THE SIX AND TEN REPORT

September 2003

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Analysis of 28 MHz reports from the UK

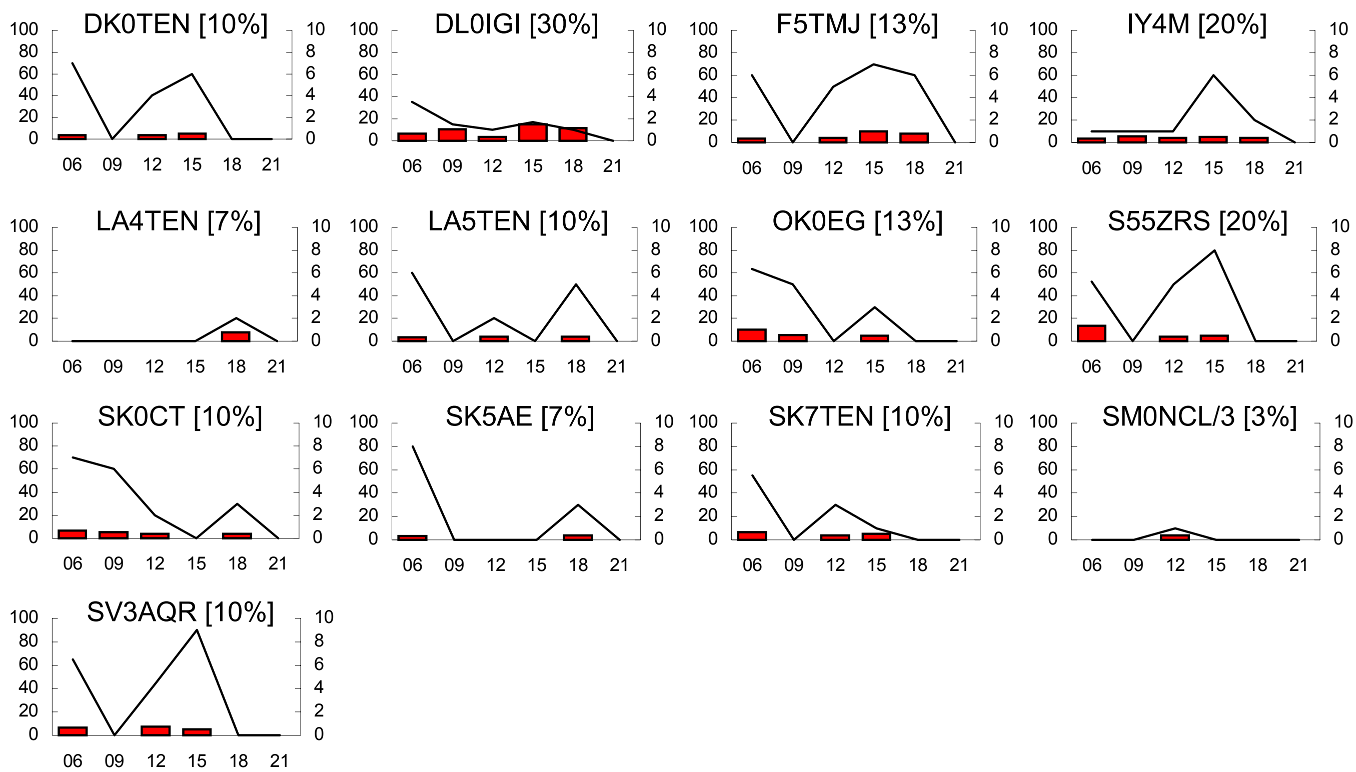
28 MHz reports and logs for September 2003 from G2AHU, G3IMW, G4TMV, G4UPS, G0AEV, G0IHF and from packet cluster reports. Compilation and commentary by G0AEV.

The “quiet” conditions that were a feature of 10m propagation in August continued through September until the band burst into life late in the month. Regular openings to the USA recommenced in the last few days of September. By the end of the month DX coverage from the UK included Southeast and South Asia, the Middle East, all of Africa and South America, and North America south and east of a line from California to Manitoba. KH6 was available by morning long path and FO was worked by evening short path. Single hop distances shortened to bring SV and UR into range while other parts of Europe were available initially by occasional, though sometimes good, sporadic E and latterly by the re-appearance of weak F2 backscatter. Propagation was absent to Australasia, Japan, most of Russia and NE N America.

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.

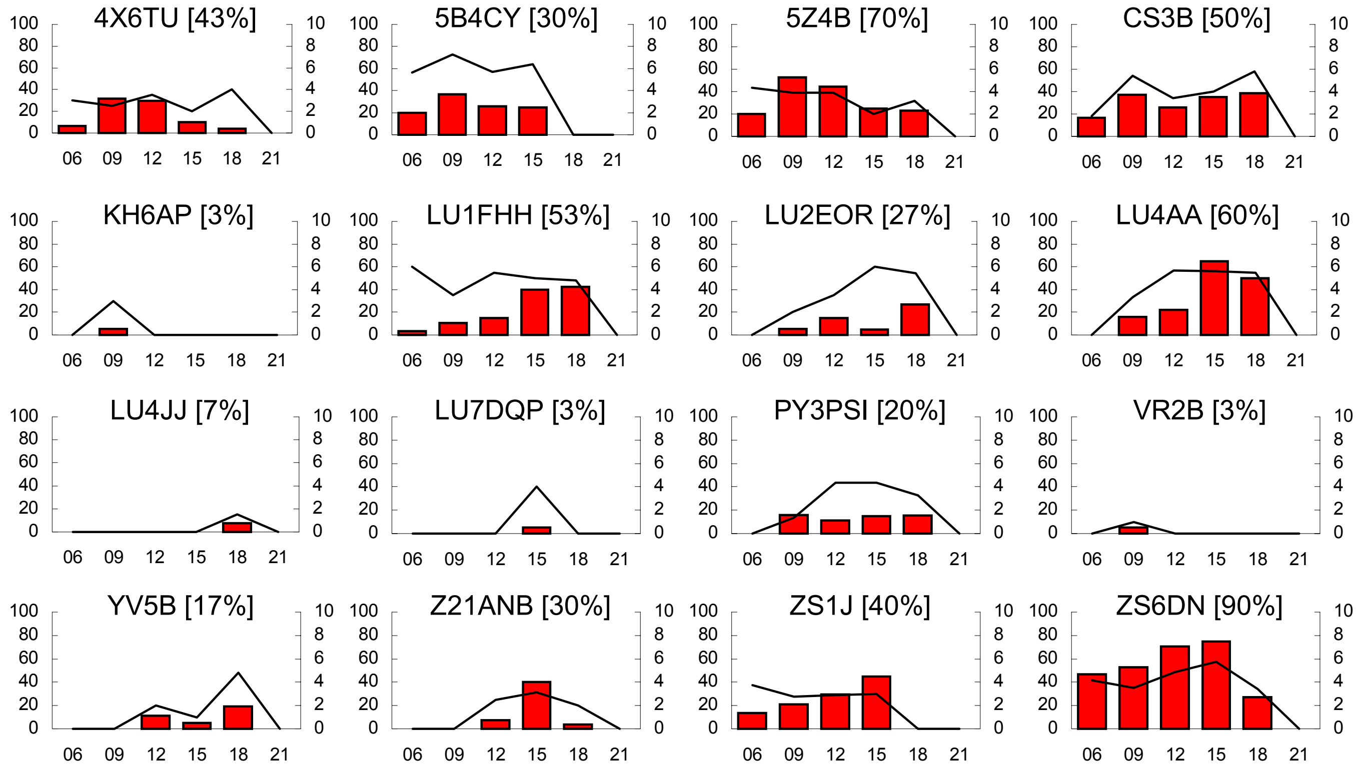
European Propagation / Beacons



Propagation modes for European beacons. Most of the propagation indicated in the European beacon graphs was normal single hop Sporadic E. SV3AQR was by F2, heard only in the last 3 days of September. There was also a little F2 backscatter from DL0IGI, IY4M and SK7TEN the end of the month.

European Beacon Notes. GB3RAL and OH2B were both QRT all month. EI0TEN was probably off-air – it has recently been re-activated. S55ZRS was QRV for all of September but may have had outages recently.

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



Suggested propagation modes. Normal F2 propagation was responsible for all the results in the graphs above. There may have been TEP contributions on paths to southern Africa as indicated by the availability of this mode on 6m (as described by G3IMW in Section 2).

G2AHU heard the KH6AP beacon (28.209) via long path on 29th September at 09.10z. Ray describes the signal as having lots of TEP flutter. KH6 long path was also reported at the end of September in Germany. KH6 long path is best at and just after the spring equinox and again (as in this case) at and just before the autumn equinox. Morning long path can also be worked throughout the summer months in solar peak years.

Overall daily reliabilities on the most reliable circuits (to southern Africa and southern South America) remained similar to those experienced during the summer, the limiting factor being geomagnetic disturbances. MUFs of greater than 28 MHz are easily reached on these paths under undisturbed or slightly disturbed conditions. However, hourly reliabilities have improved, as has propagation generally to the Middle East and North Africa. VR2B appeared in logs for the first time since the early summer.

Beacon Notes. LU4JJ was very under reported relative to LU1FHH (which is believed to be continuous) and to LU2EOR – by inference, LU4JJ was intermittent or mostly inactive. LU7DQP is an occasional operation and infrequently reported. OA4B is known to be QRT. 4S7B is believed not working.

Although active, VK6RBP has not been reported in the UK on 10m for many months: this is not the pattern expected either from theory or from the results achieved in previous years. Even under currently reduced solar activity levels, this beacon should be audible at times throughout the year – the beacon can not be functioning properly.

10m DX in September 2003

The following list comprises the DX (non-European) countries worked or heard in the UK during September. The data comes from packet cluster spots (DX Summit: http://oh2aq.kolumbus.com/dxs/) plus additional contributions from 6 and 10 reporters.

DX in September: 3B9, 3C0, 3X, 4S, 4X, 5B, 5H, 5R, 5U, 5V, 5X, 5Z, 7Q, 8P, 8R, A7, AP, CE, CP, CT3, CX, D2, D4, DU, EA8, EL, FG, FH, FO, HC, HC8, HH, HK, HZ, JY, KH6, KP2, KP4, LU, P4, PJ2, PY, PZ, SU, TA, TI, V5, VE, VP5, VP8, VU, W, XE, XT, YB, YI, YV, Z2, ZC4, ZP, ZS, Antarctica.

The 62 countries reported in September is a significant improvement on the 20 countries heard or worked in August, the increase being due almost entirely to seasonal effects. The seasonal split is even more marked when comparing the total of 17 countries heard/worked in the first half of September with the 57 in the second half. Country counts based on beacon monitoring show the same early-late discrimination, though this is exaggerated because the results for the last week of September are inflated by the large numbers of US beacons heard as the band opened on a more regular basis to the west.

DX in the first half of September (1st-15th inclusive): 3X, 5H, CT3, CX, D2, JY, KP4, LU, PY, TA, XE, XT, YB, YV, Z2, ZP, ZS

DX in the second half of September (16th-30th inclusive): 3B9, 3C0, 3X, 4S, 4X, 5B, 5R, 5U, 5V, 5X, 5Z, 7Q, 8P, 8R, A7, AP, CE, CP, CT3, CX, D4, DU, EA8, EL, FG, FH, FO, HC, HC8, HH, HK, HZ, JY, KH6, KP2, LU, P4, PJ2, PY, PZ, SU, TI, V5, VE, VP5, VP8, VU, W, XE, YB, YI, YV, Z2, ZC4, ZP, ZS, Antarctica.

Propagation to North America

After last month’s zero count of North American beacons, 32 were reported in September. Two beacons (4U1UN and VE1/W1BKR) were reported on 3rd September, but this was the only transatlantic opening indicated from beacon monitoring until 27th. Most of the North American beacons heard in September were reported on either the 28th (20 beacons) or 30th September (28 beacons) and, as the graphs on the next page show, most of the beacons were heard on only one day (daily reliability of 3%) or on two days (daily reliability of 7%). W6PC in California was heard on 30th (but, interestingly, not W6WX).

