



ROUNDTABLE

The Denver Radio Club Newsletter

December 2008

Since 1917



PRESIDENT'S MESSAGE

Hello DRC Members,

I am so surprised how the weather has been staying on the nice side; I sure love this Indian Summer. The new repeater has been installed at our Hudson Site. We have several upgrades coming, which will be done in planned steps. The first step will be installation of a second phased antenna, which will give us about 3 to 4db of system gain. In it's present configuration the system will work best with a mobile radio, although a hand-held will work in some places. Please try the system out and let the tech committee know how it works for you. The frequency is 147.330 on your receiver and the standard 600 kHz up with a CTCSS (pl) tone of 131.8hz. Remember our Lakewood repeater is on the same frequency pair with 100.0hz tone. Make sure you do not put any decode tone on your receiver for either repeater. If any of this is confusing to you; please contact one of the tech committee members or an experienced operator on the air for a better explanation.

I would like to welcome new DRC member: Michael Hughey, KF4DUS. Please come to the meetings and activities and be an active member.

Now for the BIG EVENT for December, our annual Holiday Party. This will be held on Wednesday December 17, 2008 at the Country Buffet, 8100 Crestline Ave., Littleton. This is off of South Wadsworth Blvd. between Bowles and Belleview. If you have not been there, I

would suggest you do a MapQuest search and print the directions. We have the private room reserved for our activities. Please show up about 5 to 5:30 for dinner. You will pay the tab for your meal and proceed to serve yourself. It is a buffet so you can go back as many times as you wish. At about 7 pm. we will proceed with our program and prize drawings. As always, all in attendance are eligible for the prizes and cash drawings with the usual exception; you must be a paid up DRC member for the big prize drawing. (This would be an excellent time to join or re-new your membership prior to the drawings) The program will be presented by Dave Baysinger, WG0N. Dave will be giving a very interesting presentation on the history of the DRC; going way back in time up to present day. His presentation will include many photos from the DRC archives that many of us have probably never seen; including photos of all our repeater sites, towers and antennas. You know that Dave always gives very interesting presentations and I guarantee this will be no exception. He has been putting a lot of work into this, please be there to enjoy it.

I will see you all at the party. There will be no tech committee meeting or Elmer session at the party. **Please note the address change above for the December meeting and party. Mark you calendars...Don't Miss It!**

73
Gerry, W0GV
President



INSIDE THE ROUNDTABLE

| | | | |
|----------------------------------|------|------------------|------|
| November Meeting - What'd I Miss | Pg 2 | Up Coming Events | Pg 6 |
| Tech Committee Report | Pg 2 | Calendar | Pg 6 |
| QRP Expedition | Pg 3 | DRC Information | Pg 7 |
| Solar Update & Puzzle Solution | Pg 5 | Puzzle | Pg 8 |

NOVEMBER MEETING - WHAT'D I MISS

By Bill - W6OAV

There were 39 attendees at this month's meeting. After introductions W0GV began the business meeting by announcing that the Hudson repeater is now operational. He and WA9TVH had installed the system earlier in the month. Based on initial tests, the coverage appears to meet expectations, especially in the mountain canyons. W0GV then discussed the "tweaks" that will be done on the Hudson repeater sometime this month. These include changing the pre-emphasis/de-emphasis, the courtesy beep, the hang tail timer, etc. WA9TVH then discussed the club's new powerful 7330 controller which he had brought to the meeting for inspection. The 7330 will be installed on the Centennial Cone system.

The meeting then was turned over to N1ETV. He described the "innards and outers" of the MFJ-269 Antenna Analyzer which covers HF through UHF. See photo below, which shows N1ETV with the special "close up" camera arrangement which he built up around a camera loaned by WA9TVH.



N1ETV also covered the "does and don't" when using the analyzer. From there N1ETV used the analyzer to demonstrate the properties of $\frac{1}{4}$ and $\frac{1}{2}$ wave length coax transformers. After the demonstrations, he had one of the meeting attendees, using the analyzer, cut a length of coax to a $\frac{1}{4}$ wave length on 40 meters.

