Since 1917
May 2010

ROUNDTABLE

The Denver Radio Club Newsletter

PRESIDENT'S MESSAGE

By Gerry Villhauer-W0GV

Hello DRC Members,

As better weather is getting here we have started some of our maintenance tasks. Orlen, WW0LF (still can't get used to his new call) did a permanent repair to the hard-line cable at our Hudson 147.330 site. If you remember, a few months ago a problem was found with a connector and a temporary fix was done. Now it is good as new and the repeater is back on the air. We are planning to try a different antenna at Hudson in attempt to help with the multi-path issue. This will be an experiment to change the antenna pattern and see if it helps with the multi-path. More work parties… more projects as summer weather conditions improve.

Thanks to Bob, KC0CZ for our April program on Echolink. If you have not tried Echolink, please do so. It is another of the many interesting facets of our great hobby. Field Day is coming! When is that you ask? June 26-27. If you have not participated in a Field Day you owe it to yourself to come out and join in. In preparation for this annual ARRL sponsored event our Emergency Comm. Coordinator Oscar Hall, K0SSE, will be presenting our May program. He will be covering our schedule, the site location, equipment we will be using, set up and take down and some safety precautions. Along with all this will be pictures of previous FD operations, lessons learned from mistakes made, computer logging, and eating arrangements, plus more than I have space for here. Oscar and the DRC need you! It will be an evening well spent to prep for this event. Look ahead to June and mark out the 26 & 27 for FD and the 25th for site clean up. This is a great time to introduce your friends and family to ham radio especially with our Get On The Air Station (GOTA) more on that at the meeting.

I would like to welcome and thank new DRC members Paul Deeth, WA2YZT, Michael Gailus, KC0JKW, Ken Moss, K0IQ, Frank Smith, W7FES and Glen Newell, KD0KVJ. Please check in on the nets, come to the meetings and activities and remain an active member.

See you all at the meeting May 19th at the St. Joseph's Episcopal Church, 11202 West Jewell Ave., Lakewood, CO. That is about two blocks west of Kipling on West Jewell. And remember to check our website, www.w0tx.org, for lots of important information about the DRC. The Elmer Session and Tech Meeting start at 6:30 pm followed by the Regular Meeting and Program at 7:30 pm.

Gerry, W0GV
President

INSIDE THE ROUND TABLE

APRIL MEETING - WHAT'D I MISS

By Bryan - KB0A

Fifty folks attended this April's meeting! Gerry, W0GV, began the meeting with attendee introductions. After the introductions, Orlen, WW0LF, gave a brief show and tell of the new Kenwood UHF repeater and the SCOM 7330 Repeater Controller which will be installed at the Centennial Cone site. This will replace the existing, 30+ year old radio used for the 448.625 side of that repeater. The new controller will allow us to better control the site by allowing each repeater, UHF and VHF, to operate independently, in addition to allowing other options.

The meeting was then turned over to Bob, KC0CZ for his presentation on the history and technology involving VoIP (Voice over Internet Protocol) that is in use today. Bob began with an overview of the VoIP technology in use by hams and how each got started. He discussed the features and functions that each provided. Particular attention was paid to IRLP and EchoLink, the two pre-eminent technologies in use, and talked about how to operate them. More details were given in describing how to use EchoLink on our 449.350 repeater. Bob, with the help of Gerry, W0GV, gave a demonstration of EchoLink using an Apple iPhone. The iPhone EchoLink application also works on the iPod Touch when connected to a WiFi network.

The meeting concluded with a lucky attendee winning this month's door prize.

TECHNICAL COMMITTEE REPORT

By Bryan – KB0A

This report provides an overview of the items discussed during the March Technical Committee meeting.

Voter System:
Goal: Design and build the voter site and a remote site for the 147.33 voter system.

- WW0LF has updated the system diagrams and notes. He hopes to have the remote station built soon.

Voter System:
Goal: Determine link frequencies and coordinate with CCARC as needed.

- KB0A is working on this issue.

