

Early in 2013, Stan Robinson, W9SMR (PODXS #1611), got me interested in operating PSK31 again. With Stan's encouragement, I joined the PODXS 070 Club (#1620) and started having a great time participating in their activities. Stan suggested that we put together an August PSK31 Expedition, so we developed a preliminary plan and ran it past Karen, W4KRN, the PODXS 070 "APE" coordinator. She was fine with the plan, so the "KC9UR Pontoon Portable APE" was born.

The idea was to set up a multi-op station on Stan's pontoon boat on Round Lake in northeast Indiana (i.e. "Pontoon Portable"). The plan included using two "over-the-water-mounted" vertical antennas, which EZNEC simulations said would give us 2 - 4 dB more gain at low elevation angles than if they were mounted over Indiana soil. We ran many EZNEC simulations to optimize the antenna designs and placement for 1) safety, 2) electrical performance and 3) minimizing interference (and possible transceiver damage) from the two transmitters operating simultaneously at the site. To verify the simulation results, we held two "Technical Tune-up" sessions in June and July to test the antennas, measure antenna coupling, and evaluate transmitter/receiver interference issues.

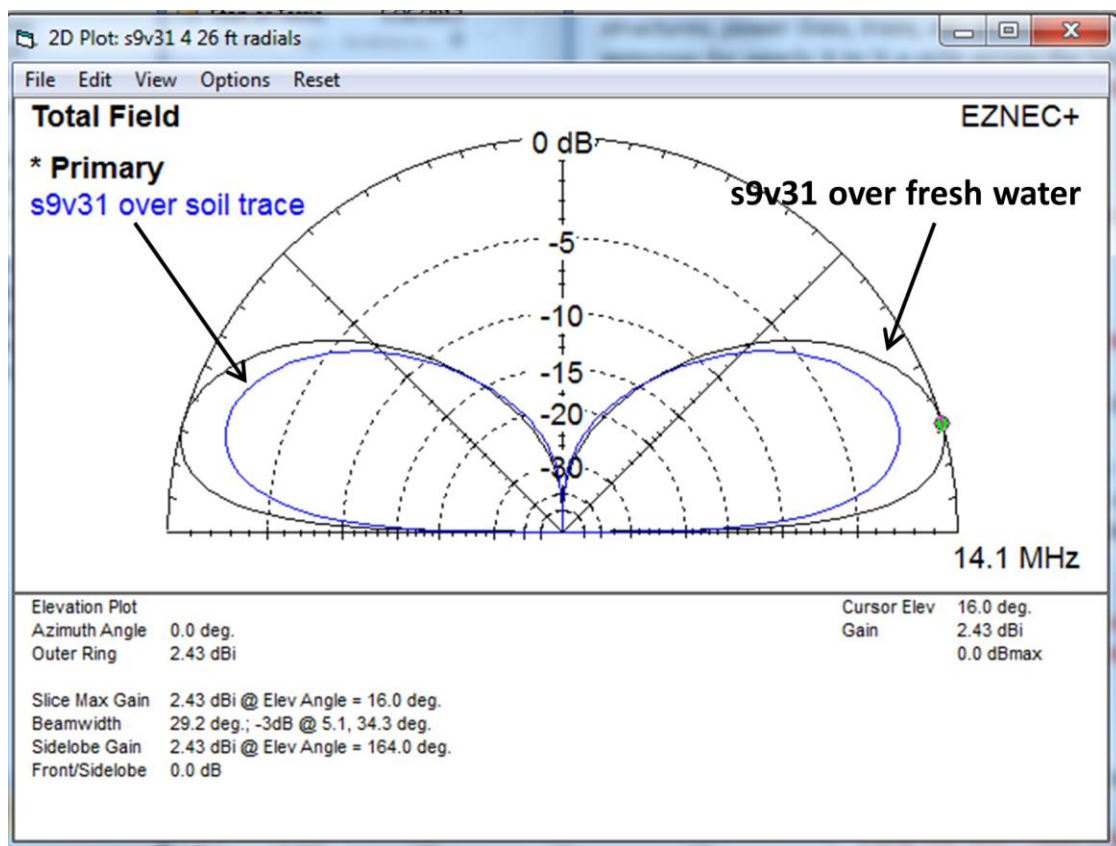


Figure 1 - EZNEC simulations showed 2 – 4 dB additional gain at low elevation angles for the 31 ft vertical over fresh water