At the conclusion of the meeting, drawings were held for several door prizes.

TECHNICAL COMMITTEE REPORT

By Bill - W6OAV

HIGH PRIORITY PROJECTS

145.49/448.625 Relocation Project

Goal: Relocate antennas and repeaters to Centennial Cone:

. All is working well. Monitoring for any issues.

147.33 Relocation Project

Goal: Bring a second 147.33 repeater on line at Hudson with a different PL.

- The repeater is operational. Reports show that the coverage is as was expected, especially in the canyons.
- Several "tweaks", such as changing the pre-emphasis/de-emphasis, the hang timer, the courtesy beep, etc, will be done sometime this month.

Voter System

Goal: Develop plans for voter system (A good winter project).

- Once the above projects are completed, the tech committee will schedule a system design meeting in January at W0GV's wife's office.

MEDIUM PRIORITY PROJECTS

145.49/448.625 Command-able System Split

Goal: Implement a command which will allow remote control of the interconnection of the two systems.

- WA9TVH has obtained, and is studying, the 7330 controller documentation. The 7330 will allow the split feature plus many other desirable features.

TSA Battery Backup Project

Goal: Modify the backup battery activation/deactivation procedures to support the HF radios.

- WA9TVH is exploring the feasibility of using modules which interface chargers, batteries and power supplies. These modules allow automatic switching to charged batteries during a power failure.

TSA HF Antenna Project

Goal: Determine future antenna requirements.

- N1ETV is engineering a bi-directional wire system which will probably be a T2FD or double folded dipole.

(Continued on page 3)

(Continued from page 2)

- K0HTX has obtained buckets which will be used to build antenna supports for the HF antenna.

TSA HF Interference

Goal: Reduce interference between the Kenwood and Drake.

- Tests will be done after the HF antennas are installed.

LOW PRIORITY PROJECTS

Special Courtesy Tone/Announcement for Repeaters in Emergency Mode

Goal: Configure the controllers for: 1). Command-able special courtesy tone (such as a double beep) which will indicate to users that the repeater is in the emergency mode, 2). A command-able emergency mode message.

- The board will decide at their next meeting on what features are desired.

Harris Radio

Goal: Dispose of the Harris:

The tech committee agreed to salvage the more valuable parts from the radio and sell them.

HF NVIS/Non-NVIS Telpac Gateway at the SA

Goal: Provide an NVIS/Non-NVIS HF Telpac Gateway as an alternate for existing VHF Telpac Gateways. This Gateway will provide access when communicators are out of range of the existing VHF Telpac Gateways.

- W6OAV has discussed with N4ATA. When the new WinLink beta application is debugged, we will begin implementation at the SA.

THE W0QL/W6OAV QRP EXPEDITION PART 2

By Bill - W6OAV

The goals for our PSK31 expedition were the same as those for our CW expedition detailed in Part 1, with one exception. The exception was that we were going to test the feasibility of using a 40' telescoping mast, rather than a tree, to support the wire vertical antenna. This would eliminate the need to depend upon finding a proper tree for an antenna support.

STATION REQUIREMENTS

In preparation for our trip, Mark used the same station design requirements as were detailed in Part 1. Basi-

cally, the station had to be small, able to fit in a backpack, have low power consumption, especially on receive, and be easy to assemble and operate.

PSK STATION CONFIGURATION

The photo below shows the components of the PSK31 station. The components are described below. Also, the WEB sites for the components are listed should a reader be interested in obtaining more information about a particular component.



