THE ROUND TABLE
Monthly Newsletter Of The Denver Radio Club
Since 1917 January 2022

President's Message

By Gerry Villhauer, W0GV

Hello DRC Members,

As I write this message for January 2022, fires are burning in the Northwest part of the area near Superior, numerous structures have been lost. These crazy dry conditions are such a big hazard and the winds have reached over 100 miles per hour in some locations. It seems like 2021 is a year to forget, not remember. Let's hope for a much better 2022.

As far as the club, there has not been much activity to comment on this last month. We are still planning to have a Hamfest in 2022. We are searching for a good venue to hold it. If you have an idea for a location, please contact Cathy or Gerry. Yes, we are planning on holding Field Day. Most likely at the same location as our 2021 event.

Thanks to Marcel (AI6MS) for an outstanding program on batteries at our December meeting. I am still hearing comments about his presentation. He has other presentations and we plan to have him back in 2022.

Our January program will be presented by John Portune (W6NBC). He will be discussing antenna auto tuners. John will be discussing several different antennas that require a tuner at the base of the antenna for proper operation. John will explain why that a tuner built into your transceiver is not adequate for many popular antennas. Antennas and tuners are always a popular ham radio discussion. Mark your calendars for January 19th 2022; don't miss the meeting and program.

Cathy and I would like to wish all of you a very Happy New Year!

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?

By Bob Willson, KC0CZ

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:

James Miller - KF0HEG	John Faust - KI5MKY
Donald Whitlock - KN4YBP	James Utzinger - W0JYM

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.

Learning Net Report

By Fred Hart, AA0JK

Purpose:

We are here to help introduce, and promote, a variety of topics of interest to all amateur radio operators.

Our intent is to help participants get more active, involved, and engaged in amateur radio.

Topics of interest we encourage:

Personal Communications
-Getting started in the various modes, of communications.

Emergency communications
- Participation in public service.
- Training in emergency communication for volunteers.

Radio electronics, and technology
- Kit building, understanding signal propagation. and building antennas.

We strive to put experienced members / volunteers, at the forefront, as a regular source of knowledge-sharing in the Denver Radio Club. We hope members participating in the DRC learning net will find it rewarding to share experiences, and learning, that will motivate more of our amateur radio community toward lifelong journeys as Hams.

If you have experience in, and have a passion for, any amateur radio related topics, please consider providing the DRC with presentations that will motivate other Hams to share your interests.

December topics we discussed:
A big thank-you goes out to NØTRP – Jim , for taking net control the week of Christmas. Great job Jim.

- Windom OCF Antenna
- Feed-Lines – Antenna Analyzers - SWR
- On The Air Magazine December issue
- Pi-Star: pistar.uk
  - amateurradionotes.com/firmware.htm

- FT-991A Transceiver
- eHam.net
- Scouts On The Air
- ISS contacts
- Grid Squares
- Antennas – Quad-Loop – Beverage receiving antennas
- Batteries
- High Winds and Antenna damage
- DX on 17M
- Inverted V and multi-band antennas-propagation

Great topics from our group. We certainly enjoy everyone's participation. Thanks to all.

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

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

You may also find Dave Casler's Amateur Radio Licensing Guides helpful: https://dcasler.com/ham-radio/

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

Finding your place in the amateur radio community - -> Are you looking to be more involved, learn new skills, find a mentor or friends to share your amateur radio interest? Check out your local Denver Radio Club, and start making the most of your amateur radio license.

arrl.org/public-service

Use your communication skills to help keep your community safe!

weather.gov/marine/ham

warrenares.org/home/skywarn-weather-spotting

SKYWARN Spotter Training Updates: weather.gov/bou/spot_training

During severe weather events, amateur radio operators bring significant resources to storm spotting,

including an established communications system that can function in an emergency. They provide real-time information to partners like emergency management and forecasters at the national weather service. The data received from hams helps issue weather watches, warnings, and advisories.

What topics would you like to discuss? Join us Wednesday nights, 7:30 PM, 145.490, 100 Hz PL tone & linked to 448.625, 100Hz PL tone.

73,

Fred
AA0JK
elmer@w0tx.org

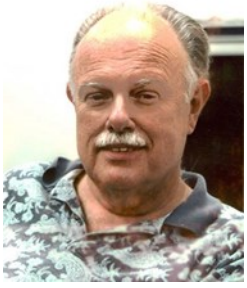
JANUARY 19TH VIDEO MEETING ANNOUNCEMENT

BY BILL RINKER, W6OAV

Plan to attend the January video meeting. John Portune, W6NBC, will discuss antenna auto tuners. Many hams think the tuner they have in their shack, or built into their rig, is the only tuner they will ever need. John's presentation explores a whole other class of becoming popular antennas that need the tuner at the base of the antenna.

Biography:

- Native of Los Angeles, CA.
- Licensed 1965, Extra 1972.
- 10 yr. resident of UK. British license MØGCK.
- Commercial Licenses: GROL, General Radio Telegraph.
- Bachelor's degree in Physics, Oregon State University 1960.
- Career (Retired) TV broadcast television engineer/instructor, KNBC Ch 4 Burbank, CA, Sony Broadcast, San Francisco.
- Published magazine author: QST (27 articles to Oct. 2021), World Radio, 73 and others.
- Frequent speaker at ham radio clubs and conventions. Free remote teleconference club presentations.
- 5 QST Cover Plaque Awards. First Place (VHF) 2017 QST Antenna Design Competition, QST Cover Oct. 2019
- Active on HF, VHF, UHF – SSB, FM, digital modes, ham satellites.
- Steam railroading, pipe organ & sushi enthusiast. Married. 3 children, 12 grandchildren +.



Verticals, Half Squares and Bobtails

By Bill Rinker, W6OAV

Half wave dipoles are probably the antenna most used by hams. Dipoles provide good performance, are simple and inexpensive to build. Unfortunately, on 20 meters and below it is often difficult to get good DX performance from a dipole due to the problem of getting the dipole at least λ/2 above ground. This height equates to 33' for 20 meters, 46' for 30 meters and 66' for 40 meters and requires 3 supports. Figure 1 shows the radiation patterns of a dipole λ/2 above the ground. As a dipole is lowered from λ/2 above ground, the angle of radiation rapidly increases upward. As described below, several types of vertical antennas can resolve the height issue and provide lower angles of radiation required for DXing.

