5b.4 • About the ionosphere • 000 • f15068c1

Refresher on the layers of the ionosphere

5b.4 • About the ionosphere • 010 • f12348c1

Refresher on the D layer of the ionosphere

Refresher on the E layer of the ionosphere

Refresher on the F layer of the ionosphere

Refresher on the MUF and LUF

Refresher on the MUF and LUF

Prediction

Predicting using Sunspots:

Sunspot Number (SSN)

Solar or Sunspot Cycle

Solar Flux Index (SFI)

Solar Flares

Sudden Ionospherc Disturbance (SID)

Polar Cap Absorption (PCA)

Geomagnetic and Ionospheric Storms

A and K indices

5b.4 • About the ionosphere • 140 • e65dfad7

Summary

5c.3 • Earth-Moon-Earth • 000 • aa08fd05

Weak signal modes make it easier. The moon is a poor reflector, so the closer the better. Full moon or whatever makes no difference as that is just the angle between the sun and moon, The moon is always there, but its visibility changes.

5c.3 • Auroral Propagation • 000 • 20d2184a

Auroral propagation

charged solar particles are directed towards the poles by the earth's magnetic fields, causing curtains of ionised gases, which can reflect radio waves

5d.1 • Galactic Noise • 000 • 033cacd4

What is Galactic Noise?

5d.2 • Link Budget • 000 • 038c10e1

Can you explain what a link budget is and how it is measured?

Propagation: Link Budget

Link Budget *(propagation syllabus topic, but tucked away in measurements chapter of textbook!)*

Concept of received power as a function of transmit power and gains and losses in between

Factors to consider:

- Transmitter power
- Transmit feeder loss and antenna gain
- Path loss
- Receiver antenna gain and feeder loss

Calculations tend to use dB to keep it simple

- Transmit power expressed in dBW (actual power compared to 1W)
- Gains and losses in dB
- Gives Received power in dBW, can convert to W or V if required

5d.2 • Link Budget • 010 • 71f41ec8

Here is another way to look at the link budget, from Obsidian.