1. Transceiver: Small Wonder Lab PSK-20- This 9 ounce rig is jam packed with desirable features. The transmitter runs 3 watts PEP using an external battery. The receiver only draws 38 ma on receive. More information is available at: <http://www.smallwonderlabs.com/>

2. Power system: 12 volt Gel Cells.

3. Antenna: PAR EF-20 – This antenna is an end fed ½ wave length dipole equipped with a small efficient matching network. The antenna requires no radials. It can be easily mounted horizontally, vertically, or in any configuration in between. As with any end fed half wave antenna, the PAR EF-20 provides several dB gain over a full sized ground plane. Information is available at http://www.parelectronics.com/end_fedz.htm

4. Antenna Mast: Spider Beam Mast: This 7 lb high strength telescopic fiberglass pole is 3'10" long when collapsed and 40' long when expanded. More information is available at <http://www.spiderbeam.net>

5. Mast support bracket: Home brew - Mark designed this bracket to support the mast on his bike for transport as well as on a surface, such as a picnic table, when in the operating mode. The bracket consists of two PVC 2" couplers held together with steel clamps.

6. Feed line: 25' RG-58U – The coax is equipped with male PL-259 plugs on each end.

7. Laptop e/w Digipan: Digipan is a free soundcard ap-

(Continued on page 4)

(Continued from page 3)

plication that provides reception and transmission of PSK31 and PSK63 signals. Digipan will run on almost any version of Windows and at just about any speed. More information is available at: <http://www.digipan.net/>

8. Back pack: A laptop backpack specially made to carry a laptop safely. (Not Shown)

GETTING TO THE RADIO SITE AND SETTING UP THE EQUIPMENT

On the big day of our PSK expedition, I met Mark at the bike trail head. Mark was wearing his laptop backpack containing the entire PSK station. He was grinning and ready to go. Note how Mark has the antenna mast mounted on his bike.



Once we arrived at the site and unpacked the equipment, Mark mounted the mast bracket to the picnic table and installed the mast. The mast was extended with the antenna wire attached to the top of the mast.



Tests showed that the antenna on the antenna system was resonant on 20 meters.

OPERATING THE STATION

Satisfied with the station installation, we took turns operating

for the next hour. Photo at right shows Mark key-boarding with another PSK31 station. In spite of the fact that conditions



on 20 meters were very poor (the solar flux was 65), we had nice long contacts with the following PSK31 stations:

| STATION | LOCATION | REPORT |
|---------|---------------|--------|
| KI4POV | Athens, AL | 599 |
| K5RWR | Burleson, TX | 599 |
| VE7NBQ | Vancouver, BC | 599 |

The PSK-20 provided outstanding performance on receive and transmit and was very easy to use. As shown by the signal reports given to us above, the antenna on the mast loaded up and radiated very well.

After an hour of operating, we had to disassemble the station and head home. As with the QRP CW expedition described in Part 1, we considered this expedition to be a complete success, especially with the bad band conditions! The CW and PSK31 expeditions showed that low power CW and PSK31 stations can successfully communicate with simple, but efficient, antennas. When the solar cycle begins to improve, all kinds of DX contacts using QRP stations should be possible!

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KB0A RESCUES W0TX-7

By Bill - W6OAV

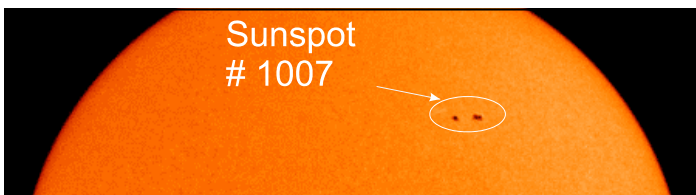
On November 12th, the DRC twenty meter to two meter packet gateway station (W0TX-7) disappeared from the airwaves. KB0A, Bryan, went to the site and found that the TNC power ground wire had broken. This allowed RF to get into the TNC and caused it to default to factory settings. Bryan built and installed an improved power feed system for the TNC and the two meter transceiver. He then reprogrammed the TNC. All is working well again. Thank you, Bryan, for taking the time to repair and reprogram the station.

SOLAR UPDATE

So what is going on with the sun? Are we into Cycle 24 or not? Well after two-plus years of few sunspots, even fewer solar flares, and a generally eerie calm, the sun is finally showing signs of life.

David Hathaway of the NASA Marshall Space Flight Center says the solar minimum is behind us.

