



THE ROUND TABLE

Monthly Newsletter Of The Denver Radio Club

Since 1917

April 2024

PRESIDENT'S MESSAGE

BY GERRY VILLHAUER, W0GV

Hello DRC Members.

I hope you are all well and enjoying our improved weather. Time to get those outside antenna projects planned out. We are getting closer to the startup of our DRC Saturdays. We will have more information to deliver on the Sunday and Wednesday nets. Please tune in for that and also keep an eye on the DRC Website at W0TX.ORG.

The Longmont LARKFEST is right around the corner, April 6th at the Boulder County Fairgrounds in Longmont. DRC will be there with our banner and a couple of tables. Please stop by and say hello.

PLEASE mark your calendars for the BIG ONE! Our very own DRC Hamfest on Aug 25, 2024 at the Adams County Fairgrounds in Henderson. Our Hamfest Chairman, Bill Worthington KE0YKV is looking for help. Please consider the importance of this event to our club and volunteer to give a hand to make our big event for the year a great success.

Thanks to Thomas Schuessler, N5HYP, for a very interesting presentation on AMSAT at our March meeting. It is amazing what effort and dollars are being put into that very interesting and rewarding part of our ham radio hobby.

Our April meeting and program will be 04/17/24 - Joe Eisenberg, K0NEB will be telling us all about Kit Building; "I have been licensed since 1969 and am currently the Kit Building Editor for CQ Magazine. There is nothing better than sitting down at the bench with parts sorted and ready to be stuffed into a circuit board! My Elmer was Leo Meyerson, W0GFQ, Founder of World Radio Laboratories who started me in radio at an early age in Omaha, Nebraska."

Thanks to all of our new members who have recently joined the DRC. Your support is very much appreciated. Please come to meetings and events and stay active. Your name and call will be posted in this edition of the Round Table.

73 for now,

Gerry
W0GV
President



WHO'S NEW IN THE DRC?

FROM CATHY VILLHAUER, N0CRZ, DRC MEMBERSHIP

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 welcome them to the club and repeaters. Welcome to our newest members:

Doug Leber KFØPCW	Joshua Hunter
Tim Burgess KØBCX	Ben Barefoot KDØIRP

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.

QUESTION OF THE MONTH

BY BILL RINKER, W6OAV

What are STLs and why are they so popular today?

The answer can be found on page 6 of the January 2017 issue of the Roundtable:
[https://w0tx.org/RoundtableArchive/2017-RoundTables/RT201701\(JAN\).pdf](https://w0tx.org/RoundtableArchive/2017-RoundTables/RT201701(JAN).pdf)

2024 DRC HAMFEST

BY BILL WORTHINGTON, KE0YKV

The DRC 2024 Hamfest is scheduled for Sunday, August 25th and will be held at the Adams County Fairgrounds, 9:00 am to 1:00pm. As the new Hamfest coordinator, I am going to need some help. The most pressing need is to arrange the food and drinks. I also need help with ticket sales, door prize raffle, VE testing, equipment sales, and vendor registration. If anyone can offer some help, I would greatly appreciate it. I can be reached at drcfest@w0tx.org or 720-626-5485.



SKYWARN WEATHER SPOTTER TRAINING

The National Weather Service (NWS) has released 2024 Skywarn Spotter Training for Colorado. The site has four sites available within the Denver metro area at this time. They are:

JeffCo	April 3, 2024	In Person	530-730 PM	480 S. Allison Pkwy, Lakewood, CO
Adams/Arapahoe	April 11, 2024	In Person	6-8 PM	5416 S Riviera Way, Aurora, CO
Adams	April 20, 2024	In Person	10 AM-12 PM	4430 S. Adams County Parkway, Brighton, CO
Adams/Arapahoe	April 22, 2024	In Person	6-8 PM	1100 E Colfax Ave, Bennett, CO (Community Center)

The training prepares the general public in spotting hazardous weather conditions and reporting them to the NWS. This training is highly useful for amateur radio operators who can report via radio.

