

# Propagation & DX

An HF addict's primer

Kevin, K7VI



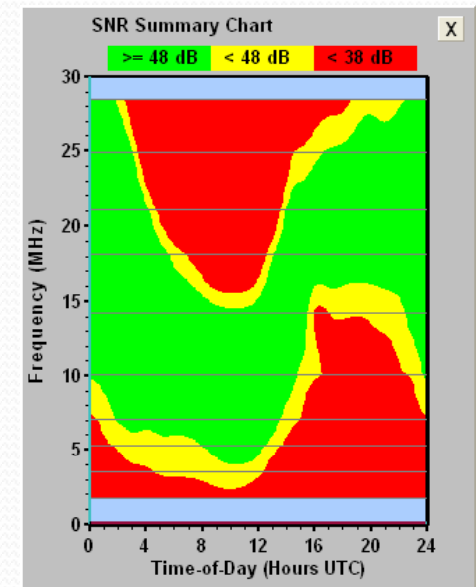
# Disclaimer

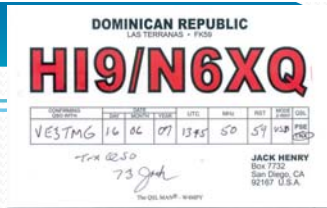
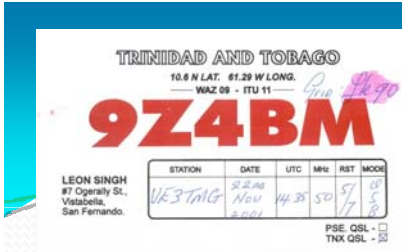
- This stuff is really just for you – in case you might become interested in, or get excited by, some of the same stuff about ham radio that excites me...
- **Some of this stuff happens to be the test!  
But that's not the point... ;-)**
- Onward...

# Paper-chaser's lexicon



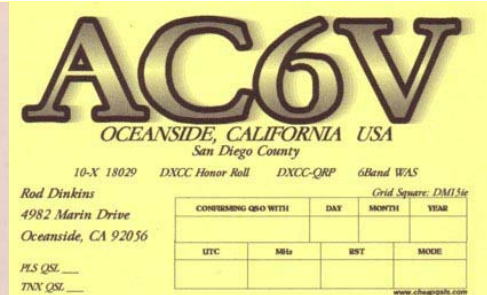
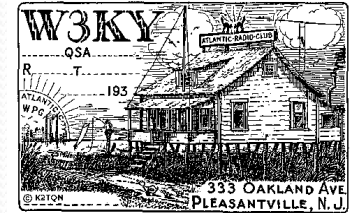
- **Propagation** – how well do radio waves get from here to there, and why does that path behave as it does?
- **DX** – “long distance”; usually stations outside of North America
- **Opening** – A time and band combination with propagation to the DX station you're interested in
- *Lingua franca* – English

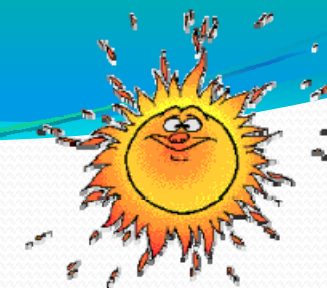




# Paper-chaser's lexicon 2

- You can't know the players without a... uh... **Prefix**
- **DXCC** – [www.arrrl.org/awards/dxcc/listmain.html](http://www.arrrl.org/awards/dxcc/listmain.html)
- **QSL cards** – the final courtesy of the QSO
- **The Bureau** – [www.arrrl.org/qsq/qsout.html](http://www.arrrl.org/qsq/qsout.html)
- “QSL only **Direct**” – Green stamps and QRZ.com

