZ2 06-0700 ES0SIX>SP6 07-0800 CN8MC>F,I5 OZ7IGY>LZ2 LZ3,YU1EO>OZ LZ3>DL YU8>SM6,OZ LZ2CC>PA LX0SIX>YO8 YO3KWJ>PA LZ1>DL PI7SIX>Z2 YL2>I5 08-0900 CN8MC>F EH7,EH4>I9 OK2>I5 T9,Z3,9A,UR>DL LZ1JH,LZ2CC,LZ3>PA EH7>I8 ON>YO8,YO2 EH7>F F>YO8,ON 09-1000 YU1,SV1SIX,YO3KWJ,YT4,UR,I8,T9>PA LZ3>ON HB>YO8,SP9 OK2,S5,I9,SX9G>DL GB3RMK,PI7SIX,OE3XLB,G>HA1 OK2>I9 CT0SIX>F,EA7 10-1100 CN8MC>I5,4U,EA1 EH9>F SV1SIX>4U YO7>OZ F>EH7,EH9 ES1,9H1SIX>9A,I4 4X>DL,OZ ES2,OH2,OE6>S5 OK1>SP9 9H,YO2,5B>DL HB>SP2 SK0>S5,I2

LZ1JH>SP6 11-1200 I8>SK0 I9>I7 4X4SIX>LZ2 9H1SIX>I6,LZ2 OD5SIX>LZ2 SV1SIX>I9 SV9SIX>I6,I9
OY6SMC>DL 5B4CY>I9,SP9 12-1300 I9>LZ2,SP9 4X,I9,SV1SIX>SP9 CN8MC>LZ2,F 4X>I5 OZ7IGY>EI I9>SP6
4X>I4 13-1400 GW>SM3 OZ6VHF,EH7>EI UR>I9 CT0SIX>PA I9>9A CN8MC>OH5,F,EI 14-1500 ZB2,EH7>EI
EH1>PA,DL SV1SIX>DL 9H1SIX>SP9 I9>LZ2 15-1600 F,OK2>I8 I9>LZ2,IS0,OK1 CT>F OK1>9H SV1SIX>DL,4U
SV9SIX,I9>DL GM>EA1 9H>HA1 KP4EIT>OK1,LX,F,DL ZF1DC>I9 CN8MC>F,4U SX9G>DL,I5 LZ2CC>4U 4X>9A
16-1700 KP4EIT>G,DL,PA,I8 5B>I1 HI8ROX>G,ON,GM SX9G>DL,I1,I2,9A 5B>9A I6>EA7 WP4LNY>G,DL GU>EI
EH5>HA1 OD>S5 SV9SIX>HA1 EI>DL,I9 17-1800 ON>PA I9>I2 HI8ROX>ON,G EI>ON 4U>I9 LZ2>LX,HA1
KP4EIT>DL,ON,PA EH1>F UR>I5 T9,YO3>EA7 EI>CN EH5,EI>PA,ON I9>I1,EA2 4X>LY YT1>EA5 9H1SIX>4U
I3,T9>EA5 KP4NIX>G,PA EH7>I9 LZ1>DL YU1>LX SX9G>DL 4U>9A(bs) EI>CT GB3LER>4U GM>HA1 18-1900
LA>OZ JY>LY,DL 4U>CT,OM3,5B I2>EA1 SV8,SP2>LY SV7>HB 9A>F 5B4CY>DL TF>CT SV8>PA,I8 IS0,CT>EI
SX9G>DL 4X>ON,OE8 EH5>DL YU1>LY 19-2000 T7,GD>EI SX9G>CT,F,DL,LZ3 4U,OD,F,JY>DL LZ3>CT,EA7
9H>EA3 SV8,EH7,JY>I5 4X>9H EH1,EH5>PA SV9>CT,DL OD5SIX>DL 5B4CY>SP4 SV8,SV9>ON 4U>EI F>F
JY>CT,9A 20-2100 JY,I9,OD,4X4SIX,9H>I5 SV8>F,LX,OE6,I7 I9>CT,I5,PA,LX EH1>S5 SV9>9H,I8 CN8MC>DL
CN>9A EH5,VE1HY>EI 9H>CT 21-2200 SV8>I8 G,I9,LZ1>CN SX9G>OE6 EH7>9A SV7>CT 22-2300 I9>CN,CT
I5,PA,F>CT LZ1>CN VO1ZA>EA7 9H>CT,I1 EH7>I9

June 6 0527 ES0SIX>SP6 0636 UR>9A 07-0800 LZ2>I1 G>CT UR>9A SV9SIX,SV1SIX>DL I9>SP6 08-0900 4X>S5
CN8MC>EI,EA3 SV8>OE6,HB,DL,9A SX9G>HB,OE6,YO2 HB>ON EH8>PA Z3>OK1 SV9SIX>SP3 09-1000
CN8MC>EA3,HB,F,SP2 CT>EI SX9G>9A,OK1,S5,DL,PA EH7>9A 9H1SIX>I1,F YU1>YO7 10-1100 EH6>HB,ON
EH7>I0,ON CT>I1,I8,EI I9>YU1 K1SIX>CT VE1YX>CT,HB,EH1,F,EA2 I1,I5>EI SX9G>DL 9H>HB HB>DL EI>I1 11-
1200 VE1YX>EA2,I9,I2,I4,PA F>EI 5B>DL ZB2>I5 9H>EA2,EI EA9>EA1,I5 K5MA/1>EI OK1>SP9 W1JJ>EA6 I9>F
EH5>CT GU>DL 5B,9H>9A 12-1300 W1JJ>I8 K5MA/1>EI,EA6,CT VO1ZA,WA1JOB>EA7 I0>CN OX3VHF>EA7
K1TOL>EA7,EA5 K1SIX>CN EA7,CN8MC,5B>I8 VE1MR>CT CT,EH1>EI 13-1400 CT,EH7>EI VE1YX>DL G>EH5
CT,EH5,EH7>F DL,LX>EA7 F>DL EI>CN CT>I7 14-1500 EH7,CN8MC,YU1>DL CN8MC,EH7>PA VE1ZZ>9H
VE1YX>9H,EA5 EH4>ON EH8>SP9 CT>I7 15-1600 9H>PA,ON,DL WA2BPE>9H K1SIX>9H,EA6,EA5 S5>F I9>DL,F
G>OE3 EH6>I8 T9>ON VE1YX>F,I0 YT4>ON KP4EIT>F SR9HFA>EI I1>I5 W3EP/1>I9 16-1700
K1GUN,KP4EIT,WP4LNY>F N4MM,VE1PZ,K8MFH,KM1E>I9 WZ8D>F GU>SP6 VE1PZ,W1JJ>I8 T7>EA7
F,EH5>OE3 HB>I7 I6>S5 F>LX OH8>DL K1TOL>I0,F EH5>OK1 17-1800 KM1E,N4JJ>I8 K1TOL>9A,I5,I8 I6>PA
EH3,K4PI>I5,F S5>9A,ON K1SIX>9A N3DB>9A,DL F>LX,OE5,F(short) W1JJ>9A,I8,F,9A SV1>JY WA2BPE>I0,F,I4
CT,CN8MC>DL F,ON0SIX>9A,K4QI EH2,F>DL SV1SIX>PA I5>ON VE1YX>DL,I0 IS0>CT 9A,EH5>LX K4MQG>I3
K7BV/1,K2ERG>I1 SV1>EI 18-1900 W3EP/1>9A,F,I8 W1RA>F W2HTW>I5 EI>F G>I8 K1TTT>T7 N3DB>5B
VE1YX>I9,9A KM1E>DL,I8,EA7 9A1CAL,OE3XLB,G>F EH6>OE3 NG4C>DL K1MK,KD2I>I8 K4MQG>I3,9A AF1T>I4
K4PI>F EH7>9A F>PA,DL,LX,CT,ON,CN EH6>LX JY>IS0 GW>SV8 SM7>CN GD>EA5 19-2000 CN8MC>DL
EH1,EI>CN CT>F,9A,EUI I0,GM>F EH2>DL,LX F>I8 GD>DL,IS0,EA6 EI>EH1 GD>I9 EH1>ON W1JJ>I1,S5,I4
EH7>EA1,DL K4PI>I1 K1TOL,K1SIX>EA7 F>F LY>CT EH3>OK1 20-2100 W1JJ>I5 GU>CT CT>I2,F,PA K4PI>IS0,F
EH1>OK1,PA EH9,I0>DL EH2>PA,9A,DL F,GB3MCB,S5>9A G>I8 VO1ZA>F,9A F>I1 VE3JCV,N8CJK>F 21-2200
W4GF>I1 VO1ZA>G,I1 VO1OP>EA7 GW>9A CT,F>9A GD>I8,F CN>ON,PA,DL W4VQ>F EH1>PA,ON,9A F>9A
VO1MP>F CT>ON,OE5,9A,OZ,HB EH3>DL PA>I1 GU>CT 22-2300 CT>DL G>I8 F>PA,DL EH7>DL I5>EI GJ>F
K4RX,W9LV>CT VO1ZA>F K4EA>F,CT,EA6 CT>PA EH1>9A,DL I0>CN 23-2400 VO1ZA>F EH1>OZ,PA GW>9A
VE1YX>9H CN8MC,GB3MCB>F CT>I1

June 7 0117 CN8MC>PA 06-0700 OE3XBL>SP6 08-0900 CN8MC>F 09-1000 TF>F,ON VO1ZA>G,PA,ON,DL,S5 10-
1100 VO1ZA>G,GM K7BV/1>CT,EA7 VE1ZZ>EI,GD,GM,I4 GD>F,PA(bs) W1JJ>G,EA7 G>PA VE1YX>G,GD,EI
TA45>OK1,OE3 11-1200 VE1ZZ>GD,G,PA,GW VE1YX>G,I5,9H,HB,I8 K1GUN>CT SV1SIX>I1 FP5BU>GW,CT,G
W1RA>EA7 K7BV/1>EA7,CT EH7>DL GI>EI VO1BC>PA,GM VE1CZ>EA7 12-1300 VE1YX>G,EA5,EA7,CT
G>SP3(ms) 9H1SIX>SP6 I6,EH5,EH7>PA 9H>9A EH2>OZ VO1MP>EA7 I6>LX EH2>DL SX9G>SP5 T7>CT
ZB2>EI,I5,OE5 I9,9H,G>F 13-1400 I9>LX EH2>DL 9H,ON>PA F>I9 CN8MC>DL,PA SV9SIX>SP6 9H>I1
F>I9,I4,9H,I8 EH1>I7,PA CT0SIX>EI,PA EH3,EH1>DL GD>EI 14-1500 F>I9 EH1>I1,9A CT>DL VO1ZA>GM
EH7>9A,PA S5,EH6,GD,I6,TA5>9A EH6,EH7>I7 GU>I9 GD>DL ON>LX 15-1600 YT0>OK1 YO7>LZ1 TA5,I0>I7
4X>I9 9H,CT0SIX,SX9G,OE5,SV9SIX,SV1SIX, LX0SIX>DL TA2>SP2 16-1700 TA2>DL,SP9,OE8 SX9G>SP9
4X>I8,I4,I0 OD5SIX>SP9 OD>EA6,I6 SV3>EA7 EH2>EI VO1ZA>I9,F ER5,ER6,YT0>4X JY,SV1>9A SV1SIX>OK1
OD>I8 UR>I6,I7,I9 17-1800 TA2>I3,HB,S5 5B>OK1,DL SX9G>DL,9A YT0,OE5,JY5>9A 4X>I3,DL,9A
YT0>I5,SP9,T7,I9,SP3 TA5>OK1,SP6 VO1ZA>F I5>EI SV8>SP2 OX3VHF>I1,DL GB3LER,GB3RMK>F OD>I9 18-
1900 YT0>T7 SV1SIX>PA TF>F,EI,GW OX3VHF>F,I2,I1 SX9G>DL,SP5 EI>I4 ER6>I1 G,LZ1>DL F>EI GM>I7
G>SP9 19-2000 G,GM,EI,FX4SIX,OZ6VHF,OY6SMC>DL G>OE5 GI>9A GB3LER>F EI,EH3>OZ HV,EH3>PA
SU1SK>I1 LX>OH2 SM3>I1 LA>F,I2 20-2100 LA>F G>I8,LY,OZ F,EH5,EH3,I9,OK2>DL GB3BUX>SP9 I9>IS0
SM5>LX LA>I1 OZ6VHF>F EH3,F,LZ1>PA F>YL2,OZ HB>LA G>SP3 21-2200 HB>LA F>OZ,DL,LY I7>PA G>9A
EH2>OZ 22-2300 G>LX F>SP6,9A I5>DL

June 8 05-0600 G,PA>DL G>PA ER6>I9 06-0700 YO7>OK1 OH8>OH6 OH8>SM3 ER6>I2 YO7,LZ2CM>PA I9>YO8 I6>I0,SP6 OD5SIX>I6 SX9G,G>9A 07-0800 9H,OD5SIX>9A UR,4X,5B4CY>I9 9H>PA,I0,OK1,OZ SV1SIX>PA,I2,I1 OE5>DL SX9G>DL,I9 08-0900 YT0>I5 9H,LZ1,I9>DL T7>I5 9H>F PA>ON YT0,9H,I1>OZ UR>SP9,SP6,DL I9>I1 S5>ES1 LZ1>LA I9>IS0 F>I2 9H>EI 09-1000 I6>I2 9H>EI,OK1,9A UR>SM6,9A,OK1 YO3>IS0 5B>SP9 F,OE5>EI 10-1100 UR>I1 GB3LER,GB3RMK>EI G>DL OD5SIX>SP9 UR>DL,OE6,I7 ER6>DL,HB 9H>OH6 SV8>SP2 11-1200 YO7>SP6,PA OE5,OH8>DL UR>17 LA>OM 9A>S5 G>SP3 ES0SIX,OH8 LZ1>PA GU>IS0 OY6SMC>EI 12-1300 OH8,OH2>DL SM3>SP6 YT0>PA SM3>SQ6 TF3SIX,I5,CT0SIX>EI OH4,DL,OH6>PA OH7>DL,ON,EA7 LZ1>LA 13-1400 OH8,OH7>LX OH8>DL,OZ ES,LA>SP6 YO7>LA ES5>I4 OH6>DL,PA UR>9A,I3 OH4,OH1,ES1>9A 1310-30 EsFM>OH5 1310- EsFM(I,LZ,YO,HA >100MHz)>OHTv/fm group 1340-50 EsFM>OH5 14-1500 OH6>DL,I9 OH8>DL,OE3,SP3 UR>OE3,9A CN8MC>I5 LZ1>SP6 ES1>S5 G>OK1 F>I9 15-1600 UR>OE3 aurora 1659 CN8MC>I9 17-1800 4X>I6 CN8MC>I9 1845 EH8>CT aurora 2244 GD>OZ

June 9 0549 OZ6VHF>I5 06-0700 YO3KWJ>OZ TA5>F LZ3>OZ,I1 07-0800 SV9SIX,OD5SIX,SV1SIX,I0JX>DL 4X4SIX>OZ S55ZRS,SR5SIX>F F,OZ>9A UR>I2,9A,DL,PA G>I7 I0JX>PA OE3,SP9>EH3 SV8>OZ,DL,PA I0>DL 5B4CY>OZ 08-0900 UR>PA,OZ,OE3,HA5,OK2,DL,F,9A SV1SIX>OE5 TA5>PA,SP2 I8>PA,F LZ2CC>F OE6>EH3 LZ3>F,OH2 OH3>9A 9H1SIX>DL OK2>EH3 T7>OH2 GW>I5 09-1000 UR>PA,HA5,DL T9>F SM5>HA5 EZ8,LY>PA ES0SIX>F ES4>LX,F DL>LA SO5,SP8,YL2>ON LA,YO3>DL G>EI(t),F OH3>I2 OH3,SM6,LA>DL OZ,OK1>SQ6 09-1005 EsFM(SV,LZ,YO,TA)>OHTv/fm group 09-1220 occEsFM>OH5 10-1100 SP4,LA,ES1,LY>9A I4,YU7,SP4,I6,LZ1>F YO7,SM5,LA,TA5>DL GD,SM7,OZ>HA5 UR>OZ,PA ES1>ON,PA IW3FZQ>RX3 SP4>I2 ER5>ON,I4,PA SO8>HB OH8>OH4 I0>OZ TA2>PA 11-1200 UR,I7,9A,OE8>PA LA,YO3KWJ,GB3LER,9A,OY6SMC,YO1,YU1,T9,LZ3>DL SO8>ON,I3 LY>EA6 GD>OZ LZ2CC>OE5 UR>LA,OZ LZ2>ON SO8>S5,F LX,OZ>I7 ER5>SM5 LY,SR9FHA>F RU3,I9>OZ HB>LA 12-1300 S5,I0,OE1,YO5,YU1,9A,RU3,LZ2CC,LZ3,OH8,YO2,I0,T9>DL YO1>ON LZ3,I8,I9,YU1,9A,T9,I7>PA OH8>I2 OE6>OZ SR5SIX>I5 I2>EI DL>RU3 YO5>LX 13-1400 UR,YL3>DL YL3>EA5 SP8>LX F>I7 S5,9A1CAL,I5MXX>F I8>I9 OZ7IGY>EA7 F>OE2 OZ>I7,EH7 14-1500 GB3BUX,EH5>PA EH5,EH7>ON CT0SIX,LX0SIX>DL GU>S5 UR>RU3,SM2 GB3BUX>I7 YL3>ES1 A61AJ>5B,G,DL YB0CBI,YC1HER>5B ES1,OH3>RU3 15-1600 A61AJ>5B,ON,DL,PA,OK1,4X,SV1,SV8,OZ A45XR>DL YO4>ON UN6P>DL,OE5,SM6,SP9,S5 LY3>S5 ES1>OE3 UR>OZ,OK1,DL RU3>OM3,PA,OK2 SM5>I9 1545-1620 EsFM(EP)>OHTv/fm group 16-1700 UN6P>DL,9A UR>OZ,LA,OH6,SP2,I5,PA,DL RW1>OZ OH8,SP8>DL GD>PA A61AJ>ES1 SP5>SM2 OH8>OE3 OH2>I0 1630-1710 occEsFM>OH5 17-1800 ES5>OZ UR>SP3,OK2,I5,OK1,PA,DL,OZ,ON OH7>I8,DL,I0 SP9,OH2>PA LY,OH8>I5 SP8>ON SM5>I9 YO3KWJ,LA,ES1,ER5,OH4,LZ2CC,SV8>DL YL2>I5 ES4>OK2 OH1SIX,OH6>OE3 SV1>OH6 OH8>PA,DL,OZ 18-1900 UR>ON,PA,OK1 LX,ER5>DL HB,YO8>ON I0>OH2 LZ2>OZ OH3>I0 I5,I0JX>EI 19-2000 YU1>DL F>OE2 UR>ON,DL,OK1 YO5,YO4,YO8>DL G>SP9 SP8,SP4,SR5SIX,LY>F LA>I8 I3>EI YO5>ON YO3KWJ,YO7>PA D44TD>CT3 SP8>I2 SO8>LX 20-2100 PI7SIX>YO2 YT4,UR,YO9,YU7,LZ2>DL UR>DL,OH2,OE3,OK2,SP2 SO8>F LY,SO8>F I7>OZ YO7>SP6 OH8>I5 HB>EI SM7>I8,I0 OH7>OK2 LY>OZ 2050-2210 occEsFM>OH5 21-2200 LY>DL,PA,LX UR>DL,9A aurora OH3>OK1,SP2,I5 OH7>9A LZ2CC,F>DL SM5>OM3 ES0SIX,ES1>OK1 LA>SP2 22-2300 LY>DL,I1 4X4SIX>OZ SP4>PA,DL YO3KWJ,5B4CY,YU1>OZ ES0SIX,ES2>9A OH6>OK1 ES1>EI UR>I7 YU1>OZ,LA OZ>9A YU1>HA5 23-2400 YU1,SV9SIX>LY