The final vertical antenna configurations consisted of 1) a 31 ft LDG S9 vertical mounted to a swim raft with four (4) 26 ft long radials going "out and around" and 2) an 18 ft LDG S9 vertical mounted to the pier with two 8 ft long radials lying on the pier. The antennas were positioned approximately 150 ft apart on either side of the boat to maximize their separation and minimize coupling. Both antennas were non-resonant and each used a 4:1 balun and an antenna tuner at its base to match the system and

minimize cable losses. The 31 ft vertical was used for 40M – 17M (above 17M it developed high angle lobes that reduced performance) and the 18 ft vertical was used for 20M – 10M. At the last minute, we decided to hedge our bets on the verticals and installed a home-brew multi-band resonant horizontal fan dipole (i.e. 40M/30M/20M/15M) in hopes of snagging some closer-in “shorter hop” contacts. The dipole was supported by Stan’s 24 ft flagpole at the center, a 24 ft tall bird house pole at one end and a handy tree at 20 ft or so at the other end.



Figure 2 - 31 ft vertical antenna on swim raft as viewed from the pontoon boat



Figure 3 - 18 ft vertical antenna mounted to the pier



Figure 4 - Dipole mounting (flagpole (center), bird house pole (right) and tree (left))



Figure 5 - Can't operate a Special Event station without a Special T-shirt (Stan (left), Bob)

The operating positions were set up on the pontoon boat. Two Kenwood TS-590S transceivers were used with Astron switching power supplies that were powered from an extension cord run to the boat from Stan's garage. Stan installed dark plastic around the boat to shade the laptop screens from the sun to minimize eye strain. The TS-590Ss worked flawlessly both days. The only technical limitation that we had was the inability to simultaneously work 7.035 MHz on one station and 14.070 MHz on the other – the second harmonic energy/sidebands of the 40M station swamped the 20M station. We even tried high quality 40M (W3NQN) and 20M (K7MI) band-pass filters to no avail. However, we were able, and did work, 7.070MHz on one station simultaneously with 14.070 on the other, which speaks volumes about the excellent filtering and front end performance of the TS-590S.



Figure 6 - Pontoon boat “shack” with sun shade



Figure 7 - Bob (KC9UR) operating on 20 August



Figure 8 – Stan (W9SMR) Operating on 21 August

Our APE was scheduled to run on Tuesday and Wednesday, August 20 – 21, so we set up the antennas and equipment on Monday. We started operation Tuesday around 9:30 AM, and immediately had a problem with the 31 ft vertical being “deaf”. We switched to the horizontal dipole and continued operation until nearly 1 AM on Wednesday. Before resuming operation later Wednesday morning, the problem with the 31 ft vertical was diagnosed and corrected (the S9 vertical antenna wire had become disconnected from the balun), and operation restarted around 10:00 AM using the dipole and both verticals and continued until a little after 6 PM. We were very fortunate in that both days the weather was beautiful and the propagation was excellent.



Figure 9 - These "Official Observer" swans, along with a nosy beaver or two kept a wary eye on our operation

Here's the final contacts tally:

Total QSOs: 199 (100 outside USA, 99 within USA)

States Worked: 28

DXCC Entities Worked: 33 (including USA (99 QSOs), Italy (12), Germany (10), Spain (8), France (8), Belgium (6), Poland (6), Cuba (4), and England (3), plus others)

Rarest DX Entities Worked: Sri Lanka (4S7BRG), Angola (D2QR worked on 2 bands), and Greece (SV2HTI)