Quarter Wave Verticals

The λ/4 vertical can resolve the issue of achieving a good DX angle of radiation without having multiple high supports. See Figure 2. Figure 3 shows the λ/4 vertical's RF radiation pattern. Comparing Figure 3 to Figure 1 shows that a vertical's take off angle is lower than that of the dipole λ/2 above ground. However λ/4 verticals do have several issues:

- The efficiency of the vertical will be determined by the ground resistance which in most areas will be high. To be effective, a good radial network is required.

- As shown in Figure 2, the RF current maximum is at the base of the vertical which means that most of the RF radiates from the lowest part of the vertical. Thus, a lot of the RF will not clear and will be absorbed by surrounding structures.

A good alternative which will resolve the issues above and provide better performance is either the Half Square antenna or the Bobtail antenna.

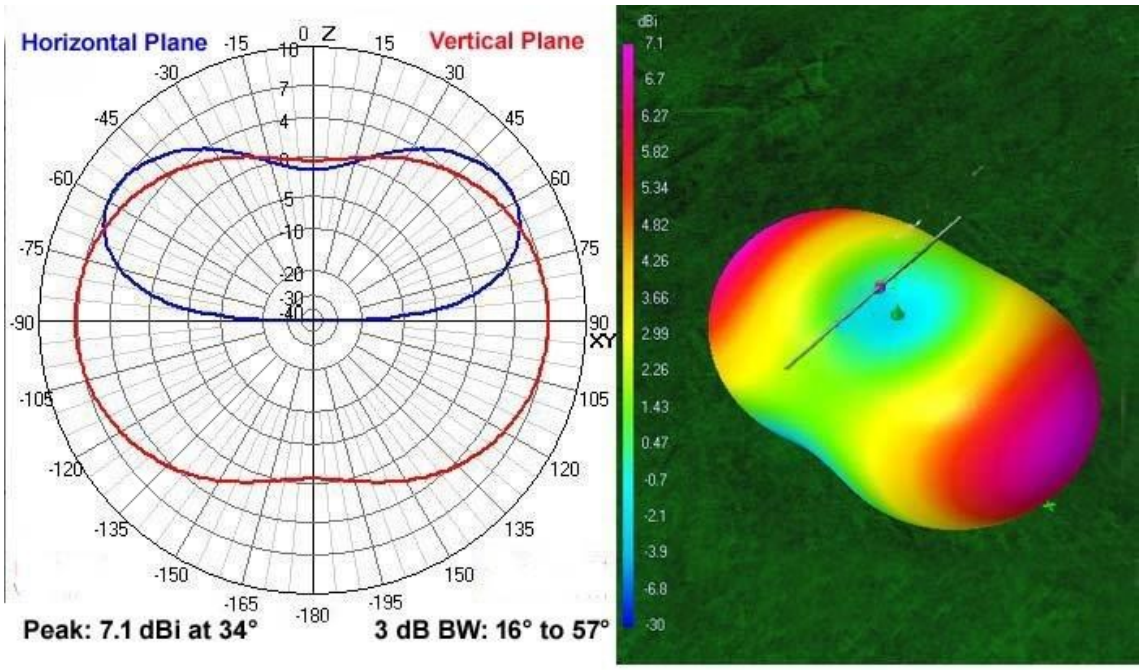


Figure 1 - Radiation patterns of a λ/2 dipole λ/2 above the ground.