Interference to 449.35:
Goal: Determine the commercial source that mixes with the RMRL 449.45 repeater and produces a spur on the 449.35 input.

- One of the other repeater owners on Squaw Mtn has developed a

Temporary Salvation Army Location:
Goal: Determine feasibility for installing VHF/UHF systems and for installing a temporary NVIS station should the need arise for the latter.

- K0SSE inspected the facility. The "ham shack" room will accommodate the club's desk. Approximately 100' of coax will be required to reach the roof via the venerator.
- Need to get permission from property landlord to install antenna on roof, also need for facility security to be in place prior to installing radios, date TBD.

TS-940 Failure at Station 4:
Goal: Determine if re-soldering and cleaning connectors will fix radio.

- KB0A has given the radio and documentation to Jan, KK0JD, who will perform diagnosis

Remote HF Transceiver:
Goal: Determine the feasibility of building an Internet accessible remote HF transceiver for club member use.

- This project will be put on hold until the voter system comes on line.

147.33 - Hudson Audio and RF issues:
Goal: Repair bad audio and replace bad RF connector:

- WW0LF removed the controller and checked it out of the bench, the audio seems to be fine. Suspicion is that the sound quality issues are due to multi-path signals Orlen will replace the controller and put the repeater back on the air sometime on Apr 25th, he also plans on performing a permanent fix for the coax connector at the base of the tower. We will do some on-air testing and see if we can isolate the problem.

(Continued on page 3)

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Field Day
Goal: Start laying the ground work for the 2010 Field Day.

- K0SSE expanded the list of action items and presented them to the Tech Committee.

Tech Committee Meeting Productivity:
Goal: Investigate the possibility of increasing the Tech Committee meeting productivity by using tools like Skype audio conferencing.

- Tests proved that Skype conferencing is feasible. The committee agreed that all members should install Skype. We will attempt a Skype test this Sunday after the regular club net.

145.49/448.625 Controller Upgrade:
Goal: Replace S Comm controller with a 7330 controller.

- WWOLF and KB0A are working this item.

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 broadcast message.

- This issue put in the "On Hold Category."

THE W6RYX ANTENNA — PART 3

CONSTRUCTION AND INSTALLATION

By Norwood – W6RYX

The W6RYX antenna would be mounted at an altitude of 3200 feet above mean sea level in the Southern California mountains, where severe winds sometimes occur. The ground-plane frame construction, of 1/2-inch, lightweight, electrical conduit, met this challenge. The framework was bent to form a 90° angle at the vertex and welded together at the sides and corners with diagonal bracing for rigidity *(see Fig. 7)*. Two parallel rods of 1/2-inch, lightweight conduit were welded in position between the vertex and the aperture midpoint to facilitate tuning and positioning of the antenna during testing. When the optimum position between the vertex and the aperture midpoint was determined by measurement (minimum return loss), the antenna ground plate was welded into position on the parallel rods. After framework completion, and prior to testing, 1-inch-square mesh industrial galvanized screen was brazed to the sides of the reflecting surface and to the base of the ground plane.

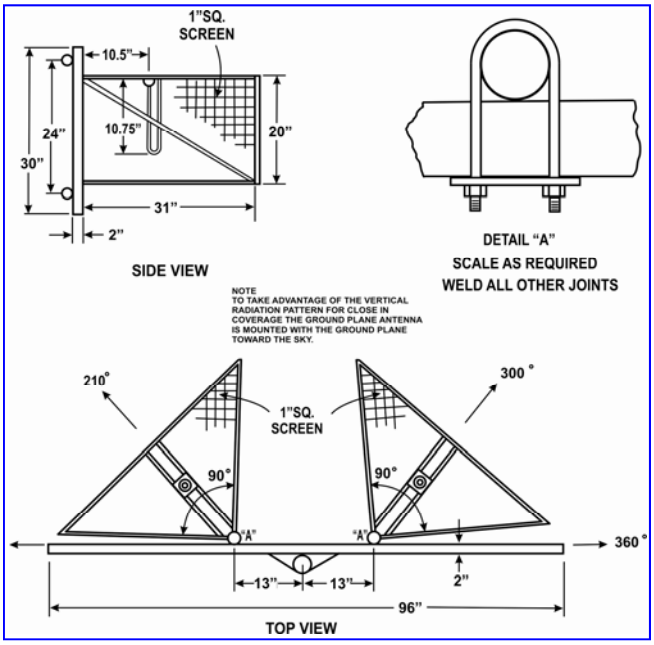

Figure 7–Construction details for the W6RYX antenna.

