

ROUNDTABLE

The Denver Radio Club Newsletter

Since 1917 August 2015

PRESIDENT'S MESSAGE

By Gerry Villhauer – W0GV

\(\)

Hello DRC Members,

Well it looks like summer has finally arrived in Denver. It sure is strange weather throughout the country, 100 degree temperatures in Oregon and Washington, which is pretty much unheard of. Cathy and I are looking forward to some vacation time this month. I hope all your summer plans work out for you.

Now that field day is behind us, we can move on to some of the projects on our to-do-list. Top of the list is replacing the VHF and UHF repeaters at our Centennial Cone site. The equipment is ready to go, thanks to Jason (ACOUA), we just need to schedule the time to get it all completed. It sure seems that time is a premium commodity in our busy lives, especially summer time.

Thanks to Bill, (W6OAV) for a very informative program on: What happens at the antenna when the transmit button is pushed. I am willing to gamble that his presentation answered several questions you had on antennas. For many years now, Bill has been our "Go to Guy" for antenna questions. Thanks Bill for a great presentation...and as promised, without the math.

Our August program will be another very interesting one. John Maxwell (W0VG) will be telling us all about AllStar Link Network. AllStar is a linked network that has many possible applications. It can link repeaters or base stations together. It can be used in a radio voting system to link numerous remote receivers back to a central transmitter. It can use GPS signals to synchronize each of its remote receivers removing the need for RF links between stations. It can all be operated over the internet or private network. As you will see the variations and possibilities are nearly endless...This is neat stuff, don't miss it!

Thanks to all of you who recently joined and made the DRC "Your Club". Please stay active on the air, come to meetings, programs and events. Your name and call will be listed in the body of the Roundtable.

73 for now, Gerry (W0GV) President



The Denver Radio Club Hamfest
Jefferson County Fair Grounds
When: Sunday August 17
8:30 a.m. to 1:00 p.m.

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W0TX http://www.w0tx.org



JULY MEETING - WHAT'D I MISS?
By Bill, W6OAV

There were 71 attendees which included several visitors. After Gerry (W0GV) coordinated introductions the meeting was turned over to the guest speaker Bill (W6OAV). Bill presented a PowerPoint presentation titled: "Why and How Do Antennas Radiate?"

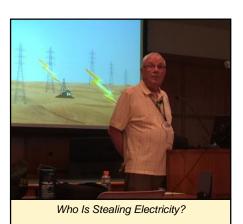
The topics covered were:

- Definitions and descriptions of magnetic, electric and electromagnetic fields.
- Properties of charged particles at rest and in motion in space.
- Properties of charged particles at rest and in motion in conductors.
- How antennas develop fields based on accelerating/ decelerating charges in a conductor.
- Properties of an antenna's Reactive, Near and Far (Electromagnetic) fields.
- The nature of electromagnetic fields and how they propagate.

The PowerPoint presentation also included two videos which provided a dynamic overview of the items presented above. This presentation will soon be available on the new DRC YouTube channel. Details will be provided as soon as the channel configuration is completed.







RA NASO

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THE ROUNDTABLE ARCHIVE

Have you been looking for a back issue of the Roundtable? Many are available on the DRC web site.

http://www.w0tx.org RoundtableAccessPage.htm.

Who's New In The DRC?

The DRC is a very active club in the Denver metro area and we'd like to have all of our members listen for these new calls and personally to make them feel welcome.

Jim Meininger KD0MXD

Michael J Vespoli III NA

Michael Vespoli IV NA

Mike Foelsch W0EXT

Jonathan C. Broyles KC0NSE

Mike Carrington WA5ZTE

Welcome to our newest members. We have a number of activities throughout the year and we'd like very much for you to participate in serving your community. If you have questions please feel free to ask on any of the repeaters or see the contact information on the last page of this publication. Also please join us once a month at the regular club meeting on the 3rd Wednesday at 7:00 p.m. For new hams we have the Elmer session which starts at 6:00 p.m. before the regular meeting.

More information can be found on the Denver Radio Club website at http://www.w0tx.org.