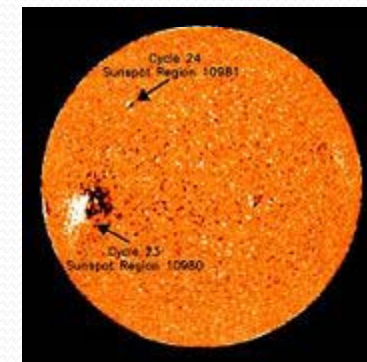
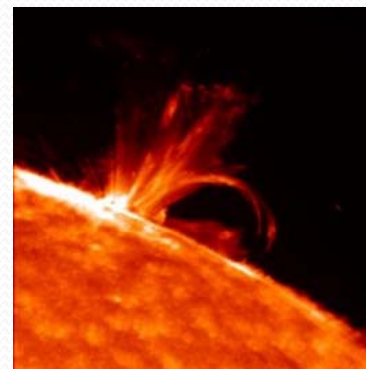
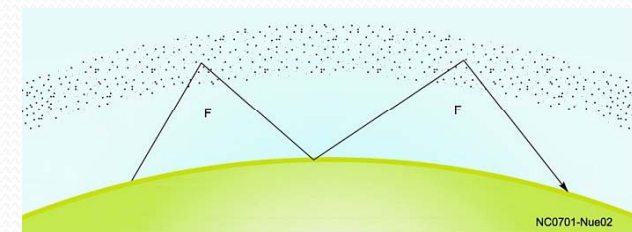