June 10 06-0700 LZ2CC>I0 EH5>YU1 PI7SIX>I9 07-0800 I9>YO2 9H1SIX>PA SP5>DL 09-1000 9H>CT 10-1100 GB3LER>DL 9H>CT 11-1200 I3>EA5 CN8MC>I9 12-1300 CT0SIX>I5 ES7>DL 13-1400 EH5>DL,PA CN8MC,EH7>DL I0JX>F EH8>CT,DL FX4SIX>OH5 14-1500 LX,9H,YL2,ES4,ES0SIX.YL2,OH5>PA LA>DL ES1,ES2>F GB3LER>S5,DL LA>I5,DL,9A,S5,I4 OH2>F W1JJ>EA7 GB3RMK>SP5 15-1600 LA>DL,I2,OK1,I4 LA,SM7>DL SM0,SM7>PA ES1,YL3,OH2>F SM7>OZ UR>I9 OH3>OZ 16-1700 SX9G>I5,I0,OE3,OK1 UR>I9 UT5G>I9,9H LZ2CC>I9 N3YDT>EA7 9H>OK1 UR>I9 SV1SIX,SV9SIX>SP6 PK1>OE3 9H>4X N3DB>F,EA7 I0>PA 5B4CY>SP9 EH8>OK1 ON0SIX>I5 17-1800 9H>EA7 SO8>F I0>PA G>I7 EH8,I5>DL 4X,TA5>PA I9>9H EH6>D44TD JY>OZ OM3>EA2 D44TD>DL,9A,OE3 G>I5,I8 4X>OZ,SP1 TA5>YO5 EH2,EH8>9A S5>F F, EH8>HA1 TA5>DL,OE3 IS0,I5>DL I0,I6>EI EH2>OE3 ZB2>IS0 18-1900 TA5>PA CT3>EI,F,SP9,CT EH3>SP9 I5>PA EH6>EH1 I9>EA7 LZ2,EH8,CN8MC,LX0SIX,9H>DL I0,I9>ON TR0A>PA I9>OZ,SQ6,SP2 I6>EI 4X,YT1>PA LZ2CC,T9,EH8>F UR>SM2,OH6 I8,LZ1,Z3>LX 19-2000 YT1,I0>LX EH8,YO2,I6,9H,I8,I3>F UT5G>SM3 I0>CT,F,ON Z3>DL,CT I9>I3,DL,PA I9,9A,YO2>EA2 YU7>HB,EA2 ON>I5 I0,9H,I6>DL T7>I9 SP6>SP9 20-2100 F>I5 CN8MC>F I8,LX0SIX>DL I5,9H>ON EH3>OZ T7>EA1 G>I8 21-2200 N3DB>F,CT KP4EIT>EI,G I5>I1 LZ2>DL,PA EH8>CT3 CN8MC,W4TJ>F F,I5,9H>CT CT>I9 I9>EA5 22-2300 KH9/N4BQW>9H(?)

June 11 06-0700 OK2>OZ 07-0800 OD5SIX,4X4SIX,5B4CY>I9 08-0900 4X>I8 SX9G>SV2 09-1000 LX0SIX,ON0SIX>PA SX9G>I0 JY4>YO7 OD,4X>I9 SV9SIX>I0 10-1100 ZC4>I8,I9 11-1200 SV9SIX>OE6 I4>OE5 4X>I4 12-1300 HB>PA UT5G>I9 14-1500 SV1SIX>I5 OD5SIX,4X4SIX>9A SX9G>SP9 5B4CY>OE3 S5>9A 15-1600 TA5>OE3,9A,I8 I0,I9>9A 9H1SIX,SV9SIX>OE3 I9,OD>I5 SV1SIX>I2 HB>EI,LX SX9G>DL,F HB,9H>LX OD>I8,OE3,SP9 16-1700 SV8,YU7>I5 SX9G>I1,DL,SV1,OE5,I7,9A 9H>I1,OE3,I4,I5,I0 5B4CY>OE6 SV1SIX>OK1 SV1>YO8 OD,SV8>9A I9>I0 T9>I8,I0 EH9>EA7 17-1800 SX9G>SP3,DL,I0 4X4SIX>OE6 SV9>9A,I7,OE3 EH7>9H

KP4EIT>EA7,CT 18-1900 EH7>CT KP4EIT>CT,9H 9Z4BM,9Y4AT>F,EA7,CT,EA1 EH7>D44TD 19-2000 9Y4AT>CT,S5,9H,I2 EH5>PA KP4EIT>EA7,G WP4N>EA7,I2,S5,F CT>PA,F,DL 9Z4BM>CT,S5 EH8>DL 20-2100 EH8>EI,EA1,EA7 WP4NEG>I5 EH1>F CT3>CT 9Z4BM,KP4EIT>F 21-2200 N4JJ>EA7 FM5WD>F CN>9H KP4EIT>CT

June 12 0447 LZ2>YO7 0510 4X4SIX>YO7 08-0900 LZ1,OD,4X4SIX,OD5SIX>YO7 09-1000 YT1>4X 4X>YO7 OM3>LX 11-1200 BG9BA,9M2TO>5B PA>EI 12-1300 JA5AIE>5B 13-1400 5B>YO5 14-1500 VP9GE>F 5B4CY>I7,SP9 CN8MC>F OD>YO5,I0,I4 15-1600 4X>9A,I0 Z3,UT5G>4X CN8MC>I5,F SV9SIX>OK1 CT0SIX,EH7>F SV8>I0 OD>I0 16-1700 4X,SV9>9A OD>OK1 CN8MC,CT>EI 4X>EA5,9H TA5>I9 CT0SIX>EI JY,4X,9J2JC>EA5 17-1800 JY4,OD>9H CN8MC>PA,I2 PY5CC>EA7,DL,I0,I2,I1 EH7>LX,I2 I9>SP9 SX9G>F,I3,I0,HB HB>4X 18-1900 OD5SIX>YU1 CT0SIX>DL CN8MC>EI,F 3Ctv,I8>F 19-2000 EH9>F EH7>EI,I6 CT,G>DL PY1VOY>F,EA7,S5 V25XX>9H,EI,G,CN,GW GB3LER>EA7 3A>DL 20-2100 V25XX>GW,EI,F,GM KP2A>G,F,EI,9A,GW CN>F EI>CT GW>EI S5>9A KP4EIT>DL,I2,I0,F FM5WD>GW,F 9Z4BM>I2,CN,F 21-2200 FM5WD>G,CT,F,9A,EI,GM V25XX>EI,G,F KP4EIT>F,CN,EA1 KP2A>CN,I4 9Z4BM>CT,F,EA6,G WP4NIX,WP4LNY>F CT2>DL 22-2300 KP4EIT>G I0>I7 FM5WD>G V25XX>GM,GU,CT 9Z4BM>GM 8P9HW>EI,F FM5WE,PJ2BR,PJ5DX>F YV1DIG>EI,G 23-2400 YV1DIG>GU

June 13 06-0700 ES0SIX,SR6SIX>SP6 08-0900 SV1SIX>OE6,SP2 1057 9H>EA6 11-1200 9H>EA3 13-1400 V25XX>CT CN8MC>I0 VP9/N0JK>CT 14-1500 9H,I9,I0,EH9,CT0SIX>EA3 EH9,CN8MC>I8,F EH9>I5,I8 EH6>S5 I9>F 15-1600 I5,I8,4X,I9>CT EH6>DL,OK2 EH9>9A JY5>I0 I0JX>F I9>DL CN>JY9 EH2>S5 9H,I0> ON F>I5 SV3,EH5,EH7,9H>4X EH5>I4 ZB2>9A 16-1700 4X>EA2,F,EA5,EA7 A61AJ>CT VE1YX>4X,9H I3>F CN8MC>OK1,EI GW>I5 EH5,9H>OK1 9H>I0,I5,YU1,OM3 ZB2>9A EH7>I1,ER1 EH6>DL SX9G,EH6,A61AJ> 4X 9H1SIX>HA1 17-1800 SU1SK>EH3 I5>F A61AJ>4X,JY9 SV1>PA 7Q7SIX>PA,EI 9H>OZ W1CWU,W1OO,W4UDH>I5 EH6>9A,I8,CT IS0>HA1 UR>EA7,I9 EH5>I9A PA>DL(t) I9,SV3>ON EH1,SV1SIX,I9,EH9, 9H>DL OE3XLB>4X VO1ZA>F 4X>YU1 3Ctv>PA VP9/N0JK>EA7,CT CT0SIX>F 18-1900 EH7>EH1 VO1PJM> F EH2>ON CT>DL EI>EA3 F>EI,I4 OD>EA7 OD>I1 CT,EH6>SP9 CT3>I7 EH3>YU1 I7>IS0 T9>I1 CN8MC>F EH9>I2 EH5,CT0SIX>EI I9>F,I1 SV3>EA7,I9 19-2000 EH9>EH6 I9>F,OK1,OE3 EH5>9A CN8MC>ES1 CT>F EH3,F,5B,9A>CN I9,EH4,CT0SIX>DL OK1>EI SM7,EH9>F FX4SIX>LY EH9>DL,I8 20-2100 EH3>I8 GM>9A,F EH3>CN CN8MC>PA PA>9A OK1>F F>CN 21-2200 KP4EIT,WP4LNY>F EH7>I8 I8>I0

June 14 05-0600 OE3XBL,ES0SIX>SP6 06-0700 SV1SIX,SV9SIX>SP6 CN8MC>I1,F EH7>I4,F EH7>I0,F, PA,DL 07-0800 EH7>PA,I4,HB,9A F>CN CT>F EH1,CT0SIX>I2 I5>OZ 08-0900 CN>I2 CT0SIX>EH3 OD5SIX, 4X4SIX>SV1 I4>9A CN8MC>F 09-1000 I9>IS0 9H>9A HZ1MD>5B,JY F>PA 9H>4X<I8 12-1300 GU>F 1343 I6>PA 14-1500 OM3>9A F>F I6,DL>ON G>DL 15-1600 CT0SIX>I5 I3>I8 EH9>DL CN8MC>EI G>CT 16-1700 EH7>EI 3A>I5 3Ctv>F CT>F F>ON EH7>I5 CN8MC>I2 17-1800 EH7,CN8MC>I1 EH9>I1 EH7>PA,I0,9A,I3 7Q7SIX>GW,F CT0SIX>EI,PA 18-1900 EH7,F>ON EH7>OE5 SV1SIX>OZ CN8MC>DL 19-2000 CT0SIX>EI CT>PA,9A PA>I1 FY1FL,FY1AS>G TI5KD>I1,IS0 EH2,EH5,CT,F,OK1>DL G,EH5>9A 20-2100 FY1FL, CT0SIX,G>PA KF2HC/KP2>I1,F,I7 PP8KWA>G CN8MC>I1 21-2200 KF2HC/KP2>F CT3>CT,I7

June 15 05-0600 ES0SIX,OE3XBL,SV1SIX,9H1SIX>SP6 06-0700 UT5G>I0,9A SV1SIX>I0 9H>DL I6,LZ1JH,LZ2,YU1,I6>F 9H>SP2 07-0800 9H>OK1 YT4,I9,Z3,T9>F I6>OE2 T9>I1 SV1SIX>I2 F>F PA>ON 08-0900 F>SP6(ms) F>F,I1(t) EH7>I5,DL EH5,F>DL I6,OH9SIX>OZ IK5ZUL>EA2 I9>OE2,OZ I9>EH3,DL I0>ON I0JX,5B4CY,EH5>DL I6>F I0>EA1 09-1000 I9>DL,EA5,PA I0>ON EH7>9A CN8MC,EH9,EH7>DL 4U>I0,F I6,F,I0>F I2,I9,OK1,I0>EA5 BG9BA>5B 0920-30 EsFM>OH5 10-1100 EH7>I3,SQ9 CN8MC>DL EH8>9A,HB VO1ZA>CT DL>OE3(bs) EH9>I3 EI>I0 OH9SIX,EH2>OZ ZB2>I0 11-1200 CT0SIX>PA EH5>OE1,I4 EH8>PA F>F EH4>I0 EH7>HB,PA,I3,DL,EI S5>I4 EH6>I2 PA>EA1 VO1ZA>PA(skew 235) CT>I4,F CN8MC>DL,PA 9A>EA5 GU>EA1 12-1300 CN8MC,CT0SIX,LX0SIX>DL EH7>S5 HZ1MD>5B 13-1400 CT0SIX>DL 14-1500 F>F G>SM0 I5-1600 EH5>DL G,CT>ON I6,EA6>OZ CN8MC>OZ,DL EH9>I1,I2 16-1700 EH9>DL CN8MC>DL,I1 EH4,ZB2,EH5,EA3,CN>DL I7>F I0,PA>ON OZ>CN OK1,SM7>EA3 EH3>SP6 EH6>EI,PA ON,SP2,I2>EA7 EI>I1 17-1800 EH9,CN,EH6>DL OZ,G,SP6,ON>EA7 EH2>SQ9 CN>SQ6 G,I0>CT EH1,F,EH2>9A G>IS0 ZB2>ON,9H EH5>PA 18-1900 EH5>OH2 EH2>DL,I2 EH6,CT>ON EH4>OZ,PA,DL,I5 EH6>EI G>I2 EH7,F>DL EH1>9A 19-2000 EH1,EH9>I1 EH2>I2,DL CT>SP3 EH4>ON EH5>CN CT,EH9>DL EH2>OZ YV4DDK>G EI,EH1>F CT,EH2,F>PA EI>I1 KP4EIT>G,GW KF2HC/KP2>GW,PA,G WP4NEG>G 20-2100 EH1>9A KF2HC/KP2>G,DL,ON FJ5DX>G,ON,GW,DL,PA YV1DIG,YV4DDK>G EH9>DL CT>DL,LX VP9/N0JK>G 21-2200 KF2HC/KP2>IS0 FJ5DX>G EH5>EI JW9SIX>LA

June 16 0426 ES0SIX>SP6 0746 SV9SIX>I8 08-0900 LZ2CC>9H 9H1SIX>EH3 F,YZ1>9H 09-1000 CN8MC>IS0,I5 LZ2CC>IS0 CT>ON 10-1100 CN8MC>SP2 4X4SIX>9H I9>I8 11-1200 GB3MCB,GB3IOJ>9H VP9/N0JK>G 12-1300 VP9/N0JK>GW,CT,G,EA7,EA3 OM3>DL,PA,EA7 CN8MC>PA 13-1400 G>9H CN8MC>DL GB3IOJ>9A,I2 GB3MCB,F>DL CT>HB F>HB I5,F>PA 14-1500 EH7,PA,FX4SIX,EH5, OY6SMC>DL aurora F>HB G>I2 GU>OK1 F,I1,GW,I8>ON GU>SP6,SP9 15-1600 F,I1>ON G>SP6 GU>EI F>DL G>SM0,OH2 EI>I8,ES1,I3 I6>PA 16-1700