TECHNICAL COMMITTEE REPORT

By Bill, W6OAV

The following is an overview of the subjects discussed at the July Technical Committee meeting. The project coordinators' call signs are in red.

Voter System Expansion - East (W0GV)

Goal: Locate additional sites.

<u>Status</u>: Still looking for a South Site. There may be a possible site North of Denver. If so, W6OAV will run a coverage plot to determine if the coverage will be beneficial to the system.

145.49/448.625 Repeater - Controller and Radio Upgrade (ACOUA)

<u>Goal</u>: Replace the S Com 7k with a preprogrammed S Com 7330 and replace the Sytnors with Kenwoods. <u>Status</u>: W0GV, AC0UA and K0HTX visited the site this month to determine what hardware and processes will be required. They hope to perform the equipment upgrade ASAP.

DRC/TSA Aurora Site (W0GV)

<u>Goal</u>: Maintain contact with TSA relative to establishing a "communications room" for the DRC.

<u>Status</u>: Work is still in progress. The DRC's radios and antennas are now stored at the site. The DRC may

have an official TSA contact in August.

Packet Gateway (W6OAV)

<u>Goal</u>: Re-design the gateway for more reliability. <u>Status</u>: Kantronics sent a new firmware upgrade which W6OAV installed in the KAM XL TNC. However, the firmware tests are not presently in progress as the gateway is shut down (See next item below).

Line Noise at Station 4 (WW0LF)

<u>Goal</u>: Locate the source(s) of excessive noise which has made the HF packet port "deaf". Document and contact Xcel to correct.

<u>Status</u>: WW0LF is gathering the equipment and will coordinate the tests. In the meantime, the gateway is shut down as it is not usable.

Establish a DRC YouTube Channel (KB0A)

<u>Goal</u>: Provide access to various DRC videos.

<u>Status</u>: KB0A has obtained a channel for the DRC. He will forward log-in info to W6OAV and to others.

Station 4 Site Maintenance

<u>Goal</u>: Implement weed control and clean up the radio shack.

<u>Status</u>: W6OAV will stop to spray weeds on the way to the August club meeting.

~Editor's Note: The Technical Committee meeting is open to members of the DRC. It is held in the Arvada room, starting at 6:00 p.m. on the evening of the DRC monthly meeting.

The Denver Rad

DRC CLUB ROSTER

By Dave, K0HTX

It is time for the club to put out a new membership roster. The DRC board is trying to decide if we should do the same thing we have always done with the printed roster or enter the digital age and send via e-mail.

There are pros and cons to both methods. Sending electronically

would save the club some money, however if you wanted a hard-copy, you would have to print it yourself.

We would like feedback from the members to help determine the best solution. Please let us know how you would like to receive your roster.

- ⇒ Printed booklet handed out at the holiday party.
- ⇒ Electronically by e-mail.

Please send your responses to: feedback@w0tx.org

AUGUST MEETING PRESENTATION

By Bill, W6OAV

John Maxwell (W0VG) will discuss the AllStar Link Network. John is very knowledgeable in this area and his in depth presentation should teach us a lot. See the president's message on page one for a description of the AllStar Link Network.



W0TX LEARNING NET UPDATE

By Fred, AA0JK

Thanks goes out to Gary (KD0SQA) and Steve (KD0WMO) for taking the helm as net control operators.

We've been having a great turnout for the net and no shortage of topics to discuss. If you're just listening on the side, please join us, and voice any questions you may have. Also, if you can help in answering any questions we may have, it is greatly appreciated. Even the Elmer's are getting answers to their questions.

If you are listening and don't yet have your license, you can contact us at the W0TX web-site w0tx.org.
Also elmer@w0tx.org.

If we don't have the answer here on the net, we have a lot of experienced hams in the club that can help. Questions can also be submitted on the YAHOO Learning Net web page. (https://groups.yahoo.com/neo/groups/HamLearningNet/conversations/topics/376)

Here you will also find information from past activity that you might find of interest.

Getting that first Technician license? Upgrading to General or Extra? We're here to help.

We would encourage those who have been Hams for several years to also join us. Your experience and input is welcomed.