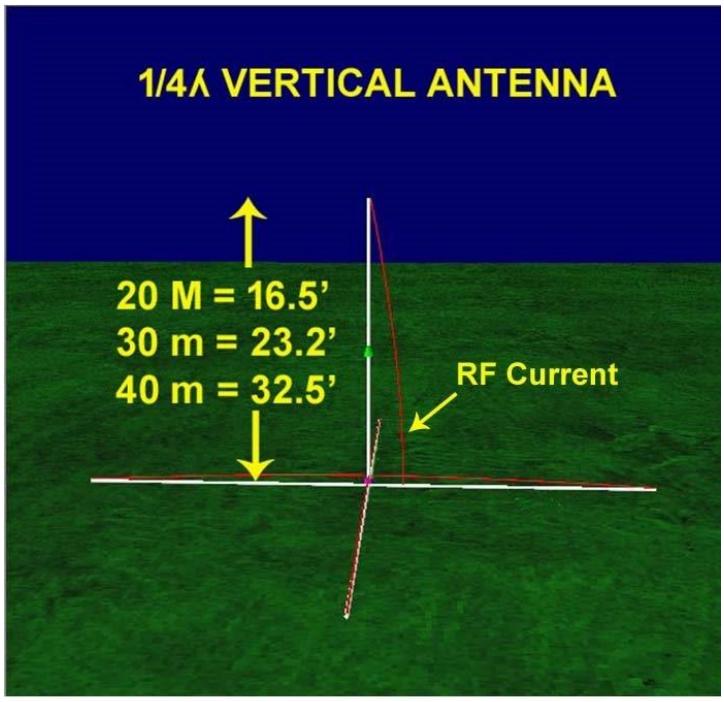


Figure 2 - Dimensions for a λ/4 vertical

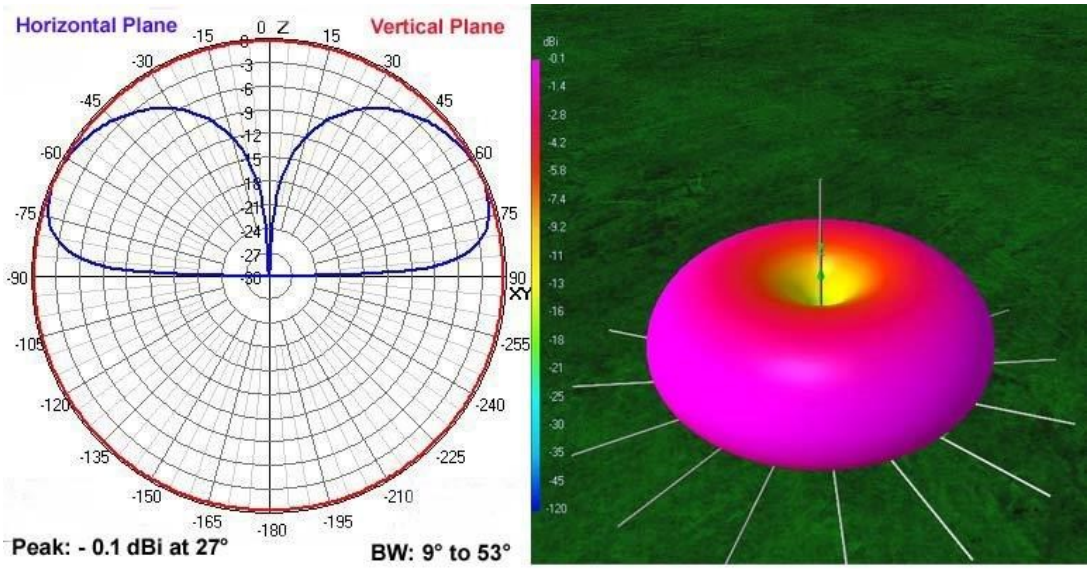


Figure 3 - Radiation patterns of a λ/4 vertical groundplane

Half Square Antenna

Referring to Figure 4, this antenna consists of two λ/4 verticals, spaced λ/2 apart and top fed in-phase by a horizontal wire which does not radiate. This produces a bidirectional radiation pattern broadside to the antenna. The current maximums are at the top of the verticals. This means that, unlike a λ/4 vertical, most of the radiated RF is high above the ground and will clear and not be absorbed by surrounding structures. Also, unlike a λ/4 vertical, absorption by lossy ground will not be a factor in determining the antenna's efficiency. An important advantage of this antenna is that it does not require an extensive radial system.

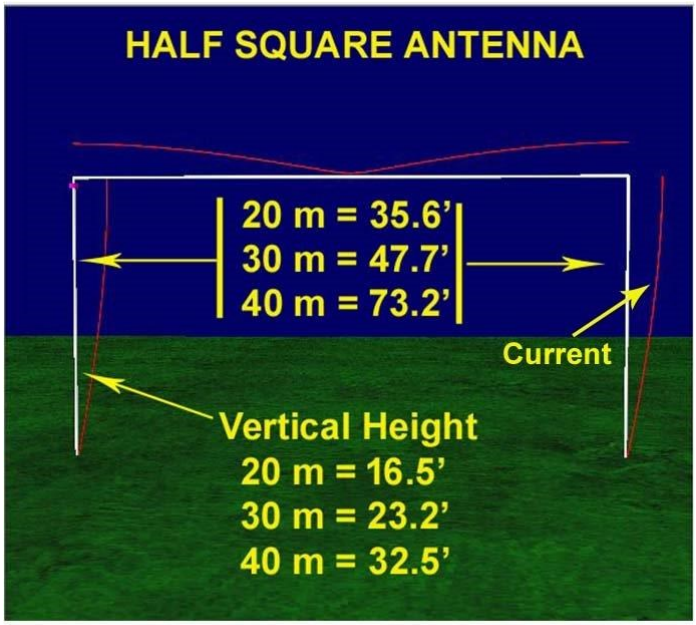


Figure 4 - Dimensions for a Half Square

The antenna can be directly fed with coax at either corner (low impedance, current fed). Or, it can be fed at the lower end of one of the vertical wires (high impedance, voltage fed) using a matching network such as the one shown in Figure 8.

The Half Square's broadside radiation pattern is shown in Figure 5. Note that the Half Square compared to the λ/4 vertical has about 3 dB of gain and a lower take off angle. As mentioned earlier, since the current lobe is higher than that of the λ/4 vertical, the performance in suburbia will normally be better.

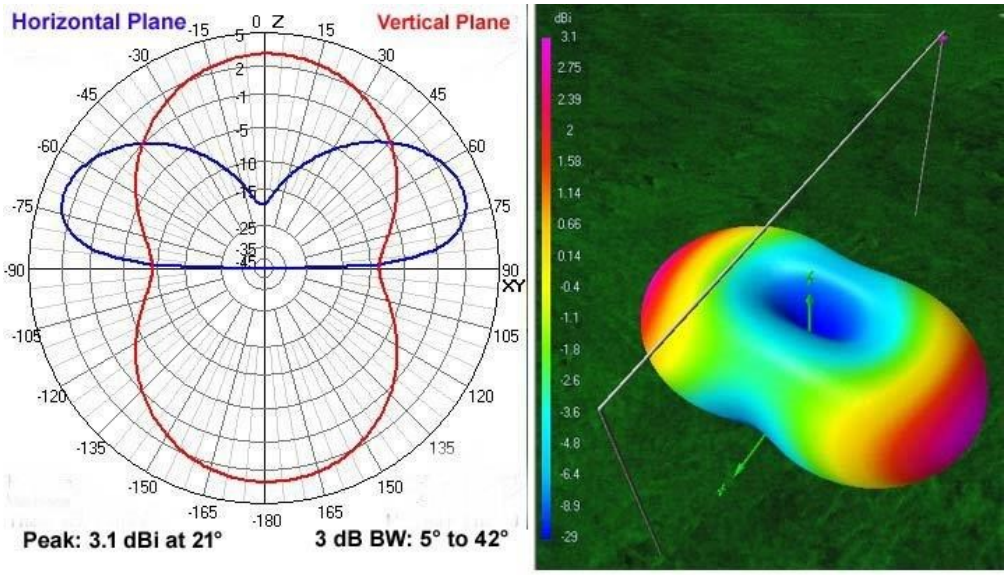


Figure 5 - Radiation patterns for a Half Square antenna

Should you not want to build a Half Square antenna commercial versions are available at http://www.hypowerantenna.com/products/half-square-antenna

Bobtail Antenna

Referring to Figure 6, this antenna consists of three λ/4 verticals, spaced λ/2 apart and top fed in-phase by a horizontal wire which does not radiate. This produces a bidirectional radiation pattern broadside to the antenna. The current maximums are at the top of the verticals. This means that, unlike a λ/4 vertical, most of the radiated RF is high above the ground and will clear and not be absorbed by surrounding structures. Also, unlike a λ/4 vertical, absorption by lossy ground will not be a factor in determining the antenna's efficiency. An important advantage of this antenna is that it does not require the extensive radial system.