EI>9H,9A F>ON,SM7 FX4SIX,EI>SP9 S01HA>DL,PA,ON EI>I2 ON>EA5 17-1800 F>PA,SP9,LX,OH2,DL
EH2>DL,PA GW>9A EI>PA,9A,I9,ON,I2,DL SM0>9A UR,OH7>OH2 EH9>S5 G>I2 1745-2030
EsTV(R1(UA),ItA),R1,R2(HA)>Ohtv/fm group 18-1900 EI>I2,I9 YA4F>G,DL,ON LY>ON UR>SP9,DL,OZ,OK2
OH6>S5 F>LX,ON DL>LX RW1>DL,9A LX>OH3 19-2000 YA4F>G,DL UR>ON,OK1,SP6,OZ ES1,OH6>S5
SM6,I9>F FX4SIX>SM0 DL>SP9 9A>OE6 EI>ON OH6>S5 RW1>9A EH1>ON F>HB CN8MC>LX 1915-2005
EsFM(TA,SV,LZ,YO>100MHz)>Ohtv/fm group 20-2100 UR>OZ,9A SP6,PA,SP1,SP2 CT0SIX>F EH5>DL ES1>S5
CT>HB CN8MC>ON LY>CT TF>EI 21-2200 TF>ON,F,SM6,OZ,SP6,DL OH9SIX>PA SM2>DL ES0SIX>F SM0>I4 22-
2300 UT5G>DL,PA OY6SMC>DL,PA TF>DL,ON LA>SP2 OE5>LY YU1,SM6>OZ YU1,LA>ON 23-2400 aurora
OH1SIX>PA PA>OH3

June 17 04-0500 LZ1JH,LZ2CM>F UT5G>I1 UR>5B 05-0600 LZ1,SV1SIX>DL 06-0700 LZ2CC,LZ1>I8 I6>PA,DL,OZ
SV1SIX>HA1,SP1,SP9 I8>SP3,DL,9A,ON F>DL GB3IOJ,SV9SIX>HA1 OE3XLB>F F>SP9 OD5SIX>9A 07-0800
IK5ZUL,I0JX>DL SV1SIX>SP1 I5>EI UR>I9 9H1SIX>OK1 4X>F,DL,I5 I3,DL>I8 4X4SIX>DL 08-0900
4X,I8,OD,9H1SIX,LZ2,Z3>DL 5B4CY>DL,OE5 OD,4X>I5 UT5G>I8 I9>SM6,I2 4X>S5 09-1000 4X>DL 5B>SV1,PA
5B4CY,SV1SIX,I8,Z3,I9,LZ3,OD>DL 4X4SIX,SV9SIX,I0JX>F LZ3>I5 I0>YO8 4N>YU1 HB,I8>4X 9H>5B IS0>SP9
I9>SP5 10-1100 9H>PA 4X>LX 5B4CY,OD5SIX,OY6SMC>F SV9SIX,I8,YT4>PA 4X>F,LX,ON,S5,YO2
5B,I5MXX,IK5ZUL>YO7 I0>SP9 OD,OK1>I8 SO8>IS0 I0JX>HA7,SP6 SV9SIX>HA7,ON IS0>OK1 11-1200
I0JX>SP6,DL I0>DL,OK1 I8>OK1,DL TF>F,PA SV9>EI,I8,HB SV8>EI,EH3 I9>I8 IS0,I9>DL GB3LER>F 12-1300
TF>ON,PA,DL F,I5>4X I2,F6IKY,GM,GB3IOJ, EI,JY4>DL SV8>F,PA I8>I5(short) EI>9A 9H,F>PA I1>OZ I8>I1
GI>OK1 EH2>OZ G>DL,I5 FX4SIX>SP9 G>OE5 13-1400 GB3LER>DL F>PA,DL EI>4X IS0>I7,I3 PA>ON
3Ctv,EH2>PA G>YO7 14-1500 YO7,OM3,I2>I9 LZ1,YO3,UT5G,YT4,I6>DL HB>I2 I6>OZ ES0SIX>F ON>S5,YO8
GM>OK1,OK2 15-1600 GB3MCB>OE3 GM>OK1,OE5 SP9>PA SP8>ON,DL OZ,GM>9A OZ>HB DL>SP3
I3,S5,4X,9H,JY4,F6IKY, SQ9,JY4,UR,4X>DL,OE5 OH8>ON 4X>OZ TA2,ES3>I2 OD>HB YO2>SP6
SV1SIX,9H1SIX>OE3 OH8,JY4>PA SM7>9A 16-1700 ON,DL>SP2 JY4,4X,SP1,SP4,SP2>PA TA2>ON,F,I6 Z3,4X>I4
YO5,JY4>F I9>OM5 OD>EH3,OK1 SM3,JY4,OZ,4X,SO8,OH8>DL 5B4CY>I1 OZ>EI I9>9A 1515-1640
EsFM(I,LZ,F,3V> 100MHz)>Ohtv/fm group 1520-1750 occEsFM>OH5 17-1800 YU7,SO8,SP5,SP1,OH4>PA EI>SP3
SK7,OY6SMC,SM0,SM3,TF,OZ,T9,YL2,SM2,GM>DL LA>I2,9A,9H SM7>F,I2,ON F>OH5 UR>EI SM5,YO5,
SM3,PA>ON,OZ JY9>DL,I2 TF>9A,DL,ON 9A>9H SM2>9A OH8>I1 SM3>ON 18-1900 TF>OK1,DL
EI,OH4,SM2,LZ3,OH8,SO8,OY6SMC,TF,SM0,GM>DL I2>ON TF>OE1,PA,9A I0>SM2 SM3>I1 LA7SIX>9A 4X>IS0
OH4>PA,LX YO8>PA G>OM7 SM6>OK1 GB3LER,YO7,OH5>F 19-2000 GB3LER,TF,LA,YU1,GU, F>DL OK1>PA
GB3LER,GI,GU>F LA,GW>OK1 TF>S5,I5,F,ON GM>SP9 OH7>I5 LY,GI>PA LZ3,I2>4X GM>9A,LX 20-2100
EI,LA>LX OY6SMC,TF>I1 TF>PA,F EI>OH3,HB GB3LER>PA EI,F,GI,TF>DL GU>ON LA>OH3 21-2200
TF>DL,SP2,F,SP3,OZ,PA OZ,DL>ON UT5G>DL OH9SIX,OH8,GD>EI aurora 23-2400 TF>CT,SP2

June 18 05-0600 aurora 9H,I9>DL 9H1SIX>SP6 9H>5B UR>I7 06-0700 OH1SIX>PA ON0SIX.PI7SIX>I7 UT5G>DL
SV1SIX>OE3 EH9>DL,PA,HB 07-0800 LA>SP1(mode?) CN8MC,UT5G>I5 08-0900 LZ1JH>DL aurora 5B>4X
4X4SIX>DL OD>HB SV1SIX>OE3 09-1000 SV1SIX,SV9SIX,9H1SIX>OE5 5B>SP5
LZ2CM,LZ1JH,SV1SIX,LZ2CC,5B>I1 UT5G>I9 SV8>I0 10-1100 SV9SIX>SP6 SV1SIX>SP6,DL SV8>SP5
LZ2CM>PA UT5G>9A LZ2CC>S5 Z3>I5 11-1200 LZ2CC>OE3 UT5G>I4,DL I7>DL LZ3,LZ1,YO5,YO8>OE3
SV9SIX>SP1 12-1300 UR>OE6,SP9 CN>I3 13-1400 LZ2>SP9 UT5G>OE5 OZ7IGY,SR6SIX>YO7 YO7>PA YO3>F
UR>PA,OE3,SP6,OZ YO7>F IK5ZUL>DL PA>I7 ON>9A OM3>OE6,F SR9FHA>F G>YO2 14-1500 OM3>DL 15-1600
9H,UR>DL UR>PA YU1>OH3 16-1700 UT5G>PA YO8>DL OD5SIX>SP6 CN8MC,3Ctv>F CT0SIX>I5 17-1800 EH8>F
SV1SIX>ON,SP6 LZ2CC,YO7>F S5>SP2 YO7,4X,9A,T9>DL YO3>PA I2,SM7>9A YT4,YO7,T9,SV2>DL 18-1900
YU1,UR,4X,LZ2,T9,9A,T7,YO7,LZ3,YU4>DL YO5,SV,YO7,LZ3,9H>PA I1>9A UR>ON,HB YO9,SV1SIX,9H>OZ
CN8MC>EH1 I9,9H>F I4>ON 9H>LX 20-2100 9H>PA,HB,ON,DL I9>F,HB,ON 22-2300 TF>OZ

June 19 0316 SP8>PA 0457 ES0SIX>F 07-0800 OD5SIX>YO7 SV1SIX>DL,9A,SP6,PA SV9SIX>SP6 UR>DL,PA 08-
0900 UR>PA,DL EH4>DL 4X>DL,9A,OK1,YO7,PA,SP2,SM6 LZ1JH>HB HB,SV3,SV1SIX, LZ2>DL SV3>OK2
ES2>OK1 HZ1MD>5B 09-1000 4X>DL,SM6,LZ1,UR ES2>OE6 LZ1JH>PA OH1SIX,SV9SIX>OR3 ES0SIX>OE3,OE5
SQ8>OZ OH3>OE6 ES2,UR>I4 SM7>OK2 YL2>OK1,OE5 LA,OH3>OE3 OE5>OH3 I9,LZ2,SP8,UR>DL LZ2>I2
OK2>SP9 I9>4X 10-1100 LZ2,RW1,YL1,OH3,SM7, ES0SIX,ES1,I9,4X,SM3,UR,OH2,SP8>DL SV1SIX,LZ1JH>F
UR>HA1,OE3,OE6,9A RW1>SP6 I5,SV1SIX>SP1 EH3>9A SM3>OE2 4X>OZ,SQ9,ON 11-1200 VK8MS>5B
UR>PA,OE6,I4 ES5,T9,4X,I0JX,I8,I5MXX, I4,IK5ZUL,EH5,SM4,SV4>DL ES1,F,YO4>OE3 FX4SIX>9A T9,4X>SP2
S55ZRS>F 4X>SM6 I8,I4,4X,ES2>PA ES1>ON 12-1300 LZ2,4X,SM3,ON,UR,OM3,LY>DL I5MXX>PA OD>DL,PA
GB3IOJ>YO5 5B4CY>PA YO7>OZ 13-1400 SV1SIX,SV9SIX>OE3 9A>SM0 HB>DL VE1YX,VO1ZA,W1JJ>EA7
GB3RMK>9A A61AJ>T9,5B,I6,9A 4N1ZNI>PA YC1HER>5B F>SM0 14-1500 YB0DPO>4X YC1HER>I9 VR2XMT>I9
A61AJ>4X,I4,9A,S5,T9 VO1ZA>EA7 15-1600 CN8MC>F,OH1,ES1,DL EH8>F VO1ZA>G,ON,PA LA>OZ
ES2,OH5>ON ES2,SP2>DL 16-1700 EH9>F,PA,LX,9A IZ1EPM>I2 OH7>DL CN8MC,EI>I2 OE3XLB>F EH7>OH1
EH8>CT,SQ9,DL SM3>EA7 LA>HB OH6>F OH1>PA GB3LER>DL(Es,ms,Io) 17-1800 GU>OH2 CT3>CT,DL,9A
OH6,I4>EH7 OH1>F EH8>DL,EH1,OZ,9A I9>I8 SM3,SP6>PA UR,EH9,OZ>I1 SP3>EI G>OE2 F>SP6,SM3

LA>DL,I5,ON,PA GM>DL,OE5 EH7>SM6 OY6SMC>OE2,9A SV8>DL UR>EH7 1710- EsFM(G>100MHz)>Ohtv/fm group 1700-40 EsFM>OH5 18-1900 GB3LER,OY6SMC,EI,SV8,4N1ZNI,HB,LX0SIX>DL OH1SIX,OH7>F EH2,SM0>I8 ON>PA LA>HB LZ2>SM0 PY5CC>I1 HB>LX EH8>9A 19-2000 F>ISO CT0SIX>PA LX>DL 1920-40 EsFM>OH5 20-2100 EH8>I1,PA,OZ,DL ES1>HB ON>LX EH1,CT>9A EH5>DL,OZ SM7>EA5 EH1>DL 21-2200 EH1,UR>DL EH2>OZ

June 20 0259 EAtv>OK1 0457 SV9SIX>SP6 05-0600 SV1SIX>SP6,OK1 SV9SIX>OK1 4N1ZNI>SP6 06-0700 GB3LER>OM3,SP6 GB3RMK>OM3,SP6 OY6SMC,LA>DL G>YO7 GM.I6>SP6 HB>OH6 OZ6VHF>DL SV1SIX>I1 YL2,9A>ON 07-0800 HB>OH3 I0JX>PA HB,SP8,I5>ON I0>DL,PA F,9H>9A JY9>I0 I5MXX, LZ1JH,SV1SIX>PA LA,SM7>I2 HB,GB3LER,G>DL 9H>DL,SP6 OZ6VHF>HB G>HA1 08-0900 I0>SM0 F>OZ OK1>EH3 F>OZ,SM0 OE5,OE6>ON T9,LZ1,OE6,I2>PA G>DL PI7SIX>9A DL>ON,EH3 GB3LER,I9,F,G>DL 09-1000 G>DL,HA1 SV8>ON HB,CT,SP9,FX4SIX,I3,CT,JY4>PA EI,F>DL PA>I1,I3 W2BFQ>9A(?) G>I2,9A LZ3,DL>ON PA>OE3 SV3>OZ 10-1100 F>PA,DL,ON GW>4X G,GU>ON GU>DL 11-1200 G>DL,ON GB3LER>EA7,EA3,OE6 SM>F GU,GW,G,YO3,GB3RMK,EI>PA GI,Z3,YU4,YU1,GW>DL EI>ON,DL GB3MCB>PA OY6SMC>ON UT5G>HB 12-1300 EI,YT1>DL LZ1JH.LY>PA 12-1300 EI,GI,LA,GB3LER, GB3BUX,UT5G>DLYO3,LZ1JH,YO2,YU1,SM3>PA SM6,LA>F PI7SIX>SP9 SM7>I7 13-1400 GM,G,SM7>DL OY6SMC>DL,F,PA OZ>S5 LA>F,I7 SP9,SP8,OE3,GB3RMK>PA GM>OK1 SM7>9A UR>ON GB3LER>ON, OK1 OK1>OE3 GI>OZ 14-1500 VO1ZA>PA OZ6VHF,LA>OK2 OK2>OM7 GD>OK1 OY>PA K4IQ>OZ K4QI,W1JJ>GM OY6SMC>HB 9H>DL 15-1600 OY>DL K4QI>SM6 G>DL(t),ON 16-1700 G>ON W1JJ>GM CT>I0 CN8MC>I5 K4RX>IS0 CT0SIX>DL 9H>OE6,DL,HB IZ1EPM,HB>SV8 I9>EA2 LZ3>I0 17-1800 UR>4X OY>F,EI,OZ CN8MC,I9,CT,EH7>DL I9>LX,I3 YM0KA>LY UR>EA7 SV1SIX>I0 LY>4X SV7>LY 18-1900 I0>CT I9>OE2,OK1 YM0KA>SM0 EH5,9H>PA UT5G>PA,DL I0>EA5 I9>OE5,9A,I2 I3>OE5 I0JX,SV9SIX>F UR>OK1,DL,ON,9A JY9,YO9,YO5>OZ SP2>JY9 4X>SP2 9H>OE1,I2 YM0KA>OD 19-2000 UR>DL,PA,OE5 I9,YU1>OZ,9A PA>4X UT5G>DL LZ2CM>OZ 4X>I1,OZ,9A LZ3>F I3>UR LY>LZ5 20-2100 SV3,OE9,SV8>LY TA1,UT5G,4X>S5 LY>I7,SM0 Z3>I5 EH5,9H>OE2 UT5G,LY,EH1,CT0SIX>I8 G>9A 21-2200 I0>F EH5>DL

June 21 04-0500 I6>9A 05-0600 4X>I0,9H 06-0700 4X>HB,9H,IS0 SV1>9H 9H1SIX>F CN8MC>F,PA 5B4CY>EA7 07-0800 EH7,CN>HB 4X>I8,EH7,ON YM>4X,I8 I9>LX,DL EH9>I1 EH5>9A PA>DL 08-0900 EH5>T9 I9>HB,ON I0>HB,I2 SV9SIX>YR5 CN,EH9>F 5B4CY>IS0 T7>9A,EA7 ZB2>I0 T9>EH3 09-1000YM>IS0 T7>9A,EA7 CN>EI F>I0 ZB2>9A EH1>EA7 EH7>EH3 10-1100 CN,9H>F CN8MC,EH5>DU1 T7>EA2,HB,S5 CT0SIX>EA7 F>IS0 EH2>I9 9A>EA2 S5,DL>EH5,EH7 YM>SP8 EH7>EH1,DL 11-1200 DL>EA5 YU1>OH3 HB,PA>EA5 T7>HB,9A CT>DL EH5>LY 12-1300 9A,ON>PA T7>DL,F W3JO>EA7 UR>I2 W3EP/1>EA713-1400 9A>I5,EA1 K1DAT,K1SIX>EA7 EH4>DL,OK1 EH3,EH5,YM,I0>DL WB2AMU>CT EH7>OZ YP>PA 14-1500 I5>I8 9A>OH5 EO6,GW,YO9>PA I9>F YR4>ON YP8>EI EH2,UR,EH4,I9,EH7,PA,YP8,LZ9EH5,G,ON,EH3,YR4,EO6,LX(t)>DL YM>OZ,HB W3EP/1>I5,I2 15-1600 LZ1>I4 G>I5 9A>OE6 9H,VO1ZA,PA,I9,SV1,SP8,SV3,I1,SV8>DL I1>F VE3KKL>CT T9>LA SP4,LZ9>LX SV8>PA,ON GD>ON EH6>OK1 ON>OH3 G>I1 16-1700 UR>OH3 SV3,YO8,F,EH6,I7>DL EH6,YR4>PA UR,PA,IS0,G>ON GD>I9 YU1>HB I8>EI EH3>OH2 GW>F 17-1800 I9,I7,I8,PA,EH7,I1,F,CT,EH6>DL GW>PA I4,HB>I2 GW>EI IS0,I0>ON GD>9A 9A>HB 18-1900 GD>I9 I7>HB G>EA6,I8 CT,F>ON IS0,YM,EH7,EH2>DL OZ,9A>EA6 IS0>PA EH2,CT,F>9A CT>SM6 F,I1>PA 19-2000 CT,EH6,I9,IS0>DL GD>EA7 EH2>OZ,9A I9>PA I1>I0 CT>9A ZD8VHF>GW 20-2100 CT0SIX>F G,PA,GW,F,ON>DL GW,F,G>PA I1>I0 GD>ON 21-2200 GD,GW,G>DL PA>OZ G>PA 9A>I1 22-2300 G,GD,GW>9A 23-2400 G>9A 9A>I1