What topics would you like to discuss? Join us Wednesday nights, 7:30 PM, 145.490 / 448.625.

Note: The third Wednesday of the month is devoted to the DRC club meeting. See the DRC web site for additional information. http://www.w0tx.org

FIELD DAY PROPAGATION

By Fred, AA0JK

Field-Day propagation was a real challenge this year. What happened to the Bands? Where do you point the finger as to the blame for the difficulties?



When studying for your Ham license, the question was presented, "What is Propagation"? How does it affect your ability to communicate? How does it affect DX?

Solar storm activity was high, we were hit by a direct solar flair. The subject was wide spread as you

listened to QSO's during and after the weekend.

Today's technology is amazing, in the study of our environment. Do you know where to look for the answers? We no longer paint our faces and dance around an open fire seeking answers from the spirits. We have the internet, full of information, good and bad, explaining the suns effect on our home planet.

The preferred sources for reliable information? Not the mainstream media. They have shown poor to total ignorance on the subject.

For reliable information one turns to sources like NOAA, Space Weather.com, the people who actually do the observations and research. There one will find a plethora of data sure to answer any question you may have.

As Hams, we are closer to the science than the general public. We feel the effects first and question the source. The quest for answers in this science comes with a constant study of propagation and its effect on our hobby.

Be the one in the know.

http://www.spaceweather.com/ http://www.swpc.noaa.gov/



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COMMUNICATIONS LOST AT 30,000 FEET SUBMITTED BY FRED, AAOJK



Think you're having problems as net control making and maintaining contacts?

FAA, air traffic control, lost contact with several international flights during a radio blackout. Individual flights lost flight separation from other aircraft. Captains left on their own to avoid midair collisions with other aircraft in their vicinity.

This does happen. Why? Solar storms. Turn on the HF and you hear the same complaint. Can't make contact, and or maintain contact with net control.

Before going on the air, check the space weather conditions. (http://www.spaceweather.com/). This will let you know if conditions will be compatible for your next Net or DX hunt.

At least your shack isn't flying at 30,000 feet and loosing contact with air traffic control.

Armed with a good basic knowledge of propagation and the effects of space weather, you can better understand your environment on the air waves.

At least you have the option of changing frequencies, or working the Grey-Line to seek out better communication conditions.

Attention ~ Don't Miss This Meet

Come out to the meeting to learn more about space weather and propagation. NOAA is tentatively scheduled to speak with the DRC, on October 21st.

THE ROUND

Have you been looking for back issues are available on the DRC web site.

Scan the QR code

http://www.w0tx.org/RoundtableAccessPage.htm



DENVER RADIO CLUB FIELD DAY

By Jason, AC0UA

Field Day this year was a great success 48 people come out to participate. We made over 500 contacts over a 24 Hours period.

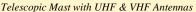
We had 4 stations on emergency power, 20 meters, 40 meters, 15 meters, and 6 meters, we also had a GOTA station running also for visitors to use. This year Jack (W0JMC) drove up the Salvation Army communications van and crank up tower, we set up the 20 meter station in it with a 3 element Beam antenna.

Dave (K0HTX) set up a 40 meter station on a G5RV, which gave us some problems during the mid-day but worked great the rest of the time. Jason (AC0UA) set up his Gap Titan vertical antenna and worked several bands on solar power. Aleksey (AF0E) set up his home brew directional wire antenna and worked CW on 20 meters. Frank (N3PQ) set up the GOTA station a wire antenna and help several people make contacts on 15 meters.

Jim (K0TOR) drove up the Salvation Army Canteen and cooked meals for everybody so we could focus on Field Day activities. I have to give thanks to Marcia (KB1WEP) and Rich (KB1WEP) visiting from Masseuses. Marcia helped Jim with some of the meals, Rich and Marcia worked the 20/40 meter stations and helped out wherever they could. This was a great event thanks to everybody that participated.