The radiating element was made from a discarded commercial antenna that used a folded radiating element *(see Fig. 8)*. It provided an insulated feed point and a ground for the folded portion of the antenna. The original antenna, built for the 150MHz commercial band, was shortened by cutting off the elements and repositioning them to the correct height for 223MHz. Originally cut for the theoretical dimensions (0.23 wavelength), during testing it was trimmed to 0.203 wavelength to improve SWR. If a similar commercial antenna is not available, the radiating element can be made from any rigid, conducting material with one end securely grounded to the ground plane and the other end insulated for the feed point. Quarter-inch-diameter aluminum aircraft tubing is suitable for the radiating element.

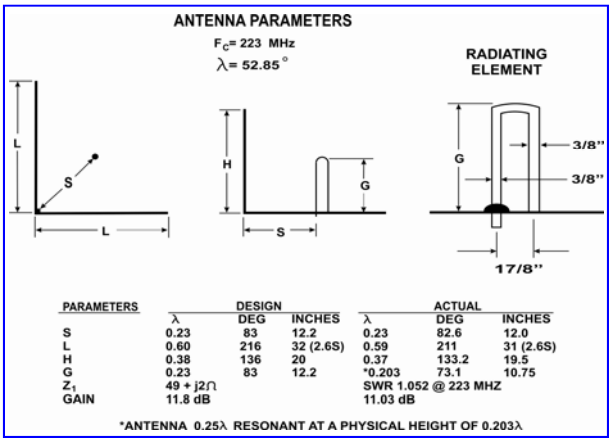

Figure 8–Construction details for the folded-monopole radiating element of the W6RYX antenna.

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(Continued from page 3)

The 1/4-wavelength matching transformer is made of RG-11 solid-dielectric, 75-ohm coaxial cable. The distance between these two antennas is 286°, requiring 3/4-wavelength matching transformers. They were cut to length by calculating length for the frequency involved, using a propagation factor of 0.66 and taking into consideration the connectors on the ends. No trimming of the transformers was required.

To mount the antenna, a crane was used to erect the supporting mast and to lift the antenna into position while Sherwood bolted it to the supporting arms of the tower.

CONCLUSION

The W6RYX corner-reflector antenna, with a folded ground-plane radiating element, reduces static noise and is a respectable antenna with broadband characteristics. It exhibits an II-MHz bandwidth for an SWR limit of 1.5. It is easy to construct and has a good unidirectional pattern with gain of approximately 11 dB. It can be used to reduce interference with other repeaters and to increase coverage, and it is sturdy and durable. The spacing of the antenna radiating element to vertex can be varied from 0.2 to 0.7 wavelength to obtain the desired base impedance with small effect on gain. Two resonant conditions occur with radiator spacings of 0.215 and 0.45 wavelength, while still exhibiting substantial gain. All design data included herein are expressed in wavelengths to facilitate other designs, configurations and applications such as wider spacing, single element radiators or application to other frequencies.

We had a lot of fun designing and building this antenna system, and you will too. The antenna has been serving us for over 1 1/2 years with reliable public service communications from Santa Ynez to Santa Maria, California, using hand-held repeater telephone access. Any member on frequency will patch you into the phone, or an S.A.S.E. to W6RYX will get you the access codes. Design formulas on magnetic cards for HP97 or HP67 calculators, with loop and self-impedance graphs, are available from the author.

