The Short Circuit

Newsletter of the Arctic Amateur Radio Club

Fairbanks, Alaska — April 2013

Preparations Under Way for Chena Lakes Field Day

In March the AARC board approved a move ahead to plan for Field Day 2013 to be held in late June.

Bob Kreiser WL7GK proposed Chena Lakes and negotiated with the borough mayor's office to have access and fees waived. Bob, Stirling WL7TV, and Larry N1TX met up at the Lakes on March 28th and formed the *ad hoc* site selection committee. They discussed public visibility and logistics with a recreation area reprerepresentative.

The team determined a knoll in a large field at Lake Park would be suitable for radio and RV setup. In addition, it is very near a bike path, a campground, the beach, and adequate parking.

While some in the club had advocated for a pavillion site, the one at the beach will be simply overrun with passersby and swimmers. This presents some concern about accidents between people and radio equipment, and parking is very restrictive.

ARRL Field Day will be June 22-23 this year. Operators from around the US and Canada will team up for lively competition under simulated emergency conditions. Public education about ham radio and communications technology demonstrations are very important aspects of the event, too. See http://www.arrl.org/field-day for complete details.

KL7KC Field Day plans will be discussed further at the upcoming club meetings. Volunteers are needed to help organize stations and display materials.

The location at Chena Lakes is bound to draw a crowd. Mark your calendars and plan to join the fun!

Interior APRS Network Expands to Tok

by Larry Ledlow, Jr. N1TX

The APRS workshop held in January generated considerable interest, and it was a real pleasure to see some new faces attending. N1TX provided an overview of APRS technology and resources to the dozen participants.

Dave Frederick KL1KG drove all the way up from Tok, and the APRS bug apparently bit him hard. In late March, he established a digipeater and igate at his home in Tok using an ICOM IC-2720, Byonics TinyTrak4, and APRSISCE/32 software running on a laptop.

Not long after, he watched WL7CKY-14 motor up the highway into Fairbanks and back again on a very quick trip. The network digipeaters following him included Donnelly Dome, Harding Lake. In the near future, we hope to establish digipeaters in Northway and Scotty Creek, which should permit coverage almost the entire way from Fairbanks to the Yukon border.

Some significant improvements over the past year to the entire APRS network in the Interior have resulted in a tremendous reach. Jerry Cates WL7GX has installed a second igate near the top of Steele Creek which has some impressive coverage. His Donnelly Dome and Harding Lake machines carry a lot of the load along the upper Richardson Highway. WL7BDO's digipeater in NENANA handles much of the traffic on the Parks Highway. In addition, the lonely KL1NU-5 digi at Manley Hot Springs now shows up regularly.

Summer tourists to Alaska using APRS will be able to track their progress, get information about local repeaters, frequencies of weather radio transmitters, and to get directions to area hospitals and the Visitor Information Center. Weather reports from various locations are also important inputs for the National Weather Service. (Those of you with home weather stations can add their measurements to the nationwide Civilian Weather Observer Program by registering at http://wxqa.com.) Remember, APRS is an information service, not just an opportunity to broadcast your location details.

The AARC board has been instrumental in supporting the build-out of the APRS network. The system really depends on volunteers, though. We need you to put together digipeaters, volunteer some internet bandwidth, and scout out locations to fill in the gaps. If you would like to help, please contact me by email at n1tx@akradio.net or telephone at 978-0109.

Inside this Issue

KL7R Day-Tripping to DM-46

by Dale Pelzer KL7R

"What to you want to do tomorrow?"

"What do you want to do tomorrow?" I say. "A big winter storm is coming on Friday," she says. "What grid square is close enough for a one day trip?" DM24/25 by Kingman, AZ or DM46 north of Flagstaff, AZ. ROAD TRIP! Both are exactly 141 miles one way. Let's go look at trees. DM46 it is.

FO-29 and SO-50 offer great opportunities at the grid crossing of DM45/46 around 11 AM. Hector in Cuba needs this one. Ditto for, Nick, KB1RVT in Vermont. I send out the emails on Wednesday and everybody is available. Sweet! K4FEG will be there so I know I will have one contact from this location.

We roll out of the yard at 6 AM and head to Flagstaff for breakfast. Gas up and head north towards Page, AZ, arriving an hour early for the FO-29 pass.

It is a beautiful day without a cloud in the sky. Time for the pass. FO-29's beacon is heard just as it clears the horizon and I move to the RX frequency. But as I tune up the band I hear K4FEG down the band. Uh, oh. Quickly I tune the TX up 5 kHz and work him. Work the usual list of suspects from my email list and at the very end of the pass I get, Hector, CO6CBF, for another new grid for him.