For additional class opportunities see [SKYWARN Spotters \(weather.gov\)](https://www.weather.gov/skywarn).

Currently, the Denver Radio Club has no plans to host a class at this time.

A FAKE INDUSTRIES ANNOUNCEMENT

By BILL RINKER, W6OAV

It's been a while since FAKE Industries has introduced a new product in the Roundtable. Well, on April 1 FAKE Industries brought out a brand new product which increases the radiation efficiency of any antenna.

The product, called LAUNCH-WAX, takes advantage of the fact that RF flows on the outer surface of a conductor; in this case, the antenna elements. LAUNCH-WAX is a special wax that the user spreads over the surface of the antenna elements. This wax makes the surface slippery allowing the RF to flow faster with less loss along the element. Hence, the antenna launches a stronger faster radio wave into space. Only one application of LAUNCH-WAX will increase the antenna efficiency by 20 dB!

FAKE Industries, a Division of WACK INC.
 " If it's a fantastic product, it's out of WACK"

HAMS AND THE BLITZ

BY BILL RINKER, W6OAV

British hams played a crucial role in the Battle of Britain (the Blitz), providing essential support to the Royal Air Force (RAF) and helping to secure the Allied victory. This is the story of the hams' contributions.

Background

The Germans used two main radio navigation beam systems during the bombing of Britain during World War II: the Knickebein and later the X-Gerät.

Knickebein (Crooked Leg) was a radio navigation system that used two directional radio beams to guide German bombers to their targets. It operated at 30-33 MHz and was relatively accurate, with an error of about 0.9 miles at a range of 155 miles (See Figure 1). To use the system, a bomber would follow one beam listening to either the dots or dashes on that beam. When that beam intersected the other beam, the dots and dashes would combine producing a pure tone, indicating the target.