Acknowledgments

I wish to acknowledge the invaluable assistance of all Santa Ynez Valley club members, especially Glen Mays, K6JNS, for construction of the antenna frames; Bill Long, K6EVQ; Mildred Long, KA6FCM; Glenn Todd, KF6OY; Ed Plante, WD6CSB; Ed Putnam, WB6AWQ; Evelyn Putnam, photography; Earl Tripke, W6GXU; Joe Roark, W6JGI; Frank DeNuzzo, W6SWM; and- Jane DeNuzzo, W3OVV. Also thanks to Jane Roark for the good "eats" during construction, and to my son, Sherwood, WD6FZQ, for his invaluable testing and optimizing the antenna, and his skillful editing. And a great big thanks to my wife, Dawn, KB6CJJ, for the many proofreadings, editing and retyping.

Bibliography

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Custom DRC Field Day T-Shirts Are Back

This year the shirt is a Hanes Beefy-T (very soft) in a light tan with the Field Day logo on the back. The front of the shirt has a custom DRC logo on the left chest.

$10 per shirt (includes tax) when delivered to the club meeting in May or June. Add $5 postage for up to 2 shirts mailed to your home . Sizes S – XL, 2XL Add $1.50 per shirt.

To order your shirts send email by clicking the link below or cut & paste the address and Please add *"Field Day Shirt"* in the subject line
wildcoyotegraphics@comcast.net

Don't forget to include size and quantity of shirts ordered.

If you want them mailed send a check payable to:
Wild Coyote Graphics
13925 E Idaho Place
Aurora, CO 80012

Questions: AG0S@comcast.net
Subject: "FDS Question"

Open Letter To The DRC

The following is an email received via the DRC website from a non-member who enjoys 6m. Maybe it's time to start using our 6 meter repeater so that disuse doesn't allow another HAM to claim it as his own. Oops, I guess it has already happened. Don't forget we have a 1.25 meter repeater too, if we aren't careful it may be claimed as a derelict and fall into the hands of another HAM.

Dear DRC,
I want to thank you guys for my very own, personal 6M repeater on Green Mountain, near where I live. I love having exclusive use of it. I never have to wait for anyone else to finish up a conversation on it - it is waiting just for my personal use any time of day. Thank you for paying for my repeater, DRC! I have never had my own repeater before, and never dreamed repeater ownership would be so easy.

There is a small problem with my personal 6M repeater on Green Mountain, though. Every time I call on it no one ever comes back to me. I mean never once in the 4 or 5 months that I have been calling on this repeater has anyone ever replied to me. At first I thought that was because people didn't know my call, or the 6M hams were being shy. So then I just monitored the repeater - hour after hour - drive time/weekends/evenings. I now understand no one ever uses this repeater. Never. This is a problem because having QSO's with myself isn't very much fun anymore.

I am willing make to the DRC a deal: If some of you guys used the Green Mountain 6M repeater on occasion I would be willing to give up exclusive use of it. Just don't get carried away with using it - I don't want to hear you running a net, coordinating Ecomm or just talking on it all the time - or this deal is off! I will let you guys use the repeater on Wednesdays from 10am - 2:30pm for a start. If things go well you can use it occasionally on Tuesdays, too, provided the Tuesday is not a national holiday when I could be home and may want to use it.

Thanks again for giving me my personal, exclusive 6M repeater, DRC. You guys are okay.
73,
Mark KG0PA

Remember When?

By Bill – W6OAV

Most "old-timers", like me, will remember seeing this ad in many of the early 60's ham publications. The center loaded Webster Band Spanner was a very popular antenna. It may be thought of as the original "motor-less" Screwdriver. The antenna consisted of a 5' long fiberglass tube containing a 1' long coil inside the top of the tube. The whip protruded out of the top of the tube and contained a circular spring which made contact with the internal coil. The maximum length of the tube and whip was 119".One changed bands by manually moving the whip in or out of the tube. Ring markers were etched on the whip to indicate where to position the whip relative to top of the tube for each band. The Band Spanners worked very well. Back then it cost $27.50! I still have a Band Spanner from the 60s and actually had it on the car last summer. In spite of its age, it still worked very well.

