THE SIX AND TEN REPORT

November 2004

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Analysis of 28 MHz reports from the UK

28 MHz reports and logs for November 2004 from G2AHU, G3HBR, G3IMW, G3USF, G3YBT, G4UPS, G0AEV, G0DVY, G0IHF, GM4WJA and packet cluster reports. Compilation and commentary by G0AEV.

The period of (relatively) very good F2 propagation in late October continued into early November but was sharply curtailed by the onset of geomagnetic storming on 7th. Magnetic storm conditions in the period 7-10th severely restricted 10m F-layer propagation, though only on the 8th, when the Ap index reached 189, were no DX beacons heard.

Aurora and auroral E occurred on 10m (and 6m) during the period of storming. There were also significant sporadic E openings on both bands in the same period. The Es events were quite distinct from the auroral E events but it is possible that the Es was in some way related to the aurora, as discussed in Section 2. During the first spell of aurora on the 7th GM4WJA worked WX4G at 2123z. John says that "WX4G had flutter on his signals. He was amazed to hear me: no one else heard in that direction". GM4WJA also worked SM, OH, OZ with some by aurora and others by auroral E.

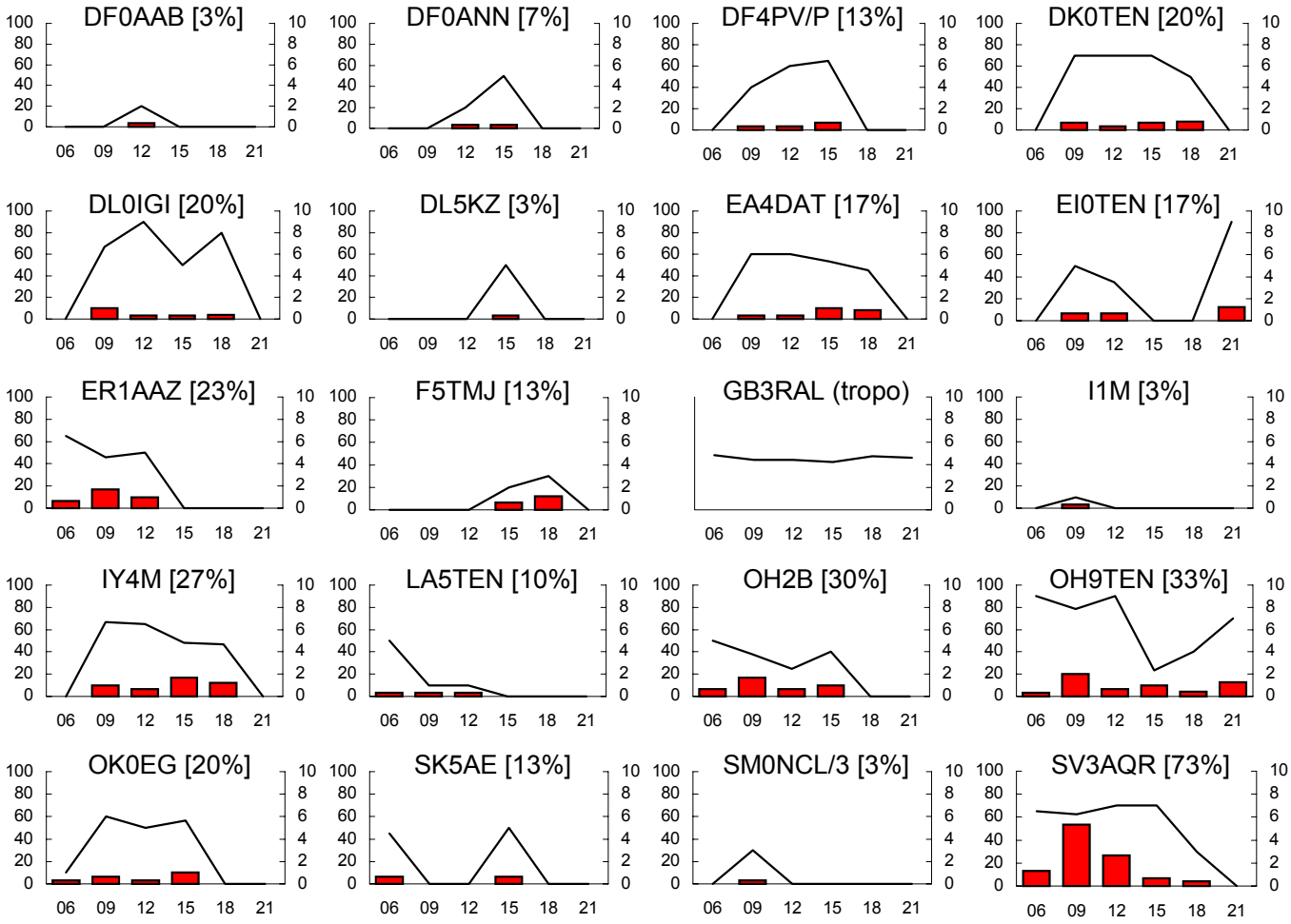
The rest of the month saw mostly rather poor F2 conditions with only occasional openings to North America. However, all days saw some openings to the Near East, Africa and South America, and on about 50% of days the band opened to Western Australia. Sporadic E openings also occurred on about half of days and over-all there was more Es than usually seen in November.

Brian G3HBR thought the band "started off the month well although activity was low. The beacons showed the band to be in good shape. That didn't last long. Conditions for the CQWW CW contest were very poor and I heard very few of the big DX stations that I had heard testing on various bands in the week before."

Beacon graphs legend

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

European Propagation / Beacons



Propagation modes for European beacons.

Propagation modes contributing to the results above include direct and scatter F-layer propagation, sporadic E, auroral E, one meteor scatter report, and the usual troposcatter from GB3RAL heard at my QTH. No one reported hearing beacons by auroral backscatter but I am sure that was also possible!

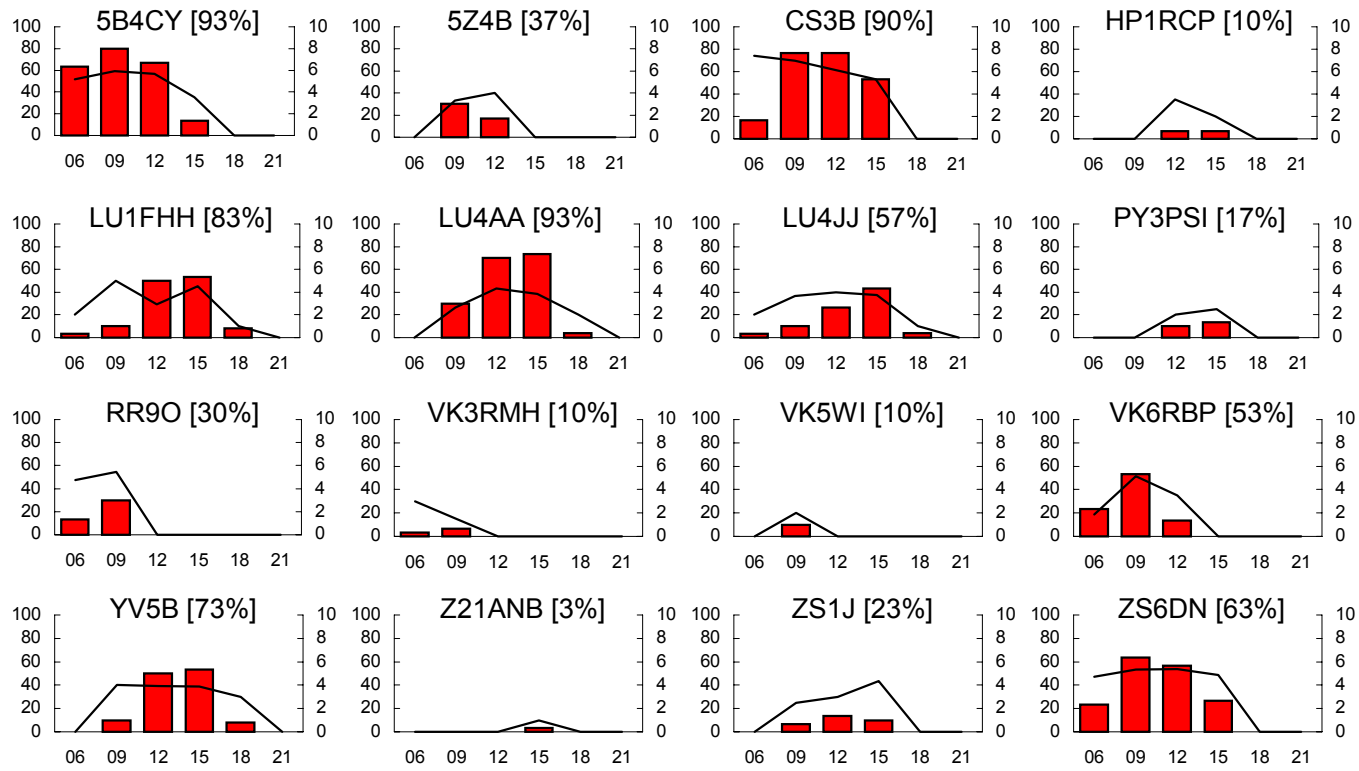
Even with rather low levels solar activity, winter season conditions produced many days with direct-path F2 openings to the further parts of Europe. SV3AQR in particularly did well being heard on about three-quarters of days (this total includes a possible sporadic E opening). Other beacons heard via this mode were ER1AAZ, OH2B, and OH9TEN. The OH beacons were also heard by other modes in addition to F2 – OH2B by sporadic E and OH9TEN by sporadic E and (in the 21z period) auroral E. Apart from a little F-layer backscatter (mainly on EI0TEN), the MS report (on DK0TEN) and the "tropo" from GB3RAL at G0AEV, the remaining results are all due to Sporadic E. As in October, sporadic E was present on 50% of days, but openings were a little better on average and especially so on 1st, 10th and 11th November. IY4M had a daily reliability of 27% and DK0TEN, DL0IGI and OK0EG were each heard on one day in 5. The evening report of EI0TEN on the 7th (the reason for the peak in the 21z period), although not reported as such, may have been via aurora.

European Beacon Notes.

DL0IGI returned to service in mid-November. OH5RAC has not been reported on 10m for some time now despite fairly frequent openings to Scandinavia - likewise LA6TEN (but this is a relatively difficult beacon to hear in the UK). LA4TEN is, however, definitely still QRT. SK0CT was not reported in November but is operational (and has been heard in December).

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

Beacon Graphs.



Suggested propagation modes.

Solar activity at levels seen at the end of October (flux > 130 units) persisted into the first week of November and allowed some reasonable DX propagation. Conditions for the rest of the month were mediocre to poor (flux 95 to 110 units and several days with strong geomagnetic disturbances). Although the graphs above show propagation to many parts of the World, high daily reliabilities were restricted to single hops paths (5B4CY, CS3B) or to multi-hops in a dominantly southward direction (LU1FFH, LU4AA). ZS6DN would have joined LU1FFH and LU4AA in this list if it were not for a beacon outage.

Beacon Notes.

4X6TU is still off the air for repairs. ZS6DN was off during the period 8th-18th. Of the other NCDXF/IARU beacons within monitoring range on 10m from the UK only OA4B is absent.

ZS1J, which was off air for several months, returned to service in November (first heard by 6&10 listeners on 9th). It was heard sporadically during the rest of the month and has been heard in December, but changes in propagation mean that this beacon is now relatively much harder to hear than the closer ZS6DN. Its absence from logs isn't a good indicator of beacon outages. This is a good example where knowing if a beacon is QRV is essential if the beacon is to be used successfully as a propagation indicator. Brian G3HBR relates an example of this difficulty - "there was a surprise appearance of ZS1J/B on 18/11. There were no other signals audible at the time. I haven't heard it for months and haven't heard it since. Maybe that means it has an intermittent fault or was just switched on for a short while?"

10m DX in November 2004

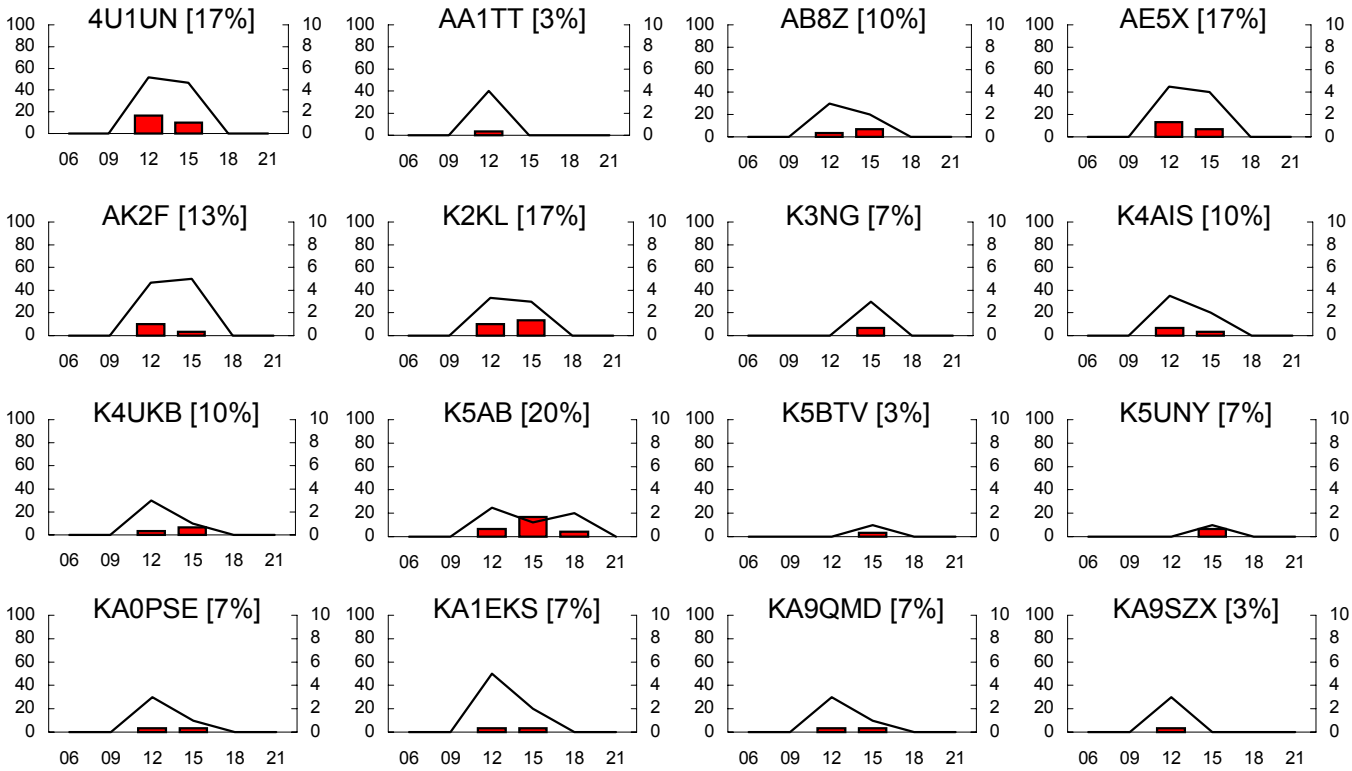
The following list of DX countries worked or heard in the UK comes from packet cluster spots (DX Summit: http://oh2aq.kolumbus.com/dxs/) and from the logs of Six and Ten reporters. 76 DX countries (outside of Europe) were heard/worked in November compared with 116 in October and 27 in September. October's total benefited from season-high solar activity coincident with the CQWW SSB contest. The CW leg of this contest in November had mediocre conditions and far fewer countries were available.