Editor's Note: The following photographs were provided by a few members and in some cases a description, names and/or call signs were not provided. If you appear in a photograph without a suitable caption, please don't take offense as none is intended. ~







Salvation Army Comm Van w/50ft Crankup Tower 10-15-20 Antenna

 $(Continued\ on\ page\ 7)$

(Continued from page 6)



Salvation Army Canteen, Operated by Jim (K0TOR)



Campground Road Where DRC Setup Operations



Marcia (KB1WEP)





Nice To Have Some Shade



(Continued on page 8)

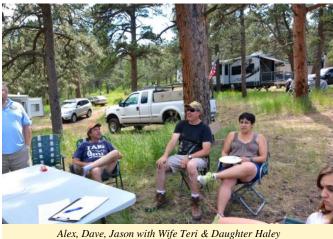
(Continued from page 7)



Alex (AF0E), Dave (K0HTX), Jason (AC0UA) & Teri



CQ, CQ, CQ......





Teaming Up





Frank (N3PQ), Orlen (WW0LF), Heathkit Tube Radio

The "Big One" is only a couple of weeks away!

The DRC Hamfest committee still needs your help. The work is easy and more importantly fun.

For more information give Bryan (KB0A) a call or drop him an email. Check the roster for his phone number. The email address is: drcfest@w0tx.org

Food & Fun

Seminars ~ Great subjects and lots to learn Lots of vendors with everything you need Computers ~ Radios ~ Antennas Parts & Pieces You name it and you'll see it here!!!

For more information! contact Bryan (KBOA) drcfest@w0tx.org Or visit www.w0tx.org Volunteers Needed

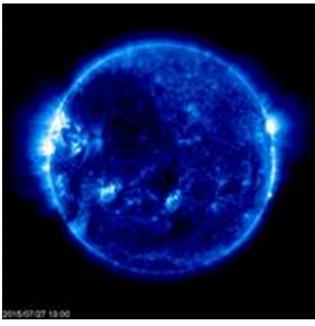




SOLAR UPDATE

BY FRED, AA0JK

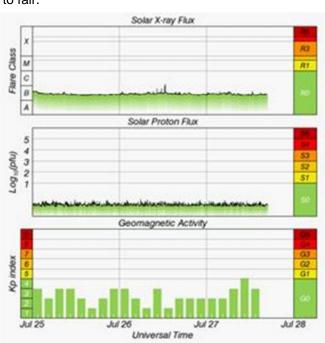
Highlights of Solar and Geomagnetic Activity



Solar activity has been at very low levels this month.

Propagation

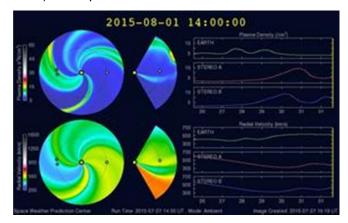
Long distance low and medium frequency (below 2 MHz) propagation along paths north of due west over upper middle latitudes has been poor. Propagation on long distance northeast-southwest paths has been poor to fair.



Solar activity is low, but the quiet could soon be interrupted by an M-class solar flare. Fast-growing sunspot AR2390 has an unstable 'beta-gamma' magnetic field that could result in a moderately strong explosions. Any such flare will likely be geo-effective because the sunspot is directly facing Earth.

Forecast of Solar and Geomagnetic Activity 27 July - 22 August 2015

Solar activity is expected to be at very low to low levels throughout the period with a slight chance of M-class (R1-R2/Minor-Moderate) flare activity between 28 July - 10 August due to the return of Region 2381 (N14, L=074) which produced two M-class flares last rotation.



For current updates:

http://www.spaceweather.com/

Dr. Tamitha Skov's space weather forecast http://spaceweather.tv/



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LOOKING BACK AT THE DRC PROVIDED BY WOODY (WOUI)

PRESIDENT'S COLUMN: ROUNDTABLE, DECEMBER 1965

PRESIDENT'S COLUMN

The excellent attendance at the monthly meeting of DRC continues to be gratifying, and we hope it continues to grow as the membership roster is doing. Remember, you are welcome whether a member or not.