LAKEWOOD EMERGENCY WARNING SIREN TEST

By Jim – K0TOR

The Lakewood Emergency Warning Siren verification test will be conducted on May 12, Wednesday at 11:00 AM. This years siren verification was delayed a month to complete siren site maintenance. If you supported the Lakewood siren verification in 2009, you will be contacted by telephone to confirm if you will be available to support this years test. We will verify the same siren location you had in 2009.

If you did not participate in the siren verification test in 2009 and would like to participate this year please let Jim Beall, K0TOR know by telephone (303 798 2351) or email (k0tor@arrl.net). If I can't assign you a primary siren site, I will pair you up with another Ham so you can be familiarized with the siren verification testing. Lakewood has 25 sirens. DRC supported the Wheatridge siren verification test last month. Wheatridge currently has 11 siren sites with plans to install 5 more this year. Typically Lakewood and Wheatridge siren verification testing will be conducted on the same day. We expect DRC will be asked to verify 41 sirens sites next year (2011). So we will need additional help next year and it would be helpful to have experienced operators in 2011.

We ask that you arrive at your siren site at approximately 10:30 AM. Upon arrival please check-in with net control on primary (145.490 MHz or 448.625 MHz with a 100 Hz PL tone) or secondary (147.330 MHz with a 100 Hz PL tone). The siren test will start at 11:00 AM. Once the siren test and audible announcements are concluded we ask that you provide your observed performance information to net control. We are typically finished by 11:30 AM. Following the reporting of the siren test results you are invited to the Lakewood Public Safety Building at 445 S. Allison Parkway for free pizza and soda. Allison Parkway is the first traffic light west of Wadsworth on Alameda. Travel south on Allison Parkway to the first traffic circle (about 1 block). Take the first right turn out of the traffic circle (west). Continue to the parking lot entrance on your left (about 200 feet). Park and walk to the stairway at the south end of the parking lot. Go downstairs and across the street to entrance of the Lakewood Public Safety Building. You must pass through a security checkpoint (no KNIVES please). Then go to your right and down the stairs. The lunch room is on your left at the bottom of the stairs.

ROCKY MOUNTAIN DIVISION CONVENTION

Greetings all,

I am writing this note in hopes that you will consider attending the Rocky Mountain Division Convention & Hamfest. I realize that the convention falls on a holiday weekend, as well as it being a contest weekend. I would like to take this opportunity to let you know that there will a number of events taking place during the weekend. I have taken the liberty to list some of them here.

Operate W1AW/WY7, this will be the first time in Wyoming. (P.S.: We will be auctioning off the radios at the end of the conference).

Wyoming State Mobile Command Post and Rocky Mountain Ham Radio's communication trailer will be the operating stations.

Join the Fun of Ham Radio by participating in the First "Ham Olympics"

- TOILET SEAT CW
- HAM JEOPARDY
- FOX HUNT
- COUNTY HUNTING EYE BALL QSO
- IDENTIFY THE OBJECTS "SHADOWBOX"

HOURLY PRIZES
QST, HAMPLAQUES, ANUCO SOFTWARE, BYONICS, ARRL AND MORE!

Early Bird prize will be an Icom dual band mobile radio; Grand Prize is a Yaesu FT-870

ARRL President Kay Craigie will be our speaker at the banquet on Saturday night Final round of Jeopardy will be after the banquet Wouff Hong Ceremony at Midnight

Icom, HRO, and Yaesu will be in attendance. Tailgate hamfest Saturday and Sunday Sixteen forums on Saturday and Sunday Q & A with ARRL HQ Folks VE testing Saturday DX Card checking with ARRL contest manager Sean Kutzko

For all the information and registration go to http://wyomingsection.org/wiki/index.php/Convention

If you need a room you can register on line as we have a block of rooms reserved. They are going fast and we have to release the unused block on the 15th of May so REGISTER TODAY - DON'T MISSSSSS THE FUN.

