Antenna Modeling

- Getting Started! -

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You, too, can be an Antenna Modeling GURU…

*in **TWENTY** minutes!!*

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FORGET IT!!!

Why Do I Want to Do This?

- Learn a LOT about basic antennas

- Antenna know-how is important!

- Antennas that make the most of your lot

- Avoid antennas unlikely to work

- Evaluate antenna sales pitches

- Optimize portable and Field Day antennas

- Opens the door to more tools

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Where Do I Start?

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But Seriously…

Where Do I Start?

- Which programs?
  - *EZNEC* or *4nec2* are the most popular
  - Start with the best *basic* features, get fancy later
  - Try both with a basic model to see which you like
- Add more references
  - *Antenna Book, Antenna Experimenters Guide (G3LDO)*
  - L.B. Cebik W4RNL's website on antennex.com
  - Tutorials by Cebik and Ordy W8WWV online

Where Do I Start?

- Read the manual
- Browse the Help files
- Take the *whole* tutorial
- Join the user's group or reflectors
- Use articles and books as learning aids
- Modify models and experiment!

Know Your Terms

- Different types of patterns

- Pattern measurements

- Wavelength-frequency relationship

- Impedance-resonance-reactance

- SWR, basic transmission line terms

- Ground, types of ground, free space

- Know your decibels: dB vs dBm vs dBV vs dBw
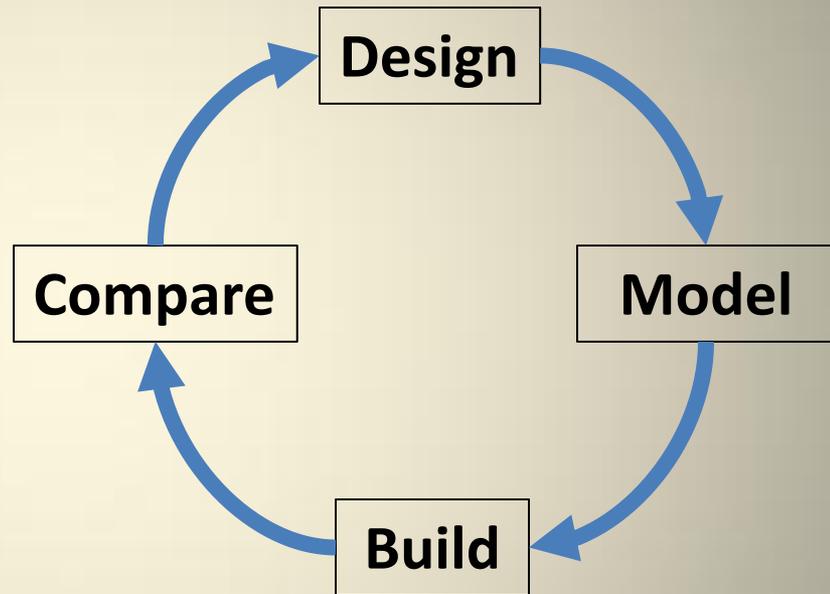
Practice the Familiar

- Start with "known-good" models
- Familiar antennas (dipoles, verticals, loops)
- Study beam basics (Yagis and phased arrays)
- Reproduce validated results
- Small changes in design should result in small changes in performance
- Add small features to "known-good" models

There! You're started!

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Learn the Warning Signals

- Weird patterns or values
- Big changes from small changes
- Warnings from the program
- Double-check
  - Use alternative views
  - Look at the numbers
- Remember that it's *JUST A MODEL*

"I don't think anyone has made an EZNEC-to-EZNEC QSO yet!"

Larry W7IUV

THANK YOU!!