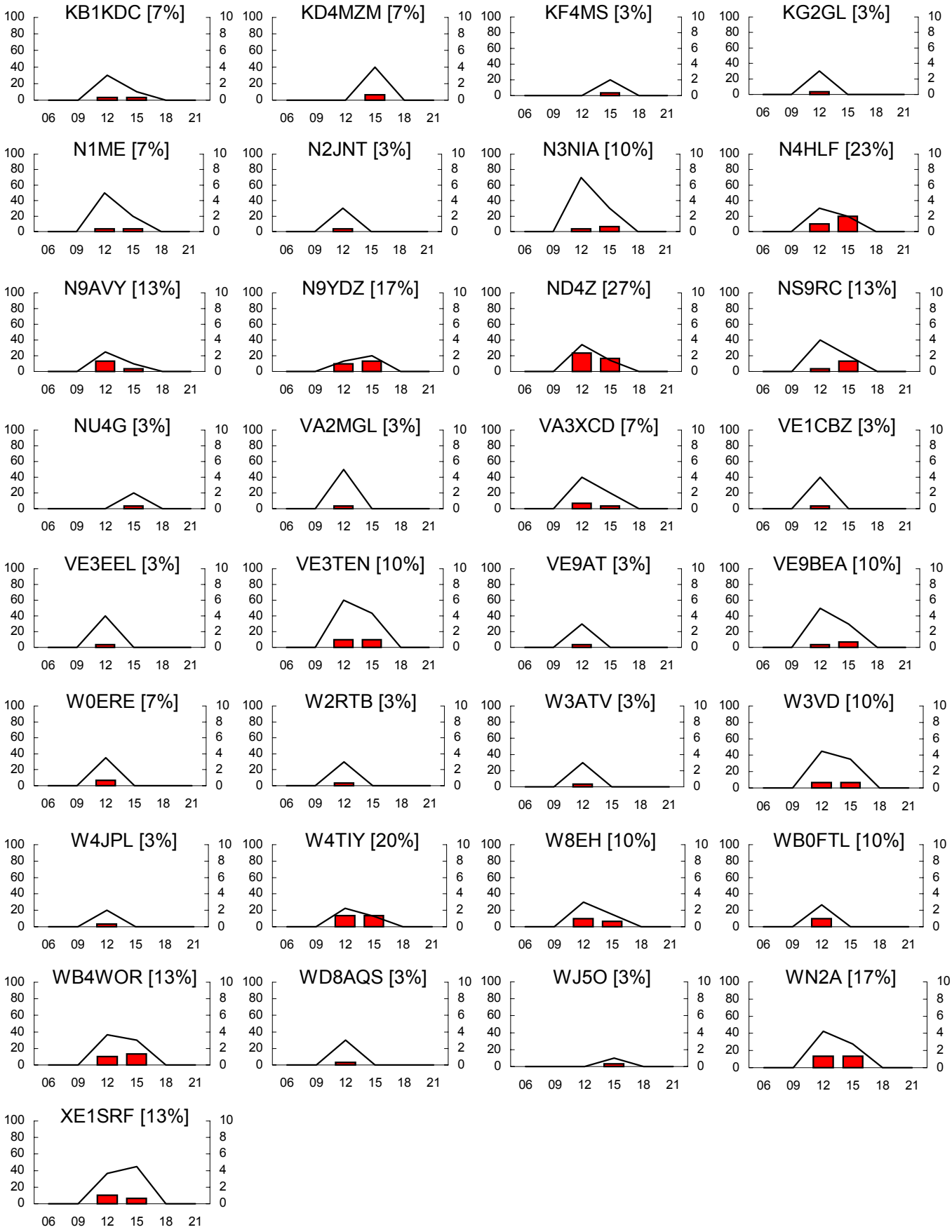
DX in November: 3B8, 3DA0, 4J, 4L, 4S, 5B, 5N, 5U, 7X, 9K, 9M2, 9M6, 9N, 9Y, A4, A6, A7, A9, BY, C5, C9, CE, CN, CP, CT3, CX, EA8, EL, EP, EY, FH, FR, FY, HC8, HI, HP, HS, J7, JT, JY, KP2, KP4, LU, OD, P4, PY, PZ, ST, SU, T5, TA, TY, UA9/0, UK, UN, V2, V4, V5, VE, VK, VK9C, VP2M, VP5, VP8, VP9, VR, VU, W, XE, YI, YN, Z2, ZC4, ZF, ZP, ZS.

DX in October for comparison: 3B8, 3B9, 3D2, 3V, 4K, 4L, 4S, 4X, 5B, 5N, 5R, 5V, 5X, 5Z, 6W, 7Q, 7X, 8P, 9J, 9K, 9L, 9M2, 9V, A4, A6, A7, A9, AP, BV, BY, C5, C6, C9, CE, CN, CO, CP, CT3, CX, D2, D4, DU, EA8, EA9, EK, ET, EX, EY, FG, FM, FP, FR, FS, FY, HC, HC8, HI, HL, HP, HR, HS, IH9, JA, JT, KH0, KP2, KP4, LU, OD, P4, PJ2, PY, S7, S9, ST, SU, TA, TG, TI, TJ, TR, TT, TX9, UA9/0, UK, UN, V2, V3, V4, V5, VE, VK, VK9X, VP2E, VP2V, VP5, VP8/h, VP8/o, VP9, VQ9, VR, VU, W, XE, XX9, YA, YB, YI, YN, YV, Z2, ZD7, ZD8, ZP, ZS, Antarctica

Propagation to North America

The good (occasionally excellent) transatlantic propagation experienced during the last third of October continued into the beginning of November, though extensive propagation to North America was restricted to 1st and 2nd of the month. Beacons showed openings to W/VE on 11 days. A total of 49 different beacons were heard by 6&10 reporters on 11 days in November – compared to 63 beacons heard in October with the main difference being the absence of any West Coast signals in November. All the beacons were heard by normal F2 propagation.




KB1KDC [7%]
KD4MZM [7%]
KF4MS [3%]
KG2GL [3%]
N1ME [7%]
N2JNT [3%]
N3NIA [10%]
N4HLF [23%]
N9AVY [13%]
N9YDZ [17%]
ND4Z [27%]
NS9RC [13%]
NU4G [3%]
VA2MGL [3%]
VA3XCD [7%]
VE1CBZ [3%]
VE3EEL [3%]
VE3TEN [10%]
VE9AT [3%]
VE9BEA [10%]
W0ERE [7%]
W2RTB [3%]
W3ATV [3%]
W3VD [10%]
W4JPL [3%]
W4TIY [20%]
W8EH [10%]
WB0FTL [10%]
WB4WOR [13%]
WD8AQS [3%]
WJ5O [3%]
WN2A [17%]
XE1SRF [13%]
100 80 60 40 20 0
10 8 6 4 2 0
06 09 12 15 18 21

Analysis of 50 MHz reports from the UK

UK 50 MHz reports for November 2004 from G2ADR, G2AHU, G3HBR, G4UPS and via packet cluster spots. Compilation and commentary by G0AEV.

There was something of everything this month. A period of intense magnetic storming brought plenty of aurora and auroral E, but there was also more-than-normal sporadic E, the usual meteor and tropo scatter modes, and even a smidgen of F2 DX.

Brian G3HBR writes, "The month started with a nice Es opening on 1/11 extending out to North Africa. More good openings on 9, 10 and 11 followed an auroral opening at 1700 on the 9th". Brian noted K indices of 8 at 0900 on 10th but heard no Aurora. But he worked Nick 5B4FL on 10th and suggests that "at least it seems that many of the enthusiasts for six are on the band outside the UK but I'm afraid that lots in G seem to have deserted the band. I think many wait for the cluster to show openings and with the sporadic and localised nature of winter openings that is likely to lead to disappointment!"

GM4WJA also has a 6m anecdote. John says "I had a G station complaining about me calling CQ on 50.110 when there could be an opening to North America. I told him I was beaming that direction and asked how we were supposed to work one another if no one called". There was no answer!

Sporadic E

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

	4X (3%)	5B (3%)	7X (7%)	CN (10%)	CT (7%)	CU (3%)	DL (10%)	EA (7%)	F France (10%
D	10	10	1 10	1 5 10	1 9	1	1 10 11	1 9	1 11 23
06				7					
09			9				9		9
12				3 0	5	2	5	0	0
15	9	9			1		9		
18			5	9	5			9	9
21									

	HB (7%)	I/IS/IT Italy (17%)	LZ (3%)	OD (3%)	OE (7%)	OK (7%)	OZ (3%)	SM (3%)	SP (7%)
D	10 11	1 9 10 11 23	10	10	10 11	10 11	9	20	10 20
06									
09	0	9 9			7	7			
12	7	5 9							
15	9	9 9	9	5	8	9	6	0	9 0
18		9 9 9							
21									

	SV (7%)	UR (3%)	YO (3%)	YU/9A/S5/T9 (17%)	ZA (3%)	
D	10 11	1	11	1 9 10 11 23	10	
06						
09	5	9	9	9 9		
12						
15	5			9	7	
18				9 9 4		
21						

Es Backscatter.

1st 1313 F6KHM (IN78) > G4PCI (IO91)heard backscatter QTF 280 (and spotted again at 13.20z)

The report above occurred during a period of relatively strong Es propagation when FP/VE7SV was heard weakly from around 265 degrees. This side-scatter may have been Es linking to F2 or perhaps 2x Es scatter (i.e. Es to the scatter point from both ends of the path) – a very unusual combination.

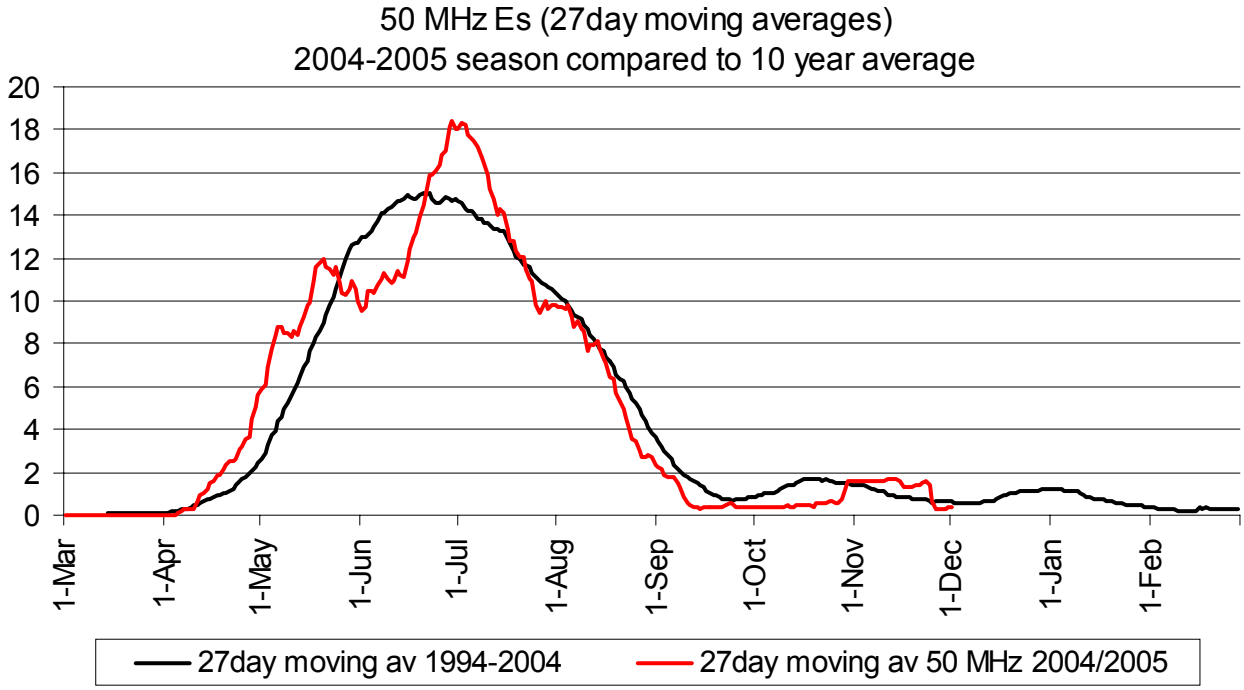
Es Propagation Summary.

The table below displays total counts of country/areas heard/worked via sporadic E by UK amateurs. The opening of the 1st was a good example of Autumnal Es openings – a quite extensive but isolated event. The E-propagation concentrated on the 9th 10th and 11th was both extensive and, most interestingly, took place within a period of moderate to severe magnetic storming with associated aurora. On 10m Es was also reported on 7th and 8th, encompassing all of the most disturbed conditions reported on all days between 7th and 11th. The bottom row of the summary table below shows the maximum Kp index for the day with shading as used in the data section (Section 3) of this Report.

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										1																				
09	6										7																			
12	5				1						4																			
15	1								2	13										2										
18									4	4													3							
21																														
Kp	2	2	4	3	3	1	7	9	8	9	5	5	4	4	1	3	3	1	2	4	5	4	2	3	5	4	3	5	4	4

The graph below showing the progress of the 2004 sporadic E season compared with mean activity over the preceding 10 years includes the Es data for November 2004. The early November events show up as small peak similar in amplitude to that more frequently seen in late October. The graph displays 27-day moving averages of the daily 6m country/area scores against a 10-year average of the same measure (as described in detail in the May 2004 Six and Ten 2004 Report).



November 2004: connection between Es, auroral E and aurora.

The apparent correlation between severe magnetic disturbances and aurora with sporadic E begs the obvious question: was the E-propagation related to the aurora and if so, how? An allied question is was the E-propagation really sporadic E or was it auroral E? We might be able to answer the latter by examining the characteristics of auroral and sporadic E propagation.

Auroral E ("AE") is predominantly a late evening mode that occurs in northern latitudes. During aurora, AE peaks in (and is sometimes confined to) the period between early and late aurora phases when it is easy to categorise as a form of e-layer ionisation directly connected to the aurora. During major aurora, such E propagation can be quite extensive but it seems to be confined to an area similar to that covered by the auroral oval - which in Europe means the countries of Northern Europe usually not extending much further south than the Benelux countries and Northern France. Sometimes when geomagnetic disturbances don't produce aurora, E-layer openings occur that follow similar time and geographical patterns as described above and we are comfortable in also ascribing these to Auroral E.

Sporadic E occurs in the same northern latitudes as auroral E but is certainly more common at mid latitudes. Importantly, as far as I am aware, no propagation that fits the strict description of AE above produces openings in southern Europe. E-propagation that affects southern European countries is therefore much more likely to be Es than AE. Likewise, E-layer propagation seen during the mornings and afternoons/early evenings follows a pattern typical of Es unlike the typical late evening auroral E

In November 2004, several days with E propagation coincided with a sustained period of magnetic disturbances, some of severe storm strength, producing several good radio aurora. Aurora backscatter seen in the UK did not extend further south than northernmost France. There were several discrete E-layer late evening openings to Scandinavia during the aurora that fit the AE definition. However, most of the E-layer openings were in the mid afternoon and early evening when there was no aurora – these provided openings to Italy and former Yugoslavia, and in the most extensive phase, to central west Europe (DL, OE, OK, HB) and to the Iberian countries. Most observers identified these as sporadic E. The late afternoon opening on the 10th included double E hop to 5B and 4X, which I think precludes AE as the second hop must surely be too far south. Very unusually for November MUFs reached 144 MHz and 2m QSOs were made in mid and southern latitude Europe and had all the hallmarks of a summer-style Es opening.

The interesting, but much harder question is did the aurora in some way cause or contribute to the Es ionisation? I think the answer must be "yes" to explain the highly unusual 144 MHz data and the strong general correlation of the magnetic and e-layer events. At 10m and (to a lesser extent) at 6m, sporadic E is not particularly uncommon in early November so it is reasonable to expect Es ionisation levels at about those needed to propagation at these frequencies. However, a fair amount of additional energy is needed to raise the levels of ionisation to allow 2m propagation.

Volker DF5AI has some suggestions and comments on the possible genetic link between aurora and Es on his web site (http://www.df5ai.net). Volker says the "November 10th sporadic E opening is perhaps supported by gravity waves originating from the highly disturbed ionosphere further north. Similar effects are well known in ionospheric physics but in this particular case it is nothing more than speculation. For example, we cannot answer the question why simultaneous Aurora and sporadic E openings do not occur more often during conditions of severe geomagnetic disturbances."

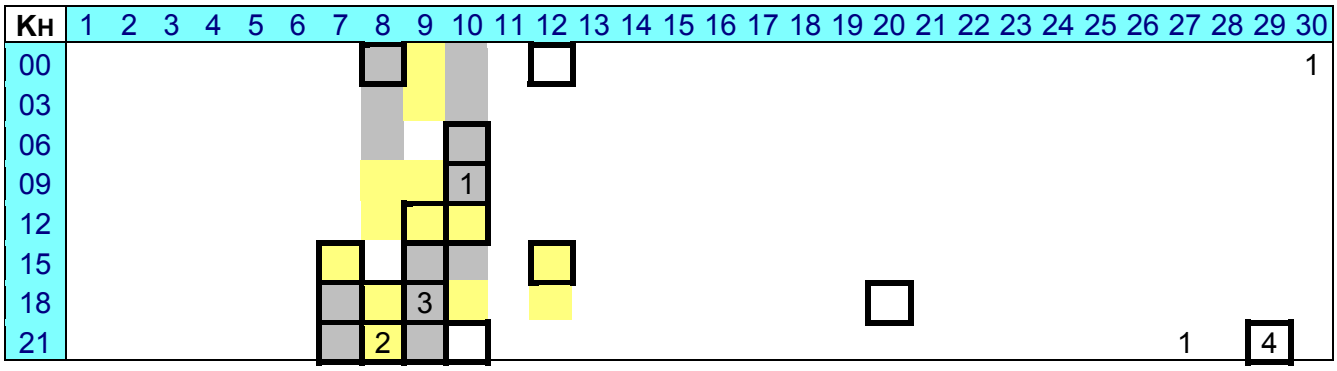
DX (F2 and TEP) Propagation

1st	1250	FP/VE7SV heard weakly QTF 265 (i.e. side-scatter). Reports by G4FUF and G4PCI. This is probably, in part at least, scatter by sporadic E – see under Es backscatter.
1st	1712	TR8CA heard "in and out" heard by G8BCG in iO70 (*Es link to F2?)*
5th	1146	G4FUF spotted the TR0A beacon at 529
10th	1859	G8BCG reported ZD8VHF 319 "?? in out" (*suggests ID uncertain*. *Es link to F2?)*

Aurora

The correlation between aurora and Es as discussed earlier was quite unusual. However the auroras were reasonable but not particularly outstanding. Jeremy G3IMW commented on the aurora of the 9th "It was unusual because I could hardly hear GM stations - only one in south-west GM. I heard stations in south-east G and ON and one EI. The aurora was strong but late, spilling over into the following morning phase."