In spite of the pessimism expressed by some members in regard to setting up and operating the club station, WOOUI, from the lobby of the Denver Theatre last month, we feel it was a success. I do not know how much traffic was handled, but the interest shown by the patrons of the theatre was very good. At least another portion of the general public knows that hams do something besides generate TVL A picture of the station will be found elsewhere in the Round Table and also has been forwarded to CQ Magazine, inasmuch as this was jointly sponsored by CQ and Columbia Pictures. I wish to thank all who participated and assisted in either the installation or operation of the station.

I would like all DRC members or other interested hams, to express their desires on how to best conduct the club activities for the general interest of all. For instance, do you like transmitter hunts, bowling teams, or what? Please make your wishes known. Remember, you only get out of a club what you put into it.

John Weybright, WØSHD, has accepted the responsibility of Field Day Chairman for next June. That may seem a long way off, but if you wish to participate, or have some ideas on the subject, please contact John as it requires advance planning and help.

It was reported last month that Chic, WØSIN, continues to improve and is looking forward to going home from the hospital soon. Walt Reed, WØWRO, is in St. Luke's Hospital following heart surgery. It was also reported that Howard, KØZNP, was recently in Porter Hospital with a back injury, but is now home and recovering. We wish to all, a speedy recovery, and hope to see you on the air soon.

Remember the membership contest sponsored by the Board of Directors of DRC, \$25 first prize, \$15 second prize, and \$10 third prize to the members who bring in the most new members before December 31st. You must advise Larry, WØEIE, to credit each new member you bring in to you so a tally can be kept. "Slats"—KØATZ—President.

OH! OH!

I asked one of our ARRL Official Observers to write a column pointing out some of the more flagrant violations of FCC rules, but he seemed to have an attack of "busyitis." So, may I take the liberty of pointing out just one or two violations which seem to be prevalent?

The first, and most often heard, is usually found in the DX pile-ups. The FCC rules state that in all cases the calls of both the station being called and the calling station must be given. For instance, you want to work 7Q7PBD? So do a lot of other hams. Everytime you call him, you are supposed to say, "7Q7PBD This is (or from) W9XXX. You will never make it using this method, but this is the only legal procedure.

The second is for portable or mobile stations. When signing portable or mobile you must give your geographical location. /Ø or /M is not enough. The Ø District covers a lot of territory and FCC wants to know where you are at all times. The correct procedure is WØ-XXX portable, Denver, Colorado or Mobile near Podunk Junction.

The Monitoring stations are now enforcing these rules and sending out pink tle'tets by the hundreds,

Do we have an OO in our midst who would be willing to give us an occasional commentary on our violations? Round Table would be happy to have such a column as a regular feature.

ED.

HELP . HELP . HELP

DRC needs someone to conduct General Class code and theory classes for the coming year. Call Sists, KØATZ, 934-1283.

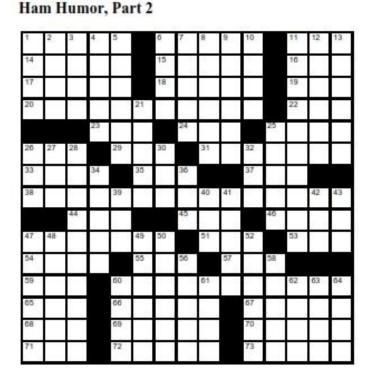
DRC needs people to do proof reading for the Colorado Callbook project, Call Kayla—WØHJL—355-2994.

DRC needs operators to man WØOUI and get the station active on the air. Call Al Auten—WØECN—756-1211.

This puzzle is provide courtesy of Chris Codella - W2PA. The URL for his website is http://www.w2pa.com. The solution for the puzzle is on page 13.