June 22 04-0500 G,OK1,GW,9A>OK2 GW,G,t(>9A 05-0600 PA,OK1,PA >9A GD>F PA>ON G,GW,ON,LY>PA GB3RMK>F LA>YO8 I1>OH2 OE5>DL OZ>YP8 06-0700 LA>YP8 YP8,T9,GD>9A EO6>OZ,PA EH7,I1,LZ9>OZ I8>IS0 I1,I2>HB EH6,SP8,OH1SIX>F FX4SIX>LY GD>S5 T7>LA I1,GB3LER>I0 EH7>I2 OE5>DL I1>I4 07-0800 T9,YO6>PA I1>I4 GD>9A EH1>PA G,SP9,UR>I1 YO2,CT,I9,UR,LZ9,F,I3,YR4,EO6,I0, YR5,SP2>DL UR>F F>2 PA,I0>OH3 YM0>OZ GB3MCB>OE5 08-0900 CT,9A,GU,F,GW,LZ9,PA,EH3,EH7, EH5,EO6,CN8MC,I0JX,EH9,YR4>DL UR>I1,S5,9A YU1>ON YO2>F G>HB GD>OH6,4X,HA5 EO6>OE5 PA,I9,GD>4X EH7>PA I1>OH6 UR>HG1 F>LX 09-1000 ZB2>F,HB EH3,YM0,SV9,4X,EH7,YO3,G,GW, ZB2,F,EH5,EH6>DL I9,F,I8>4X UR>OE1 ES4>EH7 F>I2 I2,EH9>HB YO2>OH6 EH4,I4>PA 9A>I3 I4,F>F S5>ON 10-1100 EH2,CT>HB GD,YL3,SV8>DL F6IKY,EH3,I0,GD>PA YP8>OZ,9A I0>OZ,F HB>OH6 EO6,EI,UR>4X UR>F,OZ,DL 9A,ZB2>OH2 SP8,UR>SP2 HB,EI,OZ>I2 11-1200 YL3>OZ EH7>PA CN>EI SM0>9A I8,I9,OD,YZ1,9A,EH4,YT0,YU7,UR,T9,YO3,YR4>DL EH3>OZ 4X,G,OD>OH2 CN>I2,HB 9A,YO9,I3,G,OK1>OH3 I9,YM0,UR>PA UR,YT0,YR4>4X EH3>OE5 12-1300 YM0>CT YP8,YO9>F EO6,9A,5B4CY,4X,OH8,YO8,UR>DL OK1,G>HA5 T7>F UR>HB,SP2,CT,F 9A>OK1 CT>YP8 YO2,YO7,YO3,I4,G>ON I0,G>PA EH3>I3 YO8,EO6,YO6>OE5 SP1,F,SP8,OK1>9A EH7>OE3 13-1400 EO6,I8,YO3,9A,YO6,SQ9,OM7,SP8,4X,UR>DL EH3>OE5 F,OZ,PA,YM0,DL>HA5 OD,ZB2,SP8,SQ9>F YO9,I0,UR,4X>PA SP9,YO5>ON YL3>9A G>I9 EH9>EH7 4X,JY4,YO6>OZ 14-1500 YL3>9A,HA5 ER3,RB3,JY4,UR,SQ8,4X,LZ2CM,LZ2CC>DL SP8>OK1 OZ>4X JY4>I7 LY3>OE3 UR>OM7,ON,PA 4X>F OM6>SM0 LA>4X 1420-1500 EsFM>OH5 15-1600 UR>PA,OZ,LX EH7>DL EH1,EH3>PA EH1>LX,DL EH3>LX 16-1700 EH2,EH3,EH7,EH8,CT>PA UR>EI G>9A GB3MCB>I4 EH7>DL CN8MC>SV1 EH4>F,OZ,DL EI>OE3 F>EH1 17-1800 F>I1,DL,F CT,EH7,EH2,EI,CN8MC>DL EH2,EH4,F,EH3>ON

CT,EH2>OZ DL>EA5 9H>LX CT,ON>PA 18-1900 F>PA,F I5>IS0 CT>ON,I4 GJ,CT>I4 CT>EA7 S5>9A 20-2100 CT>I2,DL,S5,PA,I0 CT2>I2,S5,I1,PA 21-2200 EH9>DL,PA VP9/GM4COK,VP9GE>CT3 S5>EA1 CN>S5 CT>PA

June 23 05-0600 CN8MC>I1,HB 06-0700 IK5ZUL>I1 CN8MC>I8 07-0800 YM0,CN8MC>I8,PA 08-0900 CN8MC,9H>HB SV9SIX>I1 SV1SIX>I1,F UR>OH3,OZ 09-1000 CN8MC>I5,SM3,LX GB3LER>SP2,OE3,OE5 GB3MCB>SM3 CT0SIX>I5 10-1100 OY6SMC>DL,ON W1RA>CT YU1EO>OH5 11-1200 UR>DL,OZ CT0SIX,UR>I1 SM7>I1 GM,I3>DL S5,YM0>PA K4MM>G ES4>I2 12-1300 SM7,SM5>I1 YL3>I1,DL GD>IS0 K4PI,W4GF>DL N4IS>EI,OZ,DL W4SO>DL,G VO1ZA,NG4C>G W4GF,K6EID/4>EA7 SP8,OE9,PA>DL,YU1 EH1>I2 SP7>PA 13-1400 N4IS>F W4SO>GU,PA,DL,G K8WW>EA7,G,GM K4PI>DL,G,GM K4IQJ>G K6EID/4>G,PA K4LQ>PA W4GF>GD,G,DL K4QI>EA7 YM0>I5 LA>OE6 SV1>HB HZ1MD>5B VO1ZA>EA7 14-1500 YM0>DL,EH3,PA,5B W4SO>G,I1,I4,DL N3DB>EA7 W4GF>I5 TG9NX>GM GW>OK2 K4MM>I4 K4PI>I4,G K4RX>G,GM,EA5,EH3,I4,9A K6EID/4>G,GM W4ZEF>GM VP9GE>PA 15-1600 YM0>DL,5B,4X PA>I9 K4RX>I1,SM6,S5,5B,9A,SV1 K4QI>I1 EH3,JY9,5B>DL DL>EH5 UR>JY9,SM0 EH3>SP6 EH2>OK1 5B4CY>SV1 16-1700 GU>9A S5,YZ1>F UR>DL,I2,SP2 SV1SIX>SP6 DL>I5 I5>PA YM0,4X>OH5 EH3>DL,SP6 PA>I9 YM0>DL,9A,OH3,4X SM0>4X 18-1900 SV1SIX>F I1>S5 19-2000 GB3MCB>OE2 SP2>SM0 SV1SIX>DL 20-2100 CT0SIX,YU1>F 7Q7SIX>G F>9A UR>OH3 23-2400 HB0>EI

June 24 07-0800 SV9SIX>SP2 08-0900 UR,SV1SIX>I1 09-1000 SV1SIX>OZ,I0,EH3,DL EH8>I8 LZ2CC,YM0>9H SV9SIX>I5 OH9SIX>OZ 10-1100 SV1SIX>DL LZ1,YM0>9H 12-1300 CT>EA7 14-1500 I9>I1,ON SV1SIX>ON 15-1600 PA>9H,DL SV1SIX>I5 OZ>EA3 I0JX>DL EH6>OM3 I8>PA CN8MC>F,I1 3Ctv>SV1 F>9H 16-1700 HB>F,I2 I0JX>PA 4X4SIX>SV1 4X,JY9>F EH3>9A OH9,UR>DL ES2>OK1 YM0>ES1 OM3>RK3,ES1 OH2>I4 ES2>OE5 OH2>ON UR>PA LA>SQ6 17-1800 LA,SL6>I9 LA,UR>DL,PA OH6>I0 OH3>I3 OH2,OH0>I0 OH6,OH0,OH3,SM3>F LY>EA7 SM0>OE5 OZ,LZ2,YM0,YU1>4X LA>OE5,ON,JY9 OH0>EI YM0>ES1 SM0,ES6>LX OH2>I2,I8 UR,OH0>EA7 GM>SP6 OY6SMC>DL OZ>HA1 18-1900 OH0>OZ LA,YM0,GB3LER,OZ,OY6SMC,TF,SK4>DL GM>S5 PY5CC>DL UR>9A,DL ES2,OH6>I8 LA>I0 YU1>DL OH8>PA OH0>I5 JY9>SP2 SV2>ES1,RK3 SM2,OH0>ON,I6 DL>I2 OZ>I8,I2 JY9>OZ,YO7 SM4>ON SK7>I9 UR>EA7 GM>I1 OH2>I5 G>9A 19-2000 SM7>I9 TF>ON,I8,I5,IS0,DL,PA LA>F 9A>LX OH0>IS0,F GB3MCB,GB3IOJ,EI,F>9A EH7,YM0,Z3>DL OX3SIX>I5 LA>EA7 IS0>OE F>S5 G>9H OZ,ON>CT EH7,EH3>OZ 20-2100 EH2,EH7,TF,S0,YM0,I7,CT>DL EH1>PA,OZ LY>I5 CT>9A EH7>OK1 G>CN YM0,S0>OZ I9>OK1 CT>S5 S0>PA,I0 Z3>ON SP5>I0 9H>OZ 21-2200 9H>DL,OZ I9>OZ EH1>I0,DL,9A GB3MCB>I7 F,CT>9A YU1>CT CT>EI 22-2300 CT>DL,EI EH1>DL OZ>CT I5>EI VE1YX>EA7 23-2400 VE1YX>CT N1RAM>EA7 K1GUN>EA7,9H

June 25 0649 DL>PA 08-0900 4X4SIX,5B>9H CN>5B,ON,F 09-1000 CN8MC>9H,I0 CT0SIX,HZ1MD,I9>9H HB>DL I8>I0 1058 SV1SIX>OZ 11-1200 UR>I1,I2 YM0>OK1 G>EA1 12-1300 K2PLF,N3DB>CT N3DB>EA7,EA5 W1JJ>EA5,EA7 13-1400 CN>9H VE1ZZ>G,EA7 NG4C>EA5,EA7,CT VE1YX>CN AA1K>HB W1JJ,W3EP/1>G VO1MP>EA7 K3TKJ>EA7 GM>I1 G>PA(t) 14-1500 VO1MP>G VO1ZA>G,EI CN8MC>I0 5B4CY,OD5SIX,4X4SIX>SV1 EH7>I5 15-1600 EH8>I0 S55ZRS>EA5 16-1700 EH5>HB W3EP/1,W1CWU>EA7 W1JJ>EA7,CT,9H,IS0 W1OU>9H VO1ZA>G 17-1800 JY4>EA7 W1OU>I9 YM0>OE,OK1 EH1,EH7>DL CN8MC>OK1,DL OZ>CT I4,G>EA3 18-1900 G>EA3 F>9H EH3,D44TD>DL YM0>HB,9A SV1SIX,EH3>OK1 F>ON UR>4X EH8,EH1>9A PA,ON,CT,F>I8 I0>EA1 IS0>LX CN>I5 PY1VOY>PA PY1RO>PA,OZ,DL LZ2CC>4X EH6>OK1 19-2000 PY1VOY>F PY2XB>PA,DL IS0>F GB3MCB>OK1 EH1>PA HB>LX,EA3 OK2>CN F,EH9,CN>DL HB>D44TD EH8>9A I3>EA3 CN>OK,9A,DL,HB CT>SV1 DL>EA3 S0>PA 20-2100 CN>DL,F,EA1,9A CT>EA3 S0>PA,DL IS0>F OE3>OM3 YM0>TA1 CT>I1 CT3>CT,9A,I2 F,G>CN 21-2200 SV1>9H CN>F,DL EH8,EH9>9A,DL LA,DL>CT EH9>I2,PA EH8>EA7 CT2>CT 22-2300 CN>9A,DL CT>DL,OZ,9A YU1>CN I1,GB3IOJ,F,GU>EI TF3SIX>CT CT3>DL CT,EA8>PA LA>CT VE8BY>GM 23-2400 CN>DL CT0SIX,F>EI OZ>CT EH1,EH8>PA PA>CT CT>OZ

June 26 0503 UT3>4X 0657 G>SP6 07-0800 ES1,G,GM>PA GB3MCB>OE3 CN>OZ DL,GM>HB OH2,OH6>PA GM>SP9 LA>DL 08-0900 ES1>ON,SM3 GM,ES3,SM6,FX4SIX>DL GM,SM5,OZ7IGY,ES1,OZ6VHF,LA>F GM>SQ6 LA,SM5,OH2,F>PA SM5>ON GM>I5 GB3LER>OE3 09-1000 OH2>PA GB3MCB,G,F1GTU>DL LA,G>OK1 LA,GM>F GB3LER,GB3MCB>OE5 OZ>ON,PA G>HB LA>F SM7,OZ,EH1,EH5,EH7,LY>PA CN>OZ 10-1100 SM7,SP,CN,EH2,F,CT>PA CT,G>HB SV9>I5 F>OZ CN>OE5 EI>OK1 EI>S5,9A G>9H GB3IOJ>DL OY6SMC>SP2 11-1200 G>SP2 EI>HB EH2>OZ LA>CT F>PA EH1>EH3 EH8>ON GU>SP2 ON,EI,EH9>PA 12-1300 LA>EA7 EI>HB,DL GM,I9>HB EH9>OZ G>HA1 UR>9H GB3LER,OZ6VHF,GB3BUX>F CT0SIX>PA G>DL GU>SP6,DL CN>OZ 13-1400 GM,CN,LZ2CC,F, LZ3RX,OK1,LZ1,I7,SV1SIX>F SV9SIX>SP9 EH7>I5 Z3>OZ LZ1>HB 14-1500 I9>I7 I7>SP9 9H1SIX,SP5>I7 HZ1MD>I0,I1,I5,I8 4X>I7,DL YU1,Z3>I9 JY4,SP2>I0 Z3>PA YU1EO>PA 15-1600 SV9>DL,HB CN8MC,SV1SIX,SV9SIX3Ctv>F OX3VHF,JY4>EA7 16-1700 WD5K>PA(?) JY4>9H EH8>DL K1SIX>F,EI N1RAM>F,EI VO1ZA>F A61AJ>F,DL 4X>PA,DL VE1RG>G VE1YX>G,EI,PA,DL,F,9A LZ2CC>DL K1TOL>DL,G,I2 4X>EA7 CN>EA6,DL,OK1 YO9>9H SV9>I1 JY4>DL YU1>9A CN>EA3 WA1T>DL 17-1800 OY6SMC>F VE1CZ>G VE1YX>ES1,GW,GM,9A,SP8,DL,OZ G>EA5 UR>OE3 LA,EH5,JW9SIX,YL2,UR, CN>DL CN,SV4>OH3 N1RAM>9A,DL,I0 EH5,CT,EI>ES1 GM>S5 LA>PA CN>CT K1TOL>DL,9A OH6>F LA>EA7 YU1>I2 W1JR>GM 1700-

10 EsFM>OH5 18-1900 VE1YX>9A,OH7 N1RAM>OK2,SV1,LY GM>PA SM3,OH5>F K1SG>DL W1CWU>GM,EA5 VY2SS>G WA1T>DL SM0>CN 9H>OE3 GM>DL CN>EA1,F,ON I8>I1 K1EM>DL VE2TH>F,I9 VA2MGL,VO1MP,VY2SS,K1SIX,W1RA,K1TOL,LA,OH9,OH8>F G>DL CT3>CT OH6>HA5 1800-30 EsFM>OH5 19-2000 K1BXC,K1BZS,K1WHS>EA5 WA1ECF>G WA1JAS>DL,GM K1TOL>OZ LA>LY W1CWU,WA1NPZ,K1BXC>F VO1BC>GM,9H VO1ZA>9A,F WA1NPZ,W3EP/1,K1DZS>G VY2SS>ES1 WA1ECF,K1WOS,VA1LW,VE2BKL,K1DZS>F CT>CN EA9>9A OH9,GM>DL GM,OH9>F G,I2>CN TF>OK1,PA,DL,I5,CT W3EP/1>I1,F OX3SIX>ON VE9AA>DL K1SIX>DL OX>EI 20-2100 KM1E>F,G HB,LX>CN VE1YX>DL,HB GB3LER>DL AA6TT/1>DL TF>CT,9A VE9SM,W1EN>LY K1SG>F VO1MP>DL W1JJ>F OX3VHF>EA7,G,EI,F K2OVS>OZ WA1JAS>G GM>9A VE2TH>DL GM>DL K2PLF,K2MUB>G EH3>CT(short) K3KYR>PA,DL,9A,G CT3>CT TF>F YU1,UR >4X GM>ON 21-2200 VE3RM>GW,G,ON CT2>DL KT1J>PA VO1MP>F K2PLF>DL VA3KA>F K3UL>G GM>CN AA6TT/1>DL OY,CT2>PA TF>EI,F OX3VHF>DL VE3KKL>ON CT2>OZ,PA K1GUN>ES1 OY6SMC>F I0JX,I5MXX>LY GB3RMK>DL G,EH3>EA1 EH9>F GB3LER>EI OY6SMC>EA7 CT>PA 22-2300 CT>F EH9>DL CT2>I5 23-2400 LA7SIX>PA VE3RM>I5