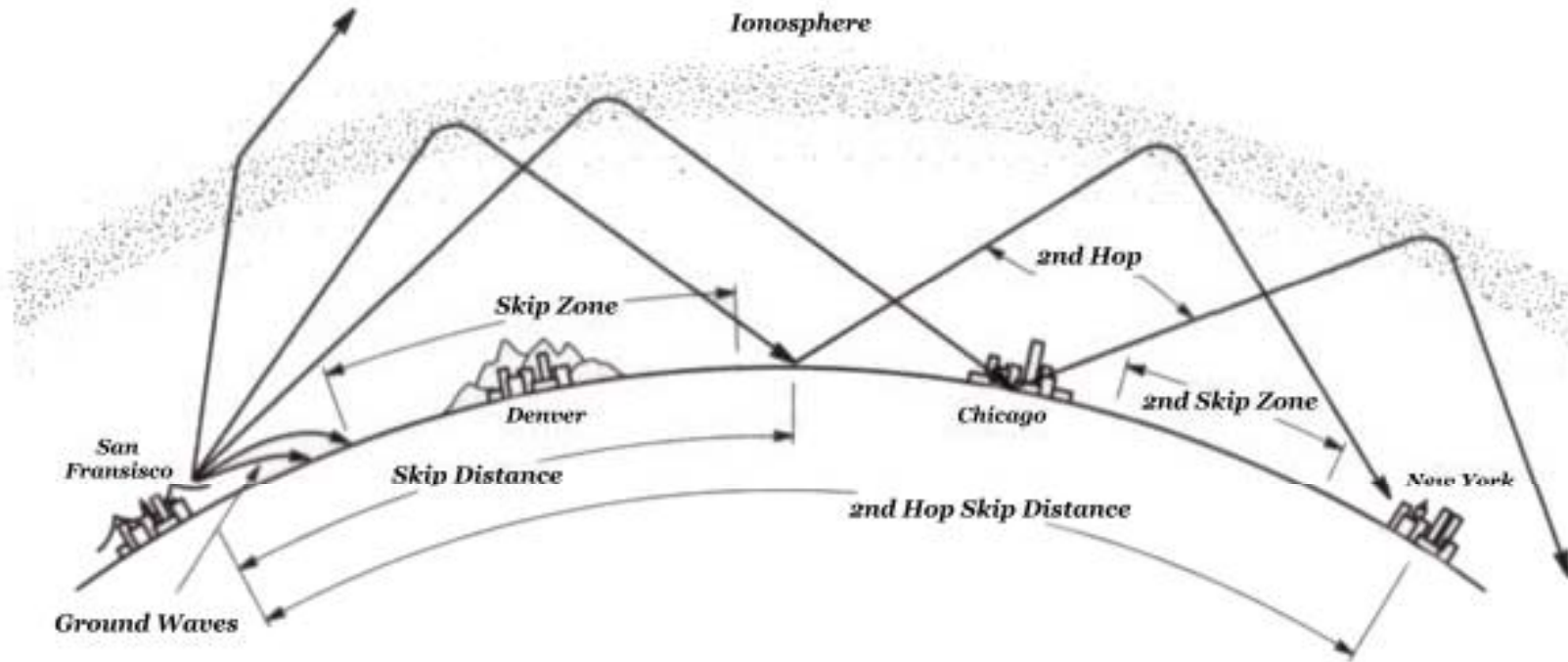
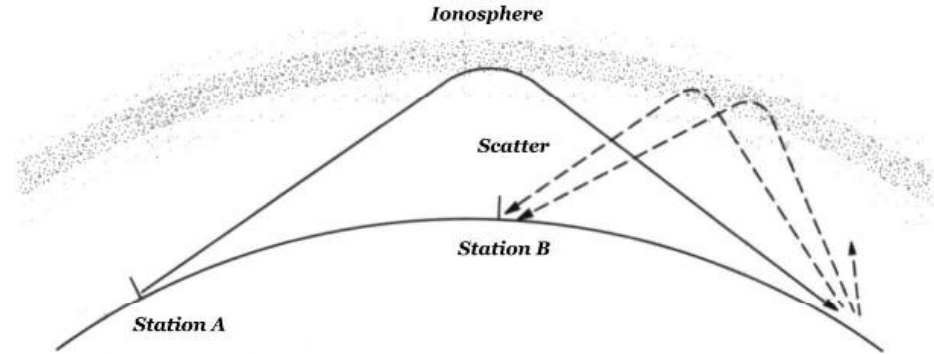
(do-do-do-do)

