www.wvara.org April 2012

The Heterodyne

Newsletter of the West Valley Amateur Radio Association

NEXT MONTHLY MEETING
Wednesday April 11

April 11 Meeting at 7pm

"Day-to-Day Emergency Communications - Things To Know Prior To the Next Big One" by Dave Schultheis, WB6KHP

Meeting Location:
American Red Cross
Silicon Valley Chapter
2731 N. First Street at Plumeria Dr
(southwest corner) in San Jose

Map at www.wvara.org/meetings.html

Visitors are welcome!

WVARA Repeaters (W6PIY)			
Band	**Frequency**	**PL**	**Status**
6 Meters	52.580- MHz	151.4 Hz	Operating
2 Meters	147.39+ MHz	151.4 Hz	Operating
1.25 Meters	223.96- MHz	156.7 Hz	Operating
0.70 Meter	441.35+ MHz	88.5 Hz	Operating
0.23 Meter	1286.2- MHz	100 Hz	Operating

Club Net

WVARA's club net is on the W6PIY repeaters each Tuesday at 8:30 pm. All repeaters are linked together during the net. The net script can be found at www.wvara.org/net.html .

Do you know when the next big earthquake is going to hit? Neither do I. Which is why emergency preparedness is of especially critical importance here in the valley.

Dave Schultheis will be the featured speaker at this Wednesday's WVARA meeting. Dave will discuss practical aspects day-to-day emergency communications – things definitely worth knowing prior to the next Big One.

Dave, WB6KHP earned his Technician class license at the F.C.C. field office in San Francisco in 1975 and upgraded his privileges to General class in 1980. He has been a member of the West Valley Amateur Radio Association and has served as President, Director, Net Manager, Meeting Greeter, and others.

Be there or be square!

Jim Peterson, K6EI

P.S. We all have radio treasures of one kind or another in our shacks. Don't hesitate to bring something you've built or a favorite piece of radio gear to share with us at the meeting.

Announcing: DX University

First Session: The Holiday Inn, Visalia, California
Friday 20 April, 2012

Press Release Nr 1

For Immediate Release

Enhance your DXing adventure! At last, here is your opportunity to directly benefit from the skills and experience of some of the world's best-known DXers.

We all know about the wonderful success of Contest University (CTU), developed in recent years by K3LR and others, and rolled out internationally. Over 1,000 contesters have attended. DX University (DXU) is the twin, providing high-caliber offerings for beginning and experienced DXers alike.

The all-day program will take place on the Friday of Visalia weekend, 20th April 2012. Among the lecturers are AA7A, G3SXW, K4UEE, K9LA, N7NG, W3UR, W6OAT, W9KNI and XE1KK, many of whom are inductees of the CQ DX Hall of Fame. Learn the secrets of operating techniques for working DX, optimizing stations & antennas for DXing, about propagation, information sources, awards, and ethics, remote operating, QSLing and much more. You will also get the DXpeditioner's view of how DXers should operate to get into the log.

Student places are limited. The early registration fee is only $50, including lunch and breaks. Sign up beginning January 2, 2012 at:

www.dxuniversity.com

Further information from Wayne Mills, N7NG@arrl.net or Roger Western, G3SXW@btinternet.com

Main Sponsor

ELECRAFT

DX University

International DX Convention
Visalia, California - April 20 2012

Propagation Predictions – another frontier

Stu Phillips, K6TU

(Reprinted with permission from the Jug, the newsletter of the Northern California Contest Club, www.nccc.cc)

By now you've probably figured out that Propagation is more than an intellectual curio for me! Dean N6BV and his work inspired me to ask different questions and fuel one of my dream's from teenage years… when I first went off to University after High School, I wanted to be a Propagation Physicist. The reality of about 6 paying (poorly paying…) jobs a year quickly brought out the pragmatist in me and I became an Engineer instead.

But that as they say is history…

By now, I know that a number of NCCC members have used the new propagation predictions that we've added to the NCCC web site for a couple of contests. Inspired by N6BV, I wanted to be able to produce propagation maps that showed predicted signal strength in an automated manner. The set I generated for ARRL RTTY RU were a labor of love… taking about 6 hours of mostly manual computer fiddling to produce the graphical output.

This re-ignited my desire to automate the process – something I've been working on for the last 3 years. As you can see from the subsequent predictions, I turned the 6-hour process of human/computer interaction into about 12 minutes of computer time.

Having the tools to automate the process, I started to ask more questions…

How do my contest results (and those of others) compare against the predictions?

How can I further tailor these predictions for specific station configurations

Here's some thoughts on the progress I've made over the last few weeks.