June 27 06-0700 5B,CN>I1 JY9>YU1,SV1 07-0800 JY9>I8,F EH7>OE3 CN>JY9 08-0900 EH7>HB,JY CT0SIX,CN8MC>EI EH4,CN,ES4>HB CN>4X CT0SIX>EI 4X>I9 09-1000 EA3>I4 CN8MC>I3 EH7>HB 9H1SIX,SV9SIX>4X CT0SIX,CN>I5 OD>5B CT3>F,I0 OM3>OK2 CT>I5 10-1100 4X>I1 - data missing - 12-1300 CT>I2,HB I9>I7 GU>EA2 EH2>F 13-1400 EH7>PA,I2,HB I7>EA1 EH1>PA CT>ON,PA EH2>F EH5,CT0SIX>PA G>F CT>ON 14-1500 FX4SIX>I0 4X4SIX,CT0SIX>F,I0 SV9SIX>DL OD5SIX>F IS0>PA EH2,4X,I9>I7 EH5>S5,I3,I7,SP9,OK2 SV8>4X 4X>SP9 F>OK2 15-1600 OD5SIX>DL 5B4CY>F,SP9 GU>I4 EH2>S5 UR>I7,4X,I9 4X>F,OK1,OK2 I9,I0,EH7>PA SV4,EH5>SP9 LZ2CC,LZ1>S5 GW>I9 OD5>F,OE5,DL,I9,9H EA5>SP2,EI 5B>OK1 JY4>OZ 16-1700 4X>I9,OZ JY4>I9 SU1SK>9H YU1EO,EH1,CT>F YO9,OD,T9,YU1,YT4,LZ2>DL G,GI>CN TF,YO9>PA OD>SP9 PA>I4 I4,I0>SP3 17-1800 YT4,YU1>DL S5>SP3 CT,HB>SP9 CT>F,SQ9 OM5>DL(v.short) EH7,UR>ON OD,CT>DL EH4,SP4,SP5,SP8,LY,OM3,LZ2CC,YO7>F 4N>PA,OM5 PA>4X SP5>EA3 OM6,YT4,UR4>PA SR9FHA>HB OE8,S5,YU1,SP8,SP5>DL GB3BUX,FX4SIX>SP9 SP9>EA3 18-1900 SP5,SP9,UR,SP8,YO7,SP5,YO2>DL YO2,SP8,UR,YO9>PA YO2,CT,UR>EI HB>OK1 UR>OE5,9A 19-2000 S55ZRS,5B>EI 5B,YO2,UR,SP3,G,YO8>PA YO4>DL F>CN OZ>I2 G,F>OK2 I5>SP6 20-2100 UR>DL JW9SIX>OH2,DL JW5SIX>OH2,SM0,OH3 9A1CAL>EI LZ2CC,LZ1JH>SP2 GD,GB3MCB>9A SM7>I5 LY>F GB3BUX>9A F>DL 21-2200 F>DL SP2,GB3BUX>F SM7>I0 G>F 22-2300 LA7SIX,JW9SIX>PA GB3LER>LA 23-2400 LA>OZ JW9SIX,JW5SIX,EH5>PA TF>LA,EA5

June 28 0055 UT5G>EA1 04-0500 SV9SIX,SV1SIX>SP2 LZ1,4X,SV9SIX>OK1 LZ2CC>HB 05-0600 SV1SIX>OK1,F GB3RMK>PA(ms) JY9>IS0 06-0700 OZ,SV9SIX,JY9>F UT5G>SP2 JY>I1 UR>OK1 I0,4X>IS0 9H1SIX,SV9SIX,4X,I9>I1 07-0800 9H,CU1>CN UT5G>OZ SV1SIX>SP9 UR>DL,OK1,SP2 08-0900 UR>SP2,OZ,I2,DL,I1,SP6 EH8>SP2 4X>OK1 ZB2>I2 JY9>EA7,IS0 LZ2>I5 SV9SIX,SV1SIX>I2 LZ1>DL CU1>CT,EA7 CT>I5 EH8,F>EA7 SP7>I1 09-1000 9H>DL,I1 EH9>F I3>4X UR>SM0,I4 I9,EH7 UR,9H>DL EH8>EA7 SV1>PA 9H>HB,I2 SV1SIX>OZ,DL S5>4X UR>EI,F,OK1 I9>HB CN8MC>I1 CT>I5 10-1100 4X,GJ>DL G>OK2 EH7,GD>4X 9H1SIX>HA1 UN6P>5B,I0,S5 5B4CY>I1 YO9,GD,GW>I2 EH8>I9 LZ1>RK3 CT>EA5 GI,OZ>I1 GJ,SV1>DL EH6>EH7(short) LZ2>I0 CT,EH8>EA2 4X>EA7 S5>ON SV1>LX 11-1200 UR,YO3,SV1,LZ3,SV3,SV9SIX>DL CT>EA5 EH3,JY9,T9,UR>EA7 SV2,I9,UR,I8>HA5 9H1SIX>OE5 JY9>OK2 EA9>EA2 I7>EA3 YU7>I0 UR>I2 F6IKY,GI>EI EH9>S5 SM3>RU3 12-1300 UR>OM7,EA7,DL YO7>EA5 5B4CY,UT5G>DL SV1SIX>PA CT>JY9 EH8>F UR>SP2,OZ 9A>EA5 5B>EA7 SV1>SQ6 13-1400 4N0SIX>HB LZ1,I8,9A>DL LZ2>SM0 A61AJ>I0,9H,I9 9A>ON,DL LZ2>ON 9A>PA UT5G>SV3 14-1500 5B4CY>I9 UT5G>9H S5>9A aurora SV9SIX>I0,YO3 15-1600 A61AJ>I4,9A,YU1,EA6 OD>I9 CT3>F OD>9A 16-1700 A61AJ>CT,9A,I7,EA7,I5,EA5,I0 9H>SV1 JY4>9A,F,I7 CT>I1,CT3,DL CT0WW>F CT3>EA6,I8 G>CN 5B>EA6 EH1>F 17-1800 5B>CT I0>I9 OD>CT,EA7,I8 SV9,4X>CT GW,9H,CN8MC>F F,G>EH5 9H>I7 CT>LX,I1,I9,HB EH4>LX CN8MC>DL,EH7>I7,I9CT3>EH5 UR>I4,SP8 18-1900 CN8MC>EI CT3>DL,ON,PA,EI,S5 CT,UR,EH4,SV1>DL IS0>9H CT>ON,PA I6>OZ TF>EI,F OY6SMC>EA7,EI GB3LER>EI SV1SIX>SP9 I9,I0>EH5 G>ON UR>OE5,OK1 GW>CN 19-2000 TF>EA7 CN8MC>DL,I1 GD>OK2 CT3>SM4 UT5G>ON SV1SIX>PA CT,I0JX>OE5 TF>CT3 EH7>DL EH7,JW7SIX,TF3SIX,JW5SIX,OY6SMC,GB3LER>F G,PA>CN 20-2100 CN>ON,DL CN>LX G>9A EH8>OK1,DL,PA 21-2200 GB3LER>9A UT5G>PA CU8>I0

June 29 08-0900 LX>DL I6,I8>I0 OD,EI>9A 09-1000 SV9SIX>I0 EH8>I8 S5>F 10-1100 5T6M>G,I8,I9,I4 11-1200 5T6M>GU,I2,G,9A,ON,DL,EA1,S5 CT0SIX>EA7 CN>ON,EI 12-1300 I3>I1 CU1>EA7 C6A/W6JKV>EA7 13-1400 C6A/W6JKV>G,EA6,CT,GW TF>EI 14-1500 C6A/W6JKV>CT,5B,GW,S5,G,9A,IS0 FG5FR>CT CT>EA1 5B4CY>EI FX4SIX,S5,CU2>9A 3Ctv>PA 15-1600 ZB2>DL,I6 C6A/W6JKV>IS0,I9,9A,I0,I2,9H,I8,OZ,DL,S5 9H>ON ZB2>DL VP9/GM4COK>IS0 F>I3,SP6,9A,OM7 CU2>EA1 G>S5 I9>PA I0,EH3>SP6 I9,I0,ZB2>DL I1,S5>9A 9H,I2>HB UR>4X 16-1700 F,G,LZ3,DL>I7 YU1,ZB2>F I0,EH5,F>DL OZ>I2 CU8>EA3 F>EI SM7>D44TD YU1,SV8,YT4>EI EH6,G>9A OE5,C6A/W6JKV>DL GD>I1 YL3,G>HB 4U1WRC,HB>9A LZ2>EA5 GU>5B 7Q7SIX,OE6>ON 17-1800 OZ>I3 LZ2>OH2 D44TD>G SP2,HB,DL,S5,F,OK1,UR,PA,SV8, TF,GW>DL ZB2,SM6,EH1>HB LA,PA>EA3 OD>S5 UR>I1

LZ1JH>OE3 OH8>F CU8>I0 OZ>OH6 SV9>PA ZB2>EI HB>EA5 G>OM7 TF>9A,HB 18-1900 GI>OK1 TF>DL,F LZ2,LZ3>OE3 EX2,F,OH0>OH2 GM>I3 I9>UR GI,GU,TF,CN8MC>DL GD,GM>OK1 CU8>CT,DL,ON OK1>PA GU>CT 4U1WRC>F G>DL TF>9A W1RA,VO1ZA>EA7 K1SIX,W1JJ.KP4EIT>CT TF>S5,9H,9A 19-2000 W1JJ>EA7,EH6 TF>I2 GI,GB3RMK>OE3 OZ>9A CT,EI,G>DL UR>EA1 OX3VHF>ON CU8>DL,PA,I,CT VP9/GM4COK>I5 EX2>9A EI,PA>HA6 EH7>CT,9A W4MYA>EA1 G>HA6 OG3>EA1 NG4C>CT VE1YX>CN I5>OZ F>SM0 GM>9A FG5FR>I0 EH6>EI CN8MC>DL I0,LY>SP2 OZ7IGY>F 20-2100 CN8MC>DL FG5FR>DL,G,I1,EA3,OM3,I4,F,EA5,CT CT,OZ>F EH8>EI F>CT LZ3>DL PI>ON GI>EA1 KP4EIT>I5 N4AVV>CT PY5CC>GW,PA,DL,G I3>CN GI>I5 CU1,I5,UR>DL LY>I5 YU7>DL 21-2200 FM5WD>SP6,F,I5,EA1,OM8,DL,G,HB,OK1 VP9/W3CMP>I4,F,9A,F, I2,I0,CT ZF1DC>CT I3>I2,9A EI>HB S5,F6IKY>EI HB>IS0 HC2FG>CT OZ>I7 22-2300 VP9/W3CMP>I5 FM5WD>F FM5WE>CT EH1>SM0 F>EH3 2304 VE8BY>GM

June 30 05-0600 SV1SIX>SP2 BG9BA,UO6P,UK8OM>5B SV8,LZ3>UR SM7>SP2 UT5G>PA I5>S5 OM3>SP2 07-0800 UT5G>I0 UR>PA,DL,HB,I0,I6 LZ3>DL,UR S5>SM6 I0>ES1 I6>OZ 08-0900 LZ1,Z3>DL I6>OZ,SP6 SV1SIX>SP9,PA I5,I6>UR UT5G>PA LZ3>PA,SP6 RU4>5B SV9SIX>SP8 9H>OZ 09-1000 I8,5B>OK1 SV3>DL 10-1100 SV1SIX>I0 SV3>DL,SP2 I9>UR,PA SV1>DL,OK1 4X>I0 11-1200 EH3,5T6M>DL CT3>EA7 LZ2CC>I5 12-1300 SV1>I5 LZ1JH,LZ2CC>DL OM3>SP9,OM3 14-1500 5T6M>I9,9H CN8MC>I9 4X>9H,EA5 15-1600 5T6M>I7,I4,9A,SV1,DL EH8>5B,I9 16-1700 UT5G,YO3>I2 5T6M>I5,F,ON,GW,PA,OK1,,G YA4F>DL I9>EA3 SV1>SP6,DL SV8>OK1,PA,DL LZ2>LX 4X>DL,EA6 SV1SIX>OZ 5B4CY>OZ,OE5 SV9SIX>F I9>EA5 9H>EA3 I9>I8 JY9>EA7 I9>I1 17-1800 5T6M>OM3,OE8,ON,LY,I6,DL YA4F>DL,PA,9A,IS0 I5>F OD>OM3 4X>PA UR>EH1 JY9>I8 4X,SV4>PA I9>F YO3>I2 OD,SV8,OE3>DL EH7>HB 18-1900 4X>ON,DL T9>PA CT0SIX>EI 5T6M>G,DL UR>F I5,SV8,SV2,PY1RO,9H,CT>DL SV2,JY9>PA CN8MC,JY9>E YA4F>F CT,SV2,I1>ON 5B>EA7 T9>I2 9Y4AT>CT,F PY1VOY>DL 19-2000 9Y4AT>F PY1RO>DL,F,GW PP5JD>F,ON,GW PY2TVI>I5 PY2PAI>I6 CU2>CT EH8>EA5 LU7DZ,5B,T7,CN8MC>F LU3HR>ON,PA JW7SIX>OH6(mode?) PY1RO>LX,G OD>F,I2 F>HB GW>CN 20-2100 PY1VOY>G YL3>EA5 EH3,F,EI>DL IS0>LX S5>I2 JW5SIX>ES1 LU3DQV>GW 9H1SIX>S5 9H>HB,F CN8MC>EI0CT3, KP4EIT>CT JW9SIX>OH7,ES1(mode?) EA3,S01HA>DL 21-2200 S01HA>DL,CT YV4DDK>I1,I0,I5,CT EH4>DL EH8>EA2,I5 FM5WD>I5 WP4LNY>CT EH8,CN,EH7>CT3 LA7SIX>OZ 22-2300 F>I5 FM1DQ>I1 CU1>I9 G>EA7 HK4BKB>EA7,CT HI8ROX>CT,CN EH1,CT>EA3 3A>I5 FB5BG.FB5FR>EA7,CT 23-2400 FG5FR,FM5WE,FM5WD>CT FG5FR>CT3

50MHz PROPAGATION REPORT FOR JUNE 2003 BY SV1DH

1. Data for all days (30)
2. Relatively good days on: 2,3,5,6,9,11,13,14,17,21,23,25,26,28(+)
3. 48 MHz AF video (3C)on: 10,16,24 (R=10%)
4. 55 MHz AF video (5N)on: NIL
5. " to EH8 on: 13,29,30(2E)
6. " to CT3 on: 19,25,28,30(2E)
7. " to EH9 on: 2,11,25
8. " to CN on: 11,13,19,22,25-28,30(2E) (R=33%)
9. " to SU on: 13
10. " to 5T on: 30(2E)
11. " to W on: 6(1545-1945! W1,3,4 weak sigs-NEs),23(1300-1515 W4 weak),26(1730-1900 W1 strong) (R=10%)
12. " to VE on: 6 (VE1-NEs),26(1730-1830 VE1,2) (R=6%)
13. " to 5B on: 1,2(B),3,11,17,19,21,22,23,25,28 (R=37%)
14. " to 4X on: 1,2(B),5,6,9,11-14,16-28,30 (R=77%)
15. " to OD on: 1,3,14,17,19-23,25,28,30 (R=40%)
16. " to HZ on: 26(E)
17. " to JY on: 2(B),5,6,17,25-28
18. " to A6 on: 9,28(2E)
19. " to JA on: 28(1245-1300 weak NEs)
20. " to YA on: 30(2E)
21. " to VK8 on: 13(1100z short-NEs+F2?)
22. " to F on: 2,5,6,8,10,13,15,17,21,22,23,26,28,30
23. " to 3A on: 5,6,28
24. " to I on: 1-8,10-13,15,17,20-30
25. " to IS on: 6,22,26,28,29