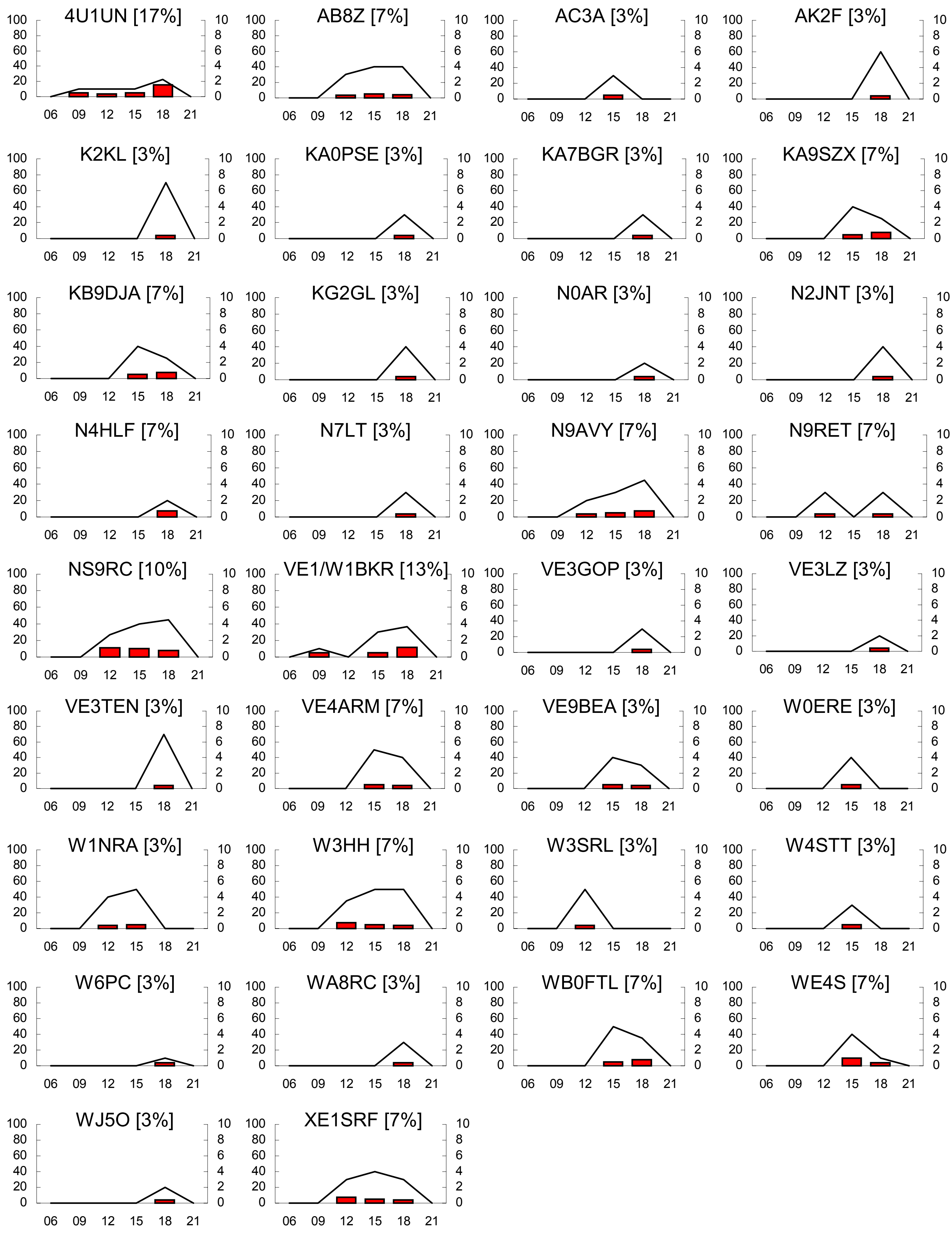
The apparently sudden improvement in propagation in the last week of the month, as indicated from these beacon data, was due to a combination of effects: -

- Solar activity increased. Solar flux was up from the high 90s in mid-month to a peak of 137 on the 28th.
- Geomagnetic disturbances decreased. Maximum Kp was 5 or more in the period 15th to 25th, dropping to a maximum Kp 3 for the days when transatlantic propagation was present.
- Proximity to the autumnal equinox and, more importantly for propagation along paths entirely within the Northern Hemisphere, the onset of winter conditions.
- Absence of “blanketing” sporadic E.

Beacon Notes. Beacons shown in the graphs on the next page and new to UK listeners (having started transmitting during the summer when there was no propagation) include N4HLF from Florida (28.273) - which is KA2GKA with a new callsign, N9AVY in Wisconsin (28.252), W1NRA in Alabama (28.240), and W3SRL in Pennsylvania (28.275). W3SRL moved to the US Virgin Islands in October and is now transmitting on an unchanged frequency as NP2SH. A number of other new or re-activated beacons in North America are known to be transmitting but have yet to be reported in Britain.

Beacons known to have been off air during September include W3VD and N3NIA, both of which have now returned to service.

North American Beacons



Analysis of 50 MHz reports from the UK

UK 50 MHz reports for September 2003 from G2ADR, G3HBR, G3IMW, G4UPS, GM4WJA and via packet cluster spots. Compilation and commentary by G3IMW.

With the relatively low values of solar flux and sunspot numbers seen this month it is not surprising that there were very few openings to areas outside Europe. September is not a good month for sporadic E though there were a few openings attributable to this mode, but with no multi-hop Es propagation. There were 9 days when aurora was reported, but openings were confined to northern areas.

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.

	CN Morocco (13%)				CT Portugal (6%)		DL Germany (3%)	EA Spain (10%)			EA9 (3%)
D	2	4	13	28	13	28	4	4	13	28	13
06		3						5			
09			7		9		6				
12	3		5						7		0
15				9		9			0	9	
18				7		9				9	
21											

	F France (6%)		I Italy (10%)			LA Norway (3%)	OH Finland (3%)	OY Faeroe Is (3%)
D	13	14	4	6	13	28	3	6
06					7			
09		9	3					
12	5		0		9		5	
15				0		9		
18			9					5
21								

	YU/S5/T9/Z3/9A Former Yugoslavia (3%)	9H Malta (6%)		
D	2	4	28	
06				
09		7		
12		8		
15			3	
18	9		0	
21				

DX (F2 and TEP) Propagation

Tabulated results for DX countries (other than those likely to be attributable to multi-hop Es) are shown on the following page. The notation is the same as that used for the Es results.

	TR Gabon (13%)				TU Ivory Coast (3%)	ZS South Africa (3%)	
D	13	26	27	29	28	6	
06							
09		5					
12			1				
15	1			5	2	9	
18							
21							

Solar flux and sunspot numbers continued to show the fairly low values of the last few months. There was one trans-equatorial opening, which would have involved Es for the first hop from UK. This was on the 9th to ZS. There were three openings to TR and one to TU. With the low incidence of Es in September these are more likely to be mixed mode Es + F layer rather than multi-hop Es.

Comparison of Sporadic E and DX Propagation.

The tables below display counts of countries, or areas, heard/worked summarised from the results tables above.

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				2									1																	
09		1	1	3									2																	
12				2									5	1																
15						1							1															5		
18		1		1		1																						4		
21																														

DX 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																										1				
12																											1			
15						1							1															1	1	
18																														
21																														

Although very little DX was available this month there is good correlation between the days with Es and those with DX openings. *(There is also a good correlation in the last week of September between greatly improved 10m propagation and increased solar activity with DX worked on 6m. G0AEV)*

Meteor Scatter

There are no major meteor showers in September although there are two minor showers, on the 7th, and between the 7th and 15th. The cluster spots show some JT6M activity at various times throughout the month but it is not clear if a contact has taken place or what propagation mode was involved so these spots are best excluded. One is left with very little definite m/s activity to report. The G4UPS - SM7AED skeds were interrupted after the morning of the 1st due to a failure of Arne's transceiver, which resulted in its being sent away for repair.

1st 06z 0650 - 0654 G4UPS worked SM7AED 339 each way, 90% audibility.
19th 18z 1939 - GM6VXB (IO97AQ) completed random m/s QSO with OZ1DJJ.

Aurora

This month, there were 9 magnetically disturbed days when Kp exceeded 4. There were some reports of radio auroras on almost all of these days - these were all weak 'Scottish type'. The highest value of Kp was 7 which occurred on the 17th. There were three days when weak auroras were reported although Kp only reached 4.

1st		GM4WJA reports 'Aurora in early to mid evening, weak event'.
	21z	2302 MM0BSM (IO96AD) hears JX7SIX 559 (auroral E).
3rd		GM4WJA reports 'Aurora in mid to late evening'.
4th		GM4WJA reports 'Aurora in early evening'.
16th		GM4WJA reports 'Aurora in late afternoon to mid evening'.
	12z	1422 GB3LER is being received by EI7IX 53A, 1430 also by OZ1DPR (JO45) 55A 1437 G4PCI hears MM5AJW Au, 1443 EI7IX hears GB3RMK 51A, 1449 MM0BSM (IO86AD) hears G4PCI 55A,
	15z	1705 EI7X reports ' GB3LER back again 51A.
	18z	1804 G4CPI hears GB3LER 'weak aurora'.
17th		GM4WJA reports 'Aurora in late afternoon to mid evening'.
	12z	1323 EI7IX hears GB3LER 51A 'just started', and at 1346 hears GB3RMK while GB3LER is 53A, 1358 DJ6TK works GM4ENK 'aurora'.
	15z	1740 EI7IX hears GB3LER 53A, and GB3RMK 51A.
18th		GM4WJA reports 'Aurora in early to mid evening'
	15z	1556 MM0BSM hears GB3LER 52A, 1602 OZ1DPR hears GB3LER 51A with QSB, 1620 G4PCI hears GB3RMK 51A, and also at 1649 52A, 1732 EI3IO works GM3WKZ (IO88) 57A.
	21z	MM0BSM still hearing GB3LER 51A,
19th		GM4WJA reports ' Aurora all afternoon and evening'
	15z	1657 LAQCQ (JP20) hears GB3LER 54A, 1707 MM0BSM hears GB3LER 52A, 1713 EI7IX hears GB3LER 51A.
24th		GM4WJA reports 'Aurora all afternoon to early evening then back in again late evening'
	15z	1504 MM5AJW (IO88KK) hears GB3LER 53A, 1536 MM0BSM hears GB3LER 52A.
25th		GM4WJA reports ' Aurora in early to mid evening then back again weak in late evening'.

Tropospheric Propagation

The few tropo results this month are taken from the packet cluster spots where this seems the likely propagation mode.

10	12z	1430 GW3MFY (IO81) hears F1EBE 55.
16	18z	2041 DL8YHR (JO41) hears GB3MCB 519 'tropo'
30	18z	2019 PA2V hears GB3BUX 579 'good tropo'

Postscript

To sum up - we had a good mixture of propagation modes, but with very little of any of them. It is at times like these that the 50MHz band looses some of its charm. The comments from our reporters confirmed this. Brian, G3HBR was spending more time on 28MHz, while Eric G2ADR heard only one country on one day. However there is always meteor scatter propagation to fall back on. Meteor scatter has been described as the most reliable mode of propagation as it is there every day throughout the year and is useful for distances up to about 2000Km, similar to one hop Es. Unfortunately people using digital modes are not always aware of the propagation factors involved. I had an opportunity to make daily observations of this mode in the 1980's when 50 MHz became available again in Europe. This convinced me of the reliability of this mode. These results appear as Section 6 of this report and I hope they will provide food for thought!