Log Analysis & Propagation Predictions

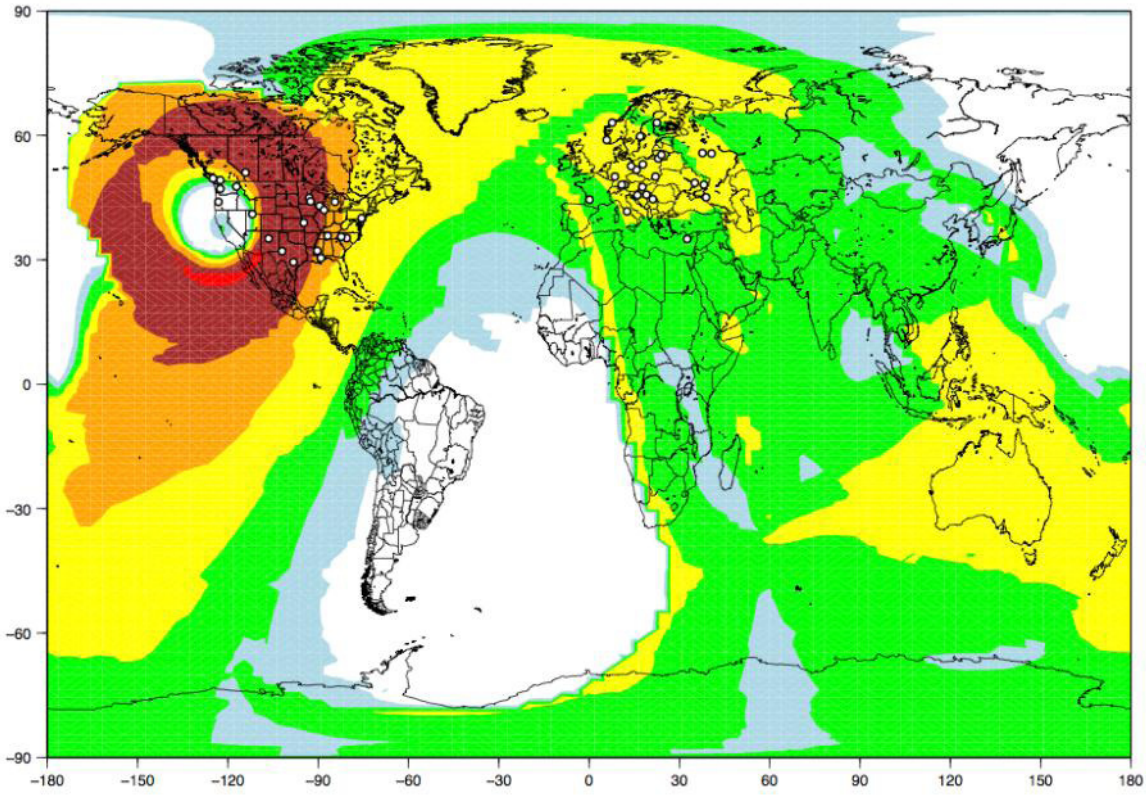
Producing automated prediction maps was a process of figuring out how the prediction engine (VOACAP) generated its area data and how to automate the production of different maps – different geographical areas, different map projections. Once that problem was behind me, I wanted to see how my contest QSO's compared with the predictions I'd generated.

What was one more piece of software to write? J I even got an excuse to write code again!

I leveraged some of the software we use for CQP Cabrillo analysis to be able parse a log file and then use the XML query interface (a programmatic interface over the Internet) to QRZ.COM to look up the Longitude and Latitude of each station in my log. I generated the output in a form that lent itself to being plotted by the

same tools I use for the propagation maps as an overlay.

Here's an example from the ARRL RTTY RU log of K6TU…



This is snapshot of my log for my operation on 20m at 0800 PST on the Sunday morning – if you need to zoom in on the PDF copy of the JUG, press CTRL and + on your keyboard (Ctrl and – will zoom back out). You can see that the stations I worked corresponded pretty well with the predictions. As a reminder, YELLOW is a predicted receive signal of S7, ORANGE S9, BROWN S9+10 and RED S9+20.

It takes about 5 minutes to analyze the log (extracting the location information) AND plot the files for each BAND hour found in the log. For contests like WPX over 48 hours, I aggregate the same hour contacts from each day on the same plot.

I've found this analysis very helpful in comparing my strategy with the predictions. Better still, I can do the same thing for different stations and myself as a way of refining my own strategy planning. This has been enlightening when looking at the decisions I made regarding which band and when – especially when comparing other station logs.