26.	“	to T7	on:	1,5,6,8
27.	“	to CT	on:	5,6,13,21,25,26,28(2E)
28.	“	to EH	on:	1,2,4-7,11,13,16,21,23,24,26,28-30 (1+2E)
29.	“	to EH6	on:	2,5,6,7,13,27-30
30.	“	to 9H	on:	2(B),21,25,28,30(E)
31.	“	to DL	on:	2-9,11,13,17-19,21-24,27-30
32.	“	to HB	on:	2,3,5,21-24,26-29
33.	“	to SP	on:	2,3,5,6,7,9-11,13-15,17-20,22-30
34.	“	to OK	on:	2,3,5,7,11,13,17,20,23,25,26,28-30
35.	“	to OM	on:	2,3,7,17,24,25,29
36.	“	to HA	on:	17
37.	“	to LZ	on:	11,17,24,28
38.	“	to YO	on:	7,11,21
39.	“	to YU	on:	2,3,7,25,29
40.	“	to 9A	on:	2,3,6,7,11,17,19,21,29
41.	“	to S5	on:	2,3,6,7,8,11,17,18,23,26-29
42.	“	to T9	on:	11,29
43.	“	to OE	on:	3,5,8,9,11,13,17-19,25,26,28,29
44.	“	to 4U	on:	5
45.	“	to LX	on:	2,3,5,6,13,15,28,29
46.	“	to ON	on:	2,5,6,13,17,21,23,30
47.	“	to PA	on:	2,3,5,6,8,9,17-21,26,28,30
48.	“	to OZ	on:	2,17-19,23-30
49.	“	to G	on:	2,3,5,6,10,17,21,22,28,29
50.	“	to GW	on:	5,6,21,23,28(B),29
51.	“	to GD	on:	6
52.	“	to GM	on:	17,26,29(2E)
53.	“	to GI	on:	6,26(2E)
54.	“	to EI	on:	5,6,17,26,28,29(2E)
55.	“	to UT	on:	1-3,10,11,17,21-24,26-30
56.	“	to LY	on:	2,3,7,9,24,28
57.	“	to YL	on:	5,23,28,30
58.	“	to OH	on:	9,24(1+2E)
59.	“	to OH0	on:	24
60.	“	to SM	on:	5,9,24,30(1+2E)
61.	“	to CU	on:	10,13(3E)
62.	“	to SV	on:	17(B),28(SV7, 430Km short skip)
63.	“	to SV9	on:	28(B)
64.	“	to Z3	on:	28

65.Special events on:

- 1 (10C+5M flares,max M1.4,xray bgd C1!+1030 EH8 55Mhz video)
- 2 (9C+4M flares, max M7.0+1230-1340 SV to I+IS+DL on 2m Es)
- 3 (0930 5B to VR2 F2+NEs?+1030 foF2=9.3Mhz)
- 5 (1030 5B to JA1,7 NEs+1545-1715 C. EU to KP4+HI+ZF 1600 IT to ZF+1830 TF to JY+FS to C.EU)
- 6 (1030-1230 W.EU+9H to W1+VE1+1445-2000 wide EU to W1-4+VE1)
- 7 (1530 9H to W4 short+1645 EH8 55Mhz video)
- 8 (1611 M4.0 flare)
- 9 (1430 5B to A6+YB+1515 DL to UN+A4+A6)
- 10 (7C+11M+1X flares+C3 xray bgn+1815 M5.6 max+2353 X1.4 flares)
- 11 (4C+9M+1X flares+C5 xray bgn+0025 M7.8 max+2015 X1.6 flares+0915 foF2=9.5 MUF=30Mhz+1830-1930 9H to KP4+9Y+1945 I2+S5 to 9Y)
- 12 (12C+4M flares+C3 bgn+0130 M7.3 flare+0915 foF2=9.5 MUF=28Mhz +1115 5B to BV+9M+JA NEs!+1930 9H to V2+2030 I+9A+S5 to KP2+2200 I5 to V2)
- 13 (8C+3M flares+C3 bgn+0204 M3.1 max+1045 foF2=9.2,MUF=26Mhz+1600 9H to W1+VE1)
- 14 (8C+M flares+0909 M1.5 max+1015 5B to HZ Es)
- 15 (7C+X flares+2356 X1.3 max+B7 bgn)
- 16 (1C+2M flares)
- 17 (4C+1M+2255 M6.8 flares+0945 foEs>20Mhz+1600-1740 SV1 to F+DL+HB+EA3+ON+PA+I+S5 on 2m!)

- 18 (0845 5B+PA to HZ NEs+1330 5B+9A to A6+1345 5B+IT to YB+ IT to VR+1400 4X to YB+1830 I to PY5)
- 21 (1945 OK+DL to PY5+G to ZD8)
- 23 (1245 5B to JA1 NEs+1345 5B to HZ)
- 24 (1800 PY5 to N.EU)
- 25 (0900 9H to HZ+5B to CN 2Es+0915 EA+CT video to W2+VE1 very early+1845 PY1,2 to DL+OZ+PA)
- 26 (1600-2100 widespread strong opening all over EU to W+VE)
- 27 (100 5B to UA0+JA NEs)
- 28 (1300 5B to JA +1615 SV1 to EA5 on 2m short)
- 29 (1600 SV1 to EA5+1745 to DL on 2m short)
- 30 (0600 5B to UN+BG +1730 CX to EM1U cq EU+2030 GW to LU)

66. DXCC entities heard/worked during JUNE 2003 : 60! on 5 cont
 67. DXCC entities heard/worked on 28th JUNE 2003 : 35 on 3 cont.
 Very good multiple hop Es month.

73 COSTAS

The Americas

Auroral-Related Propagation

June 1 2325-7 N8PUM>W9(EN44 52a) K0KP>W9(EN44 54a)
June 2 06-0700 VA2MGL>W1(569) N8PUM>W1(58a) 0711 VE4VHF>W1(AE 579) 23-2400
 VE3UBL>W1(FN43) N8PUM>W9(52a EN44)
June 8 0451 WR7V>VE6(mode?) 05-0600 KL7>VE6 KL7/KG0VL>VE6(599a) VE7(CO88)>VE6(DO33 55a)
 VE7FG>VE6(DO33 535a) 2048 VA2MGL>W1(FN43 52a) 21-2200 K0KP>W1(FN43 53a)
 VE4ARM>W9(EN44 56a)
June 9 0428 W7(DM37)>VE6(DO33 59a) 0438 KL7/KG0VL>VE6(DO33 529a) 0440 VE8NY>VE6(mode?)
 22-2300 W1(FN43)>W8 W1>W2 VE3>W2 VE3(FN25)>W3 W1(FN35)>W1(FN32) 23-2400
 W1(FN43)>W3(EM99) VE2(FN25)>W1
June 15 0544 K0KP>W9(EM44 55a/AE)
June 16 0318 VE6>VE6(DO42) 19-2000 VA2MGL>W1(FN53) W8(EN84)>W1(FN43 55a) 20-2100
 VA2MGL>W1 VE1>W1(55a) VE3UBL>W1 W1>W4 W8>W1(FN41) VE3>W1 2128 W2>W1 23-2400
 W8(EN80)>W3(FN00 mode?) 2317 W3(FM18)>W3(FN00) W4(EM77)>W3(FN00)
June 17 02-0300 VA2MGL>W1(55a) W1(FN44)>W8(EN61 55a) W1(FN43)>VE3(FN06) 03-0400
 W0(EN36)>W9(EN60 55a) W0(EN36)>W8(EN51 59a) 0429 W0>W0(mode?)
June 23 00-0100 VE8BY>VE6(519au)
June 25 23-2400 VE1YX>W1(mode?) K0KP>W9
June 26 00-0100 VE4ARM>W9(EN44 53a)

Other Modes

North<>South America

YV 5 days 14(W4) 15(W1,W2,W4,W8) 16(W1,W4) 19(W3) 24(W1,W3)
 HP 4 days 14(W2,W3,W4) 15(W1,W2) 23(W1,W4) 24(W1,W2)
 HK 2 days 14(W4) 15(W1,W4)
 CE 1 day 19(W4)
 PZ 1 day 6(W1)

Apart from trans-Atlantic working, the month brought little of note. Since even the more assiduous reporters filed few spots it would seem this reflected propagation patterns rather than activity or under-reporting.

(However, the pathetic number of 'spots' for the ARRL contest suggest either the contest was a flop or substantial under-reporting.) There were many openings from the US to the Caribbean, clearly involving 1Es or multihop, which from time to time reached the northern fringe of South America. There was a single long-haul opening from the midwest to Chile on the 6th.

The only other reports of note were of EM1U in Antarctica being received in Uruguay on the 30th, openings from Alaska on the 10th(VE6, W7,W7) , 25th (W6) and 26(W7), a solitary ZL report from W0 - remarkable for the season and geomagnetic conditions if authentic - on the 18th (Ap54!) And the opening from the Pacific north-west on the 26th which went completely unreported from the US/VE side (thanks JA1VOK!).

June 1 1133 W2>W1 13-1400 WZ8D>W1 W1>W4 15-1600 W0>W1 W3>W0 16-1700 W8>W0(sc) 1759 W8>W5 1934 K0ETC>W2 2052 W4>W5 21-2200 W4>W5 S9SS>W4 C6AFP>W2 W4>W3

June 2 16-1700 W5>W4 17-1800 W4>W8,W5 18-1900 W5VAS>W2 W4>W0 19-2000 W8>W0 W5HN>W8 W5>W3 W9>W4,W0 20-2100 CO8DM>W3

June 3 02-0300 K6FV>W8 XE2>W6 03-0400 W7>W6 0445 XE2>W6 2145 W2>W1

June 4 0121 W3>W3 1205 W1RA>W4 1321 CTtv>W4 14-1500 XE2>W9 W9>W3 1530 KB8GC,W6>W4 16-1700 ZF2PB,W6>W5 W5>W8 17-1800 W8,W9>W5 KU4WD>W1 18-1900 XE2>W6 2241 CN8MC>W1

June 5 01-0200 W6,W7>W5 W5HN>W6 02-0300 W6,W7>W4 W7GZ>W5 W5GPM>W6 03-0400 W7,W6>W0 17-1800 W4>W0 XE2>W5 18-1900 4U1ITU>PY1

June 6 11-1200 W1>W8(bs) EH5FKX,EH5AEL,CN8KD>W1 12-1300 EH5AX>W2 CN8KD,W1>W1

EH5FKX,EH7RM,VO1ZA,CT1ALF,EH7RM>W1 13-1400 CT1EPC>W1 CO8LY>W4 14-1500

CT0SIX,CT1EEB,VO1ZA,VE1SMU,EA7KW>W4 W4>W1 15-1600 ZF1DC>W4 W4>W1 CT1ILT,IT9RZR,IT9XDJ>W1

VP9/W6PH,IT9IPQ>W4 F6FHP>W4 16-1700 W9>W3 17-1800 W5>W0 F6FHP>VE9 VP9/W6PH>W9 IS0GQX>W2

18-1900 IK5YZW>W5 19-2000 VO1>VE3 20-2100 VE9>W0(2xEs) W8,VE2MGL>W0 W7>W5 F5JJK>W4 21-2200

PJ7/K2GSJ>W8 VP9KK>W9 KP4>W3 22-2300 CTtv>W4 W4>W6 PJ7/K2GSJ>W9 EH6DD>W4 W4>W9 HI8ROX>W2

23-2400 HI8ROX>W0 W4>VE3 KP2>W8 9H1TM.F6FHP>W4 VE3>W9 PZ5RA,9Y4TL>W4 W4>W2,W9 W3>W5

W5>W2

June 7 00-0100 W2,W4>W9 W0,W5>W4 FY5LS>W4,W5 W5>W8 FG5FR>W5 01-0200 W4>W5 FY5LS>W0 W5>W9 K6FV,N7SCQ>W0 W4>W7(2x) W4>W6,W4 ZF1DC>W5 W5GPM>W6 02-0300 ZF1DC,W0>W5 W9>W7 W7>W0 0350 N7SCQ>W0 W0>W6 04-0500 W7>W0 W0>W6 0510 W0>W6 10-1100 GM4PLM>VE1

EH7RM,CT1EPC,EH7AH>W1 11-1200 CT1ILT,CT1EAT,EH4EED>W1 EH7KW,CT1DYX>W2 13-1400 W4>W3 14-

1500 W5>W5,W4 VE3>W4 W5CAS>W3,W2 K5NZ>W0 W7>W4 15-1600 W7GZ>W0 W9>W1 W6,EA7W,CTtv,W5>W4

W4,W5>W3 F5DE/P>W4 W5>W1 W2>W2 K4QTR>W5 16-1700 K0KP>W5 16-1700 W6>W5 1656 W5VAS>W0 17-

1800 XE1KK>W4 W5>W6 XE2,W0>W5 18-1900 TI5KD>W4,W5 W0>W2 W0,W3>W3 W8>W5 W0>W6 W4>W1

W6>W6 19-2000 TI2ALF>W2 TI5KD>W2,W9 XE1>W7,W0 VE4VHF>W0 W0>W4 20-2100 N8PUM>W2 XE1KK>W0

June 8 10-1100 W1RA>W4 1328 VE1SMU>W3 1555 W5>W7 16-1700 W5>W7 W7>W1 W0>W6 17-1800

N8PUM>VE6 N0LL>W6 W7>W0 aurora 2134 K0KP>W5 CEbc>W4 22-2300 W8>W2,W0 2344 W4>W4

June 9 00-0100 TG9NX,HR1CP,V31MD>W4 W7,W0MTK>W5 01-0200 K0KP,W7,W0,W9>W5 W9>W4 W0>W0 02-0300 W0>W5 W7GZ,W6>VE6 03-0400 W1RA,W4>W1 04-0500 VE7FG>W0 1214 W4>W4 1424 V31MD>W5 15-1600

TI2NA>W4,W6 HR1RBM>W5 ZF1DC>W5 16-1700 TI2ALF>W5 TG9AFX>W4 V31MD,ZF1DC>W5 17-1800

V31MD>W5,W7 TG9AFX>W4,W5 2059 ZF1DC>W5 22-2300 W5>W6,W7 W0>W7 23-2400 XE1,W5>W0 aurora

W6,WA7X,XE2,W5(short)>W5 W4>KP4 HI8ROX>W4 W6>W6

June 10 00-0100 W6,W0,XE2,W7,W5>W5 W3>W4 HI8ROX>W4,W5 01-0200 W6,W7,W0,W5>W5 W5RP>W9

KL7NO,W1>W5 XE2>W0 XE1>W6,W0 W5>W2 02-0300 W7,W6,XE2>W5 W5,W6,XE2>W4 VE6,VE7>W7

KL7NO>W5,W0 XE2>W0 W7GZ,W6>VE3 NL7ZW>VE6 AC3A>W5 VE6>W7 03-0400 W7>W9 W5>W1

WB0RMO,W0MTK,W5>W8 W6>VE3 W0>W1,W8 K0KP,KL7NO,VE3>W5 W9>W9,W2,W3 W0>W4,VE2

VE4VHF>VE3 W2,W5,W7,W0>W8 W3>W0,W7 W2>W3 NL7ZW>W0 KD4HLG>W1 04-0500 W4>W1 W8>W8

W7,VE6,W2>W4 W5RP>W6 W0>W3 KB8GC>W0 VE6>VE2 W0,W8>W5 W7>W9,W8 XE2,N8PUM>W5

WB0RMO>W2 KL7NO>W0,W5 W7>W0 UA0tv>W0 05-0600 KL7HBK,W3VD,W8>W0 W7>W4,W8 W0>W9

K0KP,W9>W2 W3>VE6 KL7R>W7 06-0700 VE7>W7 KL0RG>W7 11-1200 VO1ZA,VE2RCS>W4 12-1300 W0>W0

13-1400 W4>VE3 W3,W0,W7>W0 VE1>W3,W9 W7>W1 14-1500 CT3EN>VE9 W6>W4,W0 W7>W2, W5 W9>W0

W1,W7>W4 W4>W2 15-1600 EH7KW>W1,W4,W2 16-1700 W7>W9 W7>W4,W7 W4>W8 XE2> W7 EH7RM>W3

1831 W1>W9 19-2000 W0>W2 20-2100 W8>W4 W9>W8(short) W1>W5 Ehtv>W1 VE3>W4 CT0SIX>W3 21-2200

VO1>W3 NOLL>W8 VE3,W0>W4 W0,W9>VE3 22-2300 XE2,W6>W5 W5RP>W0 W7,XE2,W6>W5 W7>W0 23-2400 W0>W3,W4 WB0RMO>W8 W1>W2 W5>W0 W6>W2,W8,W3 K0KP>W5

June 11 00-0100 W0>W3,W8,VE3 W6>W5,W8,VE2,W9 XE2>W2,W0 W7>W9 VE3>W4 W3,W9>W7 TG9NX>W7 W1,W3>W6 W7>W5 W4>W1 01-0200 W1,W6>W9 W0>VE3 TG9NX,W9,W6,W7>W5 XE2,W6>W2 W0>W1,W3 W7>W3,W0,W2 XE2>W9,W5,W2,W4 W1,W3,W6,W8,W9>W6 VE1SMU,W1RA>W0 02-0300 W6,XE2>W2 W5>W5,W0,W6,W2 XE2>W0,W5 W6>W3,W8 W4>W7 W1,W0>W3 VA7SIX>W0 W0.03-0400 W5>VE3 W0>W6 XE2>W1 10-1100 EA7v>W4 KB8GC,K8UK,W3VD,W1RA>W4 11-1200 CO8LY,KP4>W4 12-1300 KP4>W5 YV4AB,HI9/K8WK,W4>W4 W4>W5 13-1400 W6>W5 W4>W3 YV4AB>W4 CO8LY>W1,W4 14-1500 W5VAS>W8 CO8LY,CO2OJ>W4,W3 W4>W6 15-1600 CO8LY>W4 V25XX,KP4>W2 16-1700 CO8LY>W4 21-2200 CN8MC>VE1 EH7KW>W3 W4>W1 W5>W3 22-2300 XE1KK>W7 W3>W5 W4,W1>W1 23-2400 W4>VE3 W0>W3 W4>W0,W6