Solar and Geomagnetic Data for September 2003

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

Sunspot numbers (SEC)	Mean 82.6	Max 139 (28th)	Min 42 (10th)
Solar Flux (28 MHz)	Mean 112.3	Max 137 (28th)	Min 94 (12th)

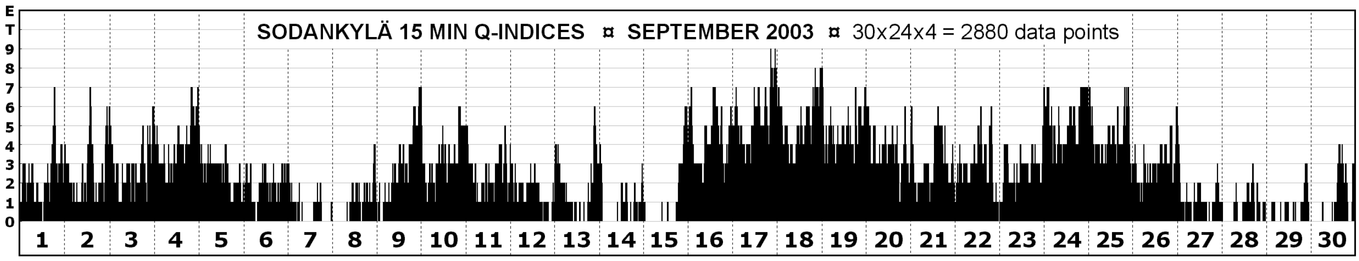
Solar data for September 2003 are presented in the table at the end of this section. Numbers in the 28 and 50 MHz columns of this table are the total daily "areas" worked/heard from the UK, a summary of the data presented in the first sections of this Report. On 28 MHz "areas" refer to the number of 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.

Energetic Events (Flares of M and X class).

Only a single event in September, a picture of relative solar tranquillity that wasn't to last long - October will prove to be a very different month!

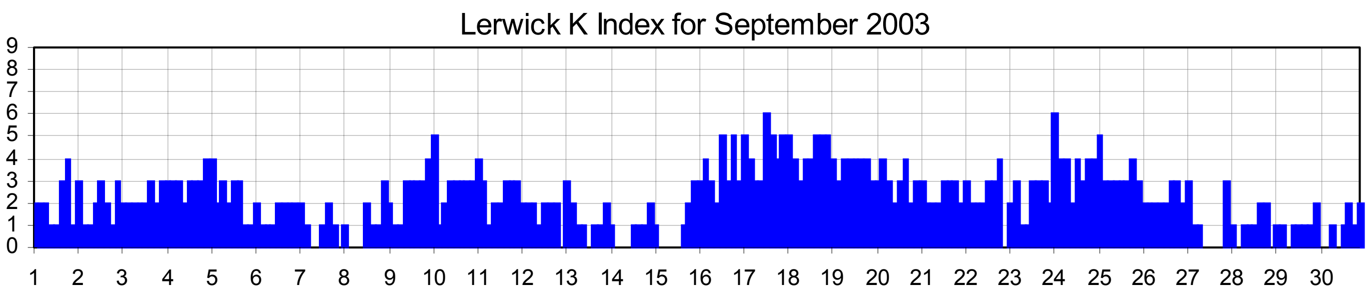
16th 2130-2331 M1.3

Q-indices from Sodankylä, Finland (Väinö, OH2LX)



Väinö writes, "September was a moderately disturbed month with Sodankylä monthly Ak average was 30.3 The most disturbed day was 17 Sep with Ak = 107. The Nurmijärvi monthly Ak average was 17.0 and the most disturbed day was 17th with Ak = 62.

For comparison with the 15-minute Q-index, below is a graph of the Lerwick K index which is reported at 3-hour intervals (see K-indices below).



K-indices K indices for September 2003 are tabulated on the following page. Although there were only 10 disturbed days (UK K index or Kp > 4) in September - a reduction from previous months - we are still in a period of high solar activity and geomagnetic disturbances are likely to remain numerous in the coming months. I have therefore retained the detailed tabulation of K-indices initiated last month.

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

The following four tables present the planetary Kp index (from SEC) and the Lerwick ("L"), Eskdalemuir ("E"), and Hartland ("H") K-indices (from 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 shading indicates K = 5, darker shading indicates K > 5.

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	3	3	3	3	3	3	2	2	4	4	3	3	2	2	4	5	4	4	4	4	3	3	5	4	3	3	2	2	2
03	4	2	3	3	4	2	3	1	2	2	5	3	3	1	1	3	5	6	4	4	3	4	4	5	4	3	2	1	2	2
06	4	1	3	4	3	3	1	2	3	3	2	3	3	2	1	5	5	5	5	5	4	4	3	5	5	4	2	2	1	2
09	1	2	4	4	4	3	2	2	4	4	3	3	3	2	2	5	7	6	5	4	4	4	3	4	5	4	3	3	3	3
12	2	4	3	3	4	3	3	3	4	3	3	3	2	2	2	6	7	4	5	4	5	4	3	4	4	3	2	2	3	3
15	3	3	3	3	3	3	3	3	3	3	3	3	2	3	2	5	4	4	4	4	4	3	3	4	4	3	2	2	2	2
18	3	3	3	3	3	3	3	3	4	4	3	2	2	2	2	4	4	4	4	3	3	4	4	4	4	3	2	2	2	2
21	3	3	4	4	2	2	3	3	4	3	3	2	2	2	3	2	5	5	3	2	3	2	3	4	3	3	2	1	1	2
Σ	22	21	26	27	26	22	21	19	26	26	26	22	20	16	15	34	42	38	34	30	30	28	26	35	33	26	18	15	16	18

Lerwick K (Shetlands)

L	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	3	2	3	4	2	2	1	2	5	4	2	3	1	1	3	5	5	4	3	3	3	2	6	5	2	3	1	1	0
03	2	1	2	3	2	1	1	0	1	1	3	2	2	0	0	4	4	4	3	4	2	2	3	4	3	2	1	0	1	0
06	2	1	2	3	3	1	0	0	1	2	1	2	1	0	0	3	3	3	4	3	2	2	1	4	3	2	1	1	0	1
09	1	2	2	2	2	1	0	0	3	3	2	1	1	0	0	2	3	4	4	2	2	2	1	2	3	2	0	1	1	0
12	1	3	2	3	3	2	1	2	3	3	2	2	0	1	0	5	6	4	4	3	3	3	3	4	3	2	0	1	1	1
15	3	2	3	3	3	2	2	1	3	3	3	2	1	1	1	3	5	5	4	4	3	3	3	3	3	3	0	2	1	2
18	4	1	2	3	1	2	1	1	3	3	3	2	1	1	2	5	4	5	4	2	3	4	3	4	4	3	0	2	1	1
21	1	3	3	4	1	2	0	3	4	3	3	0	2	2	3	3	5	5	3	3	2	0	2	4	3	2	3	0	2	2
Σ	16	16	18	24	19	13	7	8	20	23	21	13	11	6	7	28	35	35	30	24	20	19	18	31	27	18	8	8	8	7

Eskdalemuir K (southern Scotland)

E	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	3	2	3	4	3	2	1	2	5	4	2	3	1	1	4	4	4	4	4	3	3	2	5	4	3	3	1	1	0
03	3	2	2	3	3	2	1	0	1	1	3	3	2	0	0	3	5	4	3	3	2	2	3	4	3	2	1	0	1	0
06	3	2	2	3	3	1	1	0	2	2	1	3	2	1	0	4	4	3	4	3	2	2	2	4	3	3	1	1	0	1
09	1	2	3	2	2	2	0	0	4	4	2	2	1	0	0	3	4	5	4	3	2	3	1	3	3	2	1	1	1	1
12	2	3	3	4	3	2	1	2	4	3	3	2	0	2	1	4	5	4	4	3	3	3	3	3	4	2	0	2	1	1
15	3	2	3	3	3	2	2	2	3	3	3	2	0	1	1	4	5	5	4	4	3	3	3	4	4	3	0	2	1	2
18	5	2	3	4	2	2	1	1	3	3	3	2	1	1	2	3	4	4	5	2	3	4	3	5	4	4	1	2	0	1
21	2	3	3	4	1	3	1	3	4	3	3	1	3	2	3	3	5	4	3	3	3	0	3	4	4	3	3	1	2	2
Σ	21	19	21	26	21	17	9	9	23	24	22	17	12	8	8	28	36	33	31	25	21	20	20	32	29	22	10	10	7	8

Hartland K (SW England)

H	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	3	3	3	4	3	2	1	2	5	4	2	3	1	2	4	5	5	4	4	4	3	2	5	4	3	3	1	1	0
03	3	2	3	3	3	2	1	0	1	2	3	3	3	1	0	3	5	4	3	3	2	3	4	4	3	2	1	0	2	0
06	3	2	2	3	3	2	1	0	2	2	1	3	2	1	0	4	4	4	4	4	2	3	2	4	3	3	1	1	0	1
09	1	2	3	2	3	2	0	1	4	4	2	2	1	0	0	4	5	5	4	3	3	4	2	3	4	2	1	1	1	1
12	1	3	3	4	3	2	1	2	4	3	2	2	1	1	0	4	5	4	4	3	3	3	3	3	3	2	0	1	1	1
15	3	2	3	3	3	2	1	2	3	3	3	2	0	1	1	3	6	5	4	4	4	3	4	3	4	3	0	2	1	2
18	4	2	3	4	2	2	1	2	4	3	4	2	1	1	2	4	5	4	4	2	3	4	3	5	5	4	1	2	1	1
21	2	3	3	4	1	3	1	3	4	3	3	1	3	3	4	3	5	5	3	3	3	1	3	4	4	3	3	1	2	2
Σ	19	19	23	26	22	18	8	11	24	25	22	17	14	9	9	29	40	36	30	26	24	24	23	31	30	22	10	9	9	8