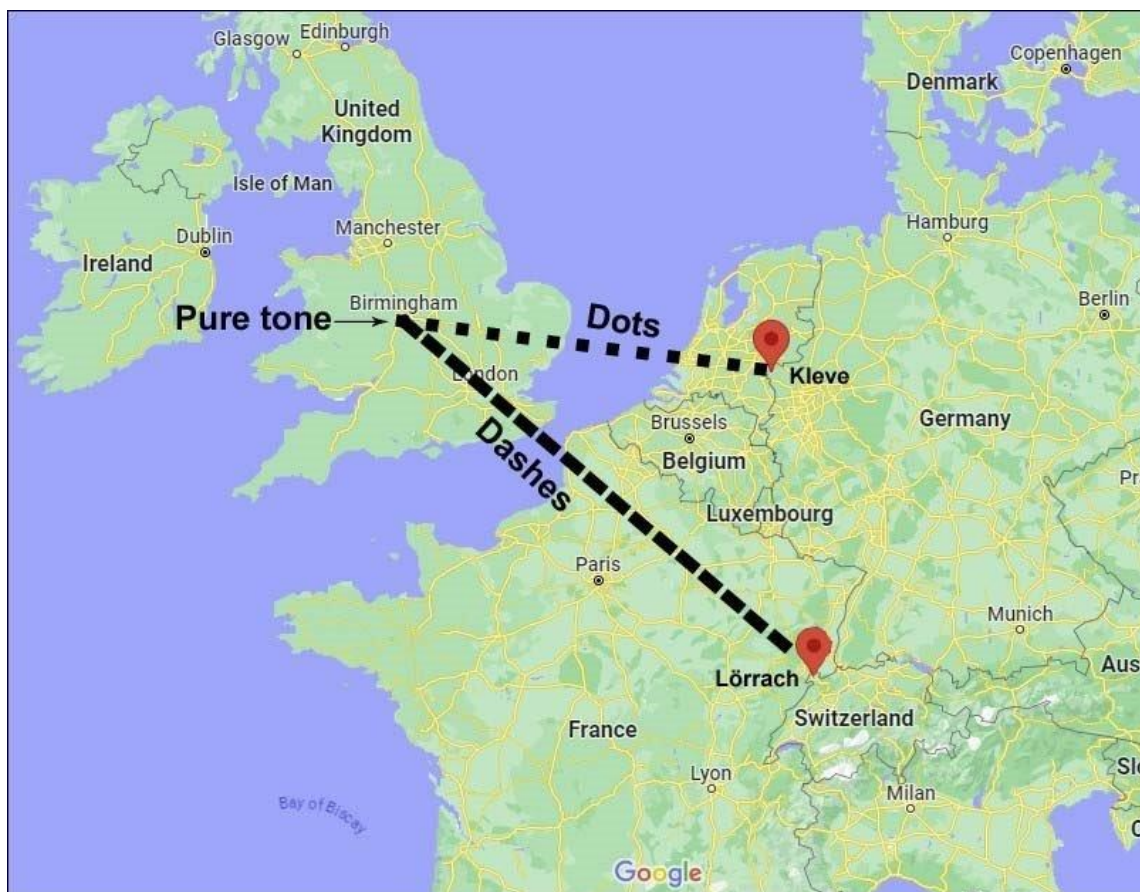


Figure 1 - The Knickebein system

X-Gerät (X-Device) was a more sophisticated 65-77 MHz radio navigation system that used a combination of beams and pulses to guide bombers to their targets. The system was very accurate, with an error of about 0.3 miles at a range of 155 miles. (See Figure 2). The X-Gerät system projected three narrow crossbeams across the main beam before the target, which allowed the aircraft's ground speed to be calculated and the bomb release point to be determined using a special "bombing clock".