73's
Garth N7XKT

WINGS OVER THE ROCKIES AMATEUR STATION

BY PAUL – WG0V

The Wings Over The Rockies Museum, located in the Lowry hangar #1, has a little known secret. A club amateur radio station, K0WAR, is located in the Avionics display room. This station was first activated in May 2007 by the local QCWA chapter and hosted a special event at that time with local NASA astronauts. The QCWA chapter operated the station for a few months, and then let this golden opportunity to reach the community lapse. Paul Turner, WG0V, DRC member, put the station back on the air January 2010.

The station has an operational Yaseu FT840 HF transceiver connected to a Hustler 6BTV vertical on the second metal roof. There are four additional vhf/uhf antennas with coax runs to roof antennas. In the full sized International Space Station mockup there is a coax run and dual antenna servo wire run to the roof for a circular polarized satellite antenna. The circular polarized antenna is lying on the bottom of the first roof, ready to be mounted on the 32 foot tower that is bolted to the first roof extending above the second roof. The ISS module has a computer with a Kansas City Tracker that is wired the servo controller. The ISS module needs a vhf/uhf transceiver to become operational once the antenna is mounted. There is a large collection of classic amateur equipment that needs tested and restored in the second story storage rooms including, Heathkit SB 101, 301, 401, Drake TR4 and R4B, Collins KWM2, Kenwood, Hammarlund, Hallicrafters, and Galaxy receivers and transmitters, to name a few items.

The museum entertains many school groups on Saturdays and some times during the week. Right now there is a need for experienced amateurs to operate the one station in the Avionics display room on Saturdays from 10AM-2PM. In addition the operator would talk up Amateur radio and hand out ARRL literature that is already on hand.

During the week, help is needed to finish mounting antennas, restoring equipment and operating the station as needed.

This is golden opportunity to reach the community and youth in a venue of aircraft from the B-2 to Wright flyer demonstrator, 727 and DC-10 cockpit trainers to rockets. As far as I know here are no other aviation museums that have an operational amateur radio station or a real ISS module to furnish and operate. The possibilities are endless, so get in on the ground floor of this station's operation and improvement.

Contact: Paul E. Turner, WG0V, 303-366-6770 for more information.

What to Do During a Tornado

If you are under a tornado WARNING, seek shelter immediately!

If you are in a structure (e.g. residence, small building, school, nursing home, hospital, factory, shopping center, high-rise building)

You should:

- Go to a pre-designated shelter area such as a safe room, basement, storm cellar, or the lowest building level.
- If there is no basement, go to the center of an interior room on the lowest level (closet, interior hallway) away from corners, windows, doors, and outside walls.
- Put as many walls as possible between you and the outside.
- Get under a sturdy table and use your arms to protect your head and neck.
- Do not open windows.

If you are in a vehicle, trailer, or mobile home

You should:

- Get out immediately and go to the lowest floor of a sturdy, nearby building or a storm shelter. Mobile homes, even if tied down, offer little protection from tornadoes.

If you are outside with no shelter

You should:

- Lie flat in a nearby ditch or depression and cover your head with your hands. Be aware of the potential for flooding.
- Do not get under an overpass or bridge. You are safer in a low, flat location.
- Never try to outrun a tornado in urban or congested areas in a car or truck. Instead, leave the vehicle immediately for safe shelter.
- Watch out for flying debris. Flying debris from tornadoes causes most fatalities and injuries.

UP COMING EVENTS

HAMFEST LIST

April 3 – Longmont ARC, **LARCFest**
Boulder County Fairgrounds
May 28-30 – **Rocky Mountain Division Convention**
Casper, WY Email: wy7dk@arrl.net (more info Pg. 6)
June 26-27 – **DRC/ARRL Field Day**
July 17 – **PPRAA Megafest**
Lewis-Palmer High School
August 22 – **DRC Hamfest**
Jefferson County Fairgrounds. This is the BIG one, start planning to participate now.
Contact Bryan - KB0A for more information.

If you can't make the Field Day Event this is one you should seriously consider.