# Here comes the Sun...

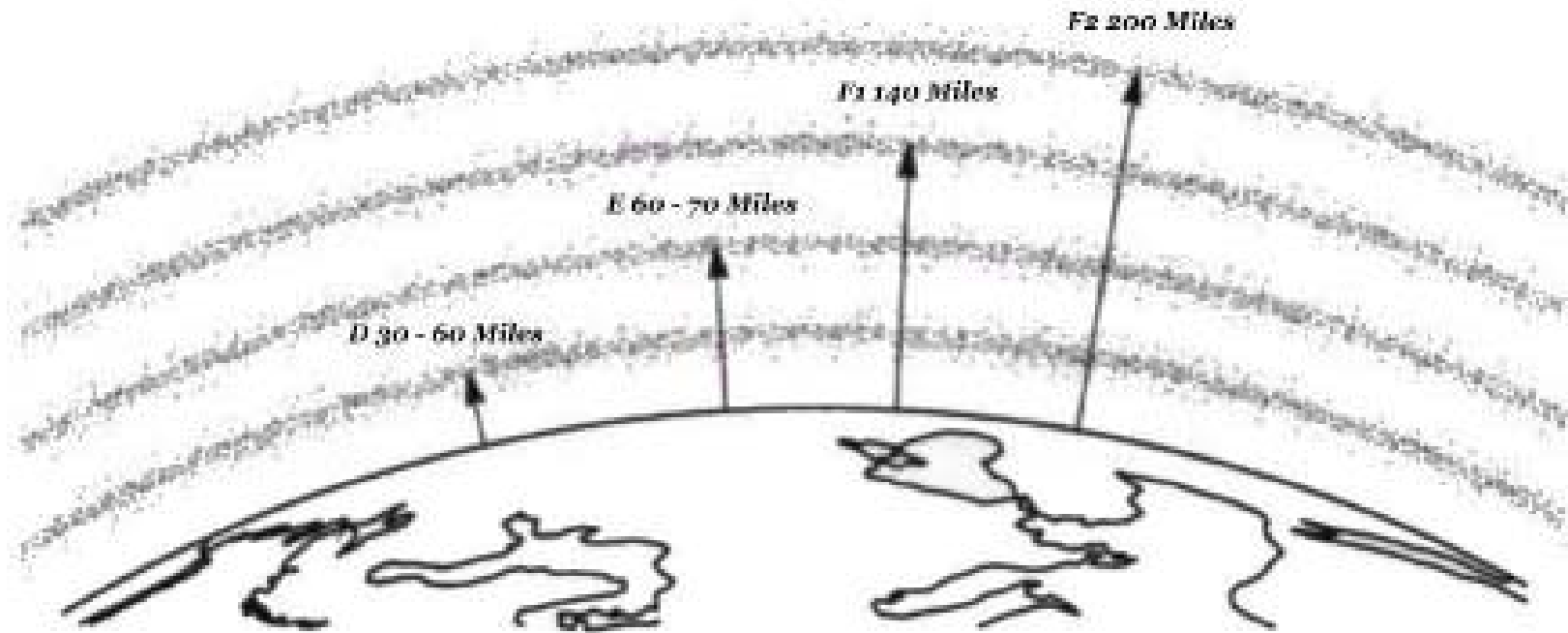
- Onions have layers, Ogres have layers: The ABCs (& DEFs) of ionization
- Just a Hop, Skip and a Jump:
  - Getting there: Line-of-Sight, Ground and Sky waves, Tropospheric
  - Short path and Long path
  - Absorption and Refraction
  - Meteors, Polarization, and Scatter
- Hot stuff!
  - Sun spots, solar flares, and solar flux
  - The Solar Cycle