The following table shows 3-hour periods when the Hartland K-index was 5 (pale shading) or above 5 (darker grey shading), and those when 6m radio aurora were reported in the UK (thick black border)



3rd	18z-21z		Aurora in mid to late evening at GM4WJA
4th	18z		Aurora in early to mid evening at GM4WJA.
7th	15z	1654-1704	MM5DWW > GM7PBB and GM4NFC both 59A
	18z	1922	G4IGO spots 48.240 TV signals going strongly auroral.
		2052	G4PCI (IO91) > MM0DQP 57A
	21z	2100-2115	G4PCI, G0CHE > GM4WJA 59A; MM0BSM (IO86) > GB3LER 55A
		2237	EI3IO > GM4DZX (IO89 Orkney Islands) – *presumably via aurora*
		2251	OZ1DJJ > GM4DZX 57A
		2314-2325	OZ1DJJ > G4DEZ 59A, GB3LER 55A; PA2DB > GM7PBB 59A QTF 350, GM4WJA 57A QTF 345; SM5LE > GM4DZX 55A
		2354	G4UCJ (IO91) > OZ7NB (JO45) 54A
8th	00z	0000-0100	G2ADR reports GB3BAA, GB3MCB, GB3LER all auroral plus signals from GI, GM. LA. OH, OZ and SM
		0024-0039	EI7BMB > GM7PBB; G3AKU > OZ7NB (aurora)
		0112-0123	MM0AMW (IO75) > G4IFX 57A, TF3SIX 54A
		0132-0135	G4FVP (IO94) > GB3LER 52A QTF 000, OY6SMC 54A
	18z	2046	MM0BSM (IO86) > GB3LER 53A
	21z	2156	PC5C (JO33) > GM4DZX (IO89) via aurora
9th	12z	1210	MM0BSM > GB3LER 53A
		1428-1450	Inter-GM plus EI3IO > GM8LFB 59A and PA5M (JO21)> GM4DZX
	15z	15z period	G2ADR (IO93) > GM, OZ, and PA all by aurora.
		1500-1519	MM0BSM > GM4DZX; GM0AXY (IO85) >G4DEZ 55A, SM7AED 33A
		1530-1543	GD0TEP > SM7AED 55A; OK1DX (JN69)> G4DEZ 54A; G3IMW > G4DEZ
		1603-1637	EI3IO > G4DEZ 58A QTF 060; DJ6TK > G4DEZ ; G3IMW > GM4NFC 52A
		1706-1730	Inter G QSOs only, e.g G3IMW > GM4NFC QTF 020, G4UPS > GM4NFC 56A QTF 035. Also EI7BMB > GM4NFC.
		1734-1750	MM0BSM (IO86) > GMs and LA4LN via aurora
	18z		John GM4WJA reports big visual display filling half the sky.
		1953-2000	G<>GM; MM0BSM > EI7BMB 57A; G4UPS > SP2MKO 55A; F6HRP > GM4NFC 59A
		2000-2047	G > F, G, GM, ON; GM > F, G; DG9BDI (JO42) > GM4NMC 59A, MM5AHO 55A; SM2HTM (KP07) > GM4NFC 55A
	21z	2215	G3IMW reports nil by aurora
		2339	G7RAU hears 49mhz TV "still auroral" QTF 030

10th	06z	0807	First report: EI3IO > GM4ILS (IO87) 57A QTF 020
		0817-0830	G > GM including G4ASR (IO81) > GM4DZX (IO89) 57A QTF 010; also OZ4LP > GM4ILS; and G4ASR > SM7AED 54A
		0830-0900	S. Many G > EI, G, GM; also G > ON, SM. QTF information:
			0833 G4ASR > GB3MCB (IO70) 52A QTF 045;
			0847 G4UPS > G4FUF (JO01) 59A QTF 030;
			0851 G4ASR > G4FUF 59A QTF 050, EI3IO (IO63) 57A QTF 050
		0900-0915	0904 G4ASR > ON5FU (JO11) 53A QTF 065
			0908 G4ASR > SM7AED (JO65) 55A QTF 040
			0913 G4ASR > DL7HG (JO62) 52A QTF 040
			Also in this period: G4UPS > G4ASR 59A, SM7AED 33A
		1148	MM0BSM (IO86) > GB3LER 52a
	12z	1334	GD0TEP > GM4ILS 55A
		1451	G4NOK (IO93) > GM3XOI 55A
	21z	2109	ON1DNF > GM3XOQ 41a QTF 010
12th	00z	0007	MM0AMW (IO75) > GB3LER 53A
		0059	MM0AMW > OY6SMC 55A
	15z	1720	MM0BSM > GB3LER 51A “getting stronger”
	18z-21z		Aurora in mid to late evening (GM4WJA)
20th	00z	0100	G7RAU hears 49mhz TV signals auroral but weak QTF 040
	18z	1849	MM5AJW > GM4ILS 54A
21st	15z	1517	LA4CQ (JP20) > GB3LER 53A
27th	18z		Aurora in early to mid evening at GM4WJA
28th	15z-18z		GM4WJA reports aurora in late afternoon to mid evening
29th	21z	2300-2330	GM4WJA > GB3LER 41A (see also Auroral E reports)

Auroral E

The following E-layer contacts/reports match the description of auroral E given earlier.

8th	21z	2130	G4IGO > TF8GX 59, OY6SMC 599
		2207	G0CHE > TF8GX 55
9th	18z	1949	GM4NFC > OH9SIX 529 (*probably auroral E*)
		2000-2034	G > LA5TFA, LA7SIX, OH6HFX, OH6KTL, OH9SIX;
			GM > LA6PV, LY2BAW, OH5RAC, OH6HFX, OH6KTL, OH9SIX
10th	09z	0906	G4FUF > OH9SIX 599
27th	21z	2124	MM5AJW > OH9SIX 55
29th	21z	2232	LA7SP > GB3LER “weak”
		2300-2330	GM4WJA > LA7SIX 599, OH9SIX 599, OX3VHF 529, TF3SIX 539
30th	00z	0040	G4FVP > OH9SIX 549

On the evening of 7th there was also auroral E at 10m. GM4WJA worked SM, OH, OZ, some via aurora and others via auroral E. In the same period (at 21.23z) John worked WX4G with flutter on signals but no one else was heard in that direction. This may have been AE multi-hop or mixed mode.

Meteor Scatter

There were very many JT6M spots this month and a higher than usual proportion of these included an indication of propagation mechanism – meteor scatter in most cases. I am not sure how best to treat these data. I suspect that JT6M/MS contacts can be made more or less at any time, although these should be easier when meteor fluxes are highest in the early mornings. The principal factor controlling when QSOs are made is probably the times when people are active rather than when propagation is best. If this is this case it is difficult to see what insights into meteor scatter propagation these data can provide (or, at least, how the data can be organised to show propagation information to best advantage).

The list below of the number of MS QSOs in one hour periods summed for the entire month shows that most activity was in the periods 0900-1100 and 2000-2300z. The latter (mid-evening) period coincides with the period when people are free after work and meals. There were no reports at 06z when random meteor rates peak.

Table of MS QSOs (mostly via JT6M) in November 2004 by hour

Hour	QSOs	Countries	Hour	QSOs	Countries
08z	1	I	16z	1	HB
09z	5	HB, I, SP	17z	1	SP
10z	9	G<>GM, I, OE, PA	18z	0	
11z	2	F, SP	19z	3	F, I, OZ
12z	1	SM	20z	8	F, G<>GM,I, LA, OE, OZ, SP
13z	1	I	21z	5	G<>GM, I, SM, SP
14z	1	OZ	22z	8	7X, F, G<>GM, I, OZ
15z	3	HB, OE, SM	23z	2	F

The following table lists the number of MS QSOs (which, to reiterate are mostly JT6M, but only those JT6M where the MS was explicit or implicit) by day. Weekend days are highlighted: there is a weak correlation between numbers of QSOs and weekends that serves to strengthen my theory that the JT6M data reflect amateur activity not the availability of MS propagation. I have presented Kp indices for each day (in the bottom row). There should be no correlation between MS and magnetic disturbances so the fact that no MS QSOs were made in the period of high Kp (8^{th}-10^{th}) suggests attention was being directed towards aurora and related modes.

Table of MS QSOs (mostly via JT6M) in November 2004 by day

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

Tropospheric propagation

The following selection indicates only middling troposcatter propagation was available during November – although the lack of reports of contacts over long distances may be a reflection of activity levels. No long DX was reported by traditional modes: the best DX (G4IGO > OE5MPL) was by digital modes and may not have been (entirely) tropo.

1 1010 GW3MFY (IO81) > ON4IQ 449
1 1445 F6KHM (IN78) > GB3MCB 539
1 2052 OY9JD > GB3LER 579
1 2232 OY9JD > GB3LER 599
14 1335 G4IGO > OE5MPL 529 “JT65 tropo”
14 1433 G0CHE > PE1MZS “fb jt6m tropo”
19 1915 G0CHE F6KHM 51 tropo tnx new grid !!
23 2035 PA7FM (JO21) > G4DEZ (JO03)
25 2114 G0CHE > GW0GEI “jt6m tropo”
14 1400 G4IGO > OE5MPL “539 FB tropo”

Solar and Geomagnetic Data for November 2004

Data supplied by G0CAS (Sun Mag[1]) and from Internet sources. Compilation by G0AEV.

Sunspot numbers (SEC)	Mean 70.5	Max 144 (1st)	Min 27 (21st)
Solar Flux (28 MHz)	Mean 113.2	Max 141 (5th)	Min 95 (11th)

Solar data for November 2004 are presented in the table at the end of this section. Numbers in the 28 and 50 MHz columns of this table are the total daily "areas" worked/heard from the UK for each of several propagation modes and are a summary of the data presented in the first sections of this Report. On 28 MHz "areas" refer to the number of beacons reported via Es and F-layer; on 50 MHz the number of countries via Es, F-layer, Aurora and Auroral E. F2 critical frequencies from Chilton in Oxfordshire. SIDC spots are from SIDC, and other solar data from the joint USAF/NOAA daily summaries or directly from SEC.

Energetic Events.

Energetic solar events (M or X class) are listed below.

1st	0304-0326	M1.1 1f	4th	0323 0357	M1.6 1n	6th	0011-0042	M9.3 2n
3rd	0123-0137	M2.8 1f	5th	1123-1133	M4.0 1f		0044-0110	M5.9
	0323-0357	M1.6 1n		1910-1932	M1.2 Sf		0140-0208	M3.6
	1535-1555	M5.0 Sn		2142-2253	M2.5 1n		1938-2003	M1.4
	1803-1835	M1.0 Sf				7th	1542-1615	X2.0
						8th	1543-1552	M2.3 1n
						9th	1659-1732	M8.9 2n
						10th	0159-0220	X2.5 3b

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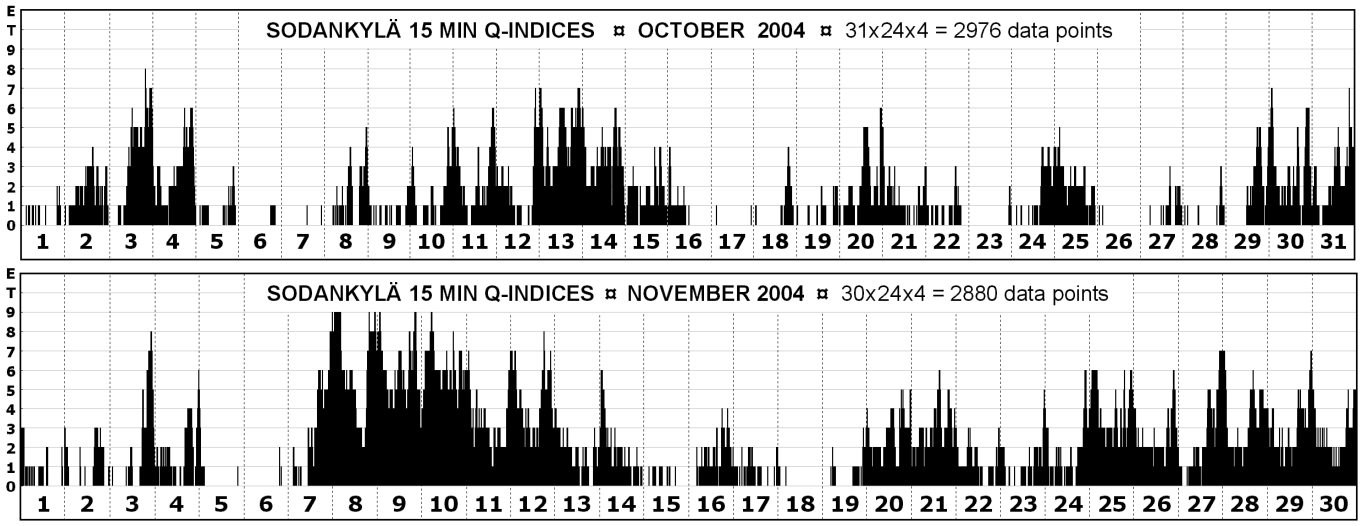
Q-indices

Q-indices from Sodankylä, Finland (Thanks to Vaïno, OH2LX)



Q-index graphs above illustrate the relative magnitude of the geomagnetic storm events of the period from the 7th November compared to the levels seen before and after. By comparison, October 2004 was a rather quiet month.

Geomagnetic data from Finnish observatories in November 2004: 179 (8th = 151)

Monthly averages for November:

Sodankylä: monthly Ak average = 33.7 (13.4 in Oct)

Nurmijärvi: monthly Ak average = 29.9 (7.2 in Oct)

Most disturbed November days:

Sodankylä: 9th, Ak = 179 (8th, Ak = 151)

Nurmijärvi: 8th, Ak = 191 (9th, Ak = 189)

[1] Sun Mag: Sunspot and Magnetic data compiled by Neil Clarke G0CAS. Email neil@g0cas.demon.co.uk

K-indices.

The following four tables present the Kp index (from SEC) and the Lerwick ("KL"), Eskdalemuir ("KE"), and Hartland ("KH") K-indices (from the British Geological Survey). Each table is set out with the day of the month in the top row followed by rows containing the K-values or each 3-hour period. The bottom row of each table is the sum of the K-values for the day. Pale (yellow) shading indicates K = 5, darker grey shading K > 5. There were 9 disturbed days in November when the planetary Kp index was 5 or higher. UK observatories only registered disturbed conditions on 5 days, but to K9 on 7, 8 and 9th.

