

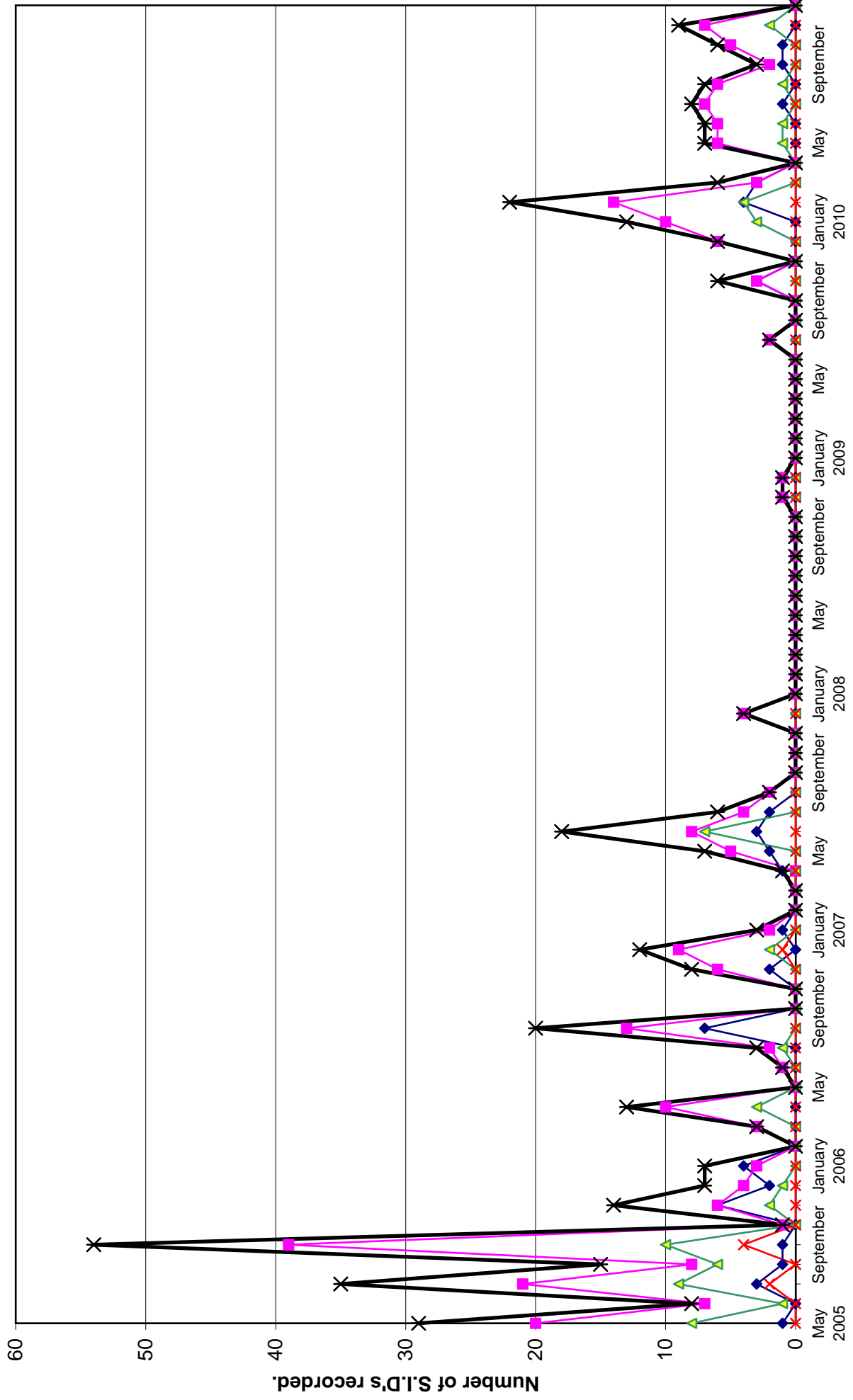
BAA Radio Group VLF summary.

2010 DECEMBER

DAY	Xray class	Observers	John Cook (23.4kHz) Tuned radio frequency receiver, 0.58m frame aerial. START PEAK END (UT)	Roberto Battaiola (20.75kHz) Modified AAVSO receiver. START PEAK END (UT)	Nigel Curtis Gyrator receiver, shielded loop aerial. START PEAK END (UT)	Bob Middlefell Tuned radio frequency receiver, 0.5m frame aerial. START PEAK END (UT)	Mark Edwards (22.1kHz) Spectrum Lab / PC 2m loop aerial. START PEAK END (UT)
			Colin Clements (23.4kHz) AAVSO receiver, 0.76m screened loop aerial. START PEAK END (UT)	Peter Meadows (23.4kHz) Tuned radio frequency receiver, 0.58m frame aerial. START PEAK END (UT)	Mike King (20.9kHz) AAVSO receiver. loop aerial. START PEAK END (UT)	John Wardle (19.6kHz) Gyrator MKII receiver, 1m loop aerial. START PEAK END (UT)	Peter King (18.3kHz) Own designed receiver, 1.4m loop aerial. START PEAK END (UT)
			Paul Hyde (22.1kHz) Tuned radio frequency receiver, 0.96m frame aerial. START PEAK END (UT)	Gordon Fiander (23.4 / 19.6kHz) PC sound card. START PEAK END (UT)	John Elliott (22.1kHz) Tuned radio frequency receiver, 0.5m frame aerial. START PEAK END (UT)	Martyn Kinder (18.2kHz) Tuned radio frequency receiver, 0.58m frame aerial. START PEAK END (UT)	Mark Horn (23.4kHz) Tuned radio frequency receiver, 0.58m frame aerial. START PEAK END (UT)