June 12 00-0100 W4>W8,W1,W3,W0 W5>W8 W5,W4>W2 XE2>W5 01-0200 W5>W2,W5 W4>W6,W4,W1 XE1,N8PUM>W0 02-0300 W3>W5 W4>W0,W6 W5SIX>W8 XE2>W0 XE2>W0 0305 W4>W3 0533 VE7>W7 13-1400 W2,W8>W4 15-1600 W5>W2 W4>VE3 1657 W5>VE3 17-1800 EH3LL,EH7BYM>PY5 W4>VE3 18-1900 W1>W9 K0KP>W1 W2,W1>W9 19-2000 W0>W2 22-2300 W9>W5 W5>W8 KB8GC>W5 W7GZ>W9 23-2400 W0>W6

June 13 00-0100 W8,W1>W4 W4>W6 01-0200 AC3A,W5VAS>W1 W4>W4,W8,W3,W0 W0>W9 W7GZ>W5 02-0300 W3>W5 W4>W9 W0MTK>W5 XE1KK>XE2 03-0400 W7>W6 K0KP,W4,VE5>W5 W5,XE2>W7 04-0500 W4,W5>W4 1159 V44KAI>W4 12-1300 KP4,W3>W4 14-1500 W4>W3 VP9/N0JK>W8 15-1600 XE2HWB>W7 EH8ZG>W1 16-1700 9H1BT>VE1 9H1TX,9H5ZA>W1 1726 XE1KK>W6 18-1900 W4>W4 PY1>PY5 2028 W7>W9 21-2200 W3>W1 V25XX>W4 22-2300 V25XX>W5,W4 47.9(CE)>W7 HI8ROX,KP4,NOLL>W4 VP9>KP4 23-2400 V25XX>W1,W5,W2,W3,W0 W4>W5,W6 W5VAS,WR9L>W0 HI8ROX>W1,W4 W5>W5,W7 W4>KP4 VP9/N0JK>W4 XE2>W7

June 14 00-0100 V25XX>W3,W4,W2 HI8ROX>W2 XE2>W0 W5VAS>W9 KV2AA>W1,W2,W3 KF2HC/KP2> W2 VP9/N0JK>W3,W4 W6>W7 01-0200 W4>W7,W9 V25XX>W3,W1,W0 W6,XE2>W0 W7>W4 W6>W9 W5>W0 K0KP>W5 02-0300 XE2>W3,W9,W0 W2,W3,W4,W8,VP9/N0JK,W0>W4 03-0400 XE2>W0 W6>W7 W7>W5 V25XX>W4 04-0500 W6>XE2,W6 XE2,W7>W0 W5>VE6 XE2>W7 05-0600 VA2MGL>W9 13-1400 W1>W1 W4>W0 KP4>W4 W3VD>W5 14-1500 K2ZD>W1 W5,W8>W5 KP4,K0UO,W5,V44KAI>W4 V25XX> W4,W5 15-1600 TI2NA,W4>W9 CO8DM>W4 16-1700 CO8DM,KP2/K2ZZ,W7>W4 W7>W5 17-1800 V25XX> W5,W4,W9 W7>W4 W4>W2 W5>W7 V31MD>W1,W2 18-1900 W1,W4,W5>W1 W7,W3>W5 W5>W8 W7,W0>W9 CO8DM>W5 W4,V25XX>W0 VP9/N0JK>W0 W7>W8 TI5KD,V31MD,HK4BKB>W4 19-2000 HK4BKB,TI5BX,W3>W4 N3HBX,K3DNE>HP2 CO8DM>W9 W9,KP4>HP2CWB V25XX,KP4,W4>W5 HP2CWB, W4>W4 V31MD>W5 20-2100 KF2HC/KP2,KP4,YV4DDK>W4 V31MD,W5>W5 W4>W2 TI5KD>W9 W9, VP9/N0JK>W1 V25XX>W5 21-2200 W1,W3, W2>W1 HR1RMG>HP2 V31MD>W4,HP2 W4>W0,W4,W7 W3,W7>W8 TI2NA>W9 V25XX>W3,W0 PJ7/K2GSJ,HR1RMG>W5 TI2NA>W4 22-2300 TI2NA>W4 V31MD> W8,W5 W1,W3>W1 HR1RMG>W4 W4NH>HP2 W5,W9>W9 TG9NX>W3,W0,W5 XE1>W5 23-2400 W0>VE6 W8,W9,W2>W5 W7,W9>KL2A W8>W9 TG9NX,W7>W4 KP4>W0 VP9/N0JK>W4 W5>W3 W7,W0>W8

June 15 00-0100 W5>W3,W4,VE6,W9 W7>W0 W7,W0>W8 HI8ROX>W7 W9>W9 W0>VE6,W4 TG9NX>W0 01-0200 W6,W8,W9,W5>W9 W4>W5,W4,W6 W5,W8,W6>W3 KP4,W1,W5,W0>W5 W0,W8,HH7PV>W8 W7>W0 VE6>W7 V25XX>W4 02-0300 W0>W8,W5,W7 XE2K>W4,W5 W6>VE6 W3>W6 W2,W5>W9 W3>W1 VE7>KL2A 03-0400 W7,XE2>W0 W6,W7,W8,W0>W9 W6>W4,W5 VE7>W5 04-0500 W6,W7>W5 W5>W9 XE2>VE6,W5 W5,W6,W0>W6 W8>W8 W3>W0 W5,W6>VE6 05-0600 W5,W0>W5 W6>W0 W7>W5,W7 12-1300 W9>W4 W8,W3,VE9>VE9 V25XX>W4 13-1400 W4>W4 W9>W0 14-1500 TI2NA,TI2ALF,W4,TI5KD>W4 W3>W1 VP9/N0JK,W2>W8 W8>VE3 W9>W9 15-1600 V44KAI,PJ2/K2GSJ,KP4>W4 W9>W0 16-1700 XE1>W5 17-1800 W2>W6 W3>W1 9Y4TL,CO8DM,HI8ROX,VP5KE>W4 VE6>W6 W0>W0 W8>W3 18-1900 VP9/N0JK,CO8DM,VP5KE,PJ7/K2GSJ,W4,FM5WD,HI9/K8WK>W4 VE6>W6 19-2000 9Y4TL>W5 FM5WD,VP5KE>W4 W7>W5 KF2HC/KP2,PJ7/K2GSJ,9Z4BM>HP2 YV1DIG>W4,W8 YY5>YV1 20-2100 PJ7/K2GSJ,KP4>HP2 YV1DIG,V25XX,PJ7/K2GSJ>W1 9Y4AT>W2 21-2200 VP5KE>YV1,W4 KP2,PJ7,W4>HP2 FM5WD>W2 YV1DIG>W4 K7BV/1,W2SZ,W4SO,W1QK>YV1 PP8KWA>W1 9Y4TL,HK4BKB>W1 22-2300 9Y4TL>W1,W4 CO8DM>YV1 FG5FR,>W2,W4 W4>W3,W1 HK4BKB>W4 VP9/N0JK>W1,W4 YV4DDK>W1 FM1DQ,KP2BH,K1HWS>HP2 23-2400 FG5FR,KF2HC/KP2,KV2AA>W9 V25XX,W4,VP9/N0JK,YV4DDK,W8>W4 W4>W3 W8>W8 K7BV/1>HP2 W5>W5

June 16 00-0100 KP4,W0,W5,W6,W7>W9 W7,W5>W0 W3,K0KP,6Y5/YO3YB>W4 VP9/N0JK>W4,W3,W1 KV2AA>W4 W7>W5,W0 W4>W3 W1>W0 W0>W8 01-0200 W4>W0,W4 W7>W5 W0>W6 AD4Z>YV5 W1>W5 W0,W5,W6>W9 02-0300 W7>W8,VE6 W5>VE6 11-1200 48250,VP9/N0JK>W1 12-1300 VE2RCS>W4 VP9/N0JK>W2,W1 13-1400 W1RA>YV1 W4,9Y4AT,CO8LY>W1 VP5KE>W4 VP9/N0JK>W4,W5 W4>W9

K0UO,N0LL,W4>W4 CO8DM>W9,W1 14-1500 CO>W5 8LY>W4,W8 CO8DM>W5 W7>W4 ZF2BB>W5,W4
6Y5DN>W4 15-1600 V31MD,VP5KE>W4 16-1700 WA1OJB,XE2>W4 VP5KE>W4,W5,W3 V31PC>W4 18-1900
EH7KW>W4 XE2HWB>W0 TI5KD>W3 2233 W1>W3(mode?) 23-2400 aurora W0>W0

June 17 01-0200 W6,XE2,W7>W7 02-0300 W7,VE7,VE6,KL7>W6 03-0400 W6>W7,W0 W7>W7 03-0400 W7>W7,W6
WB0RMO>W7 04-0500 N0LL>W7 0507 XE2>W7 W7>W7 0602 WA7X>XE1 1514 W5VAS>VE3 1646 W5GPM>VE3
2147 TF/OZ5IQ(?)

June 18 0049 TI5KD>W4 0255 ZL1KP>WB0IQK(Ohio) 1458 W6SKC/7>W4 1520 VO1>W1

June 19 1339 EH7KW>VE1 1506 W4CHA>W9 1549 W4>W4 1651 W5>W9 18-1900 IK3ITB,PY2>PY5 22-2300
FM5WD>W4 W4>W2 K0UO,CE3SAD>W4 OX3VHF>W1 YV4DDK>W3 23-2400 W4>W5 VP9GE>W2,W4,W5 W2>W5
OX3SA>W4 FM5WD>W3,W4 HC8GR>HP2 W0>W3 W1>W2 OX3VHF>VE1 W5>W8 KP2,KP4,PJ/K2GSJ>HP2

June 20 00-0100 K0GUV,VE4VHF>W5 W4>W6 W1>W9,W5 W5,W4,W0>W8 W0>W3,W4 W9>W5,W7 TG9NX>W5
K0KP>W4 01-0200 W0>W4,W9,W0,W8,W3 W7>W1,W2 W5>W3 W1>W8 W9,W6>W9 VO1ZA>W0 02-0300
W9,VE3>W7 W4>VE6(2x) W0,W5,W6>W9 W5>VE6,W7 W8>W6,W8,W4 VE3>W6 W0>W4 03-0400 W8>W6
W6,W0,W7>W9 VE4VHF>W4,W0 W7>W4 VO1>VE3 04-0500 VO1ZA>VE3,W1 W7>W6,W9,W5,W0 1354
VP9/GM4COK>W3 14-1500 VP9/GM4COK>W2,W3 VO1>W2 OZ1DJJ>W4 15-600 W9,W4,W6,W0,W8>W1
FP5BU>W2,W4 W7>W8 16-1700 VE3,W8>W4 W8>W6 W7>W2 W0>VE3 W5GPM>W7 17-1800 W7>W0
N8PUM>W1 W4>W9 18-1900 W6,W9,W0>W3 K0ETC>W8 19-2000 W9,W0>W3 VY2,VE1>W8 W0>W2,W6 20-2100
VE1>W8,W3 VE1>VE3 VO1>W4 21-2200 VE1>W8 VY2,KP4>W4 W4>W3 W5>W5 22-2300 W8>W6 W6>W2
W0>W2,W3,W8 VA2WW>W9 W1>W8 23-2400 VE1,W0>W3 W8>W0 W6,W7,V31MD>W5 N0LL,K0UO,VE3>W7
W6,VE4VHF>W1 W0>W4 W4,W6,W7>W5

June 21 00-0100 VE4>VE3 W6>W5,W8 W7,W8>W7 W1>W7,W8 W8>VE9 XE2,XE1,W4>W5 01-0200 W5>W7
XE1,XE2>W5 W5GPM,WB0RMO>VE3 02-0300 XE1>W5 W4>VE3 XE2>W7 11-1200 VP9GE>VY2,W1 12-1300
W1RA>W1 CT4NH,CT0SIX>W3 EH7KW,EG7RM>W1,W4,W5 13-1400 CT1ILT>W2,W3,W4 EH7RM>W2
CT4HN>W2,W3 EH4SV>W2 IOVAQ>W1 14-1500 I1VAQ>W3 IZ5EKV>W2 1557 9A5Y>W4 1944 DL3AMA>PY1 20-
2100 FY5KE>YY5 2203 W1>W1

June 22 00-0100 OX3VHF>VY2 0351 W7>W7 14-1500 W1>W0 W9,W0>W2 15-1600 4U1UN>W2 W1,VE2,VE3>W4
16-1700 4U1UN>W0 17-1800 W1>W0 W0,W8>W4 18-1900 W5>W8 KD4HLG>W0 W3>W5,W8 19-2000
W5>W8,W0,W1,W9 LU>PY2 W0>W3 20-2100 W5GPM>W2 K0UO>W3 W4>W1 W1>W3 21-2200 W5>W8 K0UO>W4
2358 W8>W8

June 23 00-0100 W4>W3 VE3>W1 01-0200 W5>W5 WA1OJB>W4 W3>W3 0417 KL7NO>W7 11-1200 W1>W1
CT1ILT>W3 V44KAI>W1 12-1300 EH7RM,CT1ILT,CT1DYX,G4RGK,G3NOV>W4 CT3>W3,W1 CN8MC>W3 13-1400
FM5WD>W2,W9,W1 W4>W1 CT1DYX,EH7RM,F8DBX>W1 14-1500 9Y4AT,YV4GLD,CO8LY>W3 GW3MFY>W4
HK4BKB>W0,W2 TG9NX>W2 TI5KD>W1 GU0FAL>W4 VP9GE>W1 15-1600 VP9/GM4COK>W1 W4>W8
CO8LY,CT1DYX,SV1DH>W4 16-1700 W4,W9>W1 VP9GE>W4,W1,W0,VE2 S57RR>W4 HI8ROX>W9 W6>W5 18-
1900 VP9GE>W0,W2,W1,W9 W4>W1,W8 W0,W5GPM>W3 19-2000 W5,W0>W3 W9>W1 20-2100
W5GPM,AC3A>W1 W5>W5 KP4>W1,W4 W0>W3 21-2200 W0>W3 KP4>W1 HI8ROX>W1,W2,W4,W3
KA7BGR>XE2 22-2300 HI8ROX>W3,W2,W4,W1 W3>W9 KP4>W2,W4 23-2400 VP9/GM4COK>W3,HP2
W4,W5>KP4 KP4>W1 HI8ROX>W1,W2,W3 W4>W5 W4VQ,W4HY,K1SIX>HP2CWB V31MD>W1,W4 EH8BYR>W3
W8,W3,W2>KP4 W1>W0

June 24 00-0100 K1SIX,W2GIT>HP2CWB HI8ROX>W8,W5,W2 TI5KD>W2,W3,W1 W5,VE3>W4 KP4>W3
N0LL,K6FV,W5RPD,W0>W7 W5>W0 W1>W2 W2>W5 01-0200 W6>W7 W5>W0,W2 W9>W5 W4CHA>W9 11-1200
W4>W4 W4CHA>W1 YV4YC>W1,W3 FM5WD>W4,W9 9Y4AT>W4 12-1300 CO8DM>W4,W5 9Y4AT>W4,W3,W9
W4,W5>W1 KP4>W5 FM5WD>W3 13-1400 FM5WD,W4>W4 W4>W8 W4CHA>W8 14-1500 YV4DDK>W1
TG9NX>W4 15-1600 TG9NX>W0,W5 W4>W3 W4>W5 16-1700 W5>W5,W6 W4>W9 17-1800 KE4SIX>W5
XE1,W1>W3 18-1900 LY2MW>PY5 19-2000 V31MD>W4 XE1>W0,W4 TI2NA>W0 21-2200 XE1KK>W3 K4TQR>W1
22-2300 W4>W3,W9 W8>W8 W3>W5,W4 23-2400 W4>W9,W0 CO2OJ>W4 9H1XT,CT1EEB>W1 VO1>VE3 W3>W5
W4CHA>W8

June 25 00-0100 W2>W8,W9 W4CHA>W3,W2 01-0200 W4>W2,W5,W4,W3 0230 W4>W9 0329 W1>W9 0445
KL0RG>W6 11-1200 CT0SIX,CT1FJC>W3 CT1EPC>VE1 12-1300 CN8MC>W3 CO8LY>KP4 EH7KW>W5 13-1400
EH7RM>W3 G3SED>W1 14-1500 EA7KW,EH7AH>W1 W5VAS,W5RP>W9 15-1600 W5SIX,W5VAS,

K0UO,W5GPM>W7 W5,K0UO>W9 CT0SIX>W1 16-1700 9H1TX,CT1EPC,9A1YZ>W1 W0>W6 W5, W0MTK>W7 VO1>W1 W4CHA>W5 17-1800 IT9RZR>W1 18-1900 W7>W5
 June 26 00-0100 aurora K0KP>W0 W7>W0 WA7X>W9 01-0200 W0>VE6, W9 W7>VE6 02-0300 N0UD>W0(Es) W7>W8 W5>VE6(2x) VE6>W8 W0,W7>VE6 VE7,W7,W9>W7 03-0400 W7>W0 W7GZ>VE6 05-0600 KL7XL,NL7Z>W7 0632 KL7XL>W7 1359 W5>W4 14-1500 W6JKV/C6A>W0 W4>VE3,W3 W9>W3 15-1600 W0>W9 N8PUM>W5 16-1700 W6JKV/C6A>W0,W1,W4 GM0EWX>W4 SP6CPH>W1 1854 C6A/W6JKV> W5 20-2100 G4DEZ,GM4PLM,MM0AMW,NN5AHO,GM0TJE>W3 UAtv>W0 21-2200 MM0BSM,OZ1BNN>W3 OX3VHF>W1 C6A/W6JKV,EH3AR>W1 22-2300 W4>W3 VE6>W9 23-2400 W4>W5 W0>W4