Planetary K (Kp)

KP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
00	2	1	0	1	3	0	1	9	6	8	4	5	2	4	0	0	1	0	0	3	2	1	2	2	4	3	1	3	3	3
03	1	0	0	2	1	0	2	9	6	8	5	5	2	2	0	1	1	0	2	4	1	4	1	1	5	3	2	3	3	4
06	1	0	0	2	0	0	1	9	5	9	4	4	4	2	1	3	3	0	0	3	3	4	1	1	3	4	3	5	3	3
09	1	2	3	1	0	0	3	8	7	9	4	5	2	2	0	3	2	1	0	4	5	3	1	3	4	3	2	2	3	2
12	2	1	2	1	1	1	3	6	6	7	2	4	2	2	1	2	1	1	1	4	4	1	1	2	4	2	3	2	3	3
15	2	2	3	3	1	1	5	3	7	6	3	3	2	2	1	2	1	1	2	3	3	2	2	2	3	2	3	3	3	3
18	1	2	3	2	1	1	6	4	8	5	2	3	1	2	1	2	1	1	2	3	2	2	1	1	2	2	3	2	3	3
21	1	1	4	2	0	1	7	5	7	4	4	4	1	1	0	2	1	1	2	3	2	1	2	2	2	3	2	2	4	3
Σ	11	9	15	14	7	4	28	53	52	56	28	33	16	17	4	15	11	5	9	27	22	18	11	14	27	22	19	22	25	24

Lerwick K (Shetlands)

KL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
00	3	2	0	2	3	0	0	9	7	8	3	5	2	3	0	0	0	1	0	2	1	1	2	2	3	2	1	3	3	3
03	0	0	0	2	0	0	2	9	5	8	4	3	1	2	0	0	1	0	0	2	2	1	1	1	3	2	1	2	1	2
06	0	1	0	1	0	0	0	9	3	8	3	2	1	1	0	1	2	0	0	1	2	2	0	1	2	1	1	2	2	2
09	1	1	1	1	0	0	3	5	4	8	3	2	1	1	0	1	1	0	0	2	2	2	1	1	1	1	1	1	2	1
12	1	1	1	1	0	0	2	4	7	6	1	3	1	1	0	1	0	0	0	3	3	0	0	2	3	1	1	2	2	2
15	0	2	2	2	0	0	4	2	7	6	2	4	1	1	0	2	0	0	0	3	4	0	1	1	2	2	4	2	2	2
18	0	1	4	3	0	0	5	6	9	5	2	5	0	1	0	1	0	0	1	4	3	0	1	1	4	2	3	2	3	4
21	2	0	4	3	0	0	9	5	7	5	3	4	3	0	0	2	1	0	3	2	3	1	2	3	3	4	3	2	4	3
Σ	7	8	12	15	3	0	25	49	49	54	21	28	10	10	0	8	5	1	4	19	20	7	8	12	21	15	15	16	19	19

Eskdalemuir K (southern Scotland)

KE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
00	3	2	1	2	3	0	1	9	5	7	3	3	2	4	0	0	0	1	0	3	2	1	2	3	3	2	1	3	3	4
03	1	0	0	2	1	0	2	9	5	6	4	3	1	2	0	0	1	0	1	3	2	1	1	2	3	3	1	2	2	3
06	0	1	0	2	0	0	0	7	3	8	3	3	1	1	0	1	2	0	0	2	2	2	0	2	2	1	1	2	2	2
09	1	1	2	1	1	0	3	5	4	7	3	3	1	1	0	2	2	0	0	3	3	2	1	1	2	2	1	1	3	2
12	2	1	1	1	0	0	3	3	5	5	2	3	1	1	0	2	1	1	0	3	3	1	1	2	3	1	2	2	2	2
15	1	2	3	2	0	0	5	3	6	6	3	4	2	1	0	2	0	1	1	3	4	1	1	1	2	2	3	2	3	2
18	0	2	3	3	0	0	6	5	8	5	2	5	0	1	0	2	0	0	2	4	3	1	2	1	4	2	3	3	3	4
21	2	1	4	3	0	0	9	5	6	5	4	4	3	0	0	2	2	0	3	3	3	2	3	3	3	4	3	2	4	3
Σ	10	10	14	16	5	0	29	46	42	49	24	28	11	11	0	11	8	3	7	24	22	11	11	15	22	17	15	17	22	22

Hartland K (SW England)

KH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
00	3	2	1	2	3	0	2	7	5	6	4	4	2	4	0	0	1	1	0	3	2	2	2	3	3	2	1	3	3	4
03	1	0	0	3	1	0	3	8	5	6	4	3	1	2	0	1	1	0	1	3	2	1	1	2	3	3	1	2	2	3
06	1	1	1	2	0	0	1	7	3	8	4	3	1	2	0	2	2	0	0	2	3	2	0	2	2	2	2	3	3	2
09	1	1	2	1	2	0	3	5	5	6	4	3	1	1	0	2	2	0	0	4	4	2	2	3	2	2	1	1	3	2
12	2	2	1	1	1	1	3	5	5	5	3	3	2	1	1	2	1	1	0	3	3	1	1	2	3	2	2	1	2	2
15	1	2	3	2	0	0	5	2	6	7	3	5	2	1	0	2	1	1	1	3	4	1	2	1	2	3	4	3	3	2
18	0	2	4	3	0	1	6	5	8	5	3	5	1	1	0	2	0	0	2	4	3	1	1	1	4	2	3	3	3	4
21	2	1	4	4	0	0	7	5	6	4	4	4	3	1	0	3	2	0	3	3	3	2	3	3	3	4	3	3	4	3
Σ	11	11	16	18	7	2	30	44	43	47	29	30	13	13	1	14	10	3	7	25	24	12	12	17	22	20	17	19	23	22

November	28 Areas		-- 50 Areas --				2800	- Spots -		Max			X-ray	Max foF2		Min foF2		-- Particle Fluences --		
2004	Es	F	Es	DX	A	AE	Flux	SEC	SIDC	Kp	Ap	Aa	b.gnd	MHz	Hour	MHz	Hour	2MEV Elec	1MEV Prot	10MEV Prot
01-Nov	7	35	9	1	0	0	136	144	76	2	5	12	B3.3	9.1	10	2.5	06	1.6E+07	3.3E+06	1.3E+06
02-Nov	2	42	0	0	0	0	133	110	74	2	4	10	B5.1	9.4	11	3.0	05	1.5E+07	1.1E+06	2.2E+05
03-Nov	0	23	0	0	0	0	136	123	67	4	10	21	B5.4	9.5	15	3.5	06	4.5E+06	5.8E+05	3.0E+04
04-Nov	0	10	0	0	0	0	136	135	58	3	7	19	B4.5	8.3	15	2.1	05	9.9E+05	2.9E+05	1.8E+04
05-Nov	0	10	1	1	0	0	141	83	55	3	4	7	B4.9	8.2	12	2.4	05	9.3E+05	1.8E+05	1.5E+04
06-Nov	0	7	0	0	0	0	129	106	62	1	3	5	B4.3	7.8	11	3.0	05	9.8E+05	2.9E+05	1.6E+04
07-Nov	1	21	0	0	7	0	130	94	63	7	39	91	B4.9	8.9	12	2.8	05	5.6E+06	7.0E+07	3.2E+06
08-Nov	5	0	0	0	10	2	124	93	57	9	189	162	B4.9	4.2	14	2.0	05	5.6E+07	2.0E+08	1.1E+07
09-Nov	3	7	5	0	12	3	127	90	52	8	120	140	B7.0	9.2	14	2.2	03	2.3E+08	3.0E+08	3.9E+06
10-Nov	8	3	15	1	6	1	105	50	36	9	181	183	B5.2	5.6	13	n.a.	n.a.	3.3E+08	2.2E+08	1.1E+07
11-Nov	6	6	9	0	0	0	95	70	38	5	23	39	B2.1	6.3	12	n.a.	n.a.	1.4E+09	1.1E+08	6.9E+06
12-Nov	0	6	0	0	2	0	97	52	38	5	30	54	B1.3	8.2	12	n.a.	n.a.	2.4E+08	5.9E+07	3.7E+06
13-Nov	0	7	0	0	0	0	96	50	42	4	8	14	B1.0	7.7	12	n.a.	n.a.	2.3E+08	1.1E+07	8.7E+05
14-Nov	0	8	0	0	0	0	100	69	48	4	9	14	B1.4	8.6	12	n.a.	n.a.	3.1E+08	8.8E+06	3.9E+05
15-Nov	0	5	0	0	0	0	106	57	44	1	3	4	B1.9	8.3	12	2.1	06	5.5E+08	9.1E+06	1.5E+05
16-Nov	0	8	0	0	0	0	108	46	41	3	8	23	B2.5	8.4	11	2.3	06	4.3E+08	2.0E+07	1.0E+05
17-Nov	3	7	0	0	0	0	105	59	41	3	6	10	B2.0	9.4	11	2.9	22	1.8E+08	6.6E+06	3.5E+04
18-Nov	0	5	0	0	0	0	104	77	38	1	3	5	B2.0	7.3	12	2.7	21	2.2E+08	3.7E+06	2.0E+04
19-Nov	0	2	0	0	0	0	102	61	38	2	4	11	B2.5	7.4	11	3.4	22	3.8E+08	7.2E+06	1.7E+04
20-Nov	5	15	2	0	1	0	99	40	33	4	18	40	B1.1	8.4	10	2.4	06	2.3E+07	3.9E+06	1.6E+04
21-Nov	1	8	0	0	1	0	101	27	26	5	16	34	B1.4	8.3	11	3.1	05	3.4E+07	3.4E+06	1.5E+04
22-Nov	0	5	0	0	0	0	106	28	29	4	10	13	B2.7	8.2	12	2.4	04	7.9E+07	1.6E+06	1.5E+04
23-Nov	3	8	3	0	0	0	107	45	28	2	5	12	B3.0	8.5	13	2.7	21	1.4E+08	1.8E+06	1.6E+04
24-Nov	2	19	0	0	0	0	107	72	34	3	6	17	B2.6	8.2	11	2.3	06	3.9E+07	1.6E+06	1.7E+04
25-Nov	0	7	0	0	0	0	109	61	34	5	20	29	B2.8	8.4	12	2.0	04	2.1E+07	2.4E+06	1.7E+04
26-Nov	0	7	0	0	0	0	111	61	34	4	13	19	B2.5	7.4	13	2.3	04	5.0E+07	9.7E+05	1.6E+04
27-Nov	1	10	0	0	0	1	110	64	37	3	10	21	B1.9	7.7	14	2.3	06	3.7E+07	9.6E+05	1.5E+04
28-Nov	0	5	0	0	0	0	113	66	29	5	14	22	B2.1	6.7	12	1.8	05	2.6E+07	1.5E+06	1.6E+04
29-Nov	6	4	0	0	1	4	111	40	28	4	15	32	B1.6	7.6	14	1.9	06	7.9E+06	7.4E+05	1.5E+04
30-Nov	3	4	0	0	0	1	111	42	32	4	15	33	B1.9	8.8	12	2.3	05	2.7E+07	8.8E+05	1.4E+04
Sum	56	304	44	3	40	12														
Average	1.9	10.1	1.5	0.1	1.3	0.4	113.2	70.5	43.7	4.0	26.6	36.5	B3.0	8.0	12	2.5	04	1.7E+08	3.5E+07	1.4E+06
Maximum	8	42	15	1	12	4	141	144	76	9	189	183	B7.0	9.5	15	3.5	06	1.4E+09	3.0E+08	1.1E+07
Minimum	0	0	0	0	0	0	95	27	26	1	3	4	B1.0	4.2	10	1.8	21	9.3E+05	1.8E+05	1.4E+04

50 MHz Outside Britain

Compilation and Commentary by G3USF

Real DX on Six!

SV1DH's report this month includes: Nov 14 2015 XE1>ZL2, Nov 23 XE1>ZL2 1945, Nov 29 XE1>ZL2 2045. He forwards comments from ZL2TPY on these striking examples of propagation over something like 10,000km at this stage in the cycle. These are reproduced in edited form below, together with Costas' own reflection. It would be interesting to receive any further thoughts on these openings. There appears to have been an earlier one on the 5th, and a later one on December 19th. None of these was reported on the DX cluster. How many more such interesting events occur without our hearing of them?

ZL2TPY: 'XE1KK/b is a nice indicator of F2 this cycle. I last heard it 9/4/04 at 2100z, then it reappeared on 5 Nov at 20.36z. It doesn't matter how low or high the solar flux is or the A&K; other factors dictate the path. Mainly the summer Es down here. It is Es linked at this end and it is some form of Transequatorial spread F, I think, all the way to XE. It gets extended by Es to W4 / 5 sometimes in our summer Es and their winter minor Es in USA .

Remember it is crossing over the magnetic equator so is not just Sporadic E as JA- W6 is thought to be. It does not get into ZL3 very well at present - only heard very weakly down there this season. It has been heard in VK3&2 land on Es extension. (Es on the 2200~ 2450kms path from VK-ZL can give 5/9+20db off the back of my M2 7el yagi, over the all water path of the Tasman sea)

It started back in Dec 1988 [1998?] for this cycle on the day i worked W4DR for the first F2 for the cycle from VK/ZL. If it was just F2 I would expect VK4s to start working W/XE first. It is a very selective path, but much water down here around ZL so very hard to tell.

I built a 5-el LPY for looking for Sporadic E to South America but have never heard any outside F2 - ie 47,9 & 48.2 are only heard when LP F2 to EU is around. The highest F2 path observed was only ~40 MHz to USA in their Summer Es in last week of July in the lowest null of the last cycle, so Es linking to F2 is very important - much more than many hams think. I have worked EA LP and SP this cycle so hope to work you one day next cycle.'

SV1DH comments: 'the mode involved is not pure F2, but rather Es+tep, although the time difference between the end points is almost five hours. It reminds me somehow of the VK9X to SV path in April 2003.'

ZL2TPY adds that he had always hoped to have a beacon on Pitcairn or Easter Island but had never managed it. He wonders whether UKSMG or SMIRK would be prepared to take that on board. Has SMIRK ever sponsored a beacon? If not, why not?

And Another Interesting Report

Costas also reports, at 0630 on the 8th, a KH6<>KL7 auroral contact at a range of 4,700km. This, too, was not reported on the cluster. Does anyone have fuller information about this or other, similar, contacts? The time is in line with T9 reports of KH6 into W6 and W7 while the auroral event was in progress; a little later KL7 worked into W7. However, mixed-mode is surely involved. One recalls an earlier, even longer, 'auroral' contact between (as I recall) a GM and a CX station which held the Region 1 auroral record when I last saw the list. This was also very clearly a mixed-mode event, but must also have been in some way 'aurorally related', as we say.

Continental Europe

Auroral-Related Modes

Recent comments here have frequently referred to a 'quiet month' with aurora rarely, if at all, reaching south of the Baltic and the occasional reminder that we are now past the low point of the magnetic cycle. That certainly cannot be said of a month featuring one of the stormiest periods on record, with sustained periods when the Ap index was at the top of the scale and the monthly average at Sodankyla was 33.7.

In all, there were thirteen days when propagation that appears to have been auroral-related was reported in Europe, with four more in North America. That said, there were in fact only four days (Nov 7-10) when propagation is known to have reached southward for any substantial period. The storm itself was not a surprise. Such events can occur at any stage of the magnetic cycle and this one, spreading over four days with ebbs and flows, was heralded by the forecasters sufficiently far in advance for operators to be alert. And, indeed, the listings that follow are clearly only a fraction of the activity, of which there was even more on 144MHz. Once that is said, it is perhaps a shade surprising that there were few reports of 70cm contacts, while the most southerly 50MHz reports are a couple relating to S57RR. There are none from Italy, still less any from Greece or Spain, which one might have hoped would have been reached during a disturbance of this magnitude.

The listings below include a number of AE contacts, identified by either an 'AE' or a t9 report, presumably during Hareng discontinuity periods. So far, so normal. However, it is less certain how to classify a number of contacts on the afternoon and early evening of the 10th. These have been included under 'other modes' although - for the reasons G0AEV indicated earlier - whether or not they were affected by the geomagnetic storm remains uncertain. The disturbance was waning at the time but all three UK observatories and the planetary figure were at 5 or more…

Nov 2 7-1800 49750>SM0(58a 000) LAtv>SM0(Ae/ms?)

Nov 3 1630-1750(Au>OH5IY) 1750-1810 AuFM>OH5IY 2000-40 AuFM>OH5 2120-2230 Au>OH5

Nov 4 1550-1600 Au>OH5IY 1920-30 Au>OH5 2030-40 Au>OH5 2043 49750>OZ(55a) 2100-20 Au>OH5 2142 49750>OH6(KP02 53a)

Nov 7 1600-1700 Au>OH5 16-1700 49750>OH6(KP02 59a) 17-1800 LY1>OH2(?) SM3>OH8 LA>OH2 2045 49750(UA)>SM0 21-2200 OH3(KP20)>PA(JO33) SM5>PA(JO33) GM>EI(?) OZ>SM4(59a) GM>OZ(57a) DL>SM5(53a) 2200-10 Au>OH5 2250-2400 Au>OH5 23-2400 SP5>SM5(57a) G>OZ(59a) GM>PA(59a 350) OY6SMC>OZ(55a) GB3LER>OZ(55a) ES3(KO29)>DL(JO30 350 57a)

Nov 8 0000-0510 Au>OH5 0000-0150 AuFM>OH5 0024 GM>EI(mode?) 0200-0340 AuFM>OH5 0350-0530 AuFM>OH5 05-0600 49750>DL(JN58 59a) OZ6VHF>OZ(55a) OZ(JO65)>DL(JN58 55a) 0540-50 AuFM>OH5 06-0700 OZ>OZ(59A) 0850-0910 Au>OH5 0920-50 Au>OH5 1000-1120 Au>OH5 1130-1230 Au>OH5 1630-40 Au>OH5 1910-2220 Au>OH5 2030-40 AuFM>OH5 2100-10 AuFM>OH5 21-2200 OH6>OZ(52a) OH3>OZ(56a) TF>EI(59) OH3>SP4(KO03 52) OY6SMC>EI(599 AE) GM(IO89)>PA(JO33) 2240-2400 Au>OH5 2300-10 AuFM>OH5 2320-40 AuFM>OH5 2350-2400 AuFM>OH5