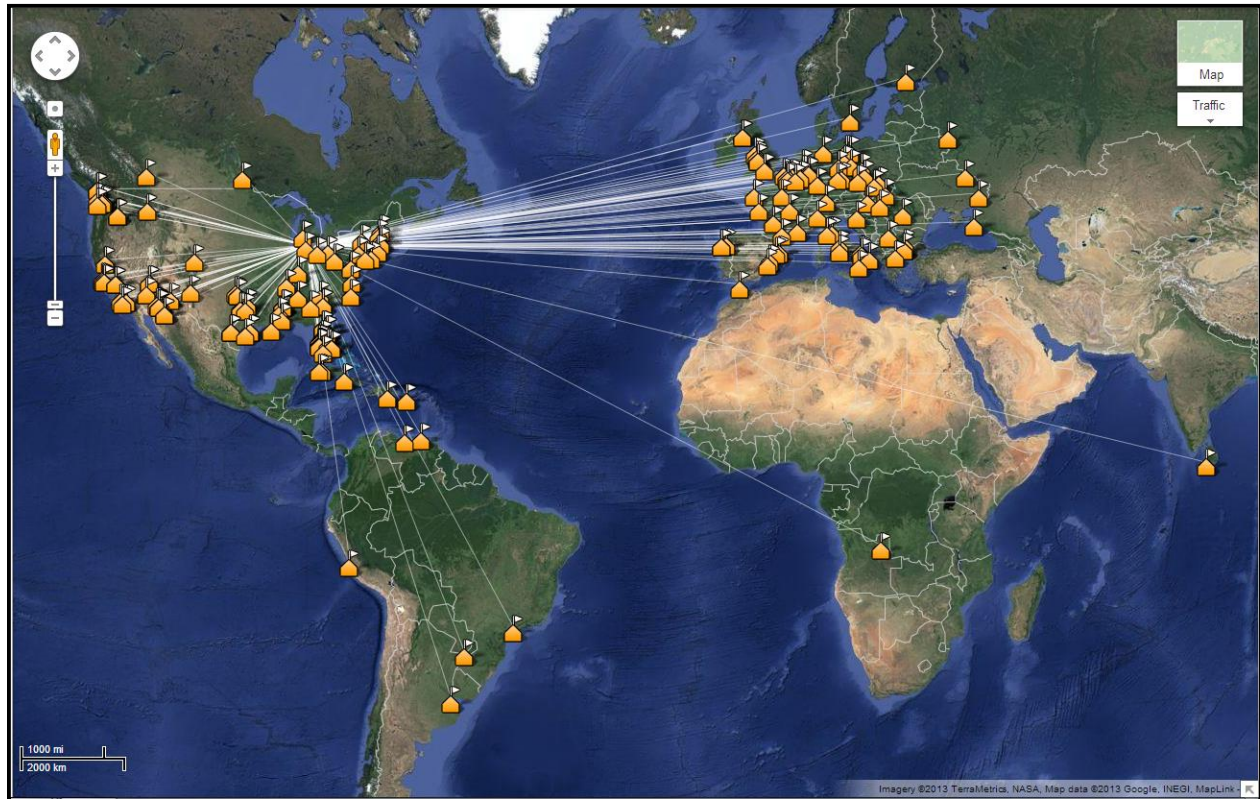


Figure 10 - Map of 2013 KC9UR Pontoon Portable APE Contacts (map by K2DSL web application at www.levinecentral.com/adif2map/)

The breakdown by band is as follows: 40M (7 QSOs), 30M (11), 20M (63), 17M (51), 15M (66), and 12M (1). The “pipeline” to Europe was probably made possible by the fact that the launch path from our antennas to Europe (i.e. Northeast) was directly over the lake – i.e. there were no RF absorbing structures, power lines, trees, etc. in line with our antennas toward Europe for nearly $\frac{1}{4}$ to $\frac{1}{2}$ a mile across the lake. We called that the “Round Lake Amplifier” effect.

To add to the challenge and fun, Stan prepared a colorful “APE Hunter” certificate that was awarded to anyone who worked us on three or more bands. By demonstrating superior hunting skills and perseverance, the following 7 hunters were awarded certificates: K1CGI (40/20/15M), K8TOM (20/17/15M), N7BLN (20/17/15M), NU4C (20/17/15M), W3WMU (40/30/20M), W5FER (20/17/15M), and W9SMR/9 (30/17/12M).