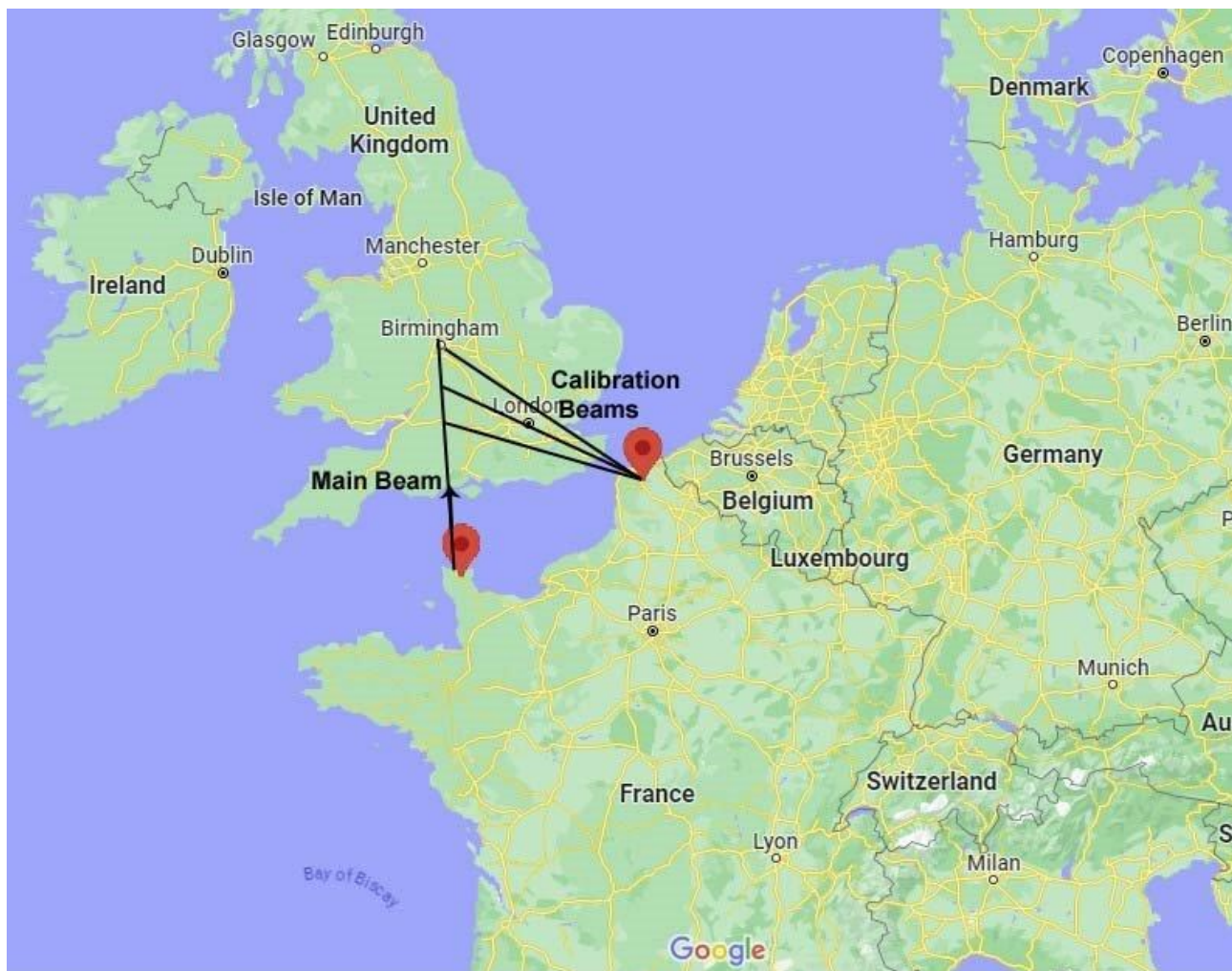


Figure 2 - The X-Gerät system

Both Knickebein and X-Gerät were used during the Blitz, the period of sustained German air attacks on Britain from September 7, 1940 to May 11, 1941. The systems allowed the Germans to carry out night bombing raids with great precision, causing widespread damage and loss of life.

The British Hams' Contributions

In the early 1940s, the British were trying to figure out how the Germans were able to bomb their cities so accurately at night. They suspected that the Germans were using some kind of

radio navigation system, but they didn't know what it was.

One day, a British ham named Reginald Kite discovered a strange radio signal. He reported the signal to the British government, and they soon suspected that it was part of a German radio navigation system.

The British government then recruited a group of hams to fly in planes equipped with American Hallicrafters S-27 receivers modified to operate on the aircraft's dc power. These planes were able to find and track what turned out to be the Knickebein beams. Before the British could build specialized systems to counter Knickebein, hams created makeshift jammers by appropriating 150 watt 27.12 MHz diathermy sets from local hospitals and connecting them to large antennas. The hams were later able to DF the German Knickebein transmitters which the British later bombed.

The British discovered the X-Gerät system after a German bomber equipped with it crashed in Scotland in November 1940. With the help of hams, they were able to study the recovered X-Gerät equipment.

Hams were very active in Britain during the Blitz. They played a vital role in the British war effort, helping to develop countermeasures to the German Knickebein and X-Gerät radio navigation systems. Hams also helped to monitor German radio traffic and to provide early warning of impending air raids.

The discovery of the Knickebein system by hams was a major turning point in the Battle of Britain. It allowed the British scientists with the aid of hams to develop counter measures and defend their cities from German bombing raids, and it helped the British to win the war.

The hams who helped to discover the Knickebein system were awarded the Order of the British Empire for their services. They played a vital role in the British victory in World War II.

The British government was very grateful for the contributions of hams to the war effort. After the war, the British government established the Radio Amateurs' Emergency Service (R.A.E.S.). The R.A.E.S. is a volunteer organization that provides radio communications support to the British government in times of emergency.