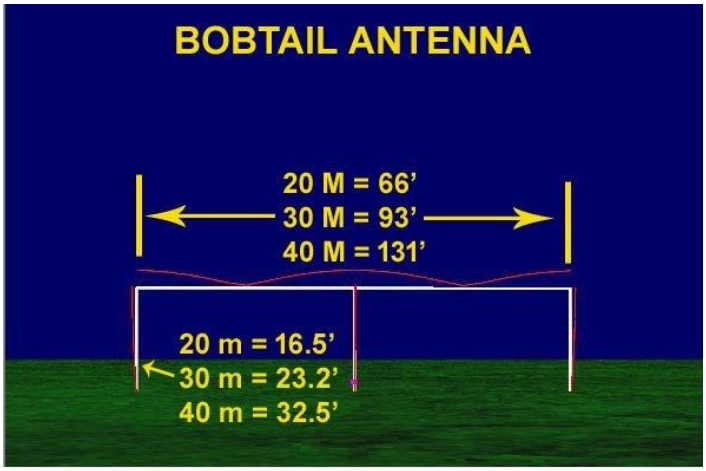


Figure 6 - Dimenisons for a Bobtail

Bobtails are normally fed at the bottom of the middle vertical using a matching network similar to that shown in Figure 8.

The Bobtail's broadside radiation pattern is shown in Figure 7. It is most effective for low angle signals and makes an excellent long-distance antenna. Note that the Bobtail compared to the λ/4 vertical has about 5 dB of gain and a lower take off angle. As mentioned earlier, since the current lobes are higher, the performance in suburbia will normally be better.

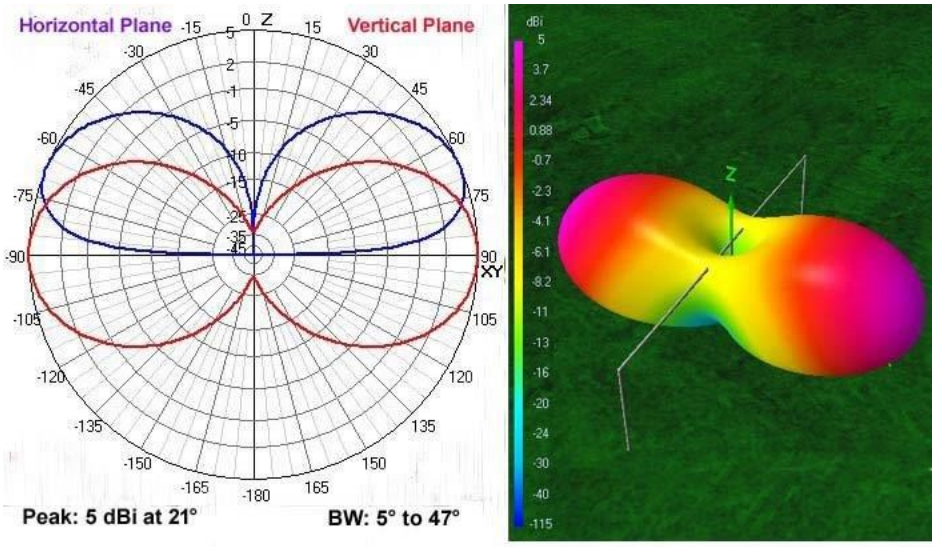


Figure 7 - Radiation patterns for the Bobtail antenna

Matching network

Figure 8 shows the most popular marching network for the Half Square and the Bobtail. A ground stake is recommended at the bottom of the matching network to provide lightning protection. Information can be found at http://www.angelfire.com/md/k3ky/page49.html

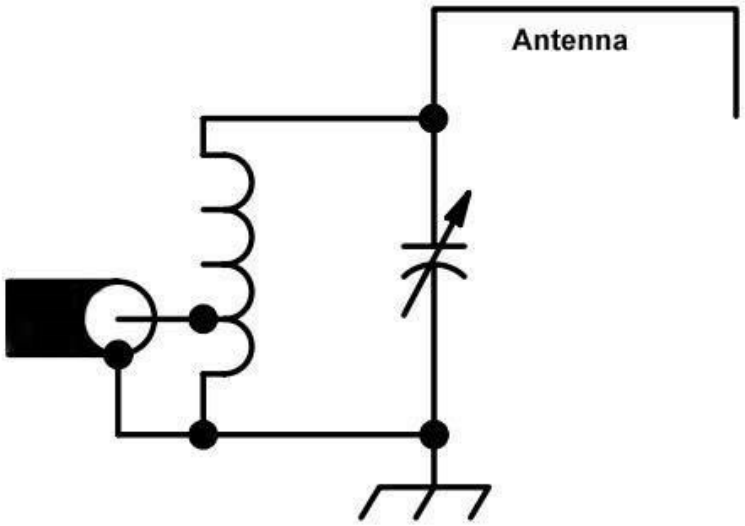


Figure 8 - Matching network for Half Square or Bobtail

Information on the capacitor and inductor values can be found at: http://www.angelfire.com/md/k3ky/page40.html

Shorting the Vertical Height

If the λ/4 height of the Half Square or the Bobtail is an issue, the vertical height can be shortened in two ways:

- Loading coils located about half way up the verticals can be installed and the verticals retuned. There will be very low loss of gain if good high Q coils are used.
- The lower ends of the verticals can be bent horizontally and retuned for resonance without adversely compromising performance.

