

Northern Colorado Amateur Radio Club

P.O. Box 272956

Fort Collins, CO 80527-2956

The Tribander

The monthly Newsletter of the Northern Colorado Amateur Radio Club

**Club Meetings are held on the 3rd Saturday of each month
At the Golden Corral, 901 E. Harmony Rd, Fort Collins, CO.**

All are welcome and encouraged to attend.

**Bring yourself and your appetite at 8:00 am.
The Meeting begins at 9:00 am.**

NCARC Club Information

Club Officers

President	Steve Henry	N7GN	(970)226-2817	n7gn@arrl.net
Vice President	Eric Slutz	N0EAS	(970)282-3752	eric@redginger.com
Secretary	Dave Langenberg	KC9FOO		dave@thelangenbergs.com
Treasurer Membership Chair	Willis Whatley	WA5VRL	(970)407-6599	whatley@frii.com
Interference Coordinator	Mike Bates	N7DQ	(970)219-3225	n7dq@comcast.net
Newsletter	Willis Whatley	WA5VRL	(970)407-6599	whatley@frii.com
Technical Chair	George Salzmann	AB0SF	(303)961-0841	ab0sf@yahoo.com
Hamfest Chair	Michael Robinson	N7MR	(970)225-7501	michael@frii.com

NCARC Repeaters

W0UPS: 145.115 MHz – (144.515 MHz Input) 100 Hz CTCSS Subtone (1* on, 0* off) Autopatch (40-32.926N, 105-11.898W, 7229 ft) Horsetooth Mountain, west of Fort Collins, CO
W0UPS: 447.275 MHz – (442.275 MHz input) 100 Hz CTCSS Subtone Autopatch (40-32.926N, 105-11.898W, 7230 ft) Horsetooth Mountain, west of Fort Collins, CO
W0UPS: 146.625 MHz – (146.025 MHz Input) 100 Hz CTCSS Subtone (40-50.266N, 105-3.017W, 5600 ft) SW of the Rawhide Power Plant, 17.5 miles north of Fort Collins, CO
W0UPS: 146.850 MHz – (146.250 MHz Input) 100 Hz CTCSS Subtone (1* on, 0* off) (Various locations around N. Colorado)
W0UPS-5: 144.390 MHz – APRS Digital Repeater (40-32.926N, 105-11.898W, about 7229 ft) Horsetooth Mountain, west of Fort Collins, CO

Nets

ARES District 10 Information Net	Wednesday	9:00 pm	145.115 MHz
ARES Statewide Net	Sunday	8:30 pm	145.310 MHz
Central Colorado Traffic Net	Daily	7:30 pm	145.310 MHz
Tech Net	Tuesday	7:00 pm	145.115 MHz

Web Page

<http://www.ncarc.us>

TECH NET Announcement!

This is a reminder that the 145.115 TECH NET is held Tuesday evening 07:00 PM.
It is hosted by N0WIQ, Kerry. All amateur radio operators (with 2M privileges) are welcome to check in. It is an open forum net with Questions, Answers and Topics of interest.

If the 145.115 repeater is not available, the net will be held on the 447.275 repeater

CW Practice Session!

This is a reminder that the 145.115 CW Practice Session is held Friday evening 06:00 PM.
It is hosted by W0EP, Chris. All amateur radio operators (with 2M privileges) are welcome to check in or listen.

Aurora Repeater Association – SWAPFEST**02/12/2006**

Adams County Fairgrounds in Brighton at 9 AM
Admission: \$4.00 Table Cost: \$10.00

Contact: For more information contact: Wayne Heinen N0POH at 303-699-6335 (metro) or email to n0poh@arrl.net
Mail reservations to Aurora Repeater Association, P.O. Box 471802, Aurora, CO 80047-1802

Longmont Amateur Radio Club – LARCFEST**04/01/2006**

Boulder County Fairgrounds in Longmont at 8AM
Admission: \$5.00 (Buyer or Seller)

Friday Night Setup beginning at 5 PM (March 31st)
Saturday Morning Setup beginning at 6 AM

Bring your own table – Optional rental at the door (No reservations)
Tables rented with one chair - \$15.00 while they last. Limited supply!
Space available on first come – first served basis.