In October there was a flurry of sunspots. A total of five sunspot groups gave Solar Physicists the notion we are headed out of the solar clam. Hathaway reports that "even though it doesn't sound like much, if we look back on a year with record-low numbers of sunspots and long stretches of utter spotlessness, five is significant." This represents a real increase in solar activity."

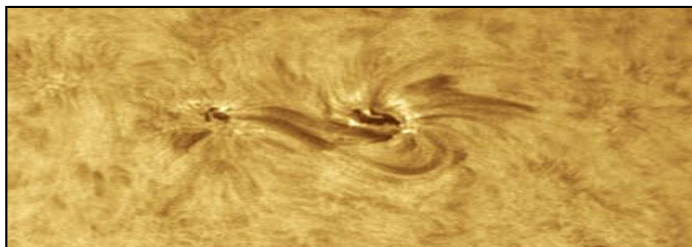


Above: New-cycle sunspot group 1007 emerges on Halloween and marches across the face of the sun over a four-day period in early November 2008. Credit: the Solar and Heliospheric Observatory (SOHO).

Even more significant is the fact that four of the five sunspot groups belonged to Solar Cycle 24, the long-awaited next installment of the sun's 11-year solar cycle. "October was the first time we've seen sunspots from new Solar Cycle 24 outnumbering spots from old Solar Cycle 23. It's a good sign that the new cycle is taking off."

At first glance, old- and new-cycle sunspots look the same, but they are not. To tell the difference, solar physicists check two things: a sunspot's heliographic latitude and its magnetic polarity. (1) New-cycle sunspots always appear at high lati-

tude, while old-cycle spots cluster around the sun's equator. (2) The magnetic polarity of new-cycle spots is reversed compared to old-cycle spots. Four of October's five sunspot groups satisfied these two criteria for membership in Solar Cycle 24.



The biggest of the new-cycle spots emerged at the end of the month on Halloween. Numbered 1007, or "double-oh seven" for short, the sunspot had two dark cores each wider than Earth connected by active magnetic filaments thousands of kilometers long. Amateur astronomer Alan Friedman took this picture from his backyard observatory in Buffalo, New York:

On Nov. 3rd and again on Nov. 4th, double-oh seven unleashed a series of B-class solar flares. Although B-flares are considered minor, the explosions made themselves felt on Earth. X-rays bathed the dayside of our planet and sent waves of ionization rippling through the atmosphere over Europe. Hams monitoring VLF radio beacons noticed strange "fades" and "surges" caused by the sudden ionospheric disturbances.

Hathaway tamps down the excitement: "We're still years away from solar maximum and, in the meantime, the sun is going to have some more quiet stretches." Even with its flurry of sunspots, the October sun was mostly blank, with zero sunspots on 20 of the month's 31 days.

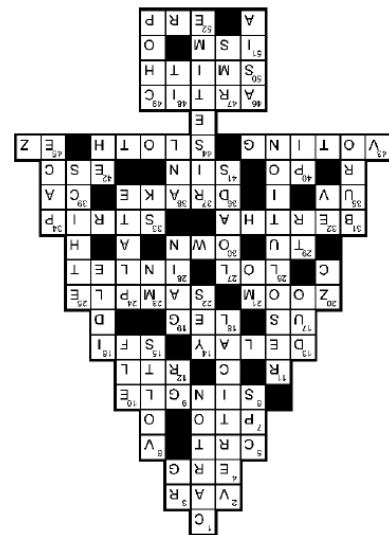
But it's a start. Stay tuned for solar activity.
Excerpted From NASA Science News November 7, 2008

MEMBER NAME TAG OPTION

By Gerry - W0GV

DRC member Chris Chadwick, KC0ZNT, has offered to make custom badges for DRC members. They are 1.5" x 3" Fiber Reinforced plastic with magnetic backs or a standard pin back can be done also. The cost is \$10 for the badge plus \$1.25 shipping. Chris will donate \$2 back to the club treasury for each badge sold. Please understand this is an option to the standard name badge that you receive as a DRC member. If you are interested

please email your order to KC0ZNT@worldwideham.com. You may also use standard mail to KC0ZNT's address in QRZ.com.