References:

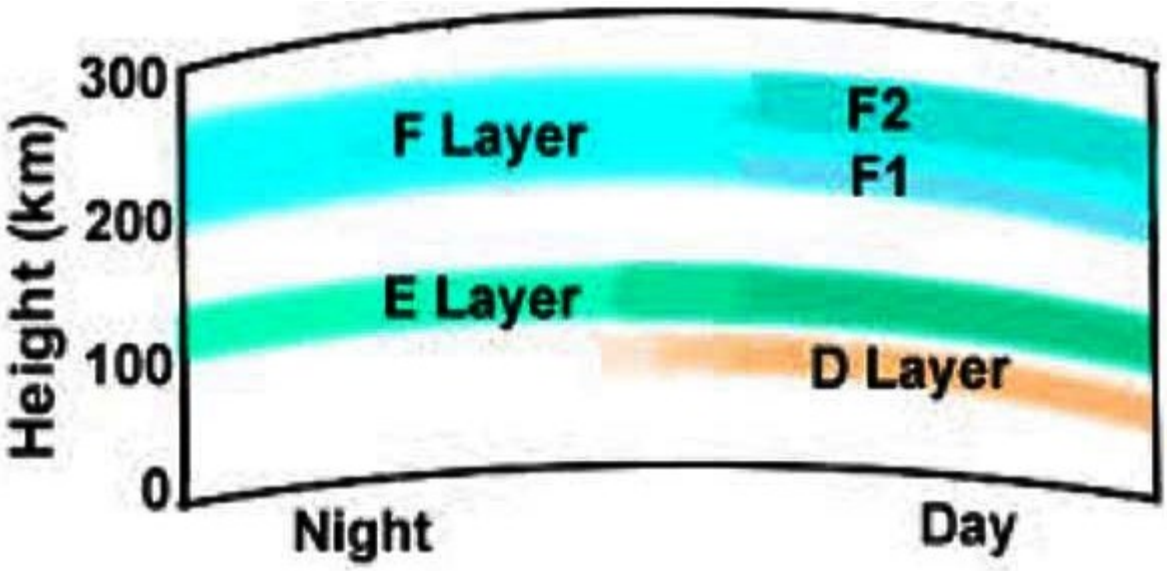
- Woody Smith, W6BCX, invented the Bobtail antenna in 1948. He wrote a two part article beginning in the February 1983 issue of “Ham Radio” magazine. The articles are available at: https://archive.org/stream/hamradioversion/HR_1983#page/n111/mode/2up https://archive.org/stream/hamradioversion/HR_1983#page/n139/mode/2up
- Half Square and Bobtail users’ comments: http://www.angelfire.com/md/k3ky/page42.html
- Half Square and Bobtail antennas: www.angelfire.com/md/k3ky/page38.html
- Half Square and Bobtail antennas: http://www.hamuniverse.com/wb3aywcurtainantennas.html
- Half Square antennas: https://rudys.typepad.com/ant/files/antenna_halfsquare_array.pdf
- Bobtails, W8HXR, 73 Magazine, May 1980 https://archive.org/details/73-magazine-1980-05/page/n43/mode/2up
- The Half Square: https://archive.org/stream/hamradiomag/ham_radio_magazine/Ham%20Radio%20Magazine%201981/12%20December%201981#page/n49/mode/2up
- The Half Square Antenna: Ben Vester, K3BC. QST, Mar 1974, p. 11.

Why D, E, F?

Submitted By Bill Rinker, W6OAV
From the Westlakes ARC, http://westlakesarc.org.au

Have you ever wondered why the D, E, and F layers in the ionosphere were so named by the man who discovered them - Sir Edward Appleton? He was asked this question in 1943 and gave the following answer: *"In the early work with our broadcasting wavelengths, I obtained reflections from the Kennelly-Heaviside layer and on my diagrams I used the letter E for the electric vector of the down-coming wave. When therefore in the winter of 1925, I found that I could get reflections from a higher and completely different layer. I used the term F for the electric vector for waves reflected from it. Then about the same time, I got reflections from a very low height and so naturally used the letter D for those returned waves. Realizing I must name these discrete layers I felt I ought not name them A, B, and C, since there might be discovered layers both above and below them. I therefore felt that the original designations D, E, and F, for the electric vectors would be most appropriate for the layers themselves. And I am afraid that's all there is in the story."*

Journal of Atmospheric & Terrestrial Physics - 1959



Solar Geophysical Activity Report

Provided By Fred Hart, AA0JK

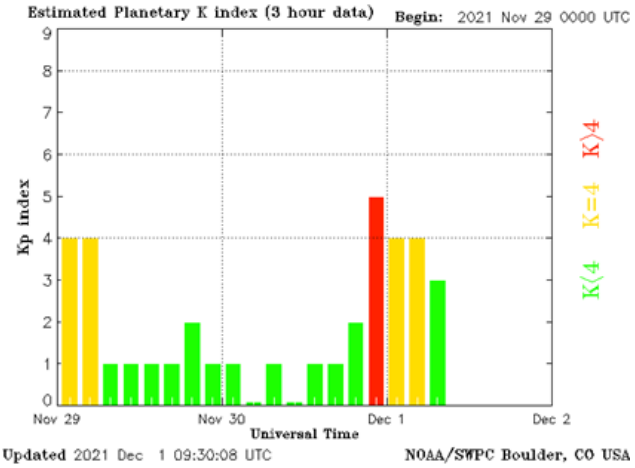
Wednesday, December 1st - Minor geomagnetic storms were possible on December 3rd when a CME might sideswipe Earth's magnetic field. The storm cloud was hurled into space on November 29th by an erupting filament of magnetism in the sun's southern hemisphere. According to NOAA computer models, the bulk of the CME would sail south of our planet with a near miss just as likely as a glancing blow.

Forecasters were not expecting this. On November 30th, a co-rotating interaction region CIR, hit Earth's magnetic field, sparking a G1-class geomagnetic storm.

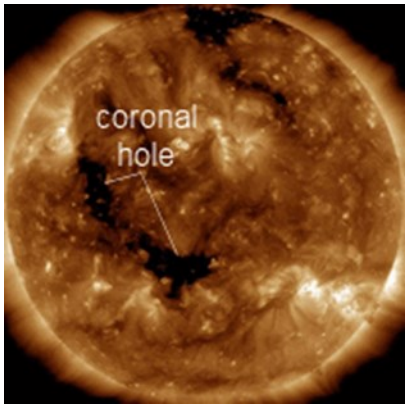
CIRs are transition zones between slow, and fast, moving solar wind streams. They contain shock waves and strong magnetic fields that can mimic coronal mass ejections (CMEs), often disrupting HF shortwave frequencies when they arrive.