June 26-27,10 – Bike MS 2010
To volunteer contact Paul Garvey – K0BLM
Bike MS 2010 Communications Coordinator
303-520-5545 or k0blm@arrl.net

LIGHTNING SAFETY

- **PLAN –** Plan outdoor activities to avoid thunderstorms.
- **30-30 RULE –** If 30 seconds or less between lightning and its thunder, go inside. Stay inside 30 minutes or more after the last rumble is heard.
- **SAFE PLACES –** Fully enclosed large buildings provide good lightning protection. Vehicles with solid metal roofs and solid metal sides give some protection.
- **INDOORS** – Don't use corded telephones. Stay away from electrical appliances, wiring, plumbing, and windows.
- **Outdoors** – Avoid elevated places and open spaces. Stay away from water and tall isolated objects. Do NOT go under trees.
- **First Aid** – **Call 911**! All lightning deaths are from cardiac/ respiratory arrest. Use an AED, CPR or rescue breathing.

YOU MIGHT BE ADDICTED TO HAM RADIO IF:

When a friend gets a ride from you and remarks that you have a lot of CBs in your vehicle, it turns in to an hour long rant on how ham radio is not CB radio.

MAY 2010

DRC Net Sunday 8:30pm Local

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 May Day
2	3	4	5 *Learning Net* 7pm Last Quarter	6	7	8
9 	10	11	12 *Learning Net* 7pm *Siren Test*	13 New Moon	14	15 Armed Forces Day 
16	17	18	19 *DRC Meeting* Elmer 6:30pm General 7:30pm	20 First Quarter	21	22
23/30 *Division Convention*	24/31 	25	26 *Learning Net* 7pm	27 Full Moon	28 *Rocky Mountain Division Convention*	29 *Division Convention*

Check www.ARRL.org for Contests and Rules!

DRC Board of Directors

President	W0GV	Gerry Villhaurer	303-467-0223	W0GV@hotmail.com
Vice-President	KB0A	Bryan Steinberg	303-987-9596	KB0A@arrl.net
Secretary	WA9TVH	Orlen Wolf	303-279-1328	owolf@mines.edu
Treasurer	K0TOR	Jim Beall	303-798-2351	K0TOR@arrl.net
Board Member	WG0N	Dave Baysinger	303-987-0246	WG0N@arrl.net
Board Member	K0HTX	Dave Gillespie	303-880-1938	K0HTX@comcast.net
Board Member	AC7SX	Joe Delwiche	303-233-6229	lakewoodjoe@aol.com
Board Member	K0RCW	Robert White	303-619-1048	rcwhitejr@mac.com

DRC Staff and Volunteers

Trustee	WW0LF	Orlen Wolf	303-279-1328	owolf@mines.edu
Net Control	K0TOR	Jim Beall	303-798-2351	K0TOR@arrl.net
Emergency Coordinator	K0SSE	Oscar Hall	303-375-0627	oscarh1934@aol.com
Membership	KC0OUQ	Bob Proctor	303-986-0612	KC0OUQ@att.net
Club Librarian	WG0N	Dave Baysinger	303-987-0246	WG0N@arrl.net
VE Team	AC0T K0MEL	Wally Gamble Mel Minnick	303-202-0339 303-761-3456	wallygamble@comcast.net k0mel@msn.com
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Tech. Committee Chair	W6OAV	Bill Rinker	303-741-2537	W6OAV@arrl.net
APRS Chair	KB0MQQ	Lloyd Plush	303-277-0785	LloydPlush@aol.com
Benevolent		Carolyn Wolf	303-279-1328	
RT Editor	AG0S	George McCray	303-751-7246	AG0S@arrl.net
Education	K0RAR	Robert Rude	303-841-6443	K0RAR@comcast.net

DRC Repeaters

BAND	Freq / Shift / PL Tone	Additional Information
10m	29.620mHz (-100kHz) FM	Not In Service
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 Does Not TX a PL!**
2m	147.330mHz (-) 131.8Hz PL	**NE Area Remote Does Not TX a PL!**
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 AG0S@comcast.net. Submission deadline is the 25th of the May. **Editor**