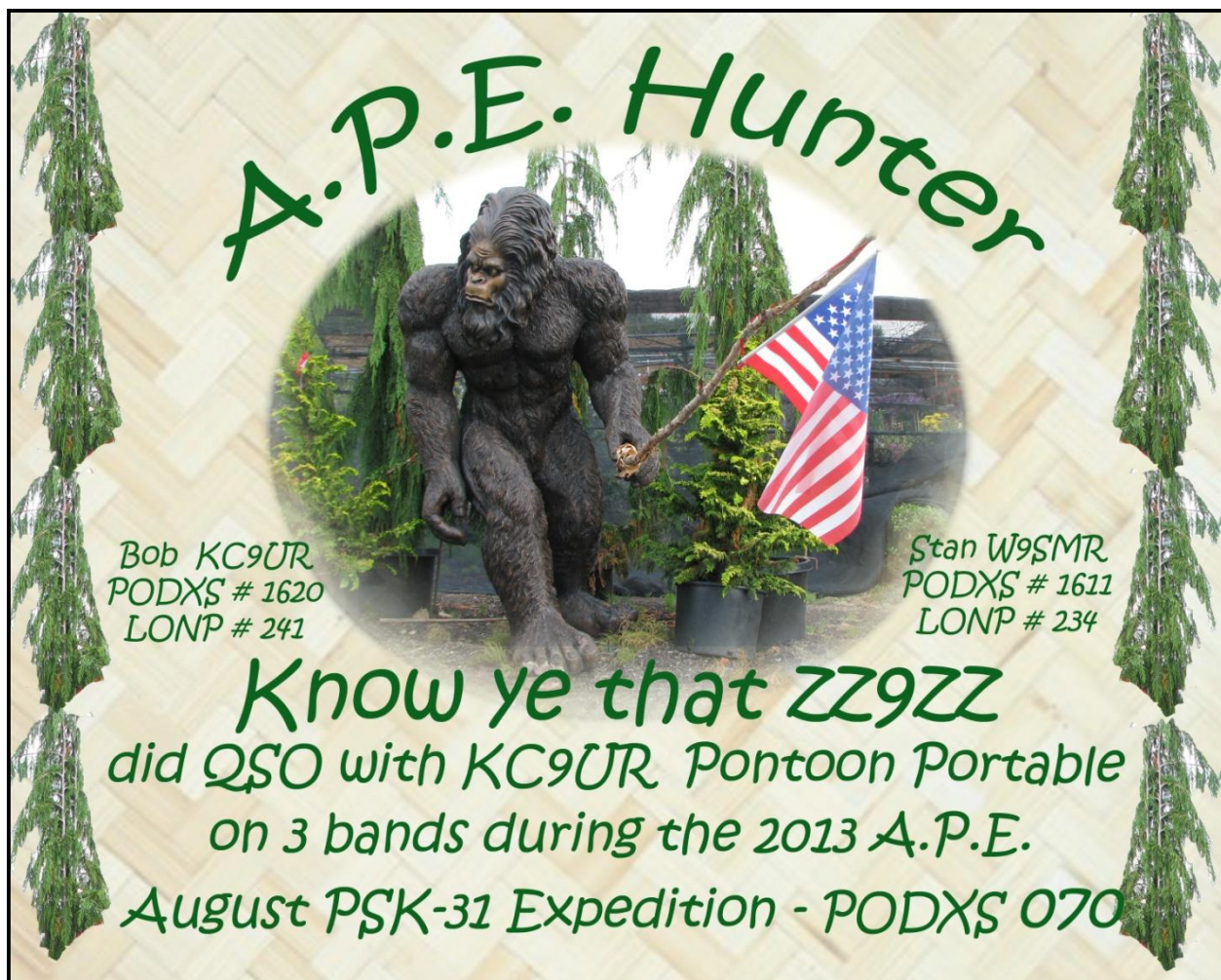


Figure 11 - APE Hunter certificate

In addition, the following 13 hunters earned special recognition by working us on 2 bands: D2QR (17/15M), GM0KWW (17/15M), K5WTA (30/15M), K7CNG (20/15M), KF2GQ (20/17M), KJ4IQW (20/17M), M3PQQ (17/15M), N2MLP (20/17M), N5WMR (17/15M), VA7GEM (20/15M), W6NIF (20/15M), WG5T (20/17M) and W5VGR (20/15M).

Stan and I send our thanks to all who took time to work us. We hope you had as much fun as we did. We also hope that we demonstrated that lots of fun can be had and lots of contacts can be made just by casual operating using PSK31, simple antennas (verticals and dipoles), and low power (i.e. less than 100W, typically 30 – 40W). We look forward to working many more of you in 2014!!

73, Bob, KC9UR and Stan, W9SMR