It's Time Once Again For The Annual Holiday Meeting & Dinner

When: December 17th

Where: Country Buffet
8100 W. Crestline Ave.
Littleton, CO

Time: 5- 5:30pm Dinner / 7pm Presentation and Drawing
For map & directions check www.w0tx.org

| December 2008 | | | | | | | <i>DRC Net Sunday 8:30pm Local</i> |
|---|--|---------|---|--|---|---|------------------------------------|
| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | |
| | 1 | 2 | 3 <i>Learning Net</i> 7pm | 4 | 5 <i>ARRL 160m Contest</i> Begins 2200U  | 6 | |
| 7 <i>ARRL 160m Contest</i> Begins 1600U | 8 | 9 | 10 <i>Learning Net</i> 7pm | 11 <i>Pearl Harbor Day</i> | 12  | 13 <i>ARRL 10m Contest</i> Begins 0000U | |
| 14 <i>ARRL 10m Contest</i> Ends 2359U | 15 | 16 | 17 <i>Club Holiday Dinner & Meeting</i> 5pm | 18 | 19  | 20 | |
| 21 <i>First Day of Winter</i> | 22  <i>Hanukkah</i> | 23 | 24 <i>NO Learning Net Tonight</i> | 25  | 26  | 27  | |
| 28 | 29 | 30 | 31 <i>Learning Net</i> 7pm | | | | |

Note: There will not be a Learning Net December 24th! Check www.ARRL.org for Contests and Rules!

DRC BOARD OF DIRECTORS

| | | | | |
|----------------|--------|------------------|--------------|---------------------|
| President | W0GV | Gerry Villhaurer | 303-467-0223 | W0GV@hotmail.com |
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DRC REPEATERS

| BAND | Freq / Shift / PL Tone | Additional Information |
|--------|--------------------------|---|
| 10m | 29.620mHz (-100kHz) FM | |
| 6m | 53.090mHz (-1mHz) | |
| Packet | 145.05mHz<>14.105mHz | |
| 2m | 145.490mHz (-) 100Hz PL | Linked to the 70cm - 448.625mHz machine. |
| 2m | 147.330mHz (-) 100Hz PL | Local Area, Members Auto-Patch |
| 2m | 147.330mHz(-) 131.8Hz PL | NE Area Remote |
| 1.25m | 224.380mHz (-) 100Hz PL | |
| 70cm | 448.625mHz (-) 100Hz PL | Linked to the 2m - 145.490mHz machine. |
| 70cm | 449.350mHz (-) 100Hz PL | Wide area coverage with Echolink Node # 4140. |

EDITOR'S NOTE

DRC members - this is your newsletter. If there is something which is club or amateur radio related that you'd like to see as a regular feature, email suggestions to the editor. Members are the heart and sole of The Denver Radio Club, if you have an expertise or an interest in a particular segment of ham radio that you'd like to write about, you may email your submissions to DRC_RT@comcast.net. Submission deadline is the 25th of the Month. Editor

A Holiday Snack

What's better than a cookie? Well, maybe a cookie-shaped puzzle! And what better to help work out such a puzzle than a REAL cookie? I hereby give you permission to go right to the kitchen and grab one of whatever you've been telling yourself not to eat since you ate too many of them already this month, didn't you? Well, one more won't hurt, especially since you're going to be burning off the extra calories by thinking so hard about this puzzle. Excellent! Have a good New Years and see you in 2009!