But wait… there's more…

I wasn't content with the default antennas models I used in the VOACAP predictions. The antennas I chose for the NCCC predictions are appropriate to many mid-sized stations – a 2 element Yagi for 40m, and a 3 element for the higher bands.

I knew from planning my own tower installation that HFTA (HF Terrain Analysis – another invention of N6BV) showed significantly higher gain in different directions than the stock antennas I used in the modeling.

How to combine both?

HFTA and custom antenna generation

You are likely already familiar with N6BV's HFTA, a software program included on the CDROM that comes with most recent editions of the ARRL Antenna Handbook. HFTA works with a topographic data file to show the gain of an antenna over specific terrain – taking into account reflections and diffraction effects in the area around the antenna.

I ran HFTA when I was considering a tower installation – my QTH in Woodside is in a small valley with rising terrain in all the interesting directions! Despite appearances to the contrary, HFTA showed I would get significant gain boost at low elevation angles because of the terrain.

An additional software program (MAKEVOA) that is included with HFTA will generate an antenna model that works with the VOACAP prediction engine – but with a gain pattern valid only in one specific direction. After thinking about the different automation projects I'd completed to generate the prediction maps and the log analysis, I saw a way to run HFTA under a script that emulates mouse clicks on HFTA controls. With this script, I could automate large numbers of runs of HFTA and not have to laboriously click away and manually update parameter fields.

Here's an example of why this is helpful. The antenna model generated by HFTA/MAKEVOA takes a single direction and assumes that the elevation pattern and gain are constant through all other directions. The field from the model looks like figure 1 below which shows the vertical and azimuth patterns of the HFTA analysis at a bearing of 30 degrees for my SteppIR DB-18.

This particular model type (type 11) has a single entry for the elevation pattern that is then assumed for all directions (azimuth). HFTA stops calculating the gain at elevation angles above 34 degrees and this leads to the constant gain figure shown for angles > 34.

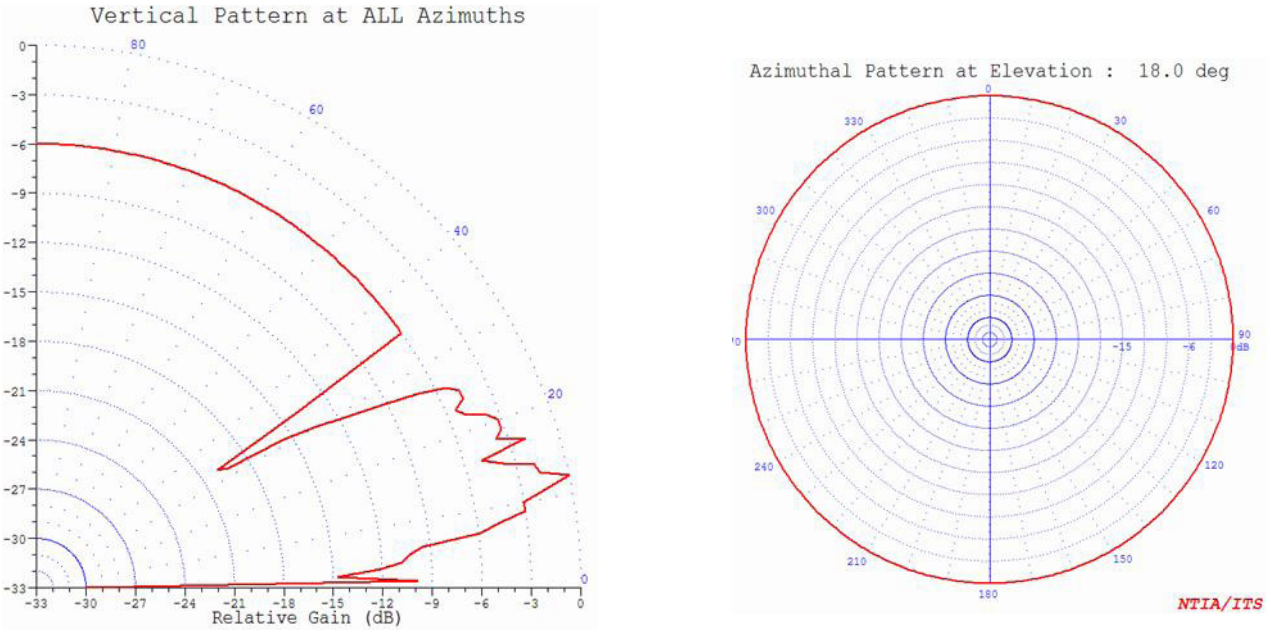


Figure 1: Elevation & Azimuth patterns generated from MAKEVOA

Here's what the picture looks like when HFTA is used to generate a full 360 degree antenna model in single degree increments.