September	28 Areas		-- 50 Areas --				2800	- Spots -		Max			X-ray	Max foF2		Min foF2		-- Particle Fluences --		
2003	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-Sep	1	6	0	0	0	1	108	59	46	4	14	23	B2.2	7.1	19	3.6	05	3.0E+07	4.3E+05	1.1E+04
02-Sep	1	5	2	0	0	0	106	90	43	4	12	20	B2.1	7.4	16	3.5	03	5.4E+07	1.3E+06	1.2E+04
03-Sep	4	9	1	0	0	0	111	74	47	4	17	29	B3.0	7.0	20	3.9	04	1.9E+07	4.0E+05	1.1E+04
04-Sep	8	7	5	0	0	0	112	79	50	4	19	44	B3.2	7.0	19	3.2	05	1.1E+07	6.1E+05	1.2E+04
05-Sep	2	2	0	0	0	0	108	57	39	4	16	31	B3.1	n.a.	n.a.	3.3	4.0	1.2E+08	1.2E+06	1.1E+04
06-Sep	3	1	2	1	0	0	105	60	37	3	12	17	B2.1	n.a.	n.a.	n.a.	n.a.	3.0E+08	1.0E+06	1.1E+04
07-Sep	0	1	0	0	0	0	108	54	30	3	10	7	B2.2	n.a.	n.a.	n.a.	n.a.	3.6E+08	9.2E+05	1.1E+04
08-Sep	0	4	0	0	0	0	99	58	25	3	9	11	B2.3	n.a.	n.a.	n.a.	n.a.	4.5E+08	1.7E+06	1.2E+04
09-Sep	0	6	0	0	0	0	96	43	17	4	19	39	B1.6	n.a.	n.a.	n.a.	n.a.	1.7E+07	6.5E+05	1.1E+04
10-Sep	8	4	0	0	0	0	99	42	28	4	19	36	B1.7	n.a.	n.a.	n.a.	n.a.	2.1E+07	5.0E+05	1.1E+04
11-Sep	1	4	0	0	0	0	97	55	34	5	15	27	B1.8	n.a.	n.a.	n.a.	n.a.	1.4E+08	6.9E+05	1.1E+04
12-Sep	0	3	0	0	0	0	94	58	29	3	11	18	B1.5	n.a.	n.a.	n.a.	n.a.	1.7E+08	8.4E+05	1.1E+04
13-Sep	4	2	6	1	0	0	96	57	30	3	11	17	B1.9	n.a.	n.a.	n.a.	n.a.	2.1E+08	8.1E+05	1.1E+04
14-Sep	0	5	0	0	0	0	95	58	36	3	7	9	B1.4	n.a.	n.a.	n.a.	n.a.	1.7E+08	5.7E+05	1.1E+04
15-Sep	0	4	0	0	0	0	97	68	42	3	6	12	B3.1	n.a.	n.a.	n.a.	n.a.	2.6E+08	1.0E+06	1.2E+04
16-Sep	2	5	0	0	3	0	99	89	46	6	37	58	B4.0	n.a.	n.a.	n.a.	n.a.	1.6E+06	2.0E+06	1.1E+04
17-Sep	0	6	0	0	2	0	106	83	58	7	61	90	B3.0	n.a.	n.a.	n.a.	n.a.	5.5E+07	6.2E+06	1.3E+04
18-Sep	0	1	0	0	4	0	109	92	58	6	40	72	B2.7	n.a.	n.a.	n.a.	n.a.	3.5E+08	1.2E+07	1.2E+04
19-Sep	0	1	0	0	3	0	111	71	52	5	32	54	B4.1	n.a.	n.a.	n.a.	n.a.	6.5E+08	6.8E+06	1.3E+04
20-Sep	0	3	0	0	0	0	112	72	46	5	25	42	B5.4	n.a.	n.a.	n.a.	n.a.	1.3E+09	7.1E+06	1.2E+04
21-Sep	0	7	0	0	0	0	120	64	50	5	21	34	B4.2	n.a.	n.a.	n.a.	n.a.	8.7E+08	1.5E+06	1.1E+04
22-Sep	0	8	0	0	0	0	123	91	57	4	18	33	B2.6	n.a.	n.a.	n.a.	n.a.	6.8E+08	1.4E+06	1.2E+04
23-Sep	1	7	0	0	0	0	125	133	65	4	17	29	B3.0	n.a.	n.a.	n.a.	n.a.	3.7E+08	8.5E+05	0.0E+00
24-Sep	0	0	0	0	1	0	134	121	64	5	33	55	B3.9	n.a.	n.a.	n.a.	n.a.	9.7E+07	1.4E+06	1.3E+04
25-Sep	0	8	0	0	0	0	133	122	67	5	28	50	B2.9	6.3	13	2.0	5.0	1.2E+08	3.4E+06	1.3E+04
26-Sep	0	13	0	1	0	0	131	127	77	4	17	29	B3.4	n.a.	n.a.	2.2	5.0	4.5E+08	1.8E+06	1.2E+04
27-Sep	0	15	0	1	0	0	130	137	79	3	9	9	B3.1	n.a.	n.a.	n.a.	n.a.	8.3E+08	1.6E+06	1.2E+04
28-Sep	4	30	5	1	0	0	137	139	71	3	6	8	B4.0	n.a.	n.a.	n.a.	n.a.	8.9E+08	1.9E+06	1.3E+04
29-Sep	0	14	0	1	0	0	135	108	74	3	7	7	B4.8	n.a.	n.a.	n.a.	n.a.	7.0E+08	1.6E+06	1.3E+04
30-Sep	0	40	0	0	0	0	133	116	66	3	7	10	B6.6	n.a.	n.a.	n.a.	n.a.	1.6E+08	1.1E+06	1.3E+04
Sum	39	221	21	6	13	1														
Average	1.3	7.4	0.7	0.2	0.4	0.0	112.3	82.6	48.8	4.1	18.5	30.7	B3.0	7.0	17	3.1	04	3.3E+08	2.1E+06	1.1E+04
Maximum	8	40	6	1	4	1	137	139	79	7	61	90	B6.6	7.4	20	3.9	05	1.3E+09	1.2E+07	1.3E+04
Minimum	0	0	0	0	0	0	94	42	17	3	6	7	B1.4	6.3	13	2.0	03	1.6E+06	4.0E+05	0.0E+00

50 MHz Outside Britain

Compilation and Commentary by G3USF

Europe

Auroral-Related Propagation

Fifteen days with auroral reports but, once again, the majority were confined to the higher latitudes. As OH2LX remarks, this was only a 'moderately disturbed month', with a daily average Ak at Sodankyla of 30.3 and at Nurvijarvi 17.0. These are lower figures than we have seen in several recent months. The most disturbed day was the 17th with an Ak at Sodankyla of 107 and at Nurvijarvi of 62. There was a single mid-latitude report on the 16th(Ap 37), but even the most disturbed days, the 17th to the 20th, produced only a handful of reports from south of the Baltic. One element in the explanation is that a substantial fraction of the disturbances occurred during mid-latitude Europe's sleeping hours, while OH5IY's automatic recording system never sleeps. No doubt some of the events his system notes (tnx OH5IY,OH2LX) would be picked up further south were anyone mounting a similar effort (remember the days when people used to run pen recorders on Meldrum?) It would be nice if someone would now run a similar automatic system at a more southerly location, if only for a limited period.

Sep 1 1733 49750>SM2(57a)
Sep 2 1340 OH9SIX>SM2(KP15 56a) 1350-1440 Au>OH5IY
Sep 3 19-2000 JW5SIX>SM2(KP15 579) 2033 OH9SIX>SM2(KP15 54a)
Sep 4 2330-50 Au>OH5
Sep 9 2320-30 Au>OH5 2340-50 AuFM>OH5
Sep 16 0050-0140 Au>OH5 0150-0210 Au>OH5 1020-30 AuFM>OH5 1320-1650 Au>OH5 1350-1440 AuFM>OH5 14-1500 GB3LER>EI(53a) GB3LER>OZ(JO45 55a) GB3RMK>EI(51a) 15-1600 OH3>LA(57a) 1530-40 AuFM>OH5 17-1800 GB3LER>EI(51a) LA>OZ(JO59 57a) 1710-20 Au>OH5 1750-1800 Au>OH5 1810-30 Au>OH5 2026 49750>SM2(59a) 2150-2250 Au>OH5
Sep 17 0030-0240 Au>OH5 0200-10 AuFM>OH5 1120-1500 Au>OH5 13-1400 GB3LER>EI GB3RMK>EI GM(IO99)>DL 1320-50 AuFM>OH5 1430-40 AuFM>OH5 1640-50 AuFM>OH5 17-1800 49750>OZ(JO54 5a 000) GB3LER>EI(53a) GB3RMK>EI(51a) 2050-2200 Au>OH5 2100-20 Au>OH5 2059 48,49MHztv>SM0(57a) 21-2200 LA(KQ10)>OZ(JO45 56) LA7SIX>OZ(JO45 599AE) SM5(JO99)>OZ(JO65 579AE) 2210-20 Au>OH5 2240-2400 Au>OH5 2340-2400 AuFM>OH5
Sep 18 0000-30 Au>OH5 0040-0120 Au>OH5 0130-40 Au>OH5 1310-30 Au>OH5 1510-30 Au>OH5 1540-1620 Au>OH5 16-1700 GB3LER>OZ(JO45 51a) 1730-2 OH9SIX>SM2(KP15 57a) GM(IO88)>EI(57a) 1942 OH9SIX>SM2(KP15 57a) 2100-10 Au>OH5 2230-2400 Au>OH5
Sep 19 0000-0110 Au>OH5 1150-1200 Au>OH5 1330-1400 Au>OH5 1410-50 Au>OH5 1620-40 Au>OH5 1713 GB3LER>EI(51a) 1840-1900 Au>OH5 2340-2400 Au>OH5
Sep 20 0000-20 Au>OH5 0130-40 Au>OH5 1020 49750>SM2(KP15 59a) 1430-40 Au>OH5 1620-30 Au>OH5
Sep 21 1400-10 Au>OH5 1420-1520 Au>OH5 1510-20 AuFM>OH5 1550-1600 AuFM>OH5 1600-20 Au>OH5
Sep 22 0650-1700 AuFM>OH5 0710-1010 AuFM>OH5 1020-30 AuFM>OH5 1040-1120 AuFM>OH5 1130-1220 AuFM>OH5 1550-2110 AuFM>OH5 2120-2400 AuFM>OH5
Sep 23 0000-0420 AuFM>OH5 2340-2400 Au>OH5
Sep 24 0000-10 Au>OH5 0020-30 Au>OH5 0100-20 Au>OH5 0150-0310 Au>OH5 1350-1420 Au>OH5 1430-1510 Au>OH5 1520-1650 Au>OH5 1950-201`0 Au>OH5 1950-2000 AuFM>OH5 2020-50 Au>OH5 2100-10 Au>OH5 2230-2400 Au>OH5 2240-2400 AuFM>OH5
Sep 25 0000-0100 Au>OH5 1400-10 Au>OH5 1550-1610 Au>OH5

Other Modes

Slender pickings for northern countries but more substantial openings for the Mediterranean. (Even there, SV1DH reports most openings as short and most signals weak.) Neither, however, seems to have had propagation into Asia and little enough into the Middle East, 4X apart. (JY9NE will be sadly missed from that area.) In September 2002 VK6 was worked from the UK. It all seems a long time ago!

Southern Africa was more productive, especially towards the end of the month, when contacts were made from the Mediterranean (particularly the central and eastern Mediterranean), even on a geomagnetically active day like the 24th. By the same token, however, the 'season' may well have been delayed by the disturbances between the 16th and 19th, and the low levels of solar flux before and around that period. That said, this year's results make a poor showing compared with 199's 28 days, 200's 30, 2001's 29 and last year's 29. Of the four days when there were openings from the North, three had less than the average level of geomagnetic activity, the exception being the 24th (Ap33), but that reached only LZ, which is only 'north' by the arbitrary definition we employ here. By comparison, the 1999 tally was 15 days, 200 9 2001 9 and 2002 19)

Europe<>Southern Africa

	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					+	+														+	+		+	+		+	+	+	+	
North						+																		+				+	+	

A reminder may not be out of place here: this Report can only bring together what others have reported. Observation suggests that, while 50MHz has its faithful devotees, many whose involvement may have been affected by the easy pickings of recent years have apparently decamped elsewhere, with the consequence that propagation possibilities may well not be quite so readily detected and exploited. What we can say is: propagation was at the very least as good as this. As usual, callsigns given in full indicate either beacons or dx working.

Europe<>Southern Africa

	Mediterranean	North
ZS6	9 days 6 20 21 23 24 26-29	3 days 6(G,PA) 24(LZ) 28(EI)
7Q	4 days 6 21 24 29	1 day 29(PA)
Z2	4 days 20 21 24 29	
V5	1 day 5	

After the doldrums of August September is usually an improving month for the West Africa path, though the Mediterranean is the principal beneficiary, with propagation on 18 days, compared with six further north. (2002 26 and 7 respectively) Again, the most consistent propagation and several openings to the north came in the second half of the month. As so often has proved to be the case, TR - essentially the TR0A

	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	+					+		+		+	+	+		+				+		+	+	+	+	+	+	+	+	+	+	
North						+							+													+	+	+	+	

The TR0A beacon was the mainstay. Results from the 5U7 dxpedition were disappointing - not for want of trying at both ends. Here at least the propagation failed rather than perseverance. Apart from the highly useful and widely heard CN8MC beacon (still occasionally reported as CN8LI!) the only signals reported from the rest of Africa were ST2 into 9H on the 24th. FR1GZ was reported into 5B on the 25th but FR5SIX remained absent and may well have been non-operational, despite an appearance in our August Report. 7Q was heard in A6 on the 10th. A contact between D44TD and SU1SK was reported on the 8th.

Europe<>West Africa

	Mediterranean	North
TR	15 days 1 10-12 14 18 20-29	3 days 13(G) 26(G) 27(G) 29(G)
TU	4 days 8 21 27 28	1 day 28(G)
D4	3 days 6 8 27	1 day 6(ER,UR,YO)
5U	1 day 23	
S9	1 day 20	

Despite the upswing towards the end of the month there were no reported openings to North America or the Caribbean. South America was slightly more favoured. PY was into the Iberia on the 23rd and 29th, into 9H on the 27th and F on the 4th. XQ(=CE) was into 9H on the 27th. Curiously, HC4MZ was reported from both ON and PA on the 2nd. Given that there were two reports and that HC4MZ, though not a familiar callsign, was known to be active on the band at other times, it would seem the report was genuine even though a little surprising. SV1DH reports VP8<>EA on the 23rd. All this was, of course, a far cry from the 24 days registered in the Mediterranean in 2002, 10 in 2001 and 18 in 2000, Iberia's 20, 24 and 24 respectively and below the North's tally of 3, 2 and 4 days. ZD8VHF was more widely heard: in Iberia on September 4,7,12, 19 and 23 and in the Mediterranean on the 10th, 14th, 27th, 28th and 29th.