By H. Ward Silver - NØAX

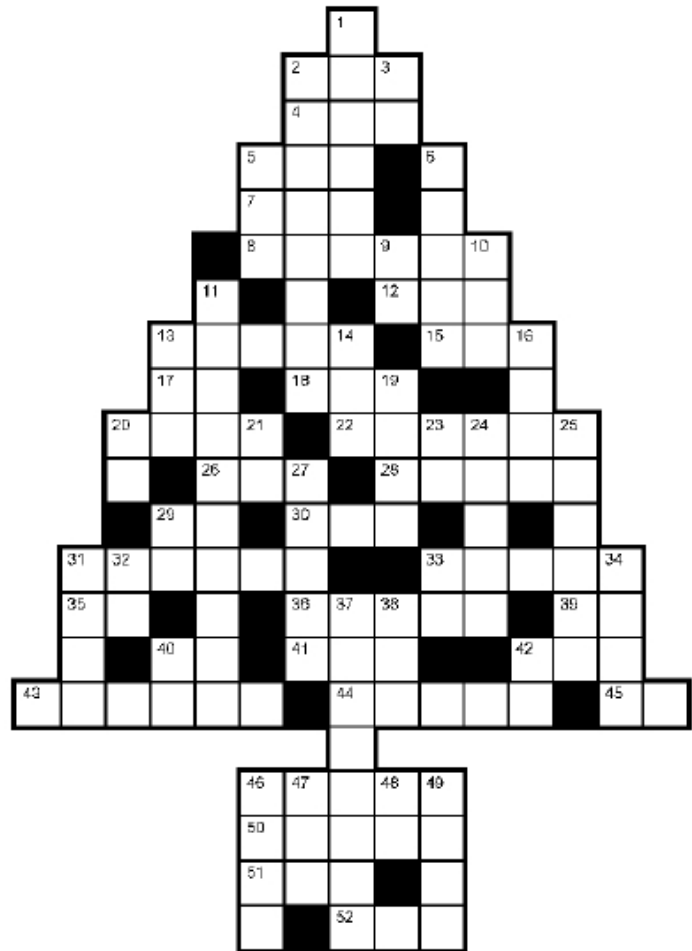
NOTE: Puzzle solution is located on page 5.

Across

- 2 Units of reactive power
- 4 A very small unit of energy
- 5 The single tube in most oscilloscopes
- 7 VFO with a tunable inductor
- 8 Only one
- 12 First commercial logic family
- 13 Holding off the sweep
- 15 Measure of solar irradiation (abbr)
- 17 Between VE and XE (abbr)
- 18 One side of a rhombic
- 20 Enlarge or shrink
- 22 Repetitive convert to digital data
- 26 Laughing hard (abbr)
- 28 Where cooling air goes
- 29 Thanks! (CW abbr)
- 30 Possess
- 31 Large or big antenna array
- 33 Remove the finish
- 35 Ionizing solar radiation (abbr)
- 36 Manufactured classic twins
- 39 Needed for strong bones (chemical symbol)
- 40 Abbreviation for what's generated by transmitters
- 41 Cheating is one of these
- 42 Key that gets you out of something
- 43 Multiple receivers that choose the strongest signal
- 44 Post-holiday state of torpor
- 45 Prefix of Turkmenistan
- 46 Soon to be an open sea
- 50 Circular chart
- 51 Unlicensed band (abbr)
- 52 What the complete antenna system radiates © Copyright ARRL 2007

Down

- 1 Hams always keep the originals
- 2 Common name for quarter-wave antenna
- 3 Begins most coax designators
- 5 Old frequency abbreviation before MHz
- 6 Measure of potential



- 9 Abbreviation for a tube's control element
- 10 Both a frequency range and Santa's helper
- 11 Ability to discern between measured values
- 13 A pair
- 14 Morse abbreviation is "C"
- 16 Not doing anything
- 19 Amplification factor
- 20 Prefix of British military base in Mediterranean
- 21 Show-me state (postal code)
- 23 Home of Lake Wobegon (postal code)
- 24 Another name for tube anode
- 25 Rules for fairness and honesty
- 27 An antenna accepting power
- 29 Prefix of transceivers made by 36 Across
- 31 QSL service (abbr)
- 32 Car that runs only on batteries (abbr)
- 33 Prosign to end a contact
- 34 Rate of making contacts
- 37 Time it takes a signal to increase to a certain level (two words)
- 38 Circuit that restricts noise
- 40 Constant used to calculate reactance
- 42 Electromagnetic field components
- 46 Largest continent
- 47 Effective energy content of a waveform
- 48 Network manager's department
- 49 Switch scope display between two channels very rapidly