References (the first reference provides a very comprehensive and detailed overview of the topic):

“Battling the Radio Beams”, Parts 1 and 2:

https://www.researchgate.net/publication/341592935_Battling_the_Radio_Beams

Wikipedia – “Battle of the Beams”:

https://en.wikipedia.org/wiki/Battle_of_the_Beams

“The Wizard War” by R. V. Jones:

<https://www.barnesandnoble.com/w/the-wizard-war-r-v-jones/1127837805>

IS A BALUN REQUIRED WITH A DIPOLE

BY BILL RINKER, W6OAV

A topic heard among hams “Is a balun required for a dipole?” Some say “yes” and others say “no”. The answer is “Well, it depends”. Let’s start with a response from AI to this question as shown in italics below. AI’s response is followed by a couple of YouTube videos which discuss whether a balun should be used.

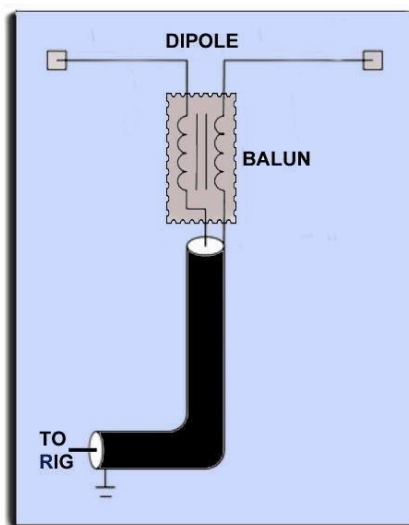
“The use of a balun (short for “balanced-unbalanced”) with a dipole antenna depends on the specific application and the type of feedline that is being used.

A dipole antenna is a balanced antenna, meaning it has equal and opposite currents flowing through its two halves. However, most modern communication systems use unbalanced feedlines, such as coaxial cables, which have an inner conductor and an outer shield. These unbalanced feedlines are designed to carry signals with respect to a ground reference.

*When connecting a balanced dipole antenna to an unbalanced feedline, a balun **may** be necessary to match the impedance and balance the currents. The primary purpose of a balun in this case is to convert the balanced signals from the dipole to unbalanced signals suitable for transmission over the unbalanced feedline, or vice versa.*

The balun serves several important functions:

- *Impedance matching: It helps to match the impedance of the dipole antenna, typically around 73 ohms, to the impedance of the feedline, which is typically 50 ohms. This impedance matching minimizes reflections and ensures efficient power transfer.*
- *Conversion between balanced and unbalanced signals: The balun converts the balanced currents of the dipole to an unbalanced signal suitable for transmission over the unbalanced feedline. It also converts the unbalanced signal from the feedline to balanced currents for proper reception by the dipole.*
- *Common mode noise reduction: A balun can help suppress common mode noise, which is unwanted noise that can appear on the outside of the feedline. It prevents the feedline from becoming part of the radiating element and reduces the possibility of interference.*



However, in certain cases, such as when the feedline is already balanced or when the feedline length is short, a balun may not be required. Additionally, some antenna designs incorporate a balun within the antenna structure itself.

In summary, while a balun is not always necessary for a dipole antenna, it can be beneficial when connecting a balanced dipole to an unbalanced feedline. It helps with impedance matching, signal conversion, and reducing common mode noise. The specific circumstances and requirements of the system will determine whether a balun is needed or not.”

The broad radiation pattern of a dipole will be pretty much the same with or without a balun. However, regarding a beam a balun is always recommended to prevent pattern distortion.

The following YouTube videos may help you decide if you need a balun. The videos basically say build a dipole without a balun and see if you experience any of the issues mentioned above. If so, then choose a balun type that suits your needs.

YouTube videos

Do you need a balun?

<https://www.youtube.com/watch?v=W6xbXtsO1So>

Baluns – When and Where?

<https://www.youtube.com/watch?v=Cy9BHhExOWk>

The effect of a 1:1 balun on a resonant dipole.