As SV1DH's report indicates, sporadic-E occurred from time to time, mainly in southern areas; there were even occasions when Costas detected 2xEs. Ionization was high enough for the odd backscatter contact, though again this appears to have been limited to Mediterranean paths.

Sep 1 0950 LZ2CC>I4 1633 9H>IS0 1732 TR0A>EA7 1949 PA>I0

Sep 2 0748 UU5SIX>9A 10-1100 EH5>HB 13-1400 LZ3>PA 1448 S55ZRS>OE6 1702>HC4MZ>PA 1818 HC4MZ>ON 19-2000 YU1>PA 19-2000 YU1>DL 20-2100 YU1>PA

Sep 3 12-1300 LA>OZ,DL,PA

Sep 4 08-0900 UT5G>I5 GB3BUX,GB3IOJ>EA7 09-1000 UR>I0 OE3XLB>HA1 SV1SIX,I9>DL LZ1JH>I5,SP6 SV1SIX,LZ2CC>SP6 9H>LY 10-1100 SV1SIX>OE3 LZ2CC>HA1 5B4CY,9H>SP9 9H1SIX>ON I9>HB 11-1200 I9>PA GB3LER>DL G,PI7SIX>9H 13-1400 F>DL(t) I8>ON 5B4CY>UR 18-1900 UT5G>DL,PA IZ1EPM,IK5ZUL>EI LZ2CC>DL OY6SMC>SM0 SV1SIX>SP6 ON>EA7 19-2000 LZ2CC>I3 20-2100 CT0SIX>I5 SV1SIX>DL PP1CZ>F 2236 ZD8VHF>EA7

Sep 5 16-1700 EH2>F V51KC>I9,IS0

Sep 6 06-0700 G>F 07-0800 5B,OD5SIX>9A S5>F 4X>9A 08-0900 I0,SV1SIX>F 10-1100 I7>5B 1127 UT5G>9H 1422 F>EA2 16-1700 ZS6NK>I9 ZS6TWB>I5 UX0CX>D44TD 17-1800 7Q7SIX,ZS6DN,ZS6AVP>I9,PA ZS6NK,ZS6TWB>PA,I9,GW I9,YO4,9A,ER5,LZ1,4N>D44TD D44TD>EA6 ZS6NK>9H ZS6WB>G 18-1900 ZS6WB,ZS6NK>OE3 I9>EA1 EH2>9H LA>EI SQ2>SM0 19-2000 LA,SM5>EI EA3VHF>9H OY6SMC>EI

Sep 7 0915 I5>I0 18-1900 FX4SIX>ON(583km) 2134 ZD8VHF>EA7

Sep 8 14-1500 YU1>9H,I9 LZ1,YO3>I9 1522 OE3XLB>9H 17-1800 OH5SIX>SP6(ms) TU2OJ>9H,I4,CT,I9 18-1900 TU2OJ>EA7,CN D44TD>9H SU1SK>D44TD 2113 ZD8VHF>9H

Sep 9 08-0900 SV1SIX>DL 1644 LX0SIX>DL

Sep 10 15-1600 TR0A>EA7,9H 1658 9H>IS0 2032 LX0SIX>DL

Sep 11 14-1500 I5>LZ2 TR0A>EA7,F 18-1900 OH5SIX>LX

Sep 12 11-1200 GB3BUX>I6 HB>EI 12-1300 TR0A>EA7,9H 2154 ZD8VHF>EA7

Sep 13 0642-0700 UT5G,UU5SIX>I0 07-0800 GB3MCB>F 07-0800 F>OZ SV1SIX>OK1 UR>I0 9H1SIX>SP6 SV1SIX>DL,SP2 4X>ON I9>SP6 08-0900 ON>DL SV1SIX>PA,SP9 GB3MCB>I5 9H>5B YO7>PA 09-1000 SV9SIX>SP2 5B,OD5SIX>I0 EH9>PA 11-1200 CT>OE5 EH5>OZ F>EA5 12-1300 EH5>OZ,SP9 DL,F,ON>EA5 GW>I0 CN8MC,EH5,EH9>PA EI>I0 EH7>DL F,G,ON,PA,GW>CN G>I1 CT>I9 F>EA7 1324 EI>I1 14-1500 I9>PA,I2 15-1600 CT0SIX>PA 3Ctv>G,OK1 TR0A>G EH1>PA CT0SIX>PA,DL IZ1EPM>F 16-1700 OE5>DL EH5>PA F>EI GB3MCB,SM5>F

Sep 14 0702 GB3MCB>F 08-0900 SM5>9A 09-1000 I2>HB,I5 G>OZ 1039 GB3BUX>F 1937 TR0A>EA7 2020 ZD8VHF>9H

Sep 15 no reports

Sep 16 aurora 1459 3Ctv>SV1 2041 GB3MCB>DL(t)

Sep 17 1139 ON>PA aurora 14-1500 3Ctv>SV1 I9>9H

Sep 18 16-1700 TR0A,3Ctv>EA7 aurora

Sep 19 1437 3Ctv>SV1 1542 SV5>I1 1939 GM>OZ(ms) 2208 ZD8VHF>EA7

Sep 20 0636 I0>I8 0854 G>OZ 1444 3Ctv>SV1 15-1600 I3>I2 S9TX,ZS6NK>I9 16-1700 S9TX>9H,I7 ZS6NK>5B,SV1 5Ntv>SV1 TR0A>I5,EA7 Z22JE>EA7 ZS6TWB>I9 17-1800 I9>IS0 ZS6WB>IS0,I9 Z22JE>SV1,I9 ZS6STN>I9 ZS6NK>I9 3Ctv,5Ntv>SV1 TR0A>SV1 ZS6GMF (on R7 vertical)

Sep 21 07-0800 I6>ON,LA,IS0 CT0SIX>EA7 I4>OZ I8>I7 08-0900 I9,I8>IS0 I2>I0 09-1000 I9>IS0 I6>OZ I8>I0 10-1100 I8>I0 I4>HB 1327 I4>I5 I9>I0 14-1500 3Ctv>SV1 TR0A>9H,SV1 I8>I9 15-1600 TR0A>I0,IS0 ZS6TWB>I5 TU2OJ>9H ZS6NK>5B,IS0 16-1700 TU2OJ>5B 7Q7RM>I0,5B,I9 ZS6GVD>I7 17-1800 ZS6WB>I9 Z22JE>I0

Sep 22 1348 TR0A>9H 14-1500 3Ctv,5Ztv>SV1 9H>I9 15-1600 3Ctv>SV1 19-2000 TR0A>SV1 2024 PY1RO>CT3DL

Sep 23 13-1400 TR0A>I5,9H 15-1600 ZS6TWB>I5 9H>SV1(bs) 16-1700 I1>I5 5U7JB>I9,CT,F,I0,I5 17-1800 OZ>DL,PA,ON TR0A>I5 I9,SV1>9H 18-1900 G>PA 5U7JB>I5 TR0A>SV1 3Ctv>SV1(tep) G>LA,SP6 2033 CE4WJK>CT3DL 21-2200 ZD8VHF,PP1CZ>EA7 23-2400 I9>I8

Sep 24 1431 ST2NH>9H 15-1600 TR0A>SV1 1655 7Q7RM>I0 17-1800 ZS6GVD,ZS6DDG>IS0 Z21FO>CT aurora

Sep 25 06-0700 ES0SIX>SP1,SP6 14-1500 TR0A>SV1,9H SV1>9A 4X>SV1,9H SV1,9H>5B 1652 FR1GZ>5B 2239 PY2BU>CT3

Sep 26 1155 TR0A>G 1406-29 TR0A,3Ctv,9H(bs)>SV1 1557 9H>IS0 1726 Z22JE>5B

Sep 27 07-0800 EPtv>9A ES0SIX>SP6 13-1400 5Ztv,3Ctv>SV1 TR0A>SV1 14-1500 TU2OJ>I9,9A,SV1,F TR0A>F,I5,SV1,GW SV1>I5(bs) 9H,LZ(bs)>SV1 15-1600 SV1>IS0 9H>CT(bs)>SV1 D44TD>IS0 17-1800 ZS6TWB>I0 TU2OJ,PP8KWA>CN8LI 1812 7Q7SIX>A61AH 21-2200 ZD8VHF,3Ctv>SV1 PY1USF>CN8LI PY1RO>9H 22-2300 ZD8VHF,XQ3SIX>9H

Sep 28 0640 PA>ON 08-0900 I4>I2 1231 5Ztv>SV1 13-1400 I3>9A 5Ztv>SV1 TR0A>F 14-1500 SV1>I0 TR0A>I5 9H>SV1 TU2OJ>I1 15-1600 TU2OJ>GW,G ZS6NK>I0,IS0 I4>IS0 CN8MC>PA 16-1700 CN8MC>PA,DL HB>CN EH7>PA,EI,ON,DL I5>IS0(bs) CT>F S5>SV1 CT0SIX>I1 ZS6NK>9A EH5>EI,PA ZS6TWB>IS0 F>EA7 9H>SV1(bs) EH7>PA 17-1800 ZB2>ON,PA EH7>DL,PA CT>F,PA,DL ZS6WB>EI ON>EA7 EH2>ON SV1>CT 18-1900 SV1>EA7 EH4,EH5>PA 9H>DL,9A,SP6,I9,F 1952 9H>PA 20-2100 ZD8VHF,TR0A>SV1 22-2300 ZD8VHF>9H

Sep 29 0545 ES0SIX>SP6(ms) 0619 OH5SIX>SP6(ms) 1215 5Ztv>SV1 14-1500 3Ctv>SV1 LX0SIX>EA7 SV1>9A 15-1600 TR0A>SV1,G 3Ctv>SV1 I8>9A CT>I3 16-1700 I9>F 9H>I1 ZS6TWB>F ZS6DN>F,SV1 CN8MC>I0 7Q7RM>F,I0 TR0A>SV1 17-1800 ZS6TWB>SV1 Z22JE>SV1,I1,4X 3Ctv>SV1 ZS6AFG>I1 7Q7RM>PA 18-1900 CN8MC>EI CT>EI,I2,ON,PA ON>PA 19-2000 ZS6TWB>I0 ON>F,CN CT>DL,I1 CN>I2 EH7>I1,I2,F I3>CN 2141 PY1RO>CT

Sep 30 07-0800 LX0SIX>DL(t) 1247 I9>9A 1304 9H1SIX>9A 1438 I9>I2 18-1900 3Ctv>SV1(tep) I4>I2 19-2000 3Ctv>SV1,EA7 20-2100 GB3BUX>PA

50MHz PROPAGATION REPORT FOR SEPTEMBER 2003 BY SV1DH

1. Data for all days (30),except on 9-13th Internet data only.
2. Relatively good days on: 4,6,20,21,27,29
3. 48 MHz AF video (3C+5Z) on: 8,14-17,19-30 (57%)
4. 55 MHz AF video (5N) on: 20, (7%)
5. " to 7Q on: 6,21,29 (10%)
6. " to ZS6 on: 6,20,21,23,24,26-29 (30%)
7. " to Z2 on: 20,29
8. " to TR on: 20-29 (33%)
9. " to S9 on: 20
10. " to TU on: 21,27,28
11. " to 5U on: 23
12. " to ZD8 on: 27,28,29 (10%)
13. " to 5B on: 25(B)
14. " to 4X on: 6,25(B)
15. " to OD on: 6
16. " to F on: 6,30(E)
17. " to I on: 6(E),23,27,28(B)
18. " to LZ on: 27(B)
19. " to IS on: 27(B)
20. " to CT on: 27(B),28(2E!)
21. " to EH on: 6(E),28(2E)
22. " to 9H on: 22,23,25-29(all B) (23%)
23. " to DL on: 4,9,13
24. " to SP on: 4,13
25. " to OK on: 13
26. " to 9A on: 25,29(B)
27. " to S5 on: 28
28. " to OE on: 4,13
29. " to PA on: 13

30. Special events on:
   2 (1700-1800 ON+PA to HC?)
   4 (2030 F to PY1 +2230 EH7 to ZD8)
   8 (1400 A4+A6 to YB)
   14 (1930 EH7 to TR+2015 9H to ZD8)
   16 (2224 M1.3 flare)
   18 (0815 YA to VK6+9M +1600 EH7 to TR)
   19 (0845 YA to VK6 +2200 EH7 to ZD8)
   20 (1100 YA to VK6)
   21 (1530 9H to VP8)
   23 (1030 foF2=9.2/MUF=32Mhz first of season+1445 9H to VP8 +2130 EH7 to ZD8+PY)
   24 (1430 9H to ST)
   25 (1100 foF2=9.5/MUF=31Mhz+1645 5B to FR)
   26 (0900 YA to VK6+0930 YA to FR+foF2=9.9/MUF=31.3 Mhz+1215 A6 to VR+BG+1615 A6 to TR)
   27 (2200 9H to PY1+2300 9H to CE)
   28 (1330 5Z video S9+30!+1530 season first G+W on 10m)
   29 (0800 foF2=9.6/MUF=33Mhz+1130 MUF to HZ>44Mhz first season)
   30 (1000 KH6 to EU 10m LP+1330 A6 to DU+VR +1515 A6 to YB)
   Openings during Sept. were mostly short and signals weak

31. DXCC entities heard/worked during SEPT 2003 : 25 on 3 cont
32. DXCC entities heard/worked on 27th SEPT2003 : 9 on 2 cont.