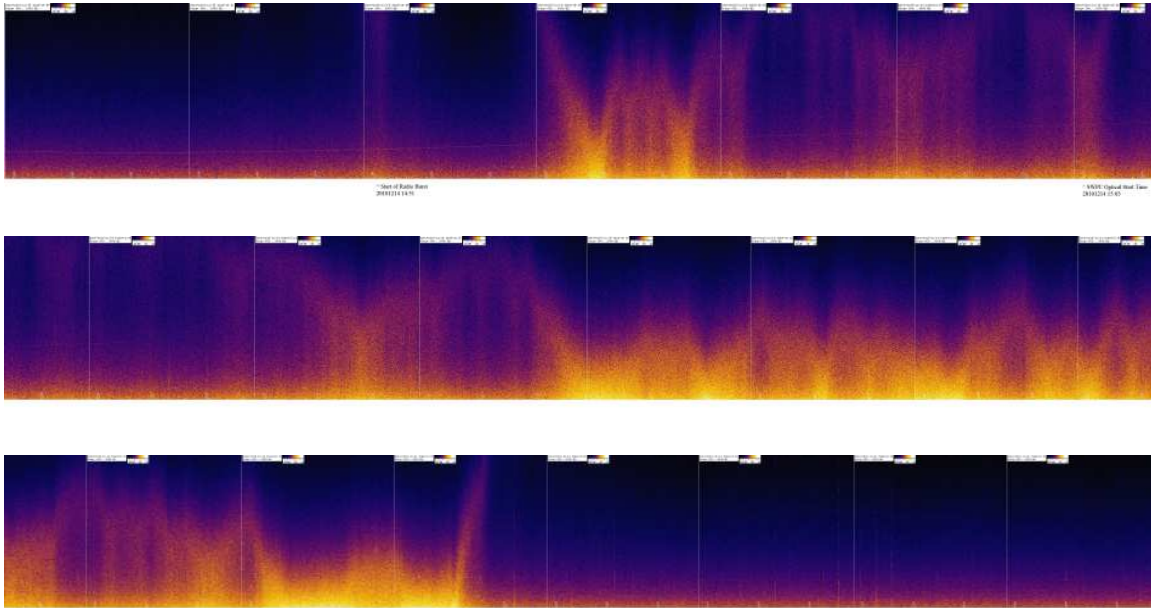
December started with a few B-class flares. The 6th was blank, while the 7th to 13th had B-class activity. A C2.3 on the 14th (15:52UT) and a C5.3 on the 15th. (06:39) were the most energetic events of the month. The 18th was blank, with low level activity continuing on the 19th. The Sun took a holiday from the 20th. to 26th, with nothing recorded in the GOES data. The 28th & 30th were also blank, with a C1.3 flare on the 31st (04:25) to end the year.

VLF flare activity 2005/10.



2010 December.

The low angle of the winter Sun and general D-layer turbulence have made any SID recording difficult this month. Only one flare was really within range, the C2.3 on the 14th. My own recordings are far too noisy to identify it, but Martyn Kinder did make a recording at 20MHz. Forgive me if 20MHz is a little high for VLF, but in the realm of radio astronomy, it probably just about counts as VLF.



The full image has been split into three parts to fit it on the page. It starts at 14:45 and ends at 15:50UT. Colour indicates signal strength, yellow being the strongest. The vertical axis is frequency, 500Hz at the bottom, 3500Hz at the top. The radio burst and flare timings from SWPC are:

X-ray: 15:43 15:52 16:18UT

Radio: 15:03 15:50 16:55UT

Mark Edwards has been investigating the solar effect on the height of the D-layer through the year, and has produced the following chart. The red trace shows the calculated change of height with solar declination from 67 to 73.6km. The blue trace is Mark's modelling of the daily amplitude variation (19.6 and 22.1kHz), neatly following the seasonal change. Based on a year of fairly modest activity, it will be interesting to see how the next few years compare. Forecasters predict solar maximum for 2013, so there should be interesting times ahead!

The February edition of Sky & Telescope magazine has several items devoted to solar astronomy, including an article on radio astronomy. It does not mention VLF and SIDs, but does cover how radio noise is generated by solar activity.

Minimum height (at noon) of D-layer
@ 19.8kHz & 22.1kHz