June 27 00-0100 W6JKV/C6A>W8 W5,W1RA>W4 W9>W5 01-0200 W5VAS>W0 OX3VHF>VE9 W0>W4 W3>W3 02-0300 W5>W9 VE3>W3 03-0400 W9,W0,W6>W5 K0KP>W5 13-1400 W6JKV/C6A>W5 W5>W0 W9,W4>W5 VE8BY>VE9 14-1500 W5VAS>W0,W8 W6,W7>W4 C6A/W6JKV>W0,W5,W2 CO2/K7JA>W5 15-1600 TG9AFX>W5 HI9/K8WK>W4 17-1800 W2>W5 18-1900 W1,W2>VE9 W7>W0

June 28 00-0100 W5>W3,W8 W0>W4 W8>W0 01-0200 W0>W5 K0ETC,AC3A>W4 W8>W3 VE4VHF>W5 W0,W8>W8 K8UK>W5 N8PUM,W9>W5 02-0300 W5RP>W8,W9 VE8BY,VE4VHF,N0UD>W5 20-2100 W4>W4 W5>W1 W3>W3 VE8BY>W1 21-2200 VE1>W1 W1>W1 22-2300 W3>W1 W6>W6,W7

June 29 00-0100 W5>W1 W2>W2 W0>W5 W9>W9 02-0300 W5>W5 W4>W4 0328 W5>W5 0517 W4>W4 06-0700 KB8GC,W7GZ>VE6 07-0800 W1,W9,K0KP>VE6 08-0900 W0,VE6,W9>VE6 1118 5T6M>W1 12-1300 W4>W4 C6A/W6JKV,VP9/W3CMP>W4 13-1400 VP9/W3CMP,VP9/GM4COK,W4>W4 W4SO>YV5 EH8>W1 14-1500 W5>W5 C6A/W6JKV>W4 W1>W1 15-1600 CO0US>W2,W4 16-1700 VP9/W3CMP,W4>W4 17-1800 W4>W5 C6A/W6JKV>W4(bs) YV4>YV5 19-2000 CT3EN,CT3BD,EH1RX,CT1EAT,CT1AXS>W1 20-2100 CT3BD>W1,W3 5T6M>W3,W4 21-2200 C6A/W6JKV>W4 VP9/W3CMP>W8 EH8>W4 22-2300 W7,W0>W6 23-2400 W7>W6 W5>W4,W5 VP9/W3CMP>W4,W5,W9 W7

June 30 00-0100 VP9/W3CMP>W5,W4 W4,W7>W7 W5>W9 W5>W4 W5VASKU4WD>W0 01-0200 VP9/W3CMP>W0,W4,W5 KU4WD>W5 W4>W7,W5 02-0300 C6A/W6JKV>W5 W5GPM,K0UO>W7 K0UO>W7 K0KP,KU4WD>W5 1354 9Y4TL>W1 14-1500 9Y4TL,FM5WD,C6A/W6JKV>W1 15-1600 FM5WD>W1,W4,W8,W9 C6A/W6JKV>W1,W3 W2,W3>W1 16-1700 W6>W8 1730 EM1U>CX2AM 19-2000 C6A/W6JKV>W1,W9 2355 VP9/W3CMP>W4

Asia/Pacific

While JA1VOK's report is as usual studded with the sort of call signs Europeans would love to hear, June is generally an unremarkable month for long-haul DX, and the openings reported here are for the most part 'regional'. The exceptions are the opening to VE7/W7 on the 26th, noted earlier, and to Australia, which was much the same as last year (6 days, as in 2002 - but 17 in 2001 and 15 in 2000). VK4 was worked on the 1st, 17th and 25; VK6 on the 1st, 5th, 11th, 17th and 25th and VK8 on the 3rd.

□

6m DX results in JA during June

DATE	TIME(UTC)	STATIONS
6/	1 0000-1000	BD2OG,2OH, BV2B/1, N7ET/DU7, HL, VK4ABP/b,4RTL/b,6RSX/b 2355-0030 DU1EV/B (JA8)
	2 0139-0630	9M2TO, BG9BA, DU1EV/B, VR2XMT, XV9DT
	3 0130-1100	BG8AGK,BG9BA, DU1EV/B, 6K0JK, VK8RAS/b, VR2XMT
	2328-1200	BV2NT,8BC,BX2AB/b, DU1EV/B, HL, VR2XMC,XMT,ZST
	5 0200-0230	DU1EV/B 1000-1400 BD2OG,BG9BA, HL, JT1CO, VK6RSX/b
	6 0130-0800	DU1EV/B, HL5XF, KG6DX
	7 0135-0500	BG4AGR, BV2NT,2OL,2SR,4QI,4VJ, JD1BIA, XV9DT
	8 0005-1230	BG9BA, DS5JQK, JD1BKZ, VR2XMC,XMT,XVD,ZST, XV9DT, XW1IC
	9 0419-0830	BG9BA, DS1CCU, XW1IC 0910-0920 RA0FCA (2m)
	10 0000-1030	DU1EV/B, JD1YAB/b(JD1/O), XW1IC
	11 0020-0930	BV2NT,2FG/b,4VJ,8BC, DU1EV/B, JD1YAB, VK6RSX/b, VR2SIX/b
	12 0200-1500	9M2TO, BG9BA, BV2NT,2FG/b, JD1YAB/JD1,JD1YAB/b, JR8XXQ/JD1(JD1/M), VR2XMT,SIX/b 2335-2345 HL0CAE

13 0117-1000 BV2FG/b,3FQ,4VJ, DU1EV, DS1CCU, JD1BKZ, VR2SIX/b,XV9DT, XW1IC
 2330-1400 BX2AB/b, DU1EV/B, HL2NF,3IUA, JD1BKZ, VR2XMT, XW1IC
 14 0550-0750 KH6SX, N4BQW/KH9
 2220-0500 BG7IDX, BV2NT, 4F2KWT,DU1EV/B, JD1YAB, VR2XMT, XV3AA,XW1IC
 15 0715-1030 BX2AB/b, DU1EV/B, VR2XMT, XW1IC
 16 0145-0200 BV2NT 0900-1000 DU1EV/B 2325-0130 DU1EV/B
 17 0840-0910 VK4FNQ,4RTL/b,VI6TI,VK6JJ,6RSX/b
 18 0410-0500 JD1YAB/b 0730-0900 BV2NT, DU1EV/B
 19 0330-0600 DU1EV/B, XW1IC 1030-1130 BG7IFE, BV2NT, DU1EV/B
 1354-1445 VR2XMT 2250-1000 BV3FQ,8BC,BX3AA, DU1EV/B, HL, KG6DX, UA0CQ (QSY 2m), XW1IC
 21 0740-0800 DS5JQK
 22 0030-1100 BG7JBA, BV2SR,BX2AB/b, HL, KH0/JA1HOD,KH0/JA3MVI,VR2SIX/b
 0940-1020 UA0FL,UA0LIK (2m) 2350-0000 HL5XF
 23 0240-0300 HL3EHN
 0705-0930 BG9BA, KH0/JA1HOD,KH0/JJ1CDY,KH0/JK1WUR,KH0/JA3MVI, KG6DX
 1249-1300 UA0SC (Zone 18/GL:OO06 into JA1)
 24 0025-1130 BD9BL/7,BG7JBA, BV3FQ, DU1ZV,DU1EV/B, HL, JD1YAB, XV3AA
 0503-0750 N4BQW/KH9
 25 0215-1330 BG9BA, DU1EV/B, JD1YAB/JD1, VK4CXQ,4RTL/b,6JQ,6RSX/b,XW1IC
 1200-1230 JT1CO
 26 0514-0645 VE7AG, K7SS,K7OFT,KB7JWL,N7EPD,W7ND
 0715-0930 JD1YAB/b, KG6DX 1149-1300 VR2XMT
 27 0055-0115 HL 0519-0530 UA0CQ (QSY 2m)
 1043-1117 5B4FL, UA0SC, UK8OM 1245-1430 JD1YAB, VR2XMT
 2245-0530 BG7JBA,BG9BA, BV2NT,BW0IR,BX2AB, DU1EV/B, HL, JD1YAB, VR2XMT,XVD,SIX/b, XV3AA
 28 0237-0530 UA0CQ (QSY 2m) 0748-1330 BW0IR, HL, VR2XMC
 1204-1305 5B4AGM
 29 0000-0730 BD2LH,BG9BA, HL 0120-0130 JD1YAB (2m/JA8)
 0150-0300 HL (2m) 0535-0640 RA0FCA,UA0FL (2m)
 0630-0720 HL (2m/JA8) 0657-0700 UA0CQ (QSY 2m)
 1115-1140 BG9BA, UA0SC
 30 0120-0500 DU1ZV,DU1EV/B, DS1CCU 1045-1100 BV2NT

Elsewhere

June 1 07-0800 DS1>HL2
June 3 0020 JH8ZND>HL1 0215 BG8BA,JA7>HL1 0858 BG7IFT>VR2)937 5B4FL>VR2
June 4 04-0500 JG1GZW>HL1 0910 JA8>HL1
June 5 0205 JE7YNQ>HL1 08-0900 JE7YNQ,UAtv>VK3
June 6 0140 JG1ZGW>HL1
June 7 0149 JA6YBR>HL1 0340 BV4VJ>HL1 0906 XW1IC>VR2
June 8 00-0100 BG7IDX,BX2AB>VR2 1129 BD5RC>VR2
June 9 0628 HL5>DS1 07-0800 JA8>DS1,HL4 HL5>HL1 1212 VK8>VR2
June 10 0045 JH8ZND>HL1
June 11 0128 JD1>HL1 0257 JA1>DS1 0319 JH8ZND>HL1 09-1000 BV2>DS1 KG6DX>HL1 1223 UN5PR>VR2 1244
 BV4VJ>HL2
June 13 0511 BG9BA>DS1 07-0800 XW1IC>DS4,DS1 0836 XV9DT>DS1
June 14 08-0900 JA1ZYK,HL2>HL1 N4BQW/KH9>HL2
June 16 0046 JG1ZGW>HL1
June 20 01-0200 UA0CQ,BV3FQ>DS4 BV8BC>DS4 0203 BV8BC>DS2 0749 UA0>DS1
June 22 0137 BV2SR>DS4 08-0900 JA8>HL2
June 23 0018 JA6YBR>UA0SC 0156 allJA>HL1 0451 JA6YBR>UA0
June 24 01-0200 JA8,JD1>HL1
June 26 0220 JA1ZYK>HL1 0716 KG6DX>HL1 0727 JD1YAB>HL1 1012 KG6DX>HL1
June 27 0036 JA6>HL1 09-1000 JA0>HL1 2244 VR2>DS4
June 29 0246 BD6RAV>VR2 1107 JA2IGY>UA0
June 30 0444 ZL2>ZL3(Es)

Beacon News and 28 MHz Worldwide

Compilation and Commentary by G3USF

Beacon News

3840 ZL1BPU 'precision beacon' from North Auckland with 2.5 watts. Understood to be short-term propagation test. Another such beacon to follow on 3600.000 and one from VK2
14160.8 DL5KZ testing beacon with 10mw to dipole at 7m ENE-WSW.
28193 LU2EOR reported on this new frequency
28195 LU4EG new beacon from Bernal (LU4EG)
28225.4 KD5ITC Corpus Christi is now K5ISS
28231.8 D2BB reported again with 10 watts. Operation irregular
28232 N2UHC Frontenac KS EM27PK 2 watts of a1 to Vertical dipole. Web page
www.geocities.com/n2uhc_2/beacon.html (N2UHC)
28253 VK3RMV QRT - transmitter stolen.
28255 KI4PJ Palm Bay FL runs 5 watts to 4-band vertical 8 hours in 24 (K9QU)
28271 VE1/W1BKR back again from Henry Island FN95 with 3 watt to GP. This operation is said to be permanent; earlier ones have proved to be fairly short-lived (N4SO)
28272.5 K5BTV has moved frequency slightly to avoid interference (K5BTV)
28702.5 Reported to have resumed transmissions after some weeks not-operational.
50027 VP9DUB Hamilton FM72 runs 25 watts to horizontal loop (W3CMP)
50052 SK2CP new auroral beacon from Kiruna/Estrange KP07MH with 100 watts to 5-el QTF NW 24-hour operation. (SM0KAK/PA1SIX)
50075 OH5SIX unofficially reported this frequency.
50077 K4AHO Zellwood FL EL98FR runs 7.5 watts to omni at 30 ft
50086 LU7YS runs 10 watts to GP @ 7m from FF40KR (LU7YS)

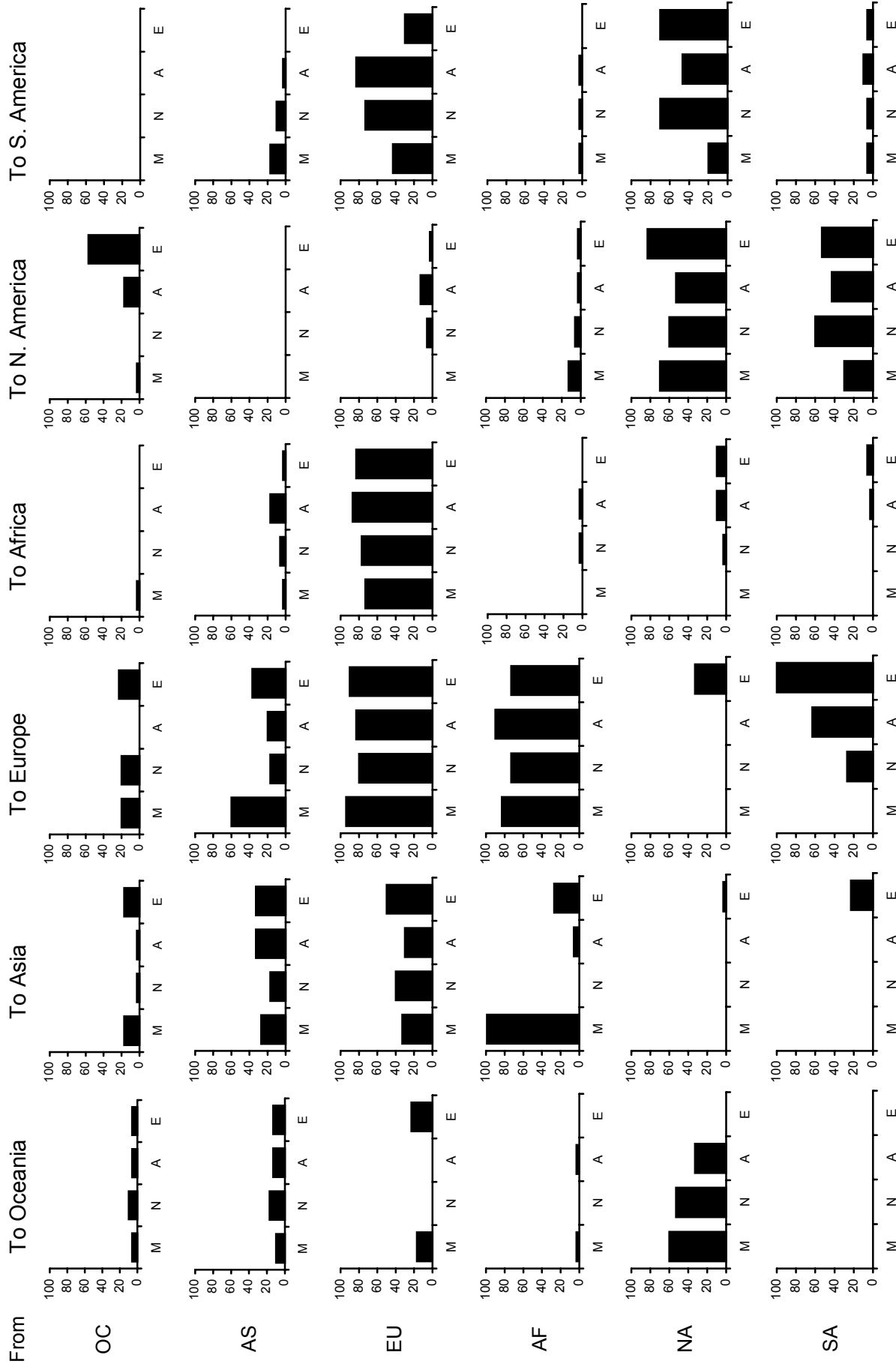
28 MHz Worldwide

This month's 28MHz more or less speaks for itself - though a caution against under-reporting, which appears to be increasing as F-layer contacts become less frequent and Dxpedition activity diminishes, discouraging fair-weather operators from using the band. In short, a downward spiral may be setting in. With relatively high levels of geomagnetic activity propagation was at best mediocre by seasonal standards. Nevertheless it was probably somewhat better than the histograms suggest.

That said, 28MHz is known to have been open within Europe at some time every day, essentially by Es, to South America every day and to Africa every day except the 9th. Parts of Asia were open on 24 days, North America on one day in three and Oceania on 14 days, mainly from southern Europe. As G0AEV commented earlier, the trans-Atlantic circuit was poorer on 28 than on 50. North America had propagation to Oceania on 20 days, to South America every day except the 29th and there were openings within North America on all days. Africa was poor, with openings reported on only 7 days. There were no reports of propagation between North America and Asia.

Very few events appeared more than run-of-the-mill. Those that stood out were reception of the VA2MGL beacon by DF2JQ, who reported at 2134 on the 27th that the beacon had been in 'for hours'. This was the day after the Band II opening discussed earlier. And SP2MKD reported F5TMJ/b at 579 at the early hour of 0323UTC on the 20th.

28 MHz Worldwide - June 2003



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