73 COSTAS

The Americas

Auroral-Related Propagation

Once again, surprisingly few auroral reports from W/VE. Why?

Sep 3	04-0500 VE8BY>VE6(599) VE4ARM>VE6(539a) KL7/KG0VL>VE6(559a) KL7NO>VE6(55a)
Sep 17	0148 W8(EN56)>W8(EN36)
Sep 21	0209 K0KP>W9 1444 VE4VHF>VE6(52a)

Other Modes

As the detailed listings that follow show, there was a fair amount of propagation - in the main very likely tep - though rarely identified as such - between Central America and the Caribbean and South America, and between the US and the same area. However, openings between North and South America were less frequent and, HC8 apart, confined to southern states. Tep was also probably a factor in these openings.

The only other reports of note were reception of the C21SIX beacon in W7 on the 7th and Hawaii into Brazil on the 8th and 26th.

North<>South America

CE	23(W4,W5)
HK	5(W5)
CX	22(W5)
LU	20(W5) 21(W4) 23(W4)
FY	26(W4)
PY	23(W4) 24(W4)
HC	21(W4)
HC8	1(W9) 13(W4) 20(W5,W0)

Sep 1	0000 W5>W3 1244 W1>W1 14-1500 W4,W1>W1 W1>W3,W9 W5>W4 W4>W9(sc) 1640 W5>W0 1754 W5>W4 19-2000 W5VAS>W0 W4CLM>W9 W5>VE3 W8>W0,W5 LU7WW>W9 20-2100 N8PUM>W4 W5>W8 LU7WW>W9 21-2200 W5>W4 22-2300 W8>W2 HC8GR>W0 W5>W3 W8>W5,W0 23-2400 W4,W5,W3>W3 VE3>W5 W2>W4 HC8GR>W9 K0UO>W4 W9>W1
Sep 2	00-0100 W0,W5>W4 W2>W0 W1,W4>W9 W5>W3,W9,W8 VE3,W2,VP9GE>W5 W0,W4>W4 W0>W8 W3HH>W0 N8PUM>W0 01-0200 W0,W4>W4 W8>W0 W9>W1 W1>W0 W9>W5 W1>W8 KD4HLG,K4TQR>W0 02-0300 K0UO,W4>W4
Sep 3	aurora: - no other reports
Sep 4	no reports
Sep 5	01-0200 XF1K>W6,PY3 1651 XF1K>XE2 2141 HK3JJH>N5BSD
Sep 6	1145 W5>W5 1305 N0UD>VE6 1448 W2>W2
Sep 7	0054 KP4RP>PY1RO(fl) 0109 XF1K>W6 0242 TI7WAM,TI5BX>PY1RO 0916 C21SIX>NA9Q(?!) 1140 W5>W9 1845 48.3(CE)>W4 23-2400 KP2BH,9Y4AT,FM1DQ,FJ5DX,9Y4TL>PP5JD
Sep 8	0058 LU7FA>YV1DIG 01-0200 FM5WD,PJ2BV,NH7RO >PP5JD W4>W4 02-0300 N7SCQ,K6FV>W0(ES) W0>W4 W5>W6 2222 SAmFM>W4
Sep 9	no reports

Sep 10 1337 W4CHA>W1 23-2400 VP5/K7BV>W4

Sep 11 0132 VP5/K7BV 1012 VP5/K7BV>W4 1311 VP5/K7BV>W5 23-2400 FJ5DX>PY4OY,PY2FFZ PY8>PY4 PP5>PY8

Sep 12 20-2100 VP5/K7BV>W4 22-2300 FJ5DX,WP4KJJ>PP5LD 23-2400 KP4FKB,FJ5DX>PY5IP KP4FKB,WP4AZT>PP5LD PJ5BVU>PP5LD,PY4OY ZP5CGL>WP4NIX

Sep 13 00-0100 TI5KD>PY4OY WP4KJJ,9Y4AT,PJ2BVU>PY2RO 01-0200 9Y4TL>PP5LD PJ2BVU>PP5LD,PY4OY 02-0300 PJ2BVU>PY4OY,YV1DIG 1151 VP5/K7BV>W4 1250 VP5/K7BV>W4 18-1900 W4>W4,W8 W6,W8,W9>W9 W3,W5>W4 W1>W1,W4 VP5/K7BV>W4 19-2000 W1>W1 W3>W3 VP5/K7BV>W4 VE3>VE3 20-2100 HI3TEJ>HI3NR W8>W8 VP5/K7BV>W4 W9>W0(sc) 21-2200 W1,W3>W1 22-2300 W5>W5 FJ5DX,HI8/VE2NSM,VP5/K7BV>PP5LD HC8GR>NW5E/4 CX2LI>WP4NIX W4>W8 W1>W1 2300 W1>W1

Sep 14 00-0100 W4>W4 W2,W3,W4>W3 01-0200 W3,W5>W5 W1>W4 02-0300 W2,W4>W4 W7>W7 0327 W9>W9 04-0500 W1>W8 11-1200 W4>W4 W1>W1 W3>VE9 12-1300 W3>W4 W1>VY2,W8 W2>W1,VY2 13-1400 W9,W4>W4 W6>W9 1447 W1>VE9 15-1600 W2>W2 W3>W1,W2 1631 W9>W9 17-1800 W8>W8 W1,W2>W1 W1,W2>VY2 20-2100 W4>W8 W2,W3>W1 VP5/K7BV>W4 21-2200 W1>W1 2316 W9>W9

Sep 15 01-0200 W9>W9 0219 W4>W4

Sep 16 no reports

Sep 17 00-0100 PY8>PY8

Sep 18 0002 CX4CR>WP4NIX 21-2200 WP3YM>W4 W4>KP4 22-2300 KP4>W1 2317 V44KAI>W4

Sep 19 00-0100 TI5KD>PP5JD FJ5DX>PY2RO 1534 W0>W0

Sep 20 0208 VE8BY>VE6 1211 W8>W4 20-2100 W6>W6 HC8GR,LU7WW>K5WA 21-2200 HC8GR>N0JK 22-2300 LU7YS>AB5K 23-2400 WP4KJJ,PJ2BVU>PP5LD

Sep 21 00-0100 FY7THF>HC2FG PS8>PP5 PJ2BVU>HC2FG 01-0200 YV4AB,TI5KD>HC2FG 02-0300 XE1KK,XE1AQY>HC2FG 19-2000 HC2FG,LU7WW,47.9(CE)>K4RX LU7TS>K9VV/4 21-2200 TI2NA>NW5E/4 W7>W6 22-2300 TI2ALF>NW5E/4 YS2MRL>N5WE/4,K4RX 23-2400 YS1JGR>NW5E/4 YS1JBL>K4UTE YN9HAU>K5IX W7>W6

Sep 22 00-0100 CX4CR>K5IX 49.2(CE)>W4 01-0200 FJ5DX,YY5PER>YV1DIG 22-2300 TI5KD>K4RX 23-2400 LW1DZ,PP5LD>WP4NIX KP4HX>PP5LD

Sep 23 00-0100 W4>KP4 PJ2BVU>PP5JD YV4YC,PJ2BVU>LU2NI LU2EEQ,49.2(CE),LU3HR>K4RX 01-0200 N4TL>PP5LD CE4WJK>K4RX,K5VIP 02-0300 LU9HS,PY2GR,PY2PA,PU2WDX>HC2FG PJ2BVU>PU2WDX 0316 CA2VDQ>HC2FG 23-2400 PJ2BVU>PP5LD,PY2FFZ CA2VDQ>PT2GE PY2TVI>WP4NIX LU9HS>PY2FFZ

Sep 24 00-0100 LU9HS>WP4NIX FJ5DX>PY2FFZ NL7AU/4>PP5LD LU1DMA,ZP5CGL>PT2GE LU9EHF>PY2 0118 LU5VV>PT2 0226 FY7THF>YV1 2206 47.9(CE)>W4 23-2400 KP4HX>PP5LD YV4YC>PY1 PJ2BVU>PY2FFZ

Sep 25 00-0100 FG5FU,YS2MRL>PP5LD WD9ABG/TI8>PY1RO,PP5LD 01-0200 WP4KJJ,PJ2BVU>PP5JD 9Y4AT>HC2FG

Sep 26 00-0100 PJ2BVU>PY2FFZ HP3XUG>PT2GE 01-0200 9Y4AT,YV4AB,V44KAI,TI2NA>PY1RO PJ2BVU>PY2RO NH7RO,KH6IAA>PY1RO 02-0300 PY2>PU2 PJ2BVU>HC2FG 1904 FY7THF>K9VV/4 23-2400 W4>W4 YV5MM,CT3BD>PP5LD

Sep 27 00-0100 PY8>PP5 XQ3SIX>WP4NIX WD9ABG/TI8>PP5 PY2AE>HP2CWB PJ2BVU>PY4OY 1550 CE2SQE>WP4NIX 2204 CN8MC>PY1RO 2312 PJ2BVU>PY5IP

Sep 28 23-2400 PJ2BVU>PY2PA 9Y4AT>PY4OY

Sep 29 00-0100 PY2>PU2 W5>W5 0110 PJ2BVU>PY2PA 0202 PJ2BVU>LW6DC 2203 XE1BEF>PP5LD 23-2400 WP4NEG>PY2DSC,PP5LD PY7>PP5

Sep 30 0250 9Y4AT>HC3AP 21-2200 W8>W4 22-2300 ZZ2>PU2 ZP6PT>PY1,ZZ2 2327 CN8MC,V44KAI>PY1RO

Asia/Pacific

Japan

By JA standards this was a fairly quiet month. There were no reports of openings to the Americas, Africa or Europe. Propagation to Australia was confined to VK4, VK6 and VK8 which, collectively, were reported on 21 days. Interestingly, these included several disturbed days - notably the 18th, 19th and 20th. A high proportion of the reports related to beacons, underlining the relatively low level of antipodean activity. VK4 was heard or worked in Japan on September 2-5, 7-10, 19, 0,22, 24, 26-28 and 30; VK6 on September 2-10, 13, 18-24 26 and 28-30; VK8 on September 2-6, 10, 19-22 24, 26-30 and 30.