CIRs are notoriously difficult to predict. This one arrived just ahead of a high-speed stream flowing from a northern hole in the sun's atmosphere. Forecasters expected the stream (and its CIR) to sail north of our planet,-a complete miss. What happened instead was a pleasant surprise. Aurora alerts

Planetary K-index
Now: Kp= 3 quiet
24-hr max: Kp= 5 storm

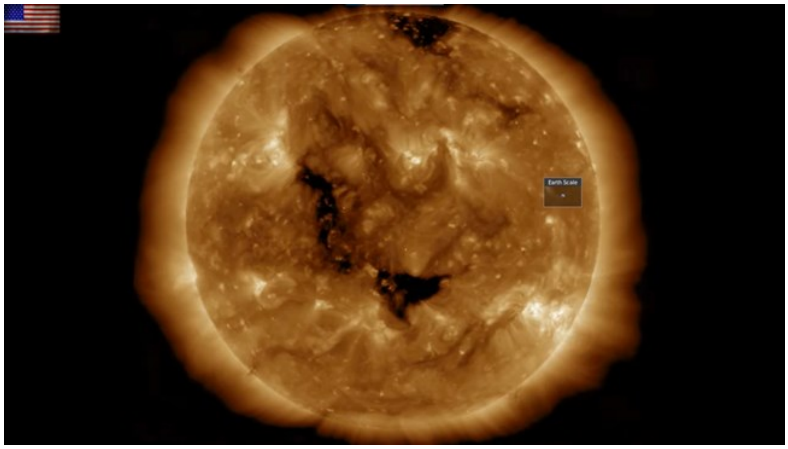


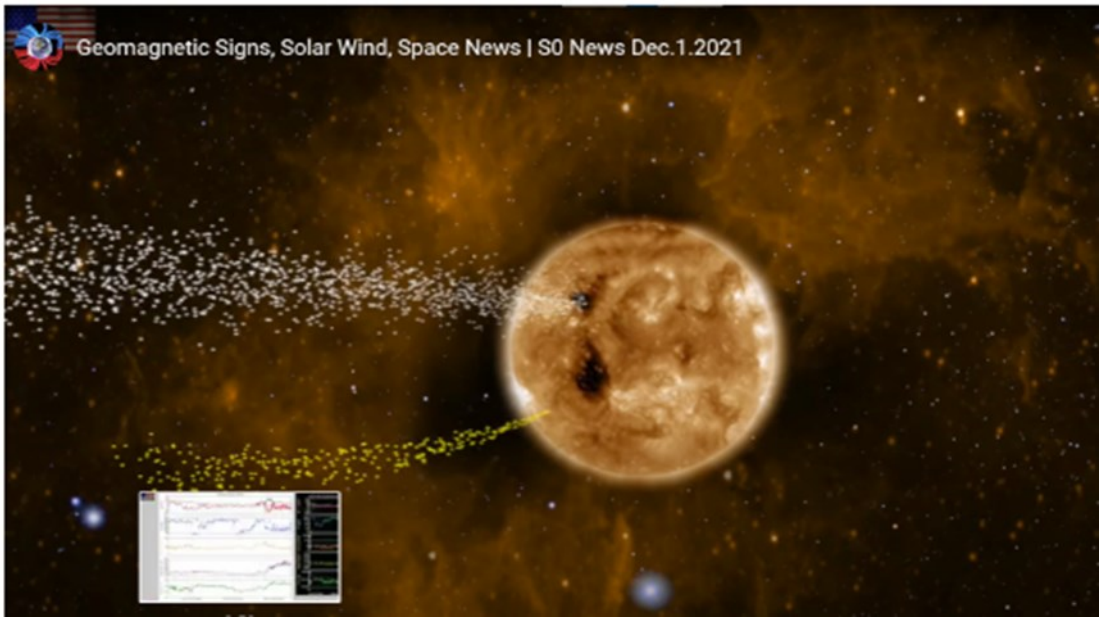
The Radio Sun 10.7 cm flux: 90 sfu

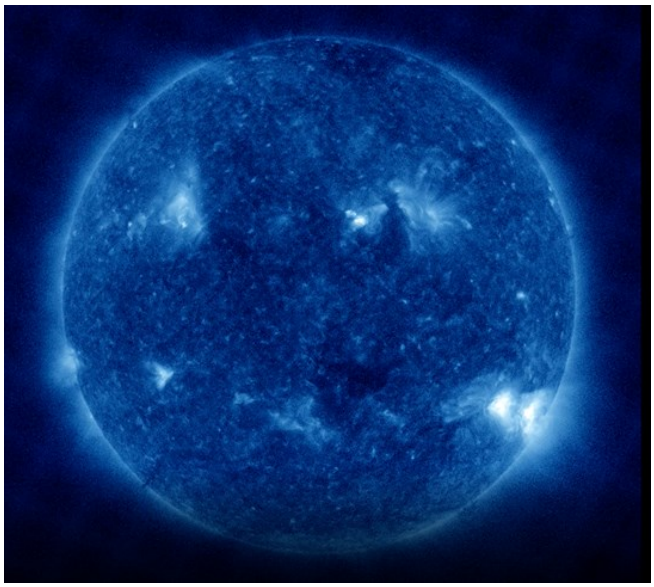


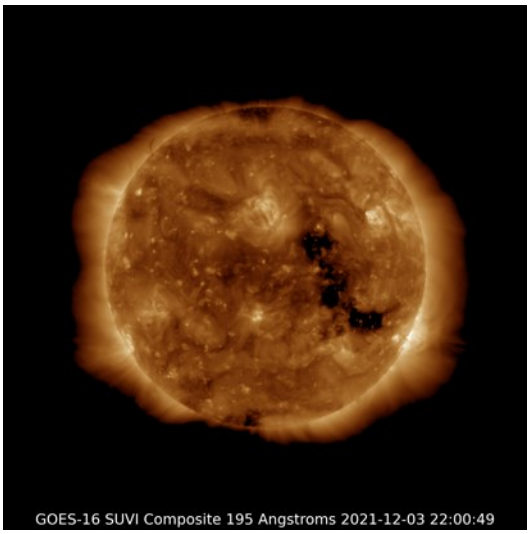
Solar wind flowing from this equatorial coronal hole should reach Earth on Dec. 3rd or 4th. Credit: SDO/ AIA

These coronal holes on the solar disc, were passing through central geophysical longitude facing earth.