# Propagation

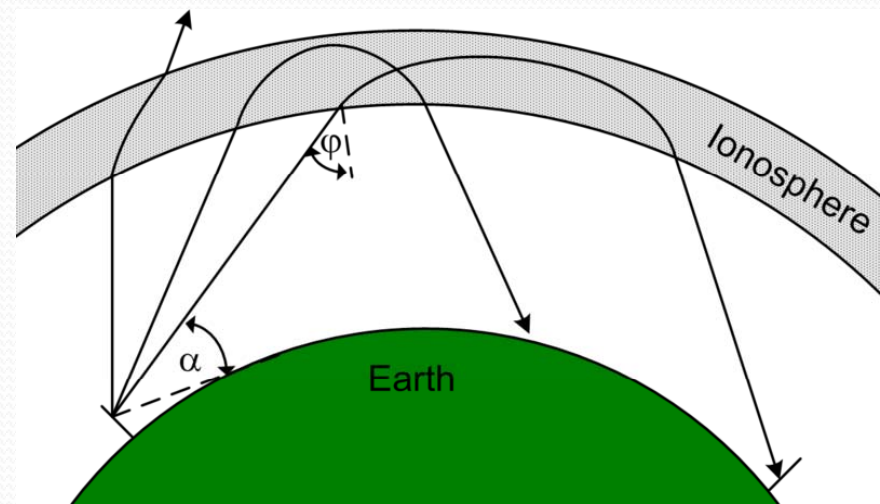


# Layers

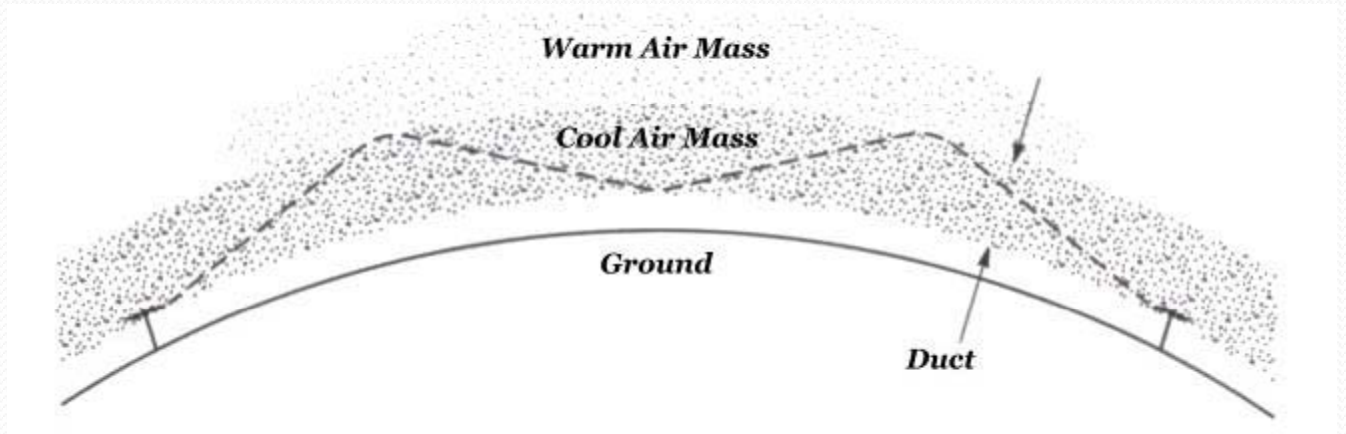
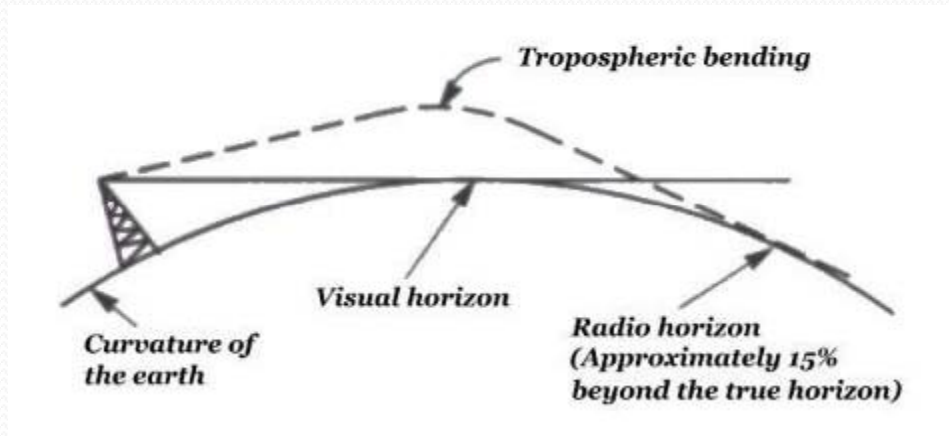


# Here's the Sun again!

- Impress your friend(s) – Tropospheric Bending
- What's on tonight, honey? Openings & the MUF & the LUF
- I like it here 'cuz we get real seasons – The Grey Line
- FM, no static at all...
  - Noise
  - Aurora
  - Man-made stuff



# Propagation in the Troposphere



# À la Modes

- SSB – Everybody's got something to say
- CW – The DX connoisseurs' mode



- Chirps, burps, and beeps – SSTV and Digital on HF
- I'm a Rocket Man! Satellites and Space Shuttles on FM

# In the 'Hood – Finding DX

- Where does DX hang out?
- Nets, skeds, newsletters, scanning, and spotting – just how (im)patient are you?
- Don't forget the Cluster!
- Closing escrow – pse qsl via buro om, vy 73 es dx





# What do I buy? Where do I go?

- Imagine a monk in Nepal... how much did he buy?
- 150 countries on a wire and a light bulb
- QRP – milliwatts per mile
- QRO – When's life's too short for QRP
- Begin modestly, invest in your passion
- Visiting ops
- Contesting – what a rush!
- DXpeditions – what a bigger rush!