6m DX results in JA during September from JA1VOK

DATE	TIME (UTC)	STATIONS
2	0950-1130	VK4RTL/b,6RSX/b,8MS,8RAS/b
3	0500-0530	VK4ABP/b,8RAS
	0800-1030	FK8SIX/b, V63KA, VK6JJJ,6RSX/b,8RAS/b
4	0550-1100	C21SIX/b, FK8EB,8SIX/b, V63KA, V73SIX/B, VK4,6,8
5	0520-1130	C21SIX/b, FK8SIX/b, VK4,6RSX/b,VK8
6	0750-1110	VK6RSX/b,8MS, YC1BYO
7	0440-0500	VK6RSX/b
	0830-1430	C21SIX/b, N7ET/DU7, FK8SIX/b, VK4CXQ,4RTL/b,6RSX/b, YB0CBI,YB9AY,YC0OIL,1MH,1BGC,1BMT,1EHR
8	0630-1130	DU1EV/B, FK8SIX/b, KH2GR, T88VC, V63KA,V63UB,VK4RTL/b,6RSX/b
9	0550-1130	KG6DX, VK4RTL/b,6JQ,6RSX/b, YC1MH,1NYU
10	0400-1030	V63UB, VK4,6JQ,6RSX/b,8RAS/b
12	0740-1000	C21SIX/b, DU1EV/B, JD1YBJ, V73SIX/B, VR2XMT
13	0840-0900	VK6RSX/b
15	0820-0930	9M2TO/B, DU1EV/B
16	0630-0800	9M2TO/B
17	0550-0600	9M2TO/B
	0700-0730	YB1BGI,YC1MH
18	0815-1030	9M2TO/B, DU1EV/B, VK6JQ,6RSX/b
19	0430-1040	9M2TO/B, VK4CXQ,6JQ,6RSX/b,8RAS/b
20	0730-1000	FK8SIX/b, VK4,6JQ,6RSX/b,8RAS/b, XV3AA
21	0950-1100	VK4WDM,6JQ,6RSX/b,8MS
22	0545-1040	BG9BA, DU1EV/B, VK4,6JQ,6RSX/b,8RAS/b, XV3AA
23	0610-0930	9M2TO/B, BG9BA, 4D71HBC,DU1EV/B, VK6JQ,6RSX/b, XV3AA
24	0405-0930	BG9BA, C21SIX/b, DU1EV/B,DU1/GM4COK, FK8SIX/b, V63SC, VK4ABP/b,VK6,8
26	0350-1140	9M2TO/B, BG9BA, DU1EV/B, KG6DX, VK4CXQ,VK6,8RAS/b
27	0300-1000	BD7OH,BG9BA, DU1EV/B, V73SIX/B, VK4RGG/b,8RAS/b, VR2
28	0330-0830	9M2/JI1ETU/b, BG9BA, DU1EV/B, FK8SIX/b, V63SC, VK4CXQ,4ABP/b,6RSX/b,8RAS/b
29	0615-0630	VK6RSX/b
30	0315-1330	DU1EV/B,DU1/GM4COK,N7ET/DU7, V73NS,V73SIX/B, VK4,6,8

Elsewhere

While VK was reported from elsewhere in Asia (YA, YB, HL, VR) no reports originated from either VK or ZL.

Sep 1 1357 YC1DDU,YC0OIL>VR2 1407 YC1HER>VR2
Sep 2 07-0800 JG1ZGW>HL1 1149 KG6DX>VR2
Sep 3 1033 VK6RSX>HL1
Sep 4 0648 VK6RSX>HL1
Sep 8 07-0800 T88VC,JA6YBR>HL1 0827 KH2GR>HL1,DS1 13-1400 VK8MS,YB0CBI>VR2 1408 YB9AY>VR2
Sep 9 08-0900 YC1MH>HL1,HL2 HL2>HL1 10-1100 VK6RSX>HL1
Sep 10 06-0700 VK8RAS>HL1 07-0800 HL2>DS1 HL9,XV3AA>HL1 09-1000 DU1EV,JA6YBR>HL1
Sep 18 0816 9M2TO>YA1D
Sep 19 0850 VK6RSX>YA1D 0911 VK6JQ>HL1
Sep 20 0951 VK4ABW,VK4CXQ>HL1 1104 VK6RSX>YA1D
Sep 21 0915 JH8ZND>HL1
Sep 22 07-0800 JA2IGY,JG1ZGW,XV3AA,JH8ZND>HL1 0941 VK6RSX>HL1
Sep 23 00-0100 JH8ZND>HL1,DS4 0823 VK6RSX>YA1D
Sep 26 07-0800 DU1EV,JA6YBR,JA2,JA8>HL1 09-1000 VK6RSX,VK6JQ,FR1GZ>YA1D 1055 4S7EA>YA1D 1214 A61AH>VR2
Sep 27 08-0900 JE7YNQ,JA1,VR2PX>HL1 1102 VK6RSX>HL1
Sep 28 0814 JE7YNQ>HL1(qtf 190)
Sep 30 1534 YF1OO>YB0DPQ

Beacon News and 28 MHz Worldwide

Compilation and Commentary by G3USF

Beacon News

10.140 PA1SDB in Appingedam (JO33KH) ran QRPp and QRS tests here. Web site is www.qsl.net/PA1SDB. Experiment ended early November
28203 N3NIA returned to operation in October, still with multiple outputs (various)
28209 EI0TEN power now 50w (EI0TEN)
28212.5 LU7DQP Buenos Aires (GF05TH) reported back (October) but for how long? (various)
28252.5 N9AVY from Milton WI runs 2 watts to vertical (G4TMV)
50060 K5AB EM01 new beacon, location presumably same as 10m beacon - Georgetown TX

28 MHz Worldwide

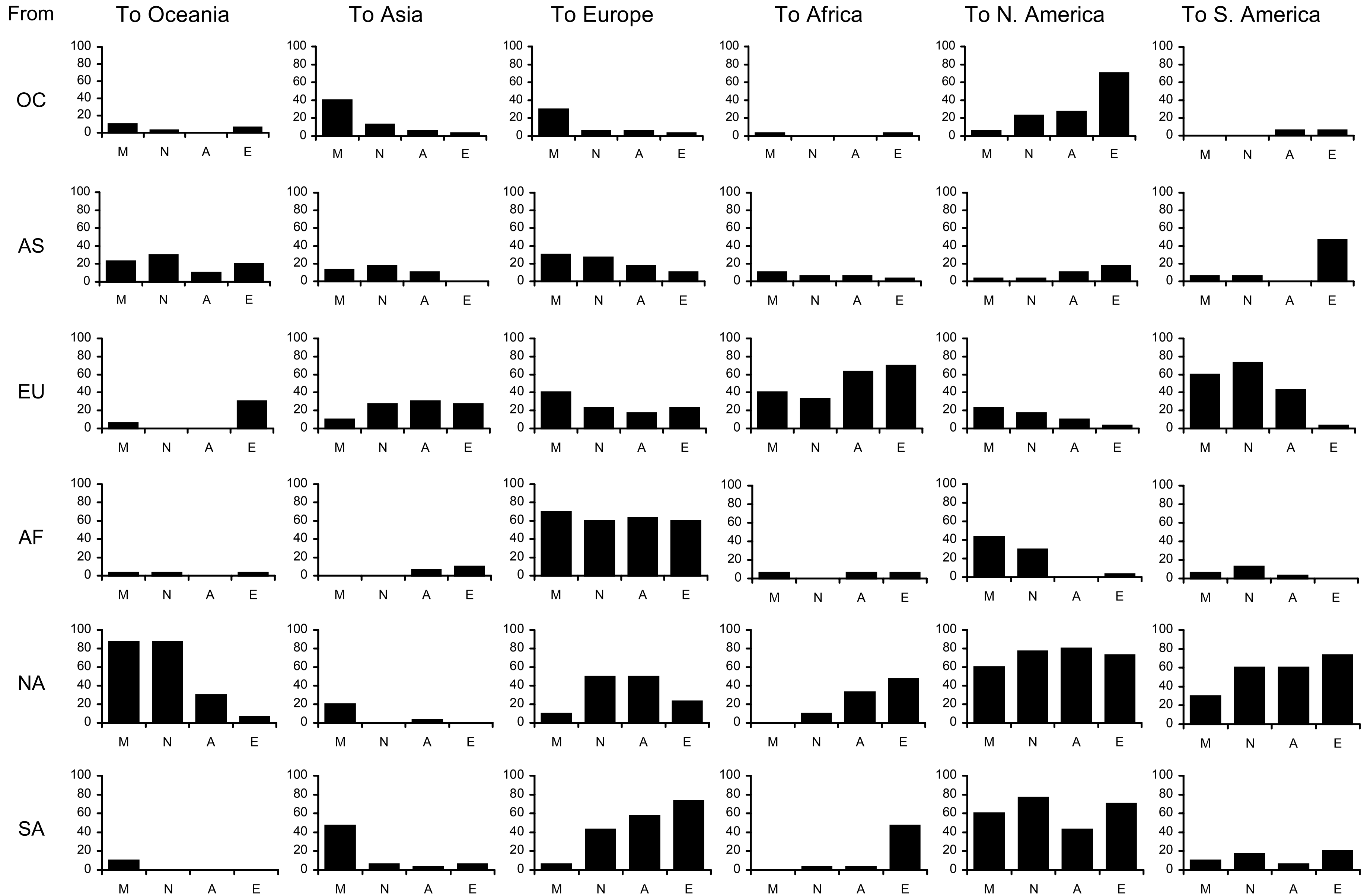
In the northern hemisphere September presented a distinctly more cheerful picture as the equinox emerged from the August torpor. Most well-reported paths were improved despite the relatively high level of geomagnetic activity, especially mid-month. There were in fact no 28MHz reports from anywhere in the world between 2337 on the 18th (Ap40) and 1341 on the 19th (Ap32). However, the last three days were the quietest for some months. This, combined with relatively high solar flux readings, allowed the month to close on a high note, going with the enabling flow of seasonal change. That said, there was no mistaking that we were well on the downside of the cycle.

Africa was reported into Europe every day and South America on all but the 18th, 24th and 25th. North America<>Europe, which opened barely at all in August was reported on 12 days with more sustained openings, though still predominantly over easier southerly paths. Asia<>Europe was workable on 15 days, though the Far East had yet to make only fleeting appearances.

Within Europe and Asia intra-continental working declined with the ebbing of the sporadic-E season. However, there were openings within North America (here including Central America and the Caribbean) every day, with all four periods of the day producing strong returns. North-South America contacts were reported every day but the16th, which was one of the month's more disturbed days. There was more propagation to Asia, but this still remained a difficult path, particularly given the size of their amateur populations. By contrast, the US was able to work into Oceania on no fewer than 21 days - markedly facilitated by the FO/DF6IC operation, confirming yet again that 'conditions' almost always seem to be 'better' when rare DX is around.

Notable contacts were again scarce. However, a contact between JG2KTH and NP4A at 2324 on the 15th over a skewed path was somewhat more than routine, as was a YO<>JA report at 0755 on the 7th.