VE Testing at 10:00 AM - \$14.00 (Check to ARRL/VEC or cash – checks preferred)
Testing location to be announced.
BRING PICTURE ID! (and current License or Certificates of Successful Completion for upgrades)
For more information: www.larclub.org

Local Area Swaplists

For those who can not wait or can not attend the area swapmeets, below are the websites for some of the regional swaplists found on the internet. These are updated weekly.

Aurora Repeater Assn. Swaplist: <http://www.qsl.net/n0ara/swaplist.html>
Colorado Repeater Assn. Swaplist: <http://www.w0cra.org/swap/craswaplist.htm>
Wyoming Swap Shop: <http://www.qsl.net/n0ara/wss.htm>

NCARC Website

A report was recently received that the new link for the NCARC website was not working correctly. The location listed on the newsletter seems to point to the following: <http://ncarc.support1.net/> and it appears to be working although the information shown on the website is out of date and not entirely correct.

§97.401 Operation during a disaster.

(a) When normal communication systems are overloaded, damaged or disrupted because a disaster has occurred, or is likely to occur, in an area where the amateur service is regulated by the FCC, an amateur station may make transmissions necessary to meet essential communication needs and facilitate relief actions.

(b) When a disaster disrupts normal communication systems in a particular area, the FCC may declare a temporary state of communication emergency. The declaration will set forth any special conditions and special rules to be observed by stations during the communication emergency. A request for a declaration of a temporary state of emergency should be directed to the EIC in the area concerned.

(c) A station in, or within 92.6 km of, Alaska may transmit emissions J3E and R3E on the channel at 5.1675 MHz for emergency communications. The channel must be shared with stations licensed in the Alaska-private fixed service. The transmitter power must not exceed 150 W.

Meeting Minutes:

NCARC Meeting - Jan 21, 2006

Location: Golden Corral

Called to order by Steve Henry at 8:59am.

There were 32 members and 4 guests present.

REPORTS

Secretary

--Approved as read.

Treasurer

--Savings as of 12/23 is at \$2149.02 with \$11212.03 in checking.

Tech Committee

--Nothing to report -- trying to find correlation between the noise on the repeater and what's going on up there.

--Robert (WA0EYJ) and George (AB0SF) went up, analyzed and adjusted the duplexers; got 10dB more rejection. Tuned everything into specification. Also swept antennas, no issues observed at the time.

--George wants to go up when it's causing noise and throw an antenna analyzer on it.

--There are some unused coax and open feed-lines up there, so that may be a source of the static.

Membership / Newsletter

--Cutoff is 1st of the month -- send e-mail or documents to the P.O. box if you want something in it.

--Updated the roster & sent it out last newsletter. Will only update it every quarter. Contact Willis (WA5VRL) if you want a copy.

Interference

--Nothing except the 2m interference (the morning of 1/19 was the worst).

Hamfest Update

--Clerk in Loveland says all January Saturdays in 2007 are available. Suggested 3rd Sat in Jan as hamfest date. Will go with that.

OLD BUSINESS

-- APRS

-- Received a letter of thanks Bill (K0UT) and a donation of equipment. He also loaned a band-pass filter & power-supply for it.

-- Motion from Minor for a bandpass filter; seconded & passed by voice vote.

-- Coverage maps were displayed to the club of the Loveland APRS digipeater and the new Horsetooth digi.

--Events center repeaters: no update

-- KORAW in hospital with trouble breathing (possibly getting out today).

-- Library Donation: Cliff, Minor, Steve put in request of \$1200 to Gannett foundation for library books.