# Contesting

- For everyone (privileges)
  - Casual contester (getting started)
  - Weekend-warrior
  - Groups / Visiting Ops
  - Super-stations
- Pick a mode
- Band planning
- Know the rules, at least know the exchange
- Choose a category
- Logging and QSL cards



# Contesting Hardware

- Depends on the contest, but anything goes
- DX Antennas: Bigger is generally better in contests
- Stateside: Come all ye hither
- Memory Keyer (voice or code)
- Logging program (dupes, “b4”)
- Digital modes
- Comfy chair and organized operating position
- “DX” mic can be helpful



# Contesting – what's the point?

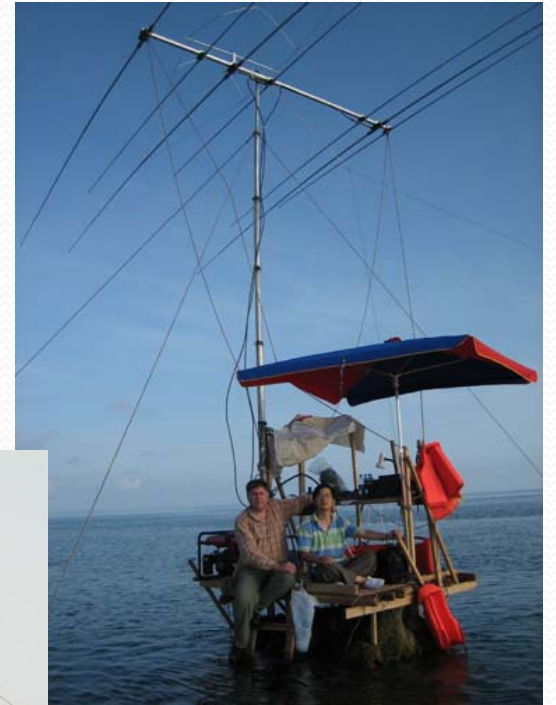
- Improving operating skills and efficiency
- Building a well-operating station; stress testing
- Paper-chasing:
  - Working new countries, states, counties, islands, etc.
  - QSL cards
  - DXCC
- The thrill of the chase
- Camaraderie
- Utilizing our allocations



# DXpeditions

- Pack your kit, go somewhere “interesting”, run the pileups!
- DXCC – activating a rare, or a new, one
- Taking a ham radio vacation

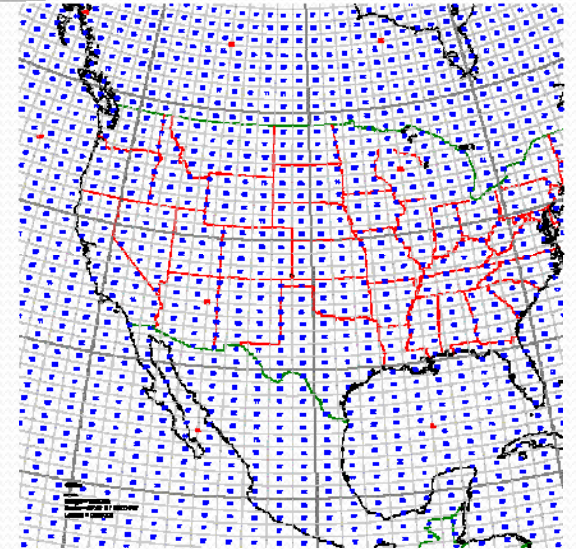
# Yes, people really are this crazy





# What about my HT???

- Grid squares – where the heck am I?
- Mountaintops – line of sight
- Aviation mobile – as if a pilot has time for this!
- Tropospheric DX – no ionization here...
- Meteors – bacon & eggs, the pig is committed
- 6m – transition between HF and VHF



# I'm all done, now it's your turn!

Just go do whatever excites and challenges you  
Then go do it again. ☺

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de Kevin K7VI (k7vi@arrl.net)



**DANGER**

**BEWARE OF THE  
HAM RADIO  
OPERATOR**

# Resources

- <http://www.arrl.org/>
- <http://www.qrz.com/>
- <http://www.eham.net/>
- <http://www.dxzone.com/>
- <http://www.qth.com/>
- I LOVE THIS SITE!!! <http://www.ac6v.com/>