Across

- 1. Remembered place in W5-land
- 6. Sprays
- 11. Small rigs
- 14. F3 compared with A1,
- 15. HPM call sign, once
- 16. Deleted entity island, with Abu
- 17. A4 denizen
- 18. J6 name
- 19. 9/11 year
- 20. Frequent author in 60across
- 22. F9 wine
- 23. An H follower
- 24. W1 to CN dir
- 25. I-land good
- 26. UTC predecessor
- 29. Thyristor type
- 31. News
- 33. Detect after the detector
- 35, Famous W4 suffix (SK)
- 37. Cyber attacker, with net
- 38. What 20 across' articles described
- 44. Alpha male suffix?
- 45. Former F coin
- 46. CW, to FCC
- 47. Adobe product
- 51. Dir. for HL from W2
- 53, W5 ARRL sect.
- 54. Sinister look
- 55. OSCAR, for one
- 57. Ham equipment dealer
- 59. Sometimes accompanies a QSL with
- an SAE 60. Frequent place for ham humor



- 65. Opposite of paleo-
- 66. Elmer, in a way
- 67. VOA part
- 68. Diamond or Comet mounting place
- 69. Equatorial prefix
- 70, 720 and 753, for example
- 71. Opposite of 65 across
- 72. Amplifier, slangily
- 73. Sloper orientation

- 1. Roll call misser
- 2. Before mike
- 3. 4X month
- 4. The brainy bunch
- 5. Tennessee transceivers
- 6. XE sauce
- 7. Accustom (to)

- 8. Trig ratio
- 9. BV city
- 10. Shop partner, on a net,
- 11. Takes place at Hara
- 12. It's everything, often
- 13. Collins sets
- 21. Scratches, as to a wire
- 25. Flora and fauna
- 26. JK predecessors
- 27. Storage, for short
- 28. What we did before way, mp3, etc.
- 30. Ham bane
- 32. Ant. performance meas.
- 34. Yagi yawer
- 36. KB2GSD network
- 39. Weep
- 40. Skywave reflector

- 41. EME path
- 42. Suffix with persist
- 43. Driver's license datum
- 47. Maker of 11 across, for example
- 48. Some like it hot
- 49. Per se
- 50. Arm art
- 52. Interlaces
- 56. Iceland ID
- 58. Go bad
- 60. Locales
- 61. Loads from lodes
- 62. TI last name
- 63. Desktop feature
- 64. " we forget"

ELMER SESSION START TIME

The Elmer Session Starts at 6 p.m. before the regular 3rd Wednesday DRC Meeting!

Come out and join in on the sharing of information.

FACT OF THE DAY

Vertical HF Antennas

Vertical antennas are used far less than horizontal antennas throughout most of the HF spectrum, because throughout most of the HF spectrum complex ground and sea water reflection coefficients tend to mutilate the ideal radiation patterns that could be achieved over perfectly conducting soil or water. Because ground conditions out to considerable distance from a vertical radiator significantly affect its performance, identical vertical antennas installed at different places often have substantially different performance. Buried, surface or elevated ground radials should be used near a vertical radiator, because nearby ground conditions out to about 1/2 wavelength have the greatest effect. The greater the distance between the bottom end of a vertical radiator and earth, the less important ground radials become and the longer their lengths must be if they are to be effective.

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WHAT IF THE WEATHER CHANGES?

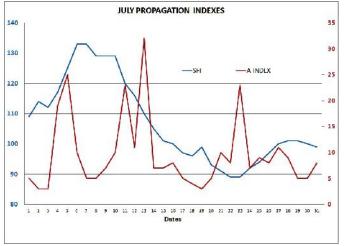
As every Coloradoan knows our weather can take a sudden change for the worse. If we should experience a turn in the weather on the day of our monthly DRC meeting it may be necessary to cancel the meeting. If this should happen listen for meeting status reports on 145.49 or 448.625 MHz repeaters during the afternoon on the day of the meeting.

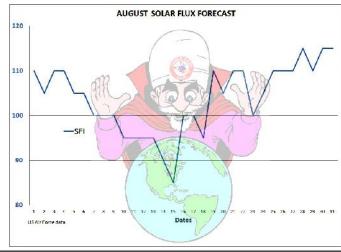
PAST & FUTURE PROPAGATION CONDITIONS

By Bill, W6OAV

The charts below show the Solar Flux and "A" indexes for last month and the forecast for this month's Solar Flux index.

Refer to the September 2010 *Roundtable* for more complete information on interpreting these charts. Issues of the *Roundtable* are available at http://www.w0tx.org/RoundtableAccessPage.htm.