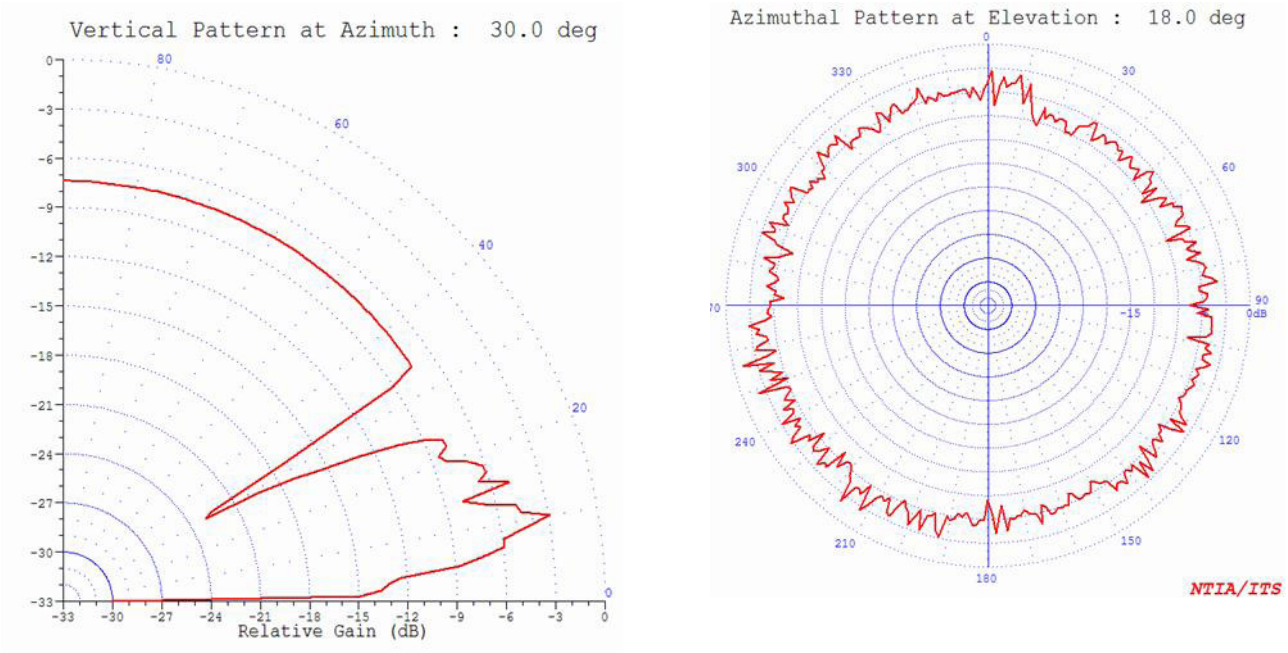
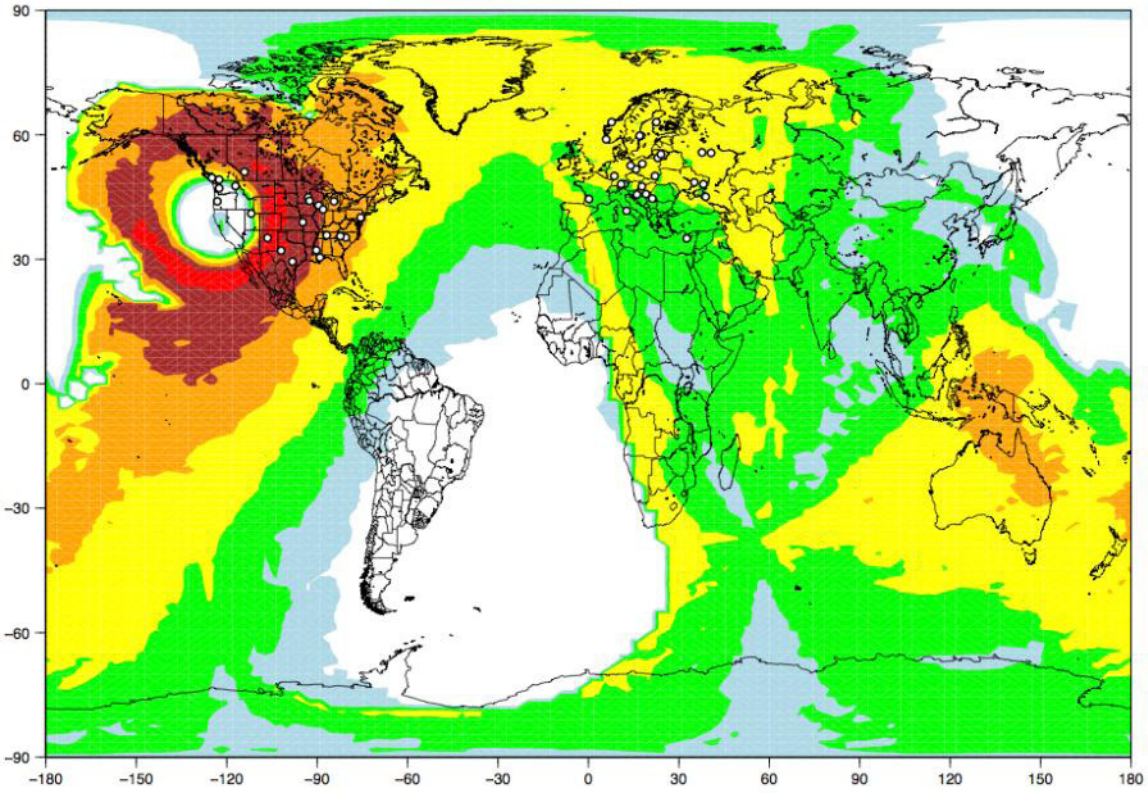