28 MHz Worldwide - September 2003



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

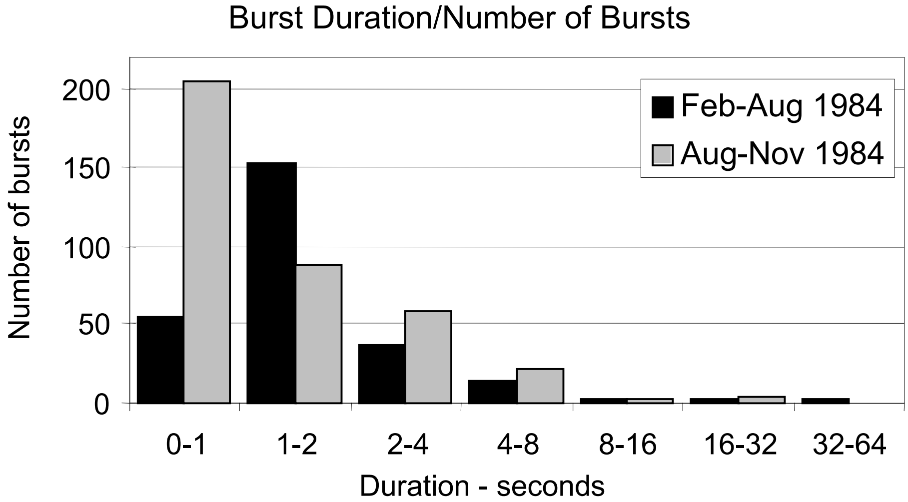
Meteor Scatter Observations at 50 MHz in the 1980s

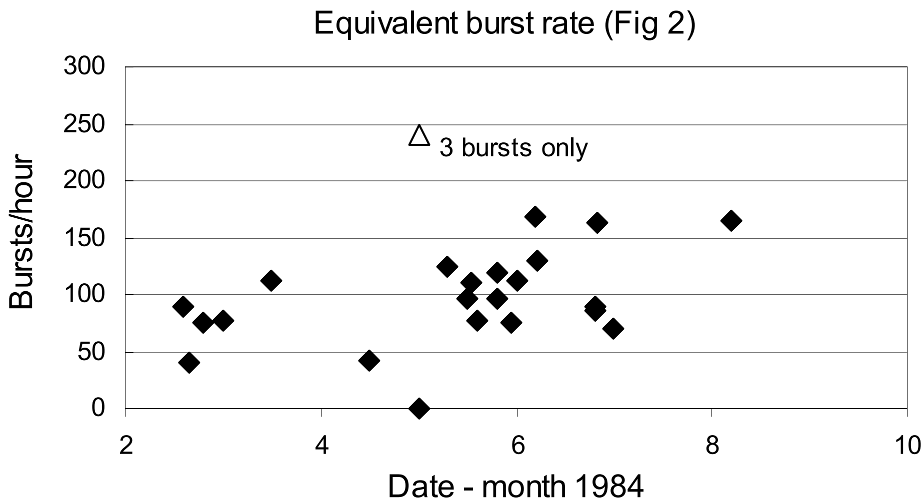
Jeremy Whitfield, G3IMW

The recent interest in digital modes and meteor scatter propagation reminded me of some work, which I did in the 1980's. In the files I found some graphical results which may be of interest today. Luckily I also have the original notebooks which helped with some of the details.

I made the first observations in 1984 as part of the research project associated with the issue of special permits for 50MHz before the band was generally available in the UK.

At this time we could only operate outside TV hours and the early morning operation period suited m/s work. There were daily skeds between GM3WCS (IO86) using high speed CW, GM3WOJ (IO77) using ssb and G4IJE (JO01). They took place between 0700 and 0745 local time. I listened to these, in IO91 (London N4), and observed the number and length of bursts during these contacts. The results are shown in Figs 1 and 2.





In 1987, when the band was generally available, I made observations of the GB3SIX beacon, which beamed towards the US from Anglesey. Fig 4 shows results during the Quadrantids shower. This is compared with 24 hour observations after the shower, Fig 3. These two plots show the marked difference between typical sporadic meteor activity and that during a major shower.

I also made some observations of the GB3RMK and CT0WW beacons in July and August 1987. Some of these were made during the Perseids shower when they show reliabilities (what I was calling 'availability' A) of up to 60% of the time.

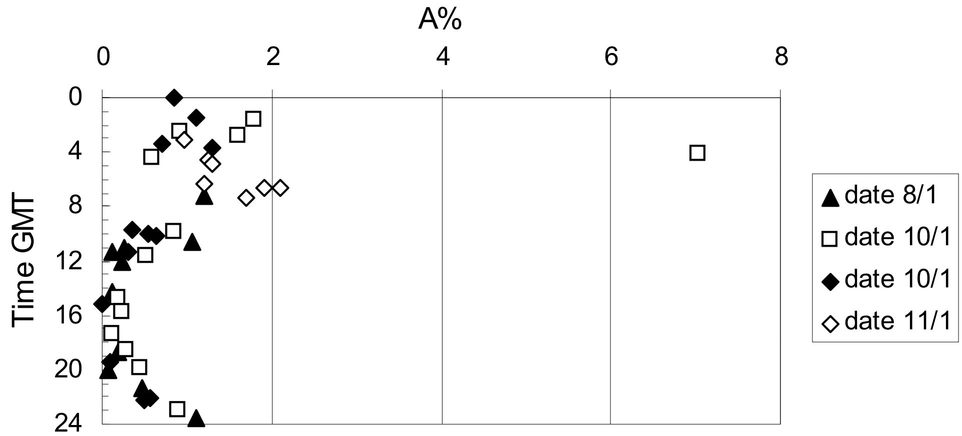
Note on Observation Technique

The duration of the bursts was estimated. Bursts less than I second were really 'guesses' but contribute little to the total time when propagation is available. Longer bursts were timed using the second hand of the clock. The 1984 observations lasted the duration of the m/s contact. This was usually 10 to 20 minutes, the 'overs' were 2.5 minutes, later changed to 30 and even 15 seconds for ssb working. For the 1987 observations a standard listening period of 11 minutes was used, the burst durations were added to give a total propagation time in the 11 minutes. The value A represents the percentage of the 11 minutes that the signals were heard.

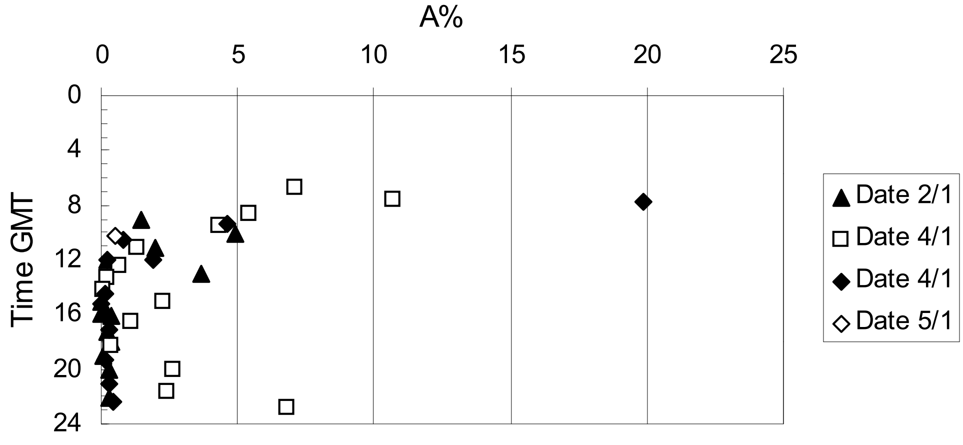
Discussion of Results

Fig 1 gives an idea of the typical length of bursts that may be expected at a good time of day. The results for February to early August cover a mixture of sporadic and shower meteor activity. Also shown are results for August to early November 1984. Here dates with known showers have been excluded so we are looking only at sporadic meteors. For February to August, as might be expected, there are relatively fewer short bursts of under I second, presumably because the shower meteors tend to be larger and give rise to longer bursts. The erp's in use were probably under 1 kW with short yagis at both ends of the path. Fig 2 shows the numbers of effective meteors arriving per hour. The data used in Fig 2 is the same as that in Fig 1 for the period February to August. There is no shower in February or March but one could still expect 40 to 100 sporadic meteors per hour.

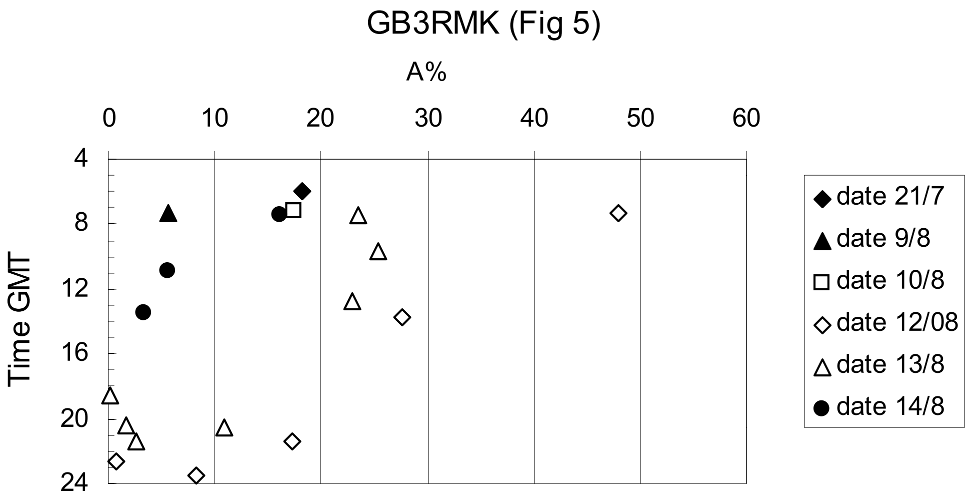
GB3SIX backscatter- no shower (Fig 3)

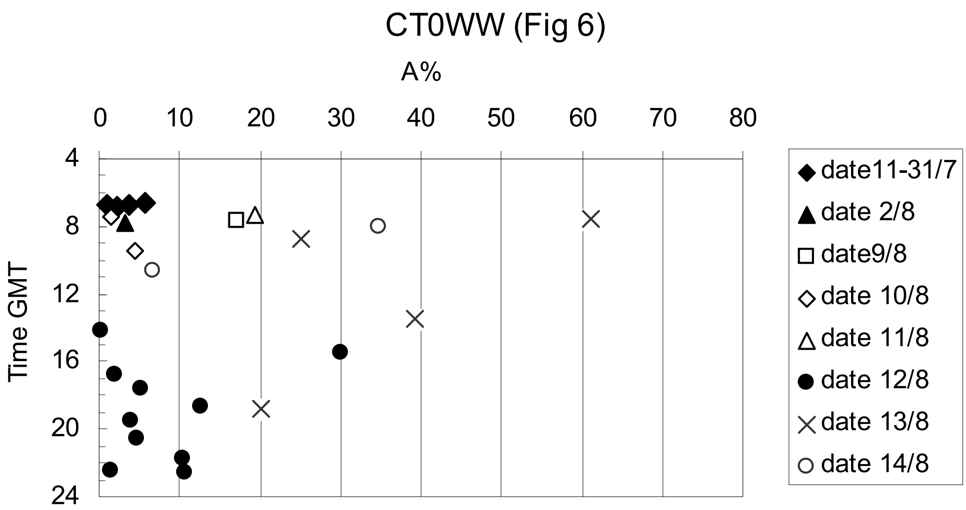


GB3SIX backscatter - Quadrantids shower (Fig 4)



The Quadrantids shower is intense but lasts only about 2 days. Fig 3 shows the typical diurnal variation of sporadic meteor bursts after the shower, while Fig 4 shows much higher A values because of the shower. It also shows that good reflections can occur at times when sporadic meteors are poor. If one relies only on sporadic meteors it is clear that the afternoon to early evening is a very bad time to choose. Since backscatter was involved, higher A values could be expected with ideal beam headings.





Figs 5 and 6 show what can be achieved with better beam headings during a major shower. (For simplicity I have lumped all the July observations together as there was only one listening period on each day). Incidentally the format of these graphs with time of day on the vertical axis was chosen to match the computer printouts published in RSGB Amateur Radio Operating Manual and elsewhere. These show the optimum time of day for various directions for each known shower.

Conclusions

So what do these observations tell us today? As far as I know the results for sporadic meteor activity in the 1980's would be generally similar to those one could expect in the 2000's. It was possible to make a m/s contact every day (at the early morning times). Sometimes it took ten minutes or more to complete, but a lucky long burst could be used to complete in a minute or two. If it is possible to use short overs, both stations can be aware of a long burst and exchange the necessary data immediately. A situation like this could be exploited in digital modes with short overs. With an automatic error correction protocol one could make effective use of any bursts of propagation that occur for two way communication. From Fig 1 one can see that there are many bursts in the 1 to 2 and 2 to 4 second categories available from sporadic meteor activity, so any digital system should be able to exploit these. The results obtained during showers cannot be expected to repeat every year. They are past history! We can never run into the same meteors again. Never the less the path of a shower in space can be predicted. What these results do show is that it is worth doing the necessary homework to be aware of the times and directions when really good bursts are possible, particularly in order to make difficult contacts. The results presented here are mostly for path lengths of 700 to 1300 Km. For extreme ranges up to over 2000 Km planned operation during showers might give better results than leaving things to chance. It may be that the results for GB3SIX which were by backscatter give a better indication of what might be expected for the longest paths.

Jeremy, G3IMW, November 2003