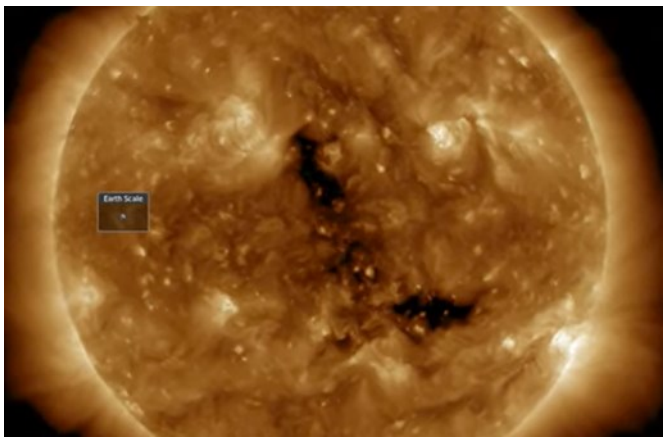






Mostly quiet, active regions not creating solar flares, the dark coronal hole just traversed solar central disc. On the north of that coronal hole a small filament ejected up away and to the side, no impact coming.

To watch the weekend incoming coronal hole wind stream. Could spark geomagnetic unrest.

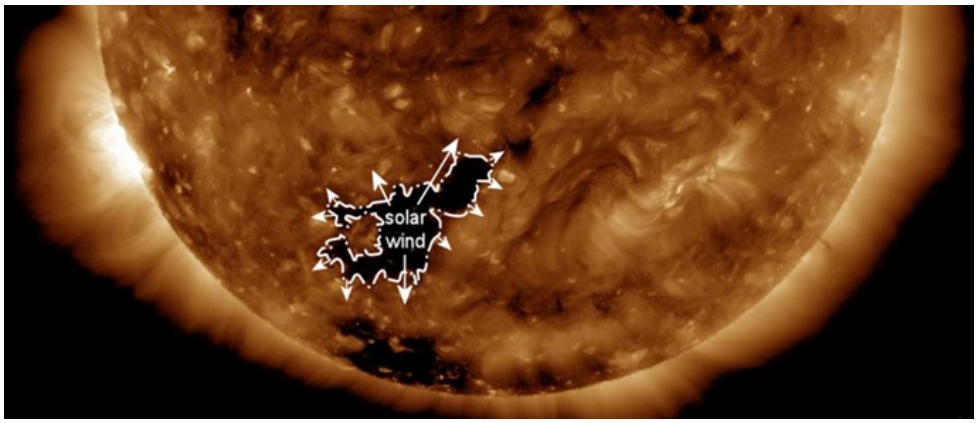


Saturday, December 4th - Solar explosion misses earth: Earth-orbiting satellites had detected a C4-class solar flare (December 4th @ 05:15 UT). The source appeared to be departing sunspot AR2898. Debris from the explosion would miss Earth because of the blast site's location near the southwestern edge of the sun.

Tuesday, December 7th - Far-side solar activity continued. During the precious 24 hours multiple CME's had billowed over the sun's southwestern limb. This was a sign of continued activity from a far-side sunspot group, which has been exploding quasi-continuously since Dec. 3rd. The Earth-side of the sun, meanwhile, was very quiet.

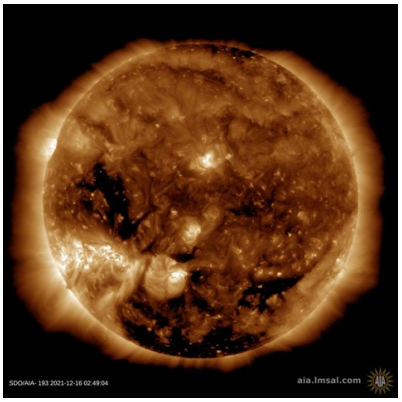
Wednesday, December 8th - A CME would barely miss earth later in the week. On December 5th, a magnetic filament in the sun's southern hemisphere exploded. The swirling debris were expected to sail just south of our planet on December 10th. No geomagnetic storms were expected, but the near miss would spark disruptions in the HF shortwave bands.

Wednesday, December 15th - A stream of fast-moving (~500 km/s) solar wind hit Earth's magnetic field during the early hours of December 15th. The gaseous material was flowing from a southern hole in the sun's atmosphere. The action of the solar wind had not been sufficient enough to produce a geomagnetic storm.

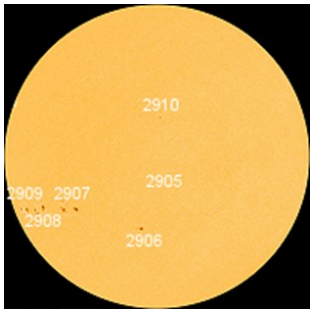


The sunspot number was rapidly increasing as a profusion of dark cores emerges in the sun's southern hemisphere.

The new sunspots were crackling with C-class solar flares. Stronger M-class flares were in the forecast offing as the sunspots continue to grow.



Thursday, December 16th - Fast-growing sunspots. Multiple large sunspots were growing near the sun's southeastern limb. The phalanx of dark cores were turning toward Earth, boosting the chances for an geoeffective eruption in the days ahead. NOAA forecasters were estimating a 25% chance of M-class solar flares on December 16th.

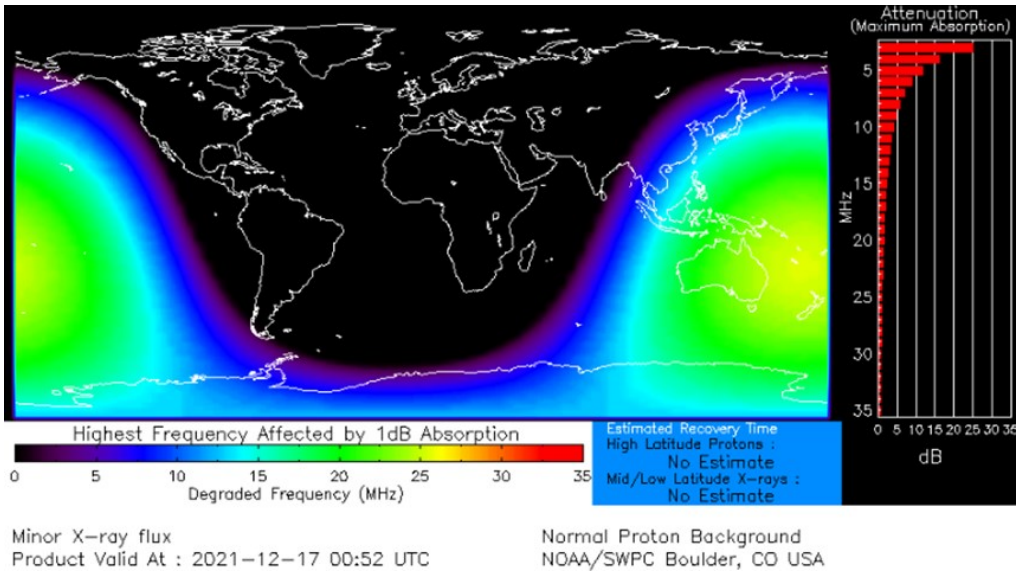


Sunspot AR2907 was crackling with C-class solar flares. Right Image Credit: SDO/HMI