<https://www.youtube.com/watch?v=QFOx7vjchy0>

~ GET PUBLISHED ~

We welcome and encourage all members to share their experiences and stories so that we can all learn from one another. It can be long or short. If we can't fit it into one newsletter, we can split it across multiple issues. Not a writer? We have volunteers that will listen to your story and put it into an article, and of course you will have the opportunity to review and approve prior to publication. Your contribution to the club is welcomed and appreciated. ~Editor

DRC's Trading Post

Don't forget you can find **locally-sourced, ham-grown** merchandise at:
w0tx.org/trade

The DRC needs you!

Please contact W0GV (president@w0tx.org) if you are interested in helping with the open positions.
See the list at the end of the newsletter.

PAST ROUND TABLE PAGES

PROVIDED BY WOODY LINWOOD, W0UI

From the October 1960 edition.

NET SKEDS

COLORADO EMERGENCY PHONE

0800 Sunday—3890 kc.

SIX METER

2000 Sunday and Thursday—50.3 mc.

LCL-YL

0900 Monday—7235 kc.

COLORADO STATE 2 METER

2130 every night—146.25 mc.

HI NOON

1200 Monday-Saturday—7240 kc.

COFFEE CLUB

0600 Monday-Saturday—3985 kc.

COLORADO WEATHER (CWXN)

0650 Monday-Saturday—3945 kc.

DENVER AREA RACES

0900 Sunday—29.624 mc.

1930-2000 Tues., informal (members & non-members welcome)

SIX METER CD

1900 Tuesday 50.35 mc.

ENGLEWOOD CD

2000 Wednesday—29.500 mc.

COLORADO CW

1900 Monday-Friday—3655 kc.

OBS (W0KQD, Irene)

1230 Mon., Wed., Fri.—7225 kc.

12th REGIONAL

1900 every night—3570 kc.

NEW MEXICO BRASSPOUNDERS (NMBP)

1900 Mon., Wed., Fri.—3570 kc.

12th REGIONAL (TWN)

No. 1—1815 Mon.-Fri.—7060 kc.

(summer)

No. 2—2000 Mon.-Sun.—3570 kc.

BEEHIVE UTAH NET (BUN)

1230 Mon.-Sun.—7272 kc.

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Did U Know . . .

That John Cox, K0RRS, is planning a two-week trip to Coronado, Calif. for some war games with the U.S. Marines. John hasn't announced whether he will be a "good guy" or a "bad guy." Trip will begin October 9.

—⊖—

The Round Table gets around. The feature story in the July, 1960 issue on Roy Raney, K0OVQ, mentioned that he could measure five parts per million with his modified BC-221. This month, Roy received a letter from an amateur in Bridgeport, Conn. The writer enclosed the clipping from The Round Table and asked Roy for details of his modification!

Club Characters

(Continued from Page 2)

say, "Come on up, we're glad to have you." But identify yourself as one of the ham lot.

Family sure, but they're all grown. One son a Marine S/Sgt. in Okinawa. Two daughters one married to a doctor of electrical engineering at Colorado State University and the other to a Naval Chief W. O. stationed in the state of Washington. All in the communication or electronic field.

I must say as I stand here in the lookout and see as far away as Estes Park, Ft. Collins and Denver with the many valleys of aspen in their colorful brilliance, "What could be more beautiful." Words can not do it justice.

In Denver the temperature is a warm 80 degrees while on Squaw Mountain there is a light snow falling.

Many thanks for all your hospitality, Bob and Margaret, you are envied by the lot.

Need CASH or SMALLER MONTHLY PAYMENTS?



R. J. "ROG" ROGERS W0NNI

HERE'S a place you can talk ham radio or learn how to work Asia on 10 watts while you make your payments! I make personal loans or do any kind of financing in amounts of \$30 to \$3000, or more. Just phone me at RAce 2-2847.