By setting my TX well out of the center pass-band on FO-29 I'm having much better luck finding stations. They use home stations with computers that track my TX and automatically zero in on my RX frequency. Too easy. I use my iPhone with apps that let me see the current passes in real time.

I went on to work 10 stations on FO-29 and 9 stations on SO-50 adding another roving grid to my list. Only a few close grids left from our home in Arizona before it will take a two day trip to get new ones.

Support Satellite Activity Through AMSAT-NA

AMSAT groups around the world promote the advancement of amateur radio satellites. They do this by investigating new technologies for space flight, building satellites, negotiating launches, and offering educational opportunities. Although AMSAT-NA depends heavily on volunteers, much of this work does involve considerable expense.

Membership dues and donation are key. Consider joining AMSAT-NA. Basic membership dues are $44 per year. Students enjoy a 50% discount. Sales of products like books and software from their store also fund many activities. For complete information, visit http://www.amsat.org.

NOAA Weather Radio

by Larry Ledlow, Jr., N1TX

Chances are that new 2m HT or mobile rig in front of you has the potential to save your life. I don't mean being able to call for help on the local repeater. Many of the VHF rigs sold over the past 15 years or so have extended receive capabilities covering public service frequencies, including NOAA Weather Radio (NWR). I wonder how many hams actually use it. Read on, and maybe you will become a convert.

NWR had humble beginnings. Six decades ago, the Weather Bureau began broadcasting aviation weather from a handful of transmitters and later added many more stations, including those for the marine community. Over the course of April 3-4, 1974, a severe weather system spawned nearly 150 tornadoes across 13 states and Ontario. Thirty of those tornadoes were rated F4 or F5, the most powerful on the severity scale. Over 300 people perished. In response, President Ford's White House later issued a policy statement designating NWR as the sole government-operated natural disaster warning system for private citizens.

Today NWR has roughly 1000 transmitters in all 50 states, Puerto Rico, the US Virgin Islands, and US Pacific Territories. The 24-hour broadcasts have come to include not only weather and natural disaster information, but even environmental disasters (e.g., oil spills), AMBER alerts, and other public safety information from local, state and federal emergency management organizations. Transmitters in Fairbanks, Nenana, Nome, Kotzebue, Barrow, and Glenallen cover many of the population centers in the Interior and northern Alaska. Our neighbor to the east has a similar system in place known as Weatheradio Canada.

NWR transmissions for an area take place on one of seven channels from 162.400 to 162.550 MHz in FM mode, so they are readily available to amateurs on their two-meter transceivers as well as scanners. Many CB, marine band, FRS-GMRS, business, and even car radios can receive the NWR frequencies.

Having a dedicated weather radio receiver -- inexpensive and readily available at Radio Shack and other outlets -- has a big advantage if you are interested in receiving alerts instead of just being able to tune to the NWR channels to hear current conditions or forecasts. Some equipment allows you to fine tune the settings so you only hear warnings and other safety information you really need.

NWR has several alert features. At the beginning of most warnings and many weather watches, the transmission will include a 1050 Hz tone just prior to the voice message. The tone will activate the weather receiver, even if the audio is turned off. You may see 2m ham transceivers featuring "Weather Alert". If, while monitoring or scanning NWR frequencies, the 1050 Hz tones is received, the radio will sound an alarm and/or open the squelch so you can hear the warning. Keeping the local NWR frequency programmed in one of the memories of your mobile rig or HT can help keep you safe.

This so-called warning alert tone is handy, but any weather receiver within line of sight of the will respond, even if the warning does not apply to your local vicinity. Another type of automatic alert feature is an embedded digital signal called Specific Area Message Encoding (SAME). SAME codes are assigned to specific areas, typically counties. The user programs the weather receiver with one or more SAME codes for the area(s) of interest, thereby avoiding having to listen to unnecessary alerts. I do not know of any 2m radios capable of SAME decoding, but some scanners are. The SAME code for Fairbanks North Star Borough is 002090.

Even more refinement is possible with some weather radios, which allow the user to program the types of alerts they're interested in. For example, you may live in an area subject to avalanches, but you may not care much about coastal flooding 20 miles away. River flooding, severe thunderstorms, high wind warnings, and winter weather watches, which are of particular interest in the Interior, all have special codes associated with them. For a complete list of weather and non-weather-related emergency codes, go to http://www.nws.noaa.gov/om/dissemination/eas_codes.shtml

When purchasing a weather radio, look for two logos: "Public Alert" and "NOAA All Hazards Weather Radio" have somewhat different meanings, and you should know the basic differences. The first refers to a technical standard (CEA-2009B) published by the Consumer Electronics Association, and it implies the receiver meets certain performance requirements. The All Hazards logo signifies the receiver has been evaluated by NOAA and has received its endorsement by having certain functions and user-friendliness. See http://www.nws.noaa.gov/nwr/conditions.htm

As a side note, a number of options are available for many smartphone users out there to receive weather alerts and other important warnings. The Wireless Emergency Alerts (WEA) system will send a special message to WEA-capable devices, which will cause the phone to sound a tone and vibrate. These are not text messages. You can check with your carrier to see if your phone is capable of receiving WEA messages. WEA is also known as Personal Localized Alerting Network (PLAN) or Commercial Mobile Alert System (CMAS). Newer iOS and Android-based smartphones are. Do your homework before buying.