Nov 9 0000-0150 Au>OH5 0000-20 AuFM>OH5 0200-10 Au>OH5 1130-1600 Au>OH5 1250-1510 AuFM>OH5 1249 49750>OH6(KP02 57a) 14-1500 GM(IO88)>EI 59a) GM>PA(JO21) OZ(JO47)>DL(JO30 57a) 15-1600 SM5(JO78)>DL(JO53) DL(JO51)>DL(JO53 55a 045) G>OK1(JN69 54a) SM7>OK1(JN69 58a) OH3(KP20)>DL(JO53) 16-1700 G>EI(58a 060) G>DL(JO53) LA(JP40)>DL(JO53) JW7SIX>SM2(599 AE) JW9SIX>SM2(599 AE) 1610-20 Au>OH5 1630-40 Au>OH5 17-1800 JW9SIX>OH2(599) SM5(JO78)>DL(JO62 59a) 49760.4>DL(JN58 55a) 2730-50 Au>OH5 1810-1900 Au>OH5 19-2000 LA7SIX>LY(KO25 599) LY(KO25)>DL(JO30 57a 355) GM(IO75)>F(59a) 1950-2050 Au>OH5 20-2100 EI>F(59a) GM(IO75)>DL(JO42 59a) LY(KO25)>SP6 55a 000) LA(JP99)>DL(JO30 58AE) OH6(KP14)>DL(JO42 58a) GM>LA(56a) S57RR>DK5AI GM(IO87)>LY(KO25) PA(JO21)>LY(KO25) GM>SM2(KP07 55a) OH6>PA(59 AE) OH9SIX>DL(JO50 559 AE) LA(JP53)>LY(KO25) GM(IO87)>DL(JO42 55a) TF>DL(?) SP5(KO02)>LY(KO25) OH3(KP20)>LY(KO25) OH4(KP42)>LY(KO25) LA(JO59)>LY(KO25) ES1(KO29)>LY(KO25) DL(JO73)>LY(KO25) GM(IO75)>F(IN88 57a) SP6(JO80)>LY(KO25) OH56(KP23)>LY(KO25) 2030-50 AuFM>OH5 2110-30 Au>OH5 21-2200 S57RR>DL(56a) LA>OH2(55a) SP2>SP2(55a)

Nov 10 0150-0220 Au>OH5 0250-0350 Au>OH5 0250-0310 AuFM>OH5 0430-50 Au>OH5 0430-40 AuFM>OH5 0500-0830 Au>OH5 0534 OZ7IGY>SM7(55a) 0634 49750(StPetersburg)>SM0(59a) 0630-40 AuFM>OH5 0650-0710 AuFM>OH5 08-0900 OZ>OZ(59a) GM(IO87)>EI(57a 030) DL(JO55)>OZ(JO50) SM7(JO65)>OE5(52a JN78) OK1(JN69)>OZ(JO56) ON(JO11)>OZ(JO55) SM7>PA(55a) 0951 SM5(JO99)>DL(JO53) 1050-1100 AuFM>OH5 1110-40 Au>OH5 1058 SM1(JO79)>DL(JO53) 1120-1200 AuFM>OH5 1150-1520 Au>OH5 1210-20 AuFM>OH5 1250-1300 Au>OH5 13-1400 OZ6VHF>DL(JO53 55a 050) SP5(JO92)>DL(JO53 55a 050) 1310-50 AuFM>OH5 14-1500 LA(JO59)>DL(JO53 57a 000) SP2(JO93)>DL(JO53 58a 040) SP1(JO73)>DL (JO53 56a 040) SQ3(JO81)>DL(JO53 42a 050) OZ(JO75)>DL(JO31 53a) DL(JO30)>DL(JO53 57a 040) OZ>OK1(JN69 57a) Au>ON(JO11 55a) SP3(JO73)>DL(JO53 56a 035) 1430-40 AuFM>OH5 15-1600 SM7(JO65)>OK1 (JO70 57a) DL(JO53)>OK1(JO70 55a) continued in main listing below 1500-10 AuFM>OH5 1612 HB9SIX>LZ1ZP(auroral tone)1620-1700 AuFM>OH5 1720-30 Au>OH5 20-2100 49.7>SM0(59 AE) OH3>SM0(53a 000) 2030-50 Au>OH5 2100-20 Au>OH5 21-2200 GM>ON(41a)

Nov 12 00-0120 Au>OH5 1950-2020 Au>OH5 2200-10 Au>OH5 2320-50 Au>OH5 16-1700 SM5(JO99)>OZ(JO54 51a) JW7SIX>LA(JP99 559) 1610-1700 Au>OH5 !7-1800 JW7SIX>OH6(AE) JW9SIX>OH6(AE) JW9SIX>LA(549 JP9) 18-1900 OH2(KP24)>KP10(OH8 56a) 1820-1900 Au>OH5 21-2200 TF3SIX>LA(JP99 519) OH6(KP20)>SM2(53a) OH9SIX>LA(JP99 52a)

Nov 16 1746 48250>SM0(56a) 49750(UA)>SM0(56a) 1911 JW7SIX>SM2(579)

Nov 20 1432 OH9SIX>OH6(33a)

Nov 21 1333 JW7SIX>LA(?) 15-1600 GB3LER>LA(JP20 53a) 16-1700 JW7SIX>SM2(579 AE) 49759(UA)>SM2(56a) JW7SIX>LA(JP20 559) 2003 OH9SIX>SM2(59a)

Nov 26 2028 OH9SIX>SM3(55a)

Nov 27 1544 JW7SIX>SM2(559 AE) 1610-50 Au>OH5 1930-40 Au>OH5 21-2200 LA7SIX>OZ(56 ?) 49750>SM0(57a) 2200-10 Au>OH5 2320-50 Au>OH5

Nov 29 1722 JW5SIX>LA(JP99 559) 2117 JW7SIX>LA(JP99 ?) 22-2300 OY6SMC,GB3LER>LA(JP99 mode?)

Other Modes

The big event occurred on November 10. With auroral propagation still under way in northern Europe, strong T9 signals were reported from around 1555, continuing until almost 2000. There were comparable reports at 144MHz between 1709 and 1730. On 2 metres, most reports were from south-eastern England, ON, PA, HB and western DL into SV1, SV2, SV3 and LZ, briefly touching OE. Signals were on direct headings and, the reports suggest they were undistorted. At 50MHz the event lasted longer and covered wider areas of northern, central and southern Europe, extending to 599 contacts with 5B, 4X and OD, unquestionably requiring a second hop, assuming reflections at E-layer height.

50Mhz openings are not an every-year occurrence in November, but neither are they exceptional - November 1 had already produced quite a good one. However, one reaching 144MHz certainly is, though some have claimed a precedent on November 6 2001. Several reporters and Volker, DF5AI, who has mapped the 2m reports contacts at www.df5ai.net are firmly convinced the mode was sporadic-E rather than AE. AE occurrence at this point would not in itself have been surprising, though so intense an event so far south would be unusual if not unprecedented. But, surely, so would 'normal' Es after such a major geomagnetic storm. Like G0AEV I would like to see the mechanism more fully explicated - though there seems no way we could achieve retrospective certainty. The morning of November 11 brought more strong, wide-spread sporadic-E at 50MHz but this is not known to have reached 144MHz.

All else necessarily seems humdrum, especially for North Europeans. Apart from the one brief opening to FP by scatter from the south-west, much of the activity derived from a fairly restricted group of operators using jt6m - flagged as (jt) - with something approaching dedication. Propagation modes were often not explicit, but MS seems to account for a substantial proportion. However, as G0AEV hinted earlier, the amount of MS propagation available is very probably understated. In general, JT6M frequently serves as a fallback, which operators abandon when more interesting opportunities come along.

The month produced no reports of contacts with Southern Africa (2003 8 days, 2002 20, 2001 28) and there were only 5 days when we know of openings with West Africa. This includes the 1st, when excellent Es appears to have enabled signals to reach further north, as well as the Mediterranean. Openings on the 9th and 10th may have arisen from a southerly displacement of ionization associated with the disturbances on those days. The same may hold true of openings between the Sudan and the Eastern Mediterranean on the 9th and 11th The five days of propagation into the Mediterranean compare with 23 in 2003, 28 in 2002 and 22 in 2001. Northern Europe, which had only the one reported opening, was down from 8 days in 2003, 28 in 2002 and 16 in 2001. Noted that SV1DH reports reception of 9L, 3C and 5Ztv for a total of 20 days.

Europe<>Africa

TR	4 days	1(CT,DL,EA,F,G,I,PA,9H) 4(EA) 10(I) 16(SV)
5U	1 day	9(I,IS)
ST	4 days	9(SV) 11(SV) 12(I,I9,S5,SV,SV3,9H) 14(I)

The only day when propagation was reported from North America was the 1st, and again the contacts with the FP expedition station by way of a south-westerly scatter (from the UK) seems likely to have been connected with the prevalence of Es at the time.

Contacts with the mainland of South America were reported on only two days, and on both occasions with the Iberian peninsula. The figures in 2003 had been Mediterranean 3 days (2002 14), Iberia 8 days (2002 17) and northern Europe 2 days (2002 2). The easier path from ZD8VHF held up fairly well - but only to CT and EA.

Europe<>Americas

FP	1 day	1(F,G)
FY	1 day	11(CT)
PY0FF	1 day	5(EA)
ZP	1 day	5(EA)
ZD8	9 days	1(EA) 2(CT) 3(CT) 5(CT,EA) 9(CT,EA) 11(EA) 16(CT) 26(CT) 27(CT)

As usual, in the detailed listings callsigns are given in full for beacons and 'dx'. The exception is the 10th, where an unusual opening is more fully documented.

Nov 1 09-1000 UAtv>I4(050) UR>ON,I5 49750(UA)>PA GB3LER>I4 10-1100 EI>PA GB3LER,SM4,SM7>F HB9SIX>DL(t) UR>I0 EI>DL(Es),ON GM>I5,9A ON>DL(t) F>SM3,PA,SP6,OZ OZ,GB3MCB,GB3IOJ>DL GI>S5 G>9A OZ6VHF,OZ7IGY>F OZ>EA2 11-1200 I8>DL DL>EA5,EA3 EH3,DL>EH2 EH2>SP6 CT0SIX,F,9H1SIX,EH6,7X,LX>DL 9A,9H,EH5>PA EH2,F,GW>9A G>EA5 7X>OE1,SP6,SP1,S5,ON I9>DL,ON GB3BUX>F DL,I3,S5,9A>EA1 EH6>OK1 EH5>S5,9A 12-1300 EH6>I3 7X>YO5,DL I9>I2,PA,I1 OZ>EA1 TR0A>IK5YJY I9>SP9,I2,I1,PA I6>EA1 EH4,7X>9A FP/VE7SV>G4FUF(265 scatter),F5OQK,G4PCI,IK1RLI 13-1400 7X,S5>9A G>F(bs) CN8MC>DL SV1SIX>I0 TR0A>F6FHP,IK5YJY 14-1500 I9>DL SV1SIX>I2,I5,I3 GB3MCB,GB3IOJ>F 15-1600 FP/VE7SV>F6FHP EA3VHF>9A F>I0 EH5>I3,9A,DL I9>F 9A>EA3 I9>PA 16-1700 I9>PA TR0A>9H1YZ,EA7KW S5>EA5 I9>F TR8CA>EA7KW,DL7ARM,CT1FMX,PA3GCV,I8LPR I9>PA 17-1800 TR8CA>EA7CU,CN8LI,G8BCG 20-2100 I0>SP6 ZD8VHF>EA7KW 22-2300 GB3LER>OY(t),F

Nov 2 11-1200 SP6>I7(jt) 12-1300 G>I7(jt) 17-1800 I2>I7(ms) SM7>I7(ms) I8>SP6(jt) 20-2100 G>LA(jt)

Nov 3 08-0900 49750>G(090) 46171.6(VK4)>G(060) 14-1500 CN8MC>IS0 2009 G>LA(jt) 2241 PY2SFY>CN8KD

Nov 4 1253 I2>F(jt) 1605-10 TR0A>EA7KW 9Ltv>SV1 2135 DL>SM(ms) 2311 GB3LER>F(ms)

Nov 5 0733 UR>YO7 0917 GB3LER>DL 1559 OD5SIX,5B4CY>SV1(Es) 1931 9Ltv>SV1(e-tep) 22-2300 ZD8VHF,ZP6CW>EA7KW

Nov 6 0853 I3>OZ(jt) 0903 I3>SP6(jt) 1455 I6>S5(t) 1557 HB>ON 1650 G>I5(jt) 1958 OE5>GM(jt) 21-2200 G>SP6(jt),OE5(jt) 2247 OE5>EA3(jt)

Nov 7 08-0900 I3>OZ(jt) G>I3(jt) 09-1000 SM7>I3(jt) G>I2(jt) 1116 G>SP6(jt) aurora 23-2400 M5>SP1(mode?)

Nov 8 aurora 09-1000 SO5>SP6(jt) G>PA 20-2100 OH9>OH8

Nov 9 15-1600 ST2PN>SV1LK 16-1700 5U7JB>IS0GQX,IZ1EPM aurora I0>LA LA>9A,I7 OZ>I7 17-1800 OZ>9A JW9SIX>I5,9A LA>I4 JW7SIX>I5 G>I0 GB3MCB>I9 18-1900 EI>I5,I7 I8,I9>PA G>I1 PA>EA7 EH7>OZ F>DL,9A,OZ,SP2,SP6 I7>OH2 IS0>F 19-2000 aurora 2128 ZD8I>CT3DL,EA7KW

Nov 10 aurora 0745 I9>9A 08-0900 I9>5B,OE5 CN8MC>G 1313 TR0A>IK5YJY 1554-9 HB(JN37)>LZ1(KN22)(Es) GB3BAA>LZ1ZP(KN22 599 Es) 16-1700 I0(JN61)>DL(JO53 Es) HB9SIX>LZ1ZP(KN22 529) OZ9CQ>IK5YJY OD5SIX>LZ1ZP I8MPO>DF9OX(Es) IC8CQF>OZ1DJJ(599) OZ5UKF>IZ5EKV(59) LZ1JH>F1FSH(KN22 559) LZ1ZP>IN3QBR SP6GZZ(JO81)>H6HRP(IN88 mode?) GB3LER>IW4BET(JN54 579) IW9HDD(JM65)>9A8A(JN86) 5B4FL>9A7V G3UYM>5B4FL(599) F8ASY>9A7A(59) I8MPO>LA6PV(57) DK6FA>EA5/G0KOM IW9HJZ(JM67)>9A7V 5B4FL>G0JHC(599+) 4X5CX>LZ1ZP(579) M0XLT(IO83)>9A7V SV1SIX>DF5NK(JN59 559) 4Z5CX>G0JHC(599) Z37CXY>9A7V,DJ9KM OE8HWQ,LZ1ZP,LZ2,SV2>DL(JO31) OD5SIX,4Z5AO(KM72)>G4ASR(559) 9H1TM>9A7V 5B4FL(KM64)>F6HRP(IN88 57),DG5YIL(59 JO32) SV1SIX>DL2DR(JO31 599) HB9AID>SP5XMU(59) 5B4FL>DG5YIL(59 JO32) IW7EEO(JN71)>DL4ALI IW7UUO>9A7V IZ8EPT>SP9DSD(59) SV2ASP>DL8PM 17-1800 Z37CXY>DL4ALI OE8>DL EH4SV>IK2GSO(59) I8>I3 G0JHC(IO83)>IZ5EKV(59) I6,YU1>I5 F5DE>SP9CCD SQ7DQX(JO11)>IZ8EPY(59) IZ5EME>LA6PV(57) IW0GXY>EA5/G0KOM F>ON EH3LL>OZ1DJJ(57) GM4NFC(IO75)>IC8FAX(JN70)(59) G4DEZ>IZ6FZS(59) F5PAU(IN88)>DL9NDC(JN59 59) EH6ST>OM7PY I0JX>PA2V EH6ST>ER1SS LZ1AG>IK1WJN OM3HA>EH3LL 18-1900 IW1FZC(JN34)>EA5AGR(IM88 59) IS0GQX>OM7PY T99C>EA2CAR I7>I1 IW0BET(JN61)>PA3DZL(JO21 59) HB9DDS>EA5/G0KOM OK2DX>EA5/G0KOM T99C>IK1WJN F6APE>SP9DSD F8ZW>IW0AFS IS0GQX(JM49)>SP2IQW(55 JO94) YU1ACR(KN13)>EA2CAR(JN82) IT9XDJ>DL8PM IT9TJH(JM67)>PA3HGF 7X0AD>IK5YJY,IZ0ADG,IK8VMT,SP6MLK,9H1LE SV3GKE>EH3LL(59) M0XLT>IZ5EKV CN8MC>S57RR(JN65) EH6AZ(JM29)>9A7V 9H1SIX>DF9TF(559) CN8KD>ON5LGS EH3EED(IM68)>I8JIT(JN71) 19-2000 CT1ANO>S57RR CT1DIN>IW0AFS 7X0AD>DL4ALI(JO50) 7X0AD>S57RR(JN65) 7X0AD>I8JIT(JN71) CN8KD(IM63)>DJ5AV CN8KD>F4TTR(JN18) CN8KD>F5PAU(IN88) EH6AZ(JM29)>IZ5EKV(JN53) EH6AZ>SV1LK EH6AZ>CT1DIN F5PAU(IN88)>EA7OC EH5EZJ>IZ8EPT 9H1YZ>F5PAU EH5EZJ>9H1YZ DL>OZ SM5>DL(ms) CN8MC>IK1EGC(JN35) CN8MC>HB0SJV(JN36)