Figure 2: Elevation & Azimuth patterns generated from a 360-degree sweep of HFTA

The effects of terrain on antenna pattern are now more obvious. I used the same elevation angle (18 degrees) in post examples – the effect of terrain in different directions is more pronounced at some of the lower elevation angles. Ideally I'd like to plot the combined elevation/azimuth angles in 3D to but I haven't mastered the 3D plotting tools yet.

Here's the same log analysis (20m, 08 PST, RTTY RU) using the custom antennas I generated using the HFTA automation script.



You can see some subtle differences between the two – stronger signals projected in Indonesia, a broader S7 swath into Africa and a wider S9 area covering the Eastern US. The effects are more pronounced in some of the other prediction runs I have done comparing the stock models with my custom models.

The next step is to "modulate" the custom antenna model with the Yagi's radiation pattern and so be able get an antenna that can be beamed in one direction.

If anyone is interested in generating their own custom antenna models, I can package up the automation process for HFTA and provide directions.

The combination of the modeled antennas and propagation prediction offers a useful tool for contest planning, post contest analysis and station-to-station comparisons.

QST - - QST - - QST

K6MKF announces an upcoming DXpedition to IOTA OC-019, Grid Locator BL10SR!

After lengthy and exhaustive preparations, (I became so tired after watching my wife make the flight reservations.) and complex negotiations with local authorities (Henry, our condo complex manager said "Sure!"), Mike, K6MKF is pleased to announce he will be QRV 8 APR 2012 – 14 APR 2012 from OC-019.

The K6MKF operating site will be at 20.746756,-156.457238, or as far West from this location as his AC extension cord will reach. Operations will focus on 20M, as he only has a 20M dipole, however, he may be able to barter with the natives (Ace Hardware) for some copper wire for a long wire antenna.

K6MKF and his support team wish to thank Pacificon 2009 and ICOM for their generous support of this DXpedition. (K6MKF won his IC-7000 in the Pacificon 2009 raffle.)

Well, OK, it's Maui, but hey, this is probably as close as I'll ever come to a DXpedition, and Hawaii is DX! (Of sorts)

I hope I get to work some WVARA members from Waiohuli Beach!

73 de Mike, K6MKF

2012 Visalia International DX Convention

April 20, 21 & 22, 2012

http://www.dxconvention.org/

IDXC is one of the most popular DX conventions of the year. If you're a DXer or interested in any aspect of Ham radio, then IDXC is the place to be. Top DX operators from around the world will be there. You'll match those familiar callsigns with new faces, and shake hands with the person you have had a sched with for the past 10 years but never met.

Learn the secrets for big signals on top band. How to have fun adventures chasing IOTA, attend the contest forum, antenna forum, DX forum, or Contest Academy. There are seminars for everyone from the seasoned pro to the beginning DXer. Visit the Exhibit Hall, where you can talk to the people who design and use the best DX equipment. We have some great raffle Prizes the likes of which top even the famed Dayton Hamvention. And don't forget the "Non-Hams" who attend — we have a Special Tour for them as well.

The latest information about IDXC can be obtained via the IDXC website:
http://www.dxconvention.org/

The 2012 IDXC Schedule has been posted at http://www.dxconvention.org/sched.html

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Club address:
West Valley Amateur Radio Assn
P.O. Box 6544
San Jose, CA 95150-6544

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The Heterodyne is published monthly by the West Valley Amateur Radio Association and sent to all club members via the web.

See You At The Meeting!