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UP COMING EVENTS HAMFESTS & CONVENTIONS

The following are the HAMfests & Conventions which have been registered with the ARRL so far. More information can be found on www.arrl.org/hamfests.

2016

Nov. 7

May 13

2015
August 16 - DRC Hamfest

Jefferson County Fairgrounds http://www.w0tx.org Rocky Mountain Division Convention (HamCon Colorado)
 Keystone, CO

- 285 TechConnect 2015

Lakewood, CO

http://na0tc.org

http://www.hamconcolorado.org

Sept. 27 - Boulder BARCfest

Boulder County Fairgrounds http://www.qsl.net/w0dk

AUGUST 2015 DRC Net Sunday's at 8:30 p.m. on 145.490 / 448.625 (No PL)						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 ARRL August UHF Begins 1800 UTC
2 ARRL August UHF Ends 1800 UTC	3	4	5 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	6	7	8
9	10	11	12 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	13	14	15 ARRL 10 GHz Up Begins 6:00 a.m. Local
16 ARRL 10 GHz Up Ends 12:00 a.m. Local	17	18	19 DRC Meeting Elmer 6:00 p.m. General 7:00 p.m.	20	21	22
23	24	25	26 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	27	28	29
30	31	ARRL Rookie Round Up RTTY 1800 - 2359 UTC		DRC Hamfest 8:30 a.m. to 1:00 p.m.		

Check www.ARRL.org for Contests and Rules!

DRC	BOAR	OF D	IRECTO	RS
-----	------	------	--------	----

President	W0GV	Gerry Villhauer	303-467-0223	w0gv@hotmail.com
Vice-President	K0HTX	Dave Gillespie	303-795-8225	k0htx@comcast.net
Secretary	WWOLF	Orlen Wolf	303-279-6264	owolf@mines.edu
Treasurer	K0TOR	Jim Beall	303-798-2351	k0tor@arrl.net
Board Member	AC0UA	Jason Smallwood	Check Roster	Check Roster
Board Member	K0BAT	Art Thayer	303-340-2657	artthayer@comcast.net
Board Member	WOJMC	Jack McComb	303-885-9098	w0jmc@arrl.net
Board Member	K0LAI	Larry Irons	303-763-8112	Check Roster

DRC STAFF AND VOLUNTEERS

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Net Control	K0TOR	Jim Beall	303-798-2351	k0tor@arrl.net
EmComm Coordinator	WOJMC	Jack McComb	303-885-9098	W0JMC@arrl.net
TSA Coordinator	KA0BBQ	Barry Wilson	Check Roster	ka0bbq@arrl.net
Membership	KC0CZ	Bob Willson	303-659-0517	kc0cz@comcast.net
Club Librarian	WG0N	Dave Baysinger	303-987-0246	wg0n@arrl.net
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Swapfest Manager	KB0A	Bryan Steinberg	Check Roster	drcfest@w0tx.org
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DRC REPEATERS

	BAND	Freq / Shift / PL Tone	Additional Information
	6m	53.090MHz (-1MHz) 107.2Hz PL	
	Packet	145.05MHz<>14.105MHz	Usable by Technicians on 2 meters. See January 2015 RoundTable.
	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	Test Mode Operation. Send signal reports to Tech Committee.
	1.25m	224.380MHz (-) 100Hz PL	
	70cm	447.825MHz (-) DCS~073; NB 12.5; +/- 2.5	Saint Anthony's Note: This is a narrow band repeater requiring DCS.
	70cm	448.625MHz (-) 100Hz PL	Linked to the 2m - 145.490MHz machine.
	70cm	449.350MHz (-) 100Hz PL	Wide area coverage with Echolink Node # 4140.
E	70cm	449.775 MHz (-) 100Hz PL	Yaesu Fusion Digital / Analog, 100 Hz Tone Required for Analog.
	70cm	446.7875MHz (-)	MotoTRBO Repeater Slot 1 – DMR-MARC WW, Slot 2 – Local

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DRC members - this is your newsletter. Please email your club or amateur radio related suggestions to the editor. Members are the heart of The Denver Radio Club, so 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 n0hi@arrl.net. The submission deadline is the 20th of the Month. \sim Editor