Junk Box 160 Regenerative Receiver

by Ed Trump AL7N

I been building stuff outta junk again...

This time it is a little "companion" for the 160 meter junkbox transmitter published recently. It is a one-tube regenerative receiver that uses a minimum number of parts, operates off 12 Volts DC, and uses an old 1625 vacuum tube.

I found the circuit while cruising the internet and decided to try it. I am amazed that it works, and works well at that.

It describes a crystal set that was subsequently adapted to use a 1625 tube (12 volt version of an 807). The circuit he showed used a wall wart for 12 volt power, but I omitted that part since I want to use 12 volt battery only. My circuit is bastardized a little due to having to use what I had on hand, and uses different values for the tuned circuit, and no wall wart, series plate resistor nor the large filter cap.

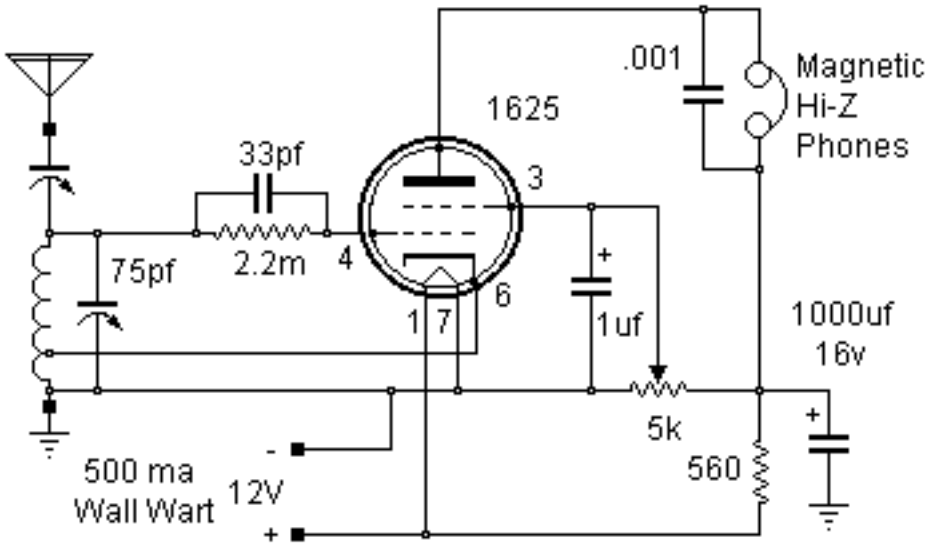
I'm now working on changing it to a "plug in" coil type so I can quickly change bands and listen to other stuff.

I wound the coil so it covers the BC band and down, but could tap the coil and make it work in the 160 meter band real easy.

It looks like hell, because it is literally made out of junk I had on hand or could make by hand.

I went to this URL to find it originally, lots of stuff in there:

http://makearadio.com/crystal/58.php



#58 - 1625 Shortwave Tube Radio (c) 2006, D. Schmarder

Club and Member Activities

Steve Estes KL7XO conducts a session on Winlink at the April 5th meeting. Among the other topics were Field Day, upcoming exams -- including three volunteer examiners traveling in May to Eagle -- APRS, ARES, and repeaters.

Dan KL1JP is smiling for a couple of reasons. First, he is the North American winner in his category for the 2012 ARRL DX Contest. Also, Santa was kind and delivered an Alpha 89A in December, which you can see getting exercised above in the ARRL 10-meter Contest.

Larry N1TX and Corliss AL1G from Anchorage have been selected to be a test team in July for site evaluations in preparation for the World Radio Team Championship 2014. Activities will take place in Massachussetts during the IARU Contest in mid-July.

A new book by Eric Nichols KL7AJ is available from the ARRL Bookstore. *Radio Science for the Radio Amateur* explores and explains the often profound differences between science and technology, and dispels the notion that we know all there is to know about radio. Hams can make a difference to radio science exploration. With the right approach and a few inexpensive tools at hand, important discoveries await you!