AMATEUR RADIO FACT SHEET / DISCUSSION POINTS

TOPIC: High Frequency Propagation Characteristics

IONOSPHERIC HF SKIP

- Discovered early 20th century
- Applies in 3-30 MHz ("HF") range
- Passive reflection a hundred miles above us
- VHF/UHF not refracted.

COMPLICATED SUBJECT

- Considerable research into daily, monthly, seasonal, 11-year sunspot cycle variation.
- Frequency dependent.
- Fact-sheet gives only an overview.
- Currently in sunspot minimum, disfavors upper end of HF range.

A simple explanation can be presented as a table:

TIME OF DAY	3.5 MHz (80 meter)	7 MHz (40 meter)	10 MHz (30 meter)	14 MHz (20 meter)	Higher frequencies
Nighttime	Useful 20-1500 miles	Useful 200-5000 miles	Likely dead	Dead	Dead
Heat of the day	Signals absorbed by the D layer	Useful 20-1000 miles	Useful 200-3000 miles	Useful 500-5000 miles	May be working.

- To reach Atlanta (CDC), use 3.5/7MHz nighttime, 7/10 MHz daytime
- Geometric effects due to reflector way up in sky:
  - <500 miles, need "NVIS" antenna aiming power more upwards ("higher angle")
  - Horizontal antenna 20-40 feet high good NVIS antenna
  - California --- better with vertical antenna or 70 foot high horizontal