-- Face to Face ARES Meeting next Saturday -- may not happen. Listen to ARES Net on Wednesday evening.

NEW BUSINESS

- Hamcon -- This year, June 9-11 at the Holiday Inn complex in Estes Park. Riley Hollingsworth will be in on Fri night and spend time telling enforcement "war" stories. Grandmother of the ARRL co-founder will be there too.
Info at www.hamconcolorado.org. Holiday Inn reserving block of rooms at \$82 night. You must mention Hamcon rate to hotel to get it.
- Going to need volunteers to work talk-in
- Dual Band antenna is up with the APRS and UHF not working. We have a need for a control receiver. Also need a diplexer.
- Motion made for purchase of diplexer -- seconded & passed by voice vote.
- From NOXDA (Jim) -- representing the Longmont club. Would like folks to attend LARCFEST. <http://www.larclub.org> for info.
- Flatland repeaters working well up the canyons 147.27+ 100hz with echolink on the 440 machine. See website for info.
- John (KF0RQ) talked about trips to Cambodia & what it's like to be on DX.
- Next Saturday Longs Peak Council (BSA) having merit badge meet. Will be including radio merit badges. Please listen to repeaters to talk to the scouts. Will be demonstrating 2m APRS, PSK and ATV. Call will be the control operator at the time.
- LRA announces that the 440 machine is up and running. Phone patch on 2 meter machine is also working.

New and renewing members for January:

KC0GUA – Doug N0MFW – Alan KC9FOO – Dave N0BF – Steve W0AVH – Bill WB0YTT – Philip N2VXP – Erin
KC0IGR – Charles KA1BXM – David N0XDA – Jim KB0VZI – John KC0OBY – Pete WA7BNG – Rick N7GN – Steve
K0KUN – Norm N0RQV – Ted N0UI – Jerry KC0SQK – Kevin **The NCARC thanks you for your support.**

Some history on WWV:

WWV has a long and storied history that dates back to the very beginning of radio broadcasting. The call letters WWV were assigned to NIST (then called the National Bureau of Standards) in October 1919. Although the call letters WWV are now synonymous with the broadcasting of time signals, it is unknown why those particular call letters were chosen or assigned. Testing of the station began from Washington, D.C. in May 1920, with the broadcast of Friday evening music concerts that lasted from 8:30 to 11 p.m. The 50 W transmissions used a wavelength of 500 m (about 600 kHz, or near the low end of today's commercial AM broadcast band), and could be heard out to about 40 kilometers. A news release dated May 28, 1920 hinted at the significance of this event:

"This means that music can be performed at any place, radiated into the air by means of an ordinary radio set, and received at any other place even though hundreds of miles away. The music received can be made as loud as desired by suitable operation of the receiving apparatus. Such concerts are sometimes sent out by the radio laboratory of the Bureau of Standards in connection with trials of experimental apparatus. This music can be heard by anyone in the states near the District of Columbia having a simple amateur receiving outfit. The pleasant evenings which have been experienced by persons at a number of such receiving stations suggest interesting possibilities of the future."

Interesting possibilities, indeed! Keep in mind that KDKA of Pittsburgh, generally acknowledged as the first commercial broadcast station, did not go on the air until November 2, 1920.

On December 15, 1920 the station began assisting the Department of Agriculture in the distribution of market news to farm bureaus and agricultural organizations. A 2 kW spark transmitter was used to broadcast 500 word reports, called the Daily Market Marketgram, on 750 kHz. The operating radius was about 300 kilometers out of Washington. These broadcasts continued until April 15, 1921.

By December 1922, it was decided that the station's purpose would be the transmission of standard frequency signals. The first tests were conducted on January 29th and 30th of 1923, and included the broadcast of frequencies from 200 to 545 kHz. By May of 1923, WWV was broadcasting frequencies from 75 to 2000 kHz on a weekly schedule. The accuracy of the transmitted frequency was quoted as being "better than three-tenths of one per cent." The output power of the station was 1 kW.