The Radio Sun 10.7 cm flux: 103 sfu

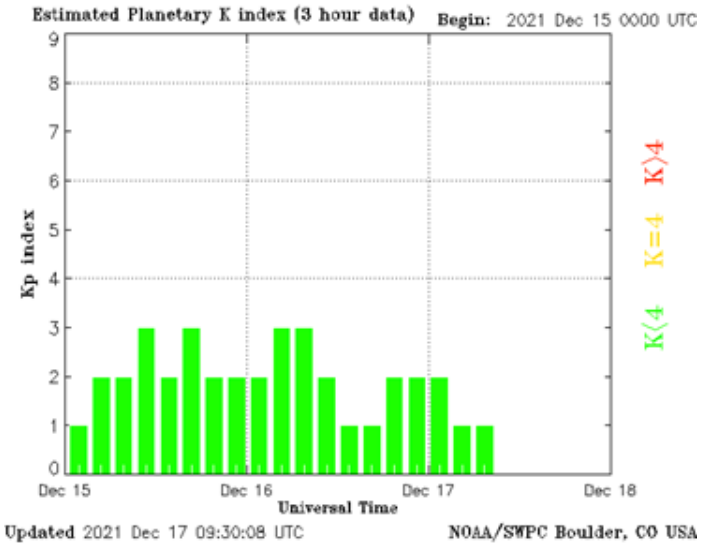
M-CLASS SOLAR FLARE. New sunspot AR2911 unleashed an M1-class solar flare during the early hours of December 17th (0051 UT). A pulse of extreme UV radiation and X-rays ionized the top of Earth's atmosphere, causing a shortwave radio blackout over the South Pacific. There were now at least three sunspots on the solar disk capable of producing flares of this magnitude.

Friday, December 17th -

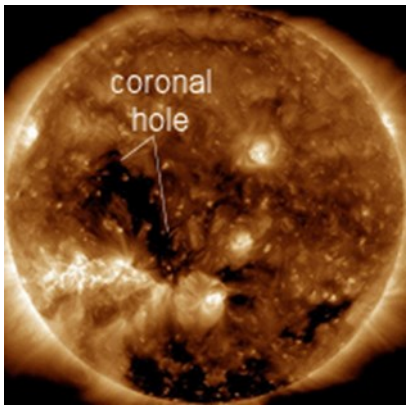


New sunspot AR2911 was very active and capable of M-class solar flares. Prior Image Credit: SDO/HMI

The Radio Sun: 10.7 cm flux: 118 sfu We were seeing a slight up-tic in radio propagation.

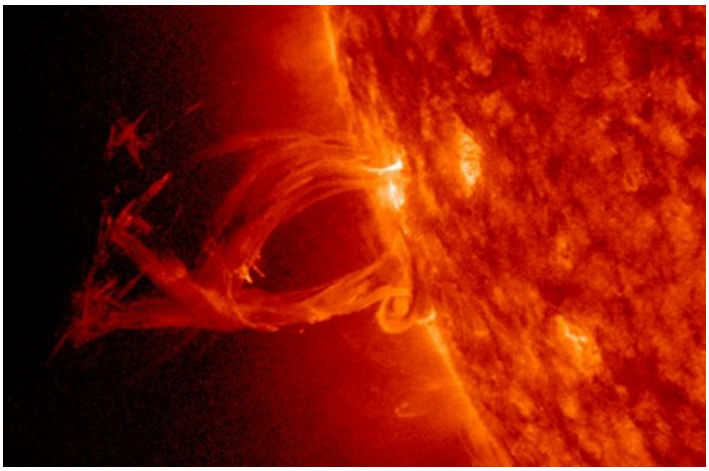


Planetary K-index
Kp=1quiet
24-hr max: Kp= 2 quiet



Solar wind flowing from this equatorial coronal hole would reach Earth on December 21st . Above Image Credit: SDO/AIA

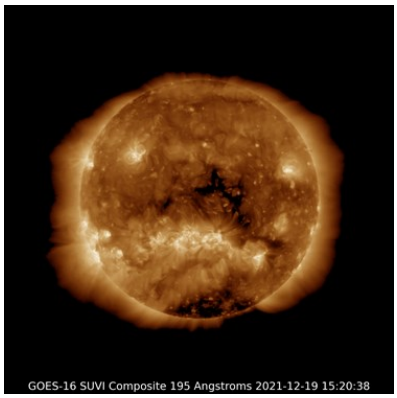
December 18th - AN EXPLOSION ON THE SUN



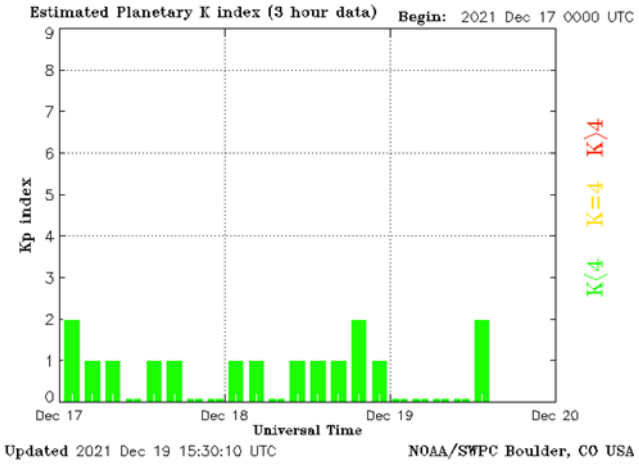
An active region emerging from the sun's south-eastern limb exploded, producing a C6- class solar flare, and a beautiful loop-shaped prominence