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Just South of J. C. Penney

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DRC's EMERGENCY RESPONSES

In the event of a disaster in the metro area, please monitor our repeaters on 145.490/448.625 (primary) and 449.350 (secondary).

The emergency Net Control Operator will provide information and/or requests to members for assistance.

[W0TX Repeater Directory](#)

Kings Soopers Reward Program—Help the DRC.
kingsoopers.com/i/community/community-rewards
citymarket.com/i/community/community-rewards



RANDOM SITE OF THE MONTH
[Pakistan Amateur Radio Society](#)



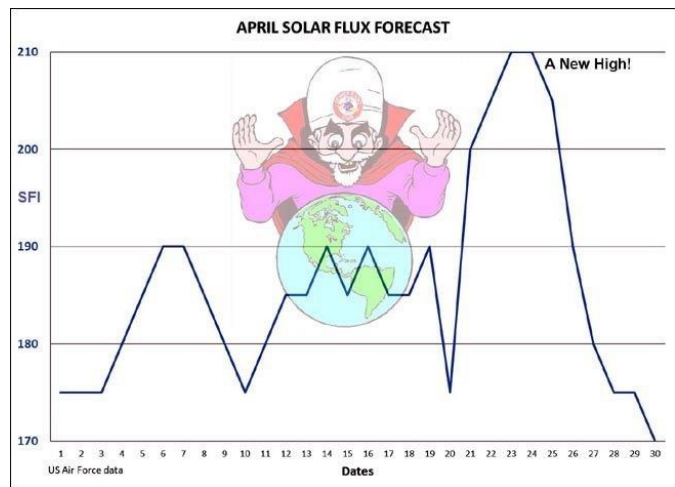
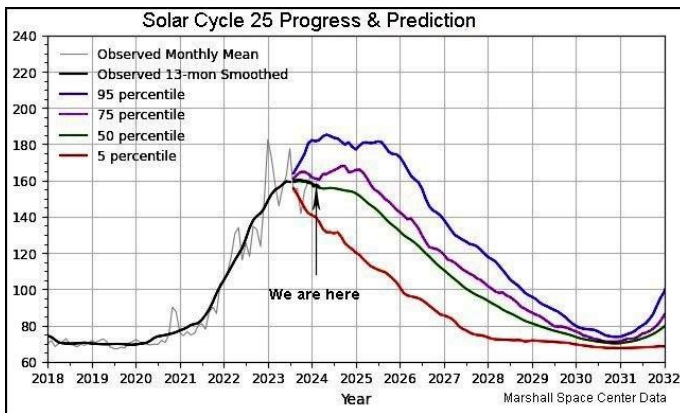
THE ROUND TABLE ARCHIVE AND ARTICLE INDEX
w0tx.org/roundtable

PAST & FUTURE PROPAGATION CONDITIONS

By Bill Rinker, 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 *Round Table* for more complete information on interpreting these charts, which is available at: [http://www.w0tx.org/RoundtableArchive/2010-RoundTables/RT201009\(SEP\).pdf](http://www.w0tx.org/RoundtableArchive/2010-RoundTables/RT201009(SEP).pdf)



UPCOMING EVENTS
HAMFESTS & CONVENTIONS

Event	Date	Location	Sponsor Website
LARCFest	4/6/24	Boulder County Fairgrounds	w0eno.org/larcfest
Montrose ARC Tail Gate Party	6/1/24	Lions Club Pavilion	montrosehamradio.org

UPCOMING QSO PARTIES

The following are the Contests not sponsored by the ARRL. Please submit additions for future issues.