Nov 11 0728 UAtv>SV1 08-0900 EPtv,MEtv>SV1 UT5G>DL,ON,F UU5SIX>SP2,I8 09-1000 OZ7IGY>LZ1 F>SP7 YO9,9A,T9>OZ GB3BAA>OM7 9A,YO7,YO9,LZ1,I0JX>DL UT5G>F,I4 SP6,HB,UR,S5>F CN8MC>HB SP8>I2 YO9,S5>ON SM7>SP2 10-1100 I7>PA,SQ3 I0JX>SP9,OZ Z3,9A,I3>DL OD5SIX>SP9,SV1 YO7>OZ I2>SP9 I8>OK2 I3,I5>OZ 9A0BHH>ON 5B4CY,I0>SP9 F>SQ3 SV1,SV3>ON 9H>JY,SP9 PI7SIX>I4(Es) DL>EH3 T9>HB I5,SV1>PA I8>DL F>LZ5,9A 11-1200 G>SV3 F>OK2,S5,SP5,SP6, SP9,9A,OE6,DL,I4,OZ I0>DL GB3IOJ>SP6 GB3MCB>S5 EA3VHF>SP6,SP9,OK1 I0,I1>PA EH2>OZ 12-1300 IZ1EPM>PA F>DL,S5,SP9,OZ,9A GB3IOJ,I7>DL EH2>OZ, SP6,SP9 EA3VHF,CN8MC>SP6 14-1500 CN8MC>I4,I5 ST2PN>9H1LE,9H1XT,IT9RZR 15-1600 ST2PN>SV1DH,I8LPR,IT9RST,5B4FL, IT9RZR,IT9AF I9,HB9SIX ZD8VHF>EA7KW CN>9H I9>EA7(Es) CT0SIX>I8 16-1700 FY7THF>CT1HZE CN8MC>I5,IS0

Nov 12 1254 ST2PN>IK2EAE,IZ5EEV 13-1400 ST2PN>S57MTA,IW4BET,IK0BAL, IZ6BXV,IK8XIR 9Ltv>SV114-1500 OE5>SM5(jt) ST2PN>9H1TX,I8LPR,SV1DPI, IW9GUR,SV1CIB,SV3CYM,SV1EHF I0>YU7 15-1600 ST2PN>IT9RZR 16-1700 I5>SP6

Nov 13 08-0900 I3>OZ(jt) 09-1000 G>SP6(jt) 1048 9A1CAL>S5 1253 SV1>I1 16-1700 9H>SV1,TR8CA 1848 G>SP6(jt) 19-2000 G>I3(jt) SM5>SP6(jt) 20-2100 PA>SM5(jt) 2119 CX4CR>EA8BPX

Nov 14 08-0900 OE5>OZ(jt) 1031 YO5>PA(jt) 1358 OE5>OZ(jt,tsc) 1639 ST2PN>IK8DYD

Nov 15 1107 F>I5 1442 HB9SIX>DL(t) 1948 G>F(jt) 21-2200 LU7FA,ZZ2TGR>EA8BPX

Nov 16 1226 HB9SIX>DL(t) 1226 SM5>SP6(jt) 1557 TR0A>SV1DH 16-1700 I3>SM5(jt) 1947 G>F(jt) 20-2100 SM5>PA(ms) OH1>PA(jt) 21-2200 G>SM5(jt) DL>SM5(ms)

Nov 17 0654 OH3>SM5(jt) 16-1700 HB9SIX>DL(t) F>S5 17-1800 F>S5 G>F 1908 9H>I3(jt) 2042 OH5>SM5(jt) 2151 SM5>DL(jt)

Nov 18 0551 SM5>SP6(jt) 06-0700 OH5>SP6(jt) ES3>SP6(jt) 0949 HB>SM5(jt) 1337 9Ltv>SV1 20113 OZ>PA(jt)

Nov 19 1943 G>F(jt) 22-2300 SM5>OE5(jt) SM5>I3(ms)

Nov 20 G>I2(jt) 10-1100 GM>OE5(jt) OZ>I3(jt) SO6,I3>OE5(t) 11-1200 SP6>I3(jt) 14-1500 SP6>I5(jt) UT5G>I5 16-1700 OZ>OE5(t) S55ZRS,I0>OZ 2243 W7GJ>9A4K(eme) SM7>OZ

Nov 21 10-1100 S5>OZ SM5>IS0(jt) IS0>SP6(jt) 11-1200 S5>I1,I0 12-1300 PA>9A(jt) PA>SP6(jt) 13-1400 PA>I3(jt) I4>I0 I4>PA(jt) 14-1500 G<9A(jt) 16-1700 aurora ON>I3(ms)

Nov 22 20-2100 OZ>SP6(jt) GB3LER>F 22-2300 SP6>SM5(jt) G>I3(ms)

Nov 23 1252 5B>RA6LUX 17-1800 SV1>S5(jt) SV1>SP6(jt) 18-1900 OZ>S5 SM6,LA>I5 LA>PA(ms) LA>S5 19-2000 OH0>S5 I9>I0(t) I4,S5>I3 G>OZ 20-2100 SM1>OZ GM>F G>PA OZ>S5 21-2200 S5>I5 OH0>PA OH3>OH8 22-2300 OH2>PA(jt) G>I1(ms) OZ>PA(jt)

Nov 24 1907 SV1>SP6(jt)

Nov 25 1120 GB3LER>F 1613 JYtv>SV1(Es) 21-2200 OZ>SM5(ms) GW>SM5(ms) 22-2300 GW>PA(jt) GW>I3(ms)

Nov 26 1042 GB3MCB>PA 1512 HB9SIX>DL(t) 2306 GB3LER>F

Nov 27 0819 I3>OZ(jt) 0931 I3>HB(jt) 11-1200 I3>SP6(sc) I3>OZ(jt) 1229 9Ltv>SV1 1857 OZ>I3(ms)

Nov 28 09-1000 G>HB(ms) 1032 OZ>PA 1130 HB9SIX>DL(t) 1440 I4>I5 16-1700 I4>OE5(t) I4>S5 21-2200 I2>PA(jt)

Nov 29 13-1400 9Ltv,3Ctv>SV1 GB3MCB>DL 20-2100 G>OZ(jt) G>SP6(ms)

Nov 30 1154 CT0SIX>I4 1757-9 PA>SP6(jt) PA>F(jt) 20-2100 G<PA(jt) G>SP6(jt) I3>PA(jt)

50MHz PROPAGATION REPORT FOR NOVEMBER 2004 BY SV1DH

1. Data for all days (30)
2. Relatively good days on:10,11,12
3. 48 MHz AF video (9L+3C+5Z) on: 1-7,9,11-13,15,16,18,19,25-29 (R=66%)
4. 55 MHz AF video (5N) on: NIL
5. " to TR on: 16(A-TEP)
6. " to 7X on: 10(E)
7. " to ST on: 11,12(F)
8. " to 5B on: 5
9. " to OD on: 3,5,11
10. " to CT on: 10(2E!)
11. " to EH on: 10
12. " to EH6 on: 10
13. " to 9H on: 11,13(B)
14. " to F on: 10
15. " to I on: 1,10

16. " to HB on: 10
17. " to S5 on: 10
18. " to YU on: 10
19. " to DL on: 10,11
20. " to ON on: 11
21. " to G on: 10
22. " to GM on: 10(2E!)
23. " to SP on: 11

24. Special events on:
    1 (0322 M1.1 flare+0915-1115 foF2>10, max 10.5, MUF=35Mhz at 0930z+ 1230-1300, 1450-1500 FP to F+G+I,1-2Es+F2 scatter+2045 EH7 to ZD8)
    2 (2100 CT to ZD8)
    3 (0845 G to VK4 video+1015-1100 foF2>10, max 10.3, MUF=35Mhz at 1045+2045 CT to ZD8+2230 CN to LU)
    4 (0930-1015 foF2>10, max 10.9, MUF=40Mhz at 1000+2015 FM to EU video scatter+2045 ZL2 to XE1/B NF2 >10000Km+2229 M2.5+2319 M5.4 flares+C1 Xray bgn)
    5 (15C+2M flares, 1130 M4.0 flare+0800 JA on 10m+2130 CT to ZD8+2245 EH7 to PY0+ZP)
    6 (6C+4M flares+0034 M9.3+0051M5.9+0157 M3.6 flares+0930 VK3 on 10m+1045 MUF to HZ>43Mhz)
    7 (15C+1M+1X flares+1606 X2.0!+1626 M7.3flares+2200 CN to ZD8+2345 W1 to EU AUE)
    8 (Ap=189+ 03-09z K=9! +0630 KH6 to KL7 via AU! >4700Km+1549 M2.3 flare)
    9 (1415-1500 foF2>10, max 10.9/ MUF=34Mhz at 1430 +1723 M8.9 flare + 2130 CT+EH7 to ZD8)
    10 (0213 X2.5! flare +06-09 K=8 +0900 KL7 to 49Mhz video AS? +2245 FJ to PY1 tropo!)
    11 (1600 CT to FY/B)
    12 (1145-1245 foF2>10, max 11.2/MUF=38Mhz at 1200)
    14 (2015 ZL2 to XE1/B +CT to ZD8)
    16 (2215 CT to ZD8)
    20 (0930-1015 foF2>10, max 10.7/ MUF=38 Mhz at 1000z)
    22 (2130 CN to PY1)
    23 (1945 ZL2 to XE1/B NF2)
    25 (0915 VK3 on 10m)
    26 (2130 CT to ZD8/B)
    27 (2045 CT to ZD8/B)
    29 (2045 ZL2 to XE1/B NF2)

    SV1SIX off-air 13z 3 Nov. -13z 10 Nov. 9L TV tx now on 48248.2 Khz

25. DXCC entities heard/worked during Nov 2004 : 19 on 3 cont
26. DXCC entities heard/worked on 10th Nov 2004 : 12 on 2 cont. 73 COSTAS

The Americas

Auroral-Related Modes

The major geomagnetic storm stimulated a substantial crop of reports, especially for the 8th and 10th. This was partly because the disturbance was well-heralded, partly because much of the auroral propagation occurred at convenient times for North America - though even so some operators working far into their local night on both days. Sadly, a significant proportion of reports still offered no indication whether signals were 'tone a', AE - or unrelated to the aurora. The latter was particularly the case for contacts reported from areas where auroral-related modes would not normally occur. Why take the trouble to signal contacts without some sort of pointer?

Openings were reported at one time or other from all the northern states and the Canadian provinces, with the west in particular benefiting more generously than usual. The 10th was noteworthy for contacts between Alaska and the Eastern US. These were intriguing because NL7Z in BP51 would appear to be beyond normal auroral or AE range for W1 and W3 and one report is of a tone a signal and another is t9. On the 8th propagation reached as far south as central Texas - an infrequent occurrence at that latitude.

Nov 7 16-1700 W2>W1(au?) 20-2100 K0KP>W9(FN44 54a) W8>W1 22-2300 N0UD>W0(DN70 52a) W7(DN17)>W7(CN88 59a) 23-2400 N8PUM>W9(EN44 55a) VE4ARM>W9(EN44 55a) W0(EM37)>W9(EN44 59a) W7(DN17)>W7(CN88 57a) W0(EM09)>W0(DN70 53a 060) W8>W3(FN20 59a) W8(EN84)>W0(DN70 55a) W8>W2(58a) W9(EN344)>W0(DN70 55a) K0UO(EM07)>W0(DN70 52a 070) N8PUM>W3(FN20 59a) W1(FN31)>W0(DN70) W9>W1(?) K0KP>W3(FN19 55a) VO1>W1

Nov 8 00-0100 K6FV>W7(CN88 55a) aurora visual>FN20 VO1ZA>W3(FM19 51a) W0(EN10)>AE5B(EM02-TX) VO1(GN08)>W2(FN30 55a) W7(CN74)>W7(DN47) KY5R(EM64-GA)>W0(DN70 53a 080) W9(EN52)>W9 W0(EN35)>W3(FM19 57a) VE6(DO33)>W0(DN70 52a) W7(DN37)>W7(CN88 57a) W0(EN08)>VE2(FN46 55a) W7(DN28)>W7(CN88 55a) W3(FN20)>W3 VE3(FN15)>VE3 W7(DN47)>W0(DN70 59a) VE1(FN74)>W0(EN34 59) VE4VHF>W3(FM19 579Au/AE) 01-0200 VE1(FN74)>W2(FN30 55a) VE1(FN74)>W2(FM29 59) W0(EN43)>W9(EN63 57a) W2(FN02)>VE3(FN03 57a) VE1(FN74)>W2(FN02 59a) W0(EN10)>AE5B(EM02-TX 59a) W1>W4(59a) VA2MGL>W2FN21) W3(FN10)>W2(FN02 59a) W3(FN10)>VE3(FN03) W7(DN45)>W7(CN88 59a) W7(CN92)>W0(DN700 55a) VE7(DN09)>W7(CN88 59a) W1(FN42)>VY2(FN86 mode?) W8(EN84)>W0(DN70 59a) W7(CN85)>W4DUP(EM76 mode?) 02-0300 VE7(CO70)>W0(EN10 mode?) W7(DN62)>W0(EN10 mode?) W1(FN34)>VE9(FN65) VE3(FN04)>W8(EN80) W0>W3(AE) W3(FM28)>W0(DN70 mode?) W2(FN20)>W3 KA0CDN>W9(EN44 55a 270) W2(FN20)>W1(FN32) W2(FN65)>VE9(FN20) W1>KG4QMI(FM16 55a) 03-0400 W1>W7(55a Au/AE) W3>W4(mode?) VE7>W9(EN44 599) W1>W7(51a) VE6EMU>W9(EN44 559) VE2(FN07)>W0(EN10 mode?) VE7FG>W9(EN44 559 AE) W9(EN35)>W9(EN82 57a) VE9(FN65)>W1(mode?) W7(DN27)>W7(CN87 mode?) VE2(FN07)>W0(EN10) W8(EN83)>W7(CN88 57a) K0UO>W7(57) VE4(EN19)>W7(AE) W7>W7(59a) VE2(FN25)>W8(mode?) KL7NO>VE6(DO33 59) W9(EN61)>W4(EN80) W8(EN28>W7(mode?) 04-0500 VE3>W8(59a) W7(DN38)>W9(EN44 58) W7(DN47)>W0 W7(CN84)>W7(?) VE3(FN03)>W4(FM17 59) W7>W1(?) W3>W2(57a) VE5(DN59)>W9(?) VE7>W7(?) W1(FN32)>VE3(FN03(?) W1(FN31)>W9 VE3(FN03)>W2(58a) 05-0600 W7>W6 VE3(FN03)>W3(FM19)(?) W4>W2(?) W1>W7(?) W7>W1(59 AE) W1>W2(52a) VE9BEA>W0(?) W7(DN27)>W0(?) VE2(FN46)>W3(?) VE2(FN07)>W9(EN52) W8(EN91)>W4(FM17 59) W7(DN06)>W9(EN52 AE) W8(EN65)>W4(FM17 55) W8>W4(55a) 06-0700 W0(EN35)>W3(FM19)(?) W1(FN32)>W9(EN52) W3(FM18)>W9(EN52) W8(EN71)>W4(FM17 55a) 07-0800 AL7RT>W7(?) 08-0900 VA2MGL,VE3UBL>W2 VE4VHF>W9(EN44 55a) 09-1000 N8PUM>W9(EN44 57a) W9JN>W9(EN44 53a) 10-1100 VE9BEA>VE1(FN65 54a) W2ZD>W1 11-1200 WR9L>W1(?) 21-2200 VE8BY>VE1(?) W7(DN17)>W7(CN8 57a) 2325 N8PUM>W2(55a)

Nov 9 00-0100 W0(EN10>W7(DN47 59a) 01-0200 VE4VHF>VE7(54a) W7(DN47)>W7(CN88 55a) W7>W0(?) 02-0300 K0KP>W8(EN82 AE) 0353 VE8BY>VE3(DO33)(?) 04-0500 KL7NO(BP54)>W7(CN88 33a/AE) 06-0700 VE7(CO70)>W7(CN88 59) KL7>KL7(55a) 07-0800 KL7>KL7(?) 1948 VE9BEA>VE1(55a) 20-2100 W4>W2(?) 20-2100 W4(FM06)>W4 W3(FM06)>W4 VE9BEA>W1(?) W8>W3 K0KP>W9(EN44 55a) 21-2200 VE2>W8(?) VE8BY>VE1(FN65 569) 2248 VE3>W1 23-2400 W7(DN62)>W9(EN51)(?)

Nov 10 00-0100 K0KP>W0 W7>W0(59) W0(EN10)>W4(?) W8>W5(EM11 TX)(?) W0>W4(55) 01-0200 W8(EN52)>W5(?) W7>W4(?) W5(EM21 TX)>VE3(FN04) W4(EM90 GA)>W7(CN88 57) W4(EL29 TX)>W9(EN42)(?) W7(CN88)>W0(DM79)(?) W5(EM03 TX)>W7(CN88 55) W5(EM10)W9(EN42)(?) 02-0300 K0KP>W4(FM18) N8PUM>W4(FM18) W7(DN41 UT)>W7(CN88 55a) K0GUV>W9(55a) K0KP>W4(55a) VE2(FN07)>W9(EN61) N8PUM>W3(5349 AE) W1(FN34)>VE9(FN65)(?)

