

HF SEMINARS

II. THE ANTENNA AND GETTING RF TO IT

1. The pinpoint source reference (isotropic radiator, 0 dBi). For example, a light bulb on a tall mast radiates in all directions equally. Use lighthouse mirror and lens to explain antenna "gain". Then segue to Yagi - beam antenna uses same principle.
2. Propagation and Skip: the ground wave. the ionosphere, layers/properties, absorption, MUF. what bands are good when. radiation angle - skip angle - distance traversed. propagation path - great circle.
3. The Mono-band Dipole: horizontal and vertical, radiation resistance/feed impedance, patterns, gain, height dependencies, length. Coax feed, choke balun. Third harmonic resonance and its patterns. Re-introduce the Yagi Beam concept and reference the Yagi - Uda Beam Antenna Seminar.
4. The Mono-band monopole or Vertical: The vital role played by the ground. Pattern, gain, radiation resistance, dimensions. Feed impedance = radiation resistance + ground (and other) losses. Radials - elevated - on the ground. Feeding the antenna, choke balun.
5. Supporting the Antenna: trees, masts, guys, insulators, pulleys, weights
6. Introduce Multi-band antennas and Short antennas and reference the full seminar on the subject. Feedlines, tuners, baluns.
7. Build or Buy? Some of the commercially available products and materials.