State/Province	Start Date	End Date	Sponsor Website	Notes
Louisiana	04/06/2024	04/07/2024	Louisiana Contest Club	
Mississippi	04/06/2024	04/07/2024	ARRL Mississippi Section	
Missouri	04/06/2024	04/07/2024	Boeing Employees' Amateur Radio Society – St. Louis	
Georgia	04/13/2024	04/14/2024	Georgia QSO Party	
New Mexico	04/13/2024	04/14/2024	New Mexico QSO Party	
Michigan	04/20/2024	04/21/2024	Michigan QSO Party	
Nebraska	04/20/2024	04/21/2024	Nebraska QSO Party	
North Dakota	04/20/2024	04/21/2024	ARRL ND Section Manager	
Ontario	04/20/2024	04/21/2024	Contest Club Ontario	
Quebec	04/21/2024	04/21/2024	Club Radio Amateur de l'Outaouais	
Florida	04/27/2024	04/28/2024	Florida QSO Party	

Source: qsoparty.eqth.net/index.html See contestcalendar.com/contestcal.html for a larger QSO parties list.

ATTENTION

The DRC Board of Directors meetings are held on the 4th Wednesday of the month and are open to any member. Due to scheduling of meeting space, the board does not always meet at the same location and on occasion meetings are held via Skype. Anyone wishing to attend, please contact a board member prior to meeting night for specific information.




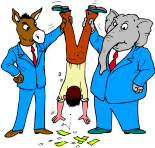

DRC REPEATERS

BAND	Freq / Shift / PL Tone	Additional Information
6m	53.090MHz (-1MHz) 107.2Hz PL	
Packet	145.05MHz	Metro Denver Area Coverage
2m	145.490MHz (-) 100Hz PL	Linked to 70cm / 448.625MHz. Primary frequency during emergency net.
2m	147.330MHz (+) 100Hz PL	Local area. Has voting receivers. 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 2m / 145.490MHz. 1° disaster net freq.
70cm	449.350MHz (-) 100Hz PL	Wide area coverage with Echolink, node # 4140. Secondary frequency during emergency net.
70cm	449.775 MHz (-)	Yaesu digital, C4FM, Wires-X, DN, VW & Data. No analog FM. W0TX Room 40931.
70cm	446.7875MHz (-)	BrandMeister Repeater: Slot 1 – Wide Area Traffic, Slot 2 – Local Talk Group 310804

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APRIL 2024							<i>DRC Net Sundays at 8:30 p.m. on 145.490 / 448.625 (no PL)</i>						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday							
	1  Last Quarter	2	3 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	4	5	6							
7	8  New Moon	9	10 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	11	12	13							
14	15  First Quarter 	16	17 DRC Monthly Meeting Elmer 6 PM Meeting 7 PM	18	19	20							
21 Rookie Roundup - Phone 1800 - 2359 UTC	22	23  Full Moon	24 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	25	26	27							
28	29	30											

See arrl.org/contest-calendar for additional details about contests.

DRC BOARD OF DIRECTORS

President	W0GV	Gerry Villhauer	303-467-0223	president@w0tx.org
Vice-President	K0KPS	Kevin Schmidt	303-475-9234	k0kps@arrl.net
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Board Member	KB0CHT	Jeff Irvin	Check Roster	Check Roster

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EmComm Coordinator	AD0UZ	Brennan Pate	Check Roster	emcomm@w0tx.org
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RT Associate Editor	W6OAV	Bill Rinker	Check Roster	Check Roster
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VE Team	K0RAP	Robert Pickett	720-336-0114	k0rap@w0tx.org
Website & YouTube	K1DBC	Doron Ben Chaim	720-254-1561	websiteadmin@w0tx.org

Please Let Us Know

Over the years we occasionally hear from hams who have read the Round Table in other states and countries around the world. We appreciate the comments and we would like to know where you are located. So if you live outside the Front Range or Denver Metro Area and read the newsletter either online, email or hard copy please send a short note via email with your *City, State or City, Country*.

We will publish it at a later date in our new regular feature called Round Table Round World.

To respond to this request send your information to roundtable@w0tx.org.

Subject: I'm located in...

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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 roundtable@w0tx.org. The submission deadline is the 25th of the Month. ~ Editor