VE4VHF>W3(AE 539) VE2(FN07)>W9(EN61)(?) W0(EN65)>W9(EN35)(?) W1(FN43)>W2(52a) VE2(FN07)>VE2(FN03)(?) 03-0400 VE3UBL>W3(53a) W0(EN26)>W8(EN82) W0(EN34)>W8(EN82) VE2(FN19)>W1(FN43)(?) VE3(FN04)>W4(FM08) W0(EN35)>VE3(?) W9(EN54)>VE3 W8(EN72)>VE3 W0(EN10)>W0(EM17) 04-0500 W0>W7(?) W7>W7(?) W3(FM19)>VE3(FN03)(?) W3(FN10)>W8(EN83 59a) W8(EN82)>W2(FN02 59a) W3>W9(au/AE 57) W1(FN42)>VE3(FN03)(?) W3(FM19)>VE3(FN03) W3(FM18>W9(EN51 59a) W8>W3 K8UK>W9(EN54 52a) W9(EN70)>W3(FN00) NL7Z(BP51)>W7(CN88 33a) W0>W5(EM13 TX 55a) W2(FN22)>VE3(FN03)(?) 05-0600 W3(FN00)>W3(FM19) KL7>KL7(599) KL7>KL7(33a) W3(FM28)>W8(EN83 56a) KL7(BP17)>KL7(CO28)(?) VE4ARM>W9(EN54 55a) KL7(BP51)>W7(CN87)(?) 06-0700 W3>W9(EN54 579AE) KL7/KG0VL>KL7(CO28 559) VE7>W7(?) W0>W7(?) NL7Z>W3(FM18 559 AE) NL7Z,KL7HBK>W0(EN10)(?) VE7>W0(EN10)(?) VE7FG>KL1SF(BP53) VE6EMU>W9(EN54 529) 07-0800 VE7FG>W0(EN10) NL7Z>W1RA(55a) VE7>W0(EN10)(?) KL7>KL7(59) KL7HBK>W0(EN10)(?) VE7>KL7R VE2YAT>W9(EN54 55a) VE6BMX>KL7R)33a) W8(EN90)>W4(FM06) W7USC>KL7R(57) 08-0900 VE5>W7(?) VE5>W9(EN54) NL7Z>W0(EN10)(?) 09-1000 VE4ARM>W7(59 AE) 10-1100 VE8BY>W2(?) 11-1200 VE3UBL>W1(?) K0UO>W1(?) 12-1300 W2(FN13)>W4(FM18 55a)

Nov 11 0058 K0KP>W9(EN54 53a)

Nov 12 00-0100 K0KP>W8(52a) N8PUM>W9(52a EN54) 01-0200 W9(EN54)>W8(EN82 52a) VE6EMU>W7(33a) 02-0300 VE7FG>VE6 N0UD>W7(DN47 519a) W7(DN27)>W7(DN47 55a) VE6ARC>W7(57a) W7(CN87)>W7(DN17) 03-0400 KL7NO>VE6(DO33 51a) 05-0600 K0KP>W1)51a) VE6EMU>VE7(53a) VE5(DN89)>W0 VE6EMU>NL7Z(Au/Es)

Nov 14 0318 K0KP>W9(EN44 52a)

Nov 22 06-0700 W9(EN27)>W0(EN36) VE4ARM>W0(EN36) VE4VHF>W0(EN36)

Nov 25 0152 VE6EMU>W7(51a) 02-0300 VE7FG>W7(52a) KL7NO(BP54)>K0KP(EN36 59AE) 03-0400 N0UD>W0(DN70) VE8>W0(AE) KL7/KG0VL>K0KP(EN36 57AE) VE8BY>W7(589 AE) VE4(EN19)>K0KP(EN36) AL7RT(BP64)>K0KP(EN36 AE) VE3(EN29)>W0(EN36) KL7NO>K0KP(EN36 AE) NL7Z(BP51)>K0KP(EN36 AE) 04-0500 VE5(DO62)>W7(CN88 57a) VE5(DN89)>W0(EN36) NL7Z,KL7NO>K0KP(AE) VE7(CO88)>W0(EN36)

Nov 29 03-0400 N8PUM>W9(EN44) W9(EN27)>W9(EN27 57a) VE7(CO88)>W7(CN88 55a) 0648 VE7FG>W7(53a)

Other Modes

Apart from the aurora a fairly lean month for North America. Openings between W6 and W7 and KH6 were reported on the 8th, and with W4 on the 9th - both days, of course, being disturbed. From South America, there were openings between PY and KH6 on the 1st and from PY and ZP on the 12th.

In 2002 propagation between North America and South America was reported on 14 days; in 2003 there were openings on 10 days; 2004 was down to two days.

North America<>South America

LU<>W3 1 day 28 OA<>W3 1 day 28 CX<>W3 1 day 28 HK<>W4 1 day 9

HC8<>W4,W5 1 day 9

However, stations in Central America and the Caribbean were markedly more fortunate, with openings on 26 days. Data for earlier years are not available, but the increase in activity (or reporting) levels in the region in any case renders comparison difficult. Trans-equatorial propagation appears to be the prevailing mode.

Central America/Caribbean<>Mainland South America

	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
	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+		+	+		

Central America/Caribbean<>South America

PY	22 days	1(FG,FM) 2(FG,FM) 3(FM) 4(FG) 5(FM,KP4) 6(VP2,V4) 7(P4,9Y) 8(FM,VP2) 9(FJ,FM,VP2,XE,9Y) 10(FJ) 11(FM) 13(9Y) 14(FM,KP4,P4,TI) 15(KP4,PJ) 16(FM,KP) 7(FJ,FM,PJ,TI,V4,9Y) 18(PJ,TI,9Y) 19(FJ,FM,KP4,PJ) 22(FM,KP4) 23(FM,KP4) 24(KP4) 25(FM) 27(FM,PJ,TI,V4,9Y) 28(FJ)
LU	6 days	2(PJ) 6(FM,TI) 11(FJ,FM,V4) 13(HI) 19(FM) 23(KP4)
FY	4 days	8(FM) 11(FG,FM) 18(FM) 20(FM)
CX	3 days	8(FM) 11(FM) 12(FG,KP4)
OA	2 days	2(FM) 19(FM)
CE	2 days	6(FM) 23(FM)
ZP	2 days	2(V4) 12(TI,9Z)
HC	1 day	9(FM)
HK	1 day	9(FM,P4)
HC8	1 day	8(FM)
PY0FF	1 day	1(FM)
ZD8	7 days	5(FM) 11(FM) 14(FM) 16(FM) 16(FM) 17(FM) 18(FM) 21(FM)

Reported openings between the Americas and Africa were few, though TR was reported from FM on the 1st, 3rd, 6thm, 14th and 18th, and from PY on the 3rd. The CN8MC beacon was copied in PY on the 3rd, 18th and 22nd.

The bulk of reports outside the auroral period referred to South America or the Caribbean/Central America. Reports of contacts within the US and Canada were scanty, with the possible exception of the 27th-28th when there was a fairly good sporadic-E event. It is unclear whether this reflects a reluctance to report non-DX contacts or low activity, or simply that there was little useful propagation.

Nov 1 21-2200 ZD8VHF,PY0FF,PR7AF,TR0A,TR8CA>FM5JC 22-2300 PY7ZZ,PY8AZT>FM5JC PP5>PY8 PY8,PR7>PY4 PY2>PR7 FG5GP>PY4OY FM5JC>PR7AR PY7>PY2 23-2400 KH6SX>PY2XB,PP5AR

Nov 2 00-0100 PJ2BVU>LW6DC OA4B>FM5JC V44KAI>ZP6CW 2051 48250>FM 2146 W8>W4 22-2300 PY0FF>PP5 22-2300 PP5NE>FM5JC 23-2400 FG5GP>PP5AR PY2>PR7

Nov 3 21-2200 TR0A>FM5JC,PY8AZT CN8MC>PY1RO ZD8VHF>PY8 22-2300 PY6KY>FM5JC PY2>PY8 23-2400 PY8,PT2>PP5

Nov 4 2012 48250>FM5(sc) 23-2400 PY0FF>PU2 FG5FP>PP5JD,PY2EJ,PP5AR, PY5IP LU>PP1,PY5

Nov 5 00-0100 FM5JC>PU2OCZ 0121 PT7>PY5 0626 VE7>W7 2153 ZD8VHF>FM5JC 2242 PU2OCZ>WP4NEG 23-2400 PY8>PU2 PY8ELO,PY1UNU,PY2IAX>FM5JC FM5JC>PP5JD

Nov 6 00-0100 LU7WW>FM5JC TI2NA>PU2OCZ 01-0200 CE3RR>FM5JC 2050 TI2NA>W4SO 21-2200 TR0A,48250(sc)>FM5JC 22-2300 VP2EJ>PY1RO,PU2OCZ PY0FF>PP1 ZD8VHF>YV1 V44KAI>PP1CZ 23-2400 PY5>PY2 PY8>PP1,PY2 VP2EJ>PY1RO FY7THF>YV1

Nov 7 00-0100 HK4>PP1 9Y4AT>PP5 01-0200 CE2/K4UNM,PY0FF>PY2 PU2>ZP6 02-0300 9Y4AT,YV4AB,ZP6CW,HC8GR,PP2SIX,HK3GXI>PP1CZ YV4AB>LU 1435 K0KP>VE6(ms) M0BCG>W7GJ(eme) 22-2300 W1>W3 aurora 23-2400 P43A>PY1RO

Nov 8 aurora 02-0300 HP3XUG,TI2NA,HC8GR>FM5JC 0307 FY7THF>FM5JC 06-0700 KH6SX>W7(CN88 339) KH6SX>KG6I(CM97) 2244 VP2EJ>PY1RO 23-2400 9Y4AT,FM5JC>PP5JD CX3AN,PY2SP>FM5JC

Nov 9 00-0100 HK1XX>PY1,PP5 W4>W4 HC8GR>K5IX,N5BLZ,K4RX FJ5DX>PY2EX 47.9(CE)>W4 01-0200 9Y4AT>PY2EX HC3AP,PP5AR>HP2CWB TI2NA,9Y4AT>PP5JD PP8KWA,PP2SIX,HC3AP,HK3GXI>FM5JC FM5JC>PY2NQ,PY2BRZ,PP5AR VP2EJ>PY2NQ XE1KK>PP5JD HC8GR>XE1KK 02-0300 XE1MEX,HK3JRL>FM5JC PJ2BVU>PY2NQ,XE1KK FY7THF>YV1 XE1KK>PY4OY YV1DIG>XE1KK 0432 HC2FG>XE1KK 22-2300 FJ5DX>KP4,FM5 FM5JC>KP4 XE1KK>KP4,FM5 9Z4BM>KP4,FM5,PP5AR HK1XX>FM5JC(bs) HP1AC>FM5JC 23-2400 P43A,FM5JC>HK1XX XE1>W5 FG5FR>FM5,KP4 HP1AC>XE1KK 9Y4AT,KH6SX,FM5JC>K4RX K4RD>HK1XX W5>W5

Nov 10 00-0100 W7>W4,W5 K0UO>W3 W5>W8 W0>W7,W4 VE4>W7 VE3,W0,W9> W5 W0>W4,W7 W3>W3 W5>W4 2244 FJ5DX>PY1RO 01-0200 W4>W4

Nov 11 15-1600 ZD8VHF>FM5JC OA4B>9Y4AT 9Y4AT>FM5JC 16-1700 FJ5DX>FM5JC,NP3CW 21-2200 LU1DMA,ZD8VHF,FY1FL>FM5JC FG5GP>FY1FL,FM5JC V44KAI>LW3EX LU8EHQ,LU7YS,48.3(CE)>FM5JC 22-2300 FJ5DX,NP3CW>LW3EX LU8YD,LU1VD, LU7WW,PY3DU. CX1AO>FM5JC FJ5DX>PP5AR V44KAI>LU8YD 23-2400 FY1FL>PY2SRB HK1XX>PP5AR PY8AZT>FM5JC

Nov 12 00-0100 FJ5DX>PY2EX,PY5IP KH6SX>ZP6CW,PP5AR KH6HME>ZP6CW FG5GL>CX4CR CX4CR>NP3CW PY0FF>ZP6CW KH6SX>PY2EX,PU2WDX HK3JRL>CX4CR 01-0200 HK3JRL>PP5AR,PU2WDX TI2NA>ZP6CW 02-0300 9Z4BM>ZP6CW W8>W3,W8 1546 W3>W3 1550 48242>VE7(030)

Nov 13 2241 HI8ROX>LU7YZ 23-2400 YV4AB>PY2EX,PY8AZT 9Y4AT>PY2EX, PY8AZT

Nov 14 00-0100 NP3CW>PY8AZT 0111 OA4B>PY2 1655 48250,48242>FM5 20-2100 W1>W1 TR0A,ZD8VHF>FM5JC 2142 48242.5>FM5 23-2400 FM1BY,TI4DJ,FM5JC,P43A> PU2WDX WP4JCF>PU1KGG

Nov 15 00-0100 HK1XX>PP1CZ WP4JCF>PU2WDX PJ2BVU>PP1CZ HK1XX>PU1KGG

Nov 16 2158 W1>W1 2205 ZD8VHF>FM5JC 23-2400 WP4KJJ,FM1BY>PU2OCZ

Nov 17 00-0100 9Y4NG>PU2WDX,PY8AZT 9Y4AT>PY8AZT 2131 ZD8VHF>FM5JC 22-2300 PY2YZ>FM5JC FJ5DX>PU2WDX 23-2400 PJ2BVU,9Y4AT,YV4AB, V44KAI,TI2NA>PU2OCZ

Nov 18 00-0100 W1>VE2 01-0200 T12NA,9Y4AT,YV4AB,PJ2BVU>PY2EX 1208 W3>W4 1316 W5>W4 2125 FY7THF,ZD8VHF>FM5JC 22-2300 TR0A>FM5JC 2348 W2>W4 CN8MC>PY1RO

Nov 19 00-0100 PJ2BVU>PP5AR W4>W4 01-0200 PJ2BVU>PY2VA OA4B>FM5JC WP4KJJ>PU2OCZ 1216 W4>W4(ms) 13-1400 W1>W4(ms) W1>W8 14-1500 VE1>W4 1448-58 W7>W7 22-2300 LU8DWR,49.2(CE),PT7VB>FM5JC 23-2400 F6FHP>W7GJ(eme) FM5WE,FJ5DX>PU2OCZ

Nov 20 00-0100 W1>W7(eme) FY7THF>FM5JC

Nov 21 0122 W4>W4 1423 W5>W4 15-1600 W6>W6 W4>W5 16-1700 W4>W0 2144 ZD8VHF>FM5JC 2220 PY1>PU1

Nov 22 0050 KL7>W7(eme) 2027 VE3>VE2 2136 CN8MC>PY1RO 22-2300 W8>VE2 VE2>W9 23-2400 WP4KJJ,PT7>PP1CZ PP5AR>FM5JC

Nov 23 00-0100 PJ2BVU>PY5IP,PP5AR CE3RR,LU3HR>FM5JC 03-0400 W6>W9 VE3>W2 W5>W7 W6>W9 W7>W6 04-0500 W7>W6 W6>W4 1338 W5>W0 1435 W4>VE3 1617 W0>W4 2218 ZD8VHF>FM5JC 23-2400 PY6KY>FM5JC,WP4NEG ZZ2TGR,PY3DU,LW6DC>WP4NEG

Nov 24 21-2200 W1>W2 23-2400 PU2WDX>WP4NEG PY8>ZZ2

Nov 25 0123 PY6>FM5JC aurora 1328 W0>W4 15-1600 W1>W8(ms) W8>W8

Nov 26 0005 W9>W5 04-0500 W4>W9,W5 05-0600 W4,W5>W5 17-1800 WA7X,K0UO>W6 W6>W5,W0 18-1900 W6>W7 W7>W7 K6FV>W0 22-2300 W4CBX,KD4NMI,KQ4E, VE2>W0 W8>W0 W5>W8 23-2400 K0UO,W3CCX,W9>W0 W4>W9 N0LL>W4 W0>W2,W3,W8 N8PUM,W4>W3 W1>W3,W0 W7>W3(Es) W5>W8

Nov 27 00-0100 W0>W8,W3,W4,W2,W1 W7>W8,W0,W4 VE4ARM,VE6ARC,W8>W0 9Y4AT,TI2NA,V44KAI>PU2OCZ VE3>W9 W9>W3,W5 VE5>W7 K0UO>VE2 01-0200 W7>W4 W9>W5 W6>W8 W3>W3 02-0300 VE3>W7 VE4ARM,N8PUM,WR9L>W0 VE5,W7,VE2,K0ETC>W0 W0>W3 03-0400 K4TQR,W8>W0 W7>W2,W0,W9,W8 N8PUM,W3,W9,W7>W3 W0>W3(2x) VE6>W9 KL7GLK/b,K9MU>W3 04-0500 W9,W0>W3 W0>W2,W0 W9>W0 05-0600 KQ4E,KE4SIX,W4CBX,KD4HLG,W9VW,K9MU,K8PLF>W0 W5>W8 W1>W0(2xEs) 06-0700 K0UO>W3 W3,VE3,W8>W5 14-1500 W8>W4 21=2200 W7>W7 ZD8VHF>FM5JC 2246 PY1WMJ>FM5JC 2347 PJ2BVU>PY2EJ

Nov 28 00-0100 CX4CR,LU1DMA,ZP6CW>N3DB 0256 W7>W7 03-0400 W0,W7>W6 04-0500 W7,W0>W6 W7>W7 K6FV>W7 VE6>W6 05-0600 W7>W6 0604-6 W6>W2 VE4ARM>W9 1316 W1>W4 16-1700 W9,W7>W0(sc) W8>W4(sc) 1922 W1>W3(t) 20-2100 W7,VE7>W7 2200 ZD8VHF>FM5JC 2301 FJ5DX>PP5AR

Nov 29 no reports

Nov 30 0304 W5>W5 1652 VE7FG>KL7(Es) 1936 WA7X>W7

Asia/Pacific

Japan

The most fertile paths in JA were again towards VK and ZL, with VK openings on 13 days, notably including the disturbed 7th, 8th and 9th, well down on 2003(23 days) and 2002(17). ZL showed a similar decline from 14 days in 2002 and 11 in 2003 to 5 in 2004, with an opening on the stormy 8th but not on the other disturbed days.

