

A quick primer on HF propagation data

Firstly – predicting HF propagation is still more art than science. The science is improving all the time and some of the prediction tools are getting to be quite good – but we, as amateurs, as interested in exploring the edge of what is possible at HF and predictive science is not there yet.

What follows is my opinion on what the published solar data means to my station. My main interests are HF DX and I only operate CW, generally at low power. What follows probably holds for the digital modes as well - the modern digital tools will do a lot better than my ears in challenging conditions, but then there is more competition on the digital modes, so you may not work as many stations as I can on CW. SSB demands somewhat better HF conditions, so you will have to take a view on that yourselves.

BUT, most of all, **HF DX is not a spectator sport**. You need to be on the bands, not watching the DXSummit, or PSK Reporter or whatever other tool takes your fancy – to work the rare DX, you need to hear it before everyone else does and that means listening, listening and listening and being guided by the propagation tools we have available.

You can get the current solar data from all over the web. I generally go to QRZ.com where it is on the home page (provided by Paul Herrman who also supports the various PC widgets you can get which display this data).

The data I tend to use is:

Solar Flux Index (SFI) – this is the radio noise measured at 2800Mhz – and for DX on HF it needs to be above 110. Generally, if its 90 or less, then the upper HF bands will be closed and the mid-HF bands will be open to EU. This isn't always the case, but generally so.

SN – Sunspot Number – this is, as the name suggest, the current sunspot register and generally, it will drive the SFI number above. We need a good SN number, ideally greater than 70 or 80. Its currently at 30 today – but the upper HF bands are intermittently open to DX. When it gets 100 + then the bands will be open all day (and probably night). 200+ is unusual, but when and if we get it, worldwide DX with 1W will be possible.

The A Index – look this up if you need an explanation – but low is good for the upper HF bands. Between 1 to 6 is best, 7-10 is OK, 11+ is bad news.

The K Index – again look this up if you need an explanation – but it's a smoothed version of the A index, so they trend together. K=0 or 1 is great, 2 to 3 to OK, more than 5 and you might as well do some morse practise instead.

There is other data – especially about solar flares, Xrays and so on – all of which is interesting and informative, but it does require some thought and effort. I generally look at this data if the bands appear dead – before I go and pull the antenna connections apart as there might have been some big solar event that has wiped out HF for a few days.

If none of this is for you, then there is an approximate guide on the HF conditions in the widget provided by Paul Herrman.