There were numerous changes in the broadcast schedule, format, and frequency of WWV throughout the 1920's. In January 1931, the station was moved from Washington to the nearby city of College Park, Maryland. A 150 W transmitter operating at 5 MHz was initially used, but the power was increased back to 1 kW by the following year. A new device, the quartz oscillator, made it possible to dramatically improve the output frequency of WWV. Quartz oscillators were first used at WWV in 1927, and by 1932 allowed the transmitted frequency to be controlled to less than 2 parts in 10⁷.

The station moved again in December 1932, this time to a 10 hectare (25 acre) Department of Agriculture site near Beltsville, Maryland. By April of 1933, the station was broadcasting 30 kW on 5 MHz, and 10 and 15 MHz broadcasts (20 kW output power) were added in 1935. The 5 MHz frequency was chosen for several reasons, including "its wide coverage, its relative freedom from previously assigned stations, and its convenient integral relation with most frequency standards." The 10 and 15 MHz frequencies were chosen as harmonics or multiples of 5 MHz. WWV continues to use all of these frequencies today, as well as another harmonic (20 MHz), and a sub-harmonic (2.5 MHz). The Beltsville area was the home of WWV until December 1966 (although the location name for the broadcast was changed to Greenbelt, Maryland in 1961). During the years in Beltsville, many interesting developments took place. A fire destroyed the station in November 1940, but the standard frequency equipment was salvaged and the station returned to the air just 5 days later using an adjacent building. An act of Congress in July 1941 provided \$230,000 for the construction of a new station, which was built 5 kilometers south of the former site and went on the air in January 1943. The 2.5 MHz broadcasts began in February 1944, and are still used as a convenient way to reach the population nearest the radio station. Transmission on 20, 25, 30, and 35 MHz began in December 1946. The 30 and 35 MHz broadcasts were discontinued in January 1953 and the 25 MHz broadcast was stopped in 1977. With the exception of an almost 2-year interruption (1977-78), the 20 MHz broadcasts have continued to this day.

Much of the current broadcast format also took shape during the Beltsville years. The 440 Hz tone (A above middle C) was added to the broadcast in August 1936, at the request of several music organizations. The second pulses were added in June 1937, and the geophysical alert messages began in July 1957. And as quartz oscillator technology improved, so did the frequency control of the broadcast. The transmitted frequency was routinely kept within 2 parts in 10^{10} of the national standard by 1958.

WWV's most well known feature, the announcement of time, also began during the Beltsville years. A standard time announcement in telegraphic code was added in October 1945, and voice announcements of time began on January 1, 1950. The original voice announcements were at 5-minute intervals. It is interesting to note that WWV continued to broadcast local time at the transmitter site until 1967.

In 1966, the decision was made to move WWV to its current location, near Fort Collins, Colorado. The LF station WWVB went on the air in July 1963 near Fort Collins, and it was decided that WWV would share the same 158 hectare (390 acre) site. The new site was about 80 kilometers from the Boulder laboratories where the national standards of time and frequency were kept. The proximity to Boulder and the use of atomic oscillators at the transmitter site would make it possible to control the transmitted frequency to within 2 parts in 10^{11} , a factor of ten improvement. Today, the station's frequency is controlled to within 1 part in 10^{13} .

At 0000 UTC on December 1, 1966 the Greenbelt, Maryland broadcast was turned off and the new transmitter at Fort Collins was turned on. In April 1967 the station began broadcasting Greenwich Mean Time (GMT) instead of local time, and began its current format of using Coordinated Universal Time (UTC) in December 1968. The time announcements were made every minute, instead of every 5 minutes, beginning in July 1971.

Many new features and programming changes have been added to the WWV broadcast over the past few decades. The current station schedule is described on the NIST web site.



The WWV transmitter site near Wellington, CO.