	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
VK			+				+	+	+					+		+	+	+		+	+			+					+	+
ZL				+				+										+		+		+								

JA<>VK,ZL

VK1	1 day 20	ZL1	2 days 8 22
VK2	5 days 8 9 16 17 20	ZL2	3 days 8 20 22
VK3	7 days 9 17 20 21 24 29 30	ZL3	5 days 4 8 18 20 22
VK4	7 days 3 7 9 14 17 20 21		
VK5	1 day 21		
VK7	4 days 14 17 18 20		
VK8	1 day 9		

6m DX results in JA during November from JA1VOK

DATE	TIME(UTC)	STATIONS
11/ 1	0630-0730	DU1EV/B
2	0340-0430	C21SIX/b
	1050-1130	VK6RSX/b
3	0330-0530	FK8SIX/B, V73SIX/B, VK4
	0945-1300	VK6RSX/b
4	0530-0630	VK6RSX/b, ZL3SIX/b
	0900-1200	DU1EV/B, VK6RSX/b
5	0330-0430	V73SIX/B
	0850-1000	VK6RSX/b
7	0425-0430	VK4BLK
	0730-0830	DU1EV/B
8	0620-0730	KH6SX,KH6HI/B,KH6HME/B
	0750-1200	V73SIX/B, VK2RSY/b,VK3,VK7, ZL1WTT,2TPY,2MHF/b,3NW, ZL3TY,3SIX/b
9	0300-0800	BG9BA, DU1EV/B, VK2-4,6RSX/b,8RAS/b, XV3AA
10	0050-0530	9M2TO/B, DU1EV/B, VR2SIX/b, XV3AA
	0840-1200	V73SIX/B (JA7)
	1500-1600	9M2TO/B, DU1EV/B
11	0110-0400	9M2TO/B, DU1EV/B, FK8SIX/B, DS1MFC, V73SIX/B
12	0400-0430	DU1EV/B
13	0525-0600	DU1EV/B, YF1OO/B
14	0415-0830	9M2TO/B, DU1EV/B, VK4RGG/b,6RSX/b,7RST/b, YB0ASG,YF1OO/B
15	0250-0800	C21SIX/b, DU1EV/B, FK8SIX/B, V73SIX/B
16	0330-0920	DU1EV/B, FK8SIX/B, VK2BHO,6RSX/b
17	0320-0450	V73SIX/B, VK2IVT,2RHV/b,3DUT,4PU,4RGG/b,7RST/b
18	0320-0430	VK7RST/b, ZL3SIX/b
20	0310-0620	BN0F, C21SIX/b, FK8SIX/B, V73SIX/B, VK1-4,7AN, ZL2TPY
21	0250-0530	VK3AMK,3CAT,VK4,5UBC
22	0320-0500	C21SIX/b, V73SIX/B, ZL1TMF,2TPY,3JT,3AAU
24	0540-0630	VK3RHV/b, ZL3FV
29	0053-0200	VK3AMK,3SIX
	0520-0600	9M2TO/B (JA7)
30	0215-0300	C21SIX/b, VK3DUT

Elsewhere

It was good so see greater signs of life from elsewhere in Asia and the Pacific. Reports included a few auroral loggings, including one of 'AE' by a somewhat mysterious 'VK36', presumably an SWL who gave no location. This was frustrating because auroral events are relatively infrequent in that part of the world and VK36 appeared to be more alert, or at least more ready to report than his fellow operators down there.

Nov 1 23-2400 PY1WMJ,PY5ZBU,PY2VA,PY2CDS>NH7RO

Nov 5 0702 VR2SIX>KG6DX

Nov 6 0855 VR2SIX>KG6DX

Nov 8 04-0500 VK2RHV,VK2UBF,VK7RST,ZL3TY all reported auroral by 'VK36' 11-1200 VK8RAS,JA2IGY>'VK36' 1203-4 JA6YBR,VK8RAS>'VK36'

Nov 9 0427 KH6SX>VK3CAT VK3AMK,VK3XQ>KH6/K9FD 0656 VR2SIX>KG6DX 0951-2 BD7IFT,BD7IPD>KG6DX

Nov 10 06-0700 VK7ZIF>'VK36'(AE) VK2BHO>VK3CAT(auroral) 1241 VR2SIX>KG6DX

Nov 11 0213 VK8RAS>VK5

Nov 13 0345-9 JG1ZGW,JA2IGY>HL1

Nov 19 0735 VR2SIX,VR2XMT>KG6DX

Nov 20 0422 JR2HCB>ZL3JT

Nov 21 0254 JH4JPO>'VK36' 0844 VK4RTL>'VK36'

Nov 22 0303ZLtv>HL1 0504 JA6YBR>ZL3JT 0752 VK2>ZL3 08-0900 VK2>ZL3

Nov 29 0004 ZL3SIX>'VK36' 0152-5 JA6YBR,JR2HCB>'VK36' 0203 JA2IGY>'VK36'(sc)

Beacon News and 28 MHz Worldwide

Compilation and Commentary by G3USF

Beacon News

1999.5 3545.5 7023.5	N2XE qrpp 10/100mw experimental beacon in Hopewell Junction NY operating on these frequencies (FN31 (Dec.) Schedule unknown.
10.14785	IZ8BZX Torre del Greco (JN70ES) tests with 100mw, 500mw, 1w at 40wpm and QRSS3 to mobile whip on home balcony http://iz8bzx.homelinux.net (IZ8BZX)
28173	NP4AE located in Las Marias and transmits f1b.
28185	I8EMG Cosenza (JM89BJ) running 40 watts A1 to vertical dipole 15 above ground due to become operational shortly (I8EMG Jan) email is francescoguglielmelli@virgilio.it
28191	VA6RE new call for former VE6GTE
28212	PY2SBA new beacon. (Dec. K0HA)
28215	N3VMF Nr Pittsburgh (FN00) runs 50 watts. Currently intermittent (Nov.)
28218.3	WB4JHS shifted frequency (Dec.)
28225	KG0RP Louisville CO (DM79KX) runs 10 watts to vertical at 15 ft agl 24/7 (KG0RP Nov.)
28228	IQ3RO reported here by G0AEV - no further details (Jan.)
28243	KH2RU/KP4 new beacon running 5w to vertical from FK78BJ with message v v v de KH2RU/KP4/bcn FK78BJ. Heard in UK. (KH2RU/KP4 Jan.) Also reported on 28244.5.
28248.5	N7LT resumed service (N7LT Dec.)
28250	K8NB in Yuma AZ (DM22QQ) new beacon with 2 watts to vertical 24/7(K8NDB Dec.)
28250	KP4SQ thought to be QRT (K0HA)
28290	VR2TEN reported returned to service (Jan.)
28291.5	K3NG Lehighton PA (FN20EV) new beacon with 150mw (G4TMV)
28292.0	VA3VA new beacon at Windsor ON (EN82) runs 5w to horizontal dipole 24/7 (VA3VA Dec.)
28322	IK1ZYW QRT (IK1ZYW Dec.)
28705	DA5MMB - frequency change.
50028	IQ4FA with 5 watts from Ferrara (I4JEE Jan.)
50058	HB9SIX power increased to 2 watts. (Dec.)
50071.6	W3DOG heard here from FM28 after earlier on 50006 (K0HA Dec./Jan.)
50075	YO3KWJ has moved to new location at KN35FC (Dec.)
50075	K1QVR running 1 watt to 1/4 GP from FN32VF (KB1HXO, Nov.)

28 MHz Worldwide

Results were better than might have been feared for this stage of the cycle, not least because of the carryover of relatively high flux levels from October. They would have been better still had the geomagnetic field not excelled itself for several days, during and after which propagation was clearly very disturbed. However, there were no days when 28MHz was completely wiped out. The worst day was the 8th, when a mere handful of contacts were reported in Europe and east-west paths were unworkable anywhere. For much of the 9th through the 12th propagation was at best patchy, with no reports from Asia on either the 10th and 11th, for example, and only a scattering on the 12th. There were some reports of aurorally-related propagation, with G0DVY copying the EI0TEN beacon 59a on the 7th.

That evening of the 7th, when the storm was building and a contest was under way, was a rather curious period. There was a strong, latish, opening between southern Europe and South America, ZK1CG was caught briefly by F5PFP at 1941, K0HA heard the LA5TEN and SK5AE beacons around 2047 while OH1XX reported KP3R at 2110 and LU5GDL as late at 2127 on a 300 bearing. Then SM0RUX heard SK5AE 55a at 2347 while OH9TEN was 539. Further aurorally-related conditions were reported on the 9th when, notably, 9A2RD reported auroral signals from HF70IQ at 1659. This was the most southerly report in an Au/AE opening that extended to G,OZ,OE,OX,SM,PA and ON. And, on the 11th, SM2LIY copied OH9TEN auroral at 2310. GM6NX heard the OH9TEN beacon, apparently T9, at 2337 on the 27th but on this occasion there is no indication that an auroral event was under way.

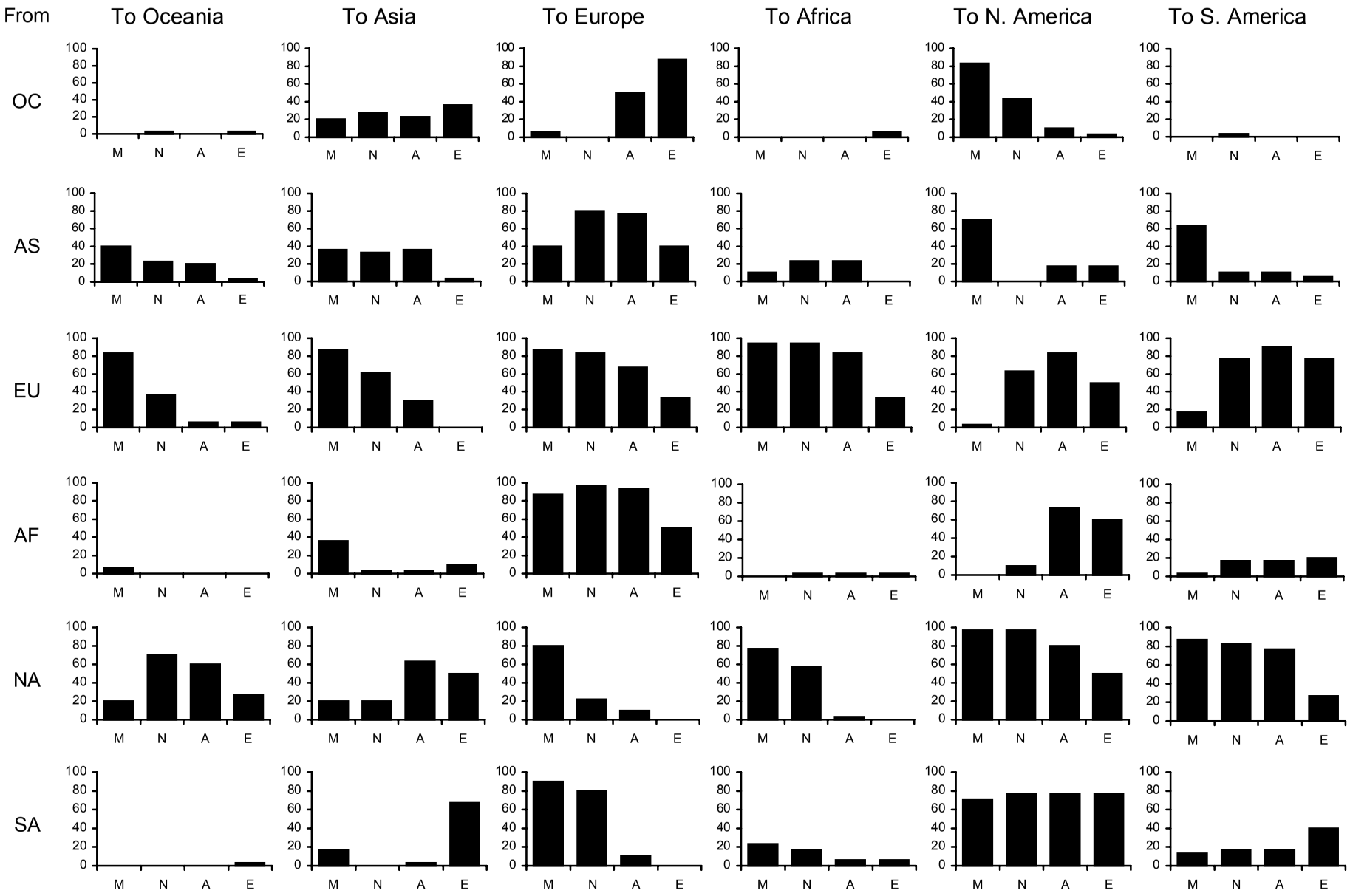
Away from this substantial auroral element, there was non-auroral propagation within Europe (which at one time or other experienced F2, F2bs, Es and MS as well as Au and AE!) every day except the 19th. Propagation between Africa and Europe was reported on every day except the 8th and between Europe and South America on every day except, again, the 8th. Perhaps more surprisingly Europe contacted Oceania on 25 days, Asia was worked on 27 days and North America on 26. This does not, of course, imply that every part of these continents enjoyed propagation so regularly: a significant fraction of Europe<>Australia reports related to south-eastern Europe<>VK6, while little or nothing was received from the western states of the US or Canada.

Propagation was reported within North America/Caribbean and between that region and South America on days. Africa was worked on every day but three (8,9,11) and Oceania on all but 4 (8,9,10,17). As usual, paths to Asia were more difficult, though even here there were reports on 24 days. South America<>Asia was reported on 21 days, essentially during the South American evening. Openings between Asia and Oceania were reported on 16 days - only three more than we know of at 50MHz!

Stations in the southern and mid-west US reported what appears to have been a sporadic-E opening after 0001 on the 10th, in line with what happened at 50MHz. And at 1712 on the 10th DD3DJ worked OE9PCI at 450km and G<>LX was reported, both quite short skip in keeping with what we reported earlier at 50 and 144. The surprising thing is that there were not more reports during this period. Continuing with later-than-expected openings, K0HA's reception of Scandinavian beacons on the 7th has already been noted. He also heard the OH9TEN, SM0NCL/3 and SK0CT beacons and SM0FLY between 2056 and 2144 on the 16th. The striking aspect of this event is that these were the only reports of propagation between Europe and North America the entire day. K0HA also heard SM0NCL/3 at 1949 and OH5RAC at 1958 at 1958 on the 28th. On this occasion he was not alone. SM3GSK reported N5EA at 2152; K5GO worked OH1XX and NM5H(TX) copied OH0Z around the same time. SM3GSK and N2IC worked at 2230.

Continuing with other less-than-routine reports. KB6NAN worked WH6LU at 1718 on the 8th, though this during a period when the disturbance had temporarily receded and it was at a different time from KH6<>W6 contacts on Six. RK3DZ reported the XE1SRF beacon at 0126 on the 15th. UY2RA heard XR3APEC (a special event station in Chile) at 2326 on the 19th. K0HA, ever vigilant heard VK6RBP long path at 1605 on the 19th. I2TAO worked KH6FF at 2127 on the 20th; this would have been unremarkable further up the cycle but was more than might have been hoped for at the present stage. 5U5Z featured in the long of JF1PJK at 2247 on the 7th and CN8MU at 2229 on the 28th. And a contact between NL7Z and CX5BW at 0246 on the 28th would have been pretty good anyway but looks even better if, as claimed, it was indeed long-path.

28 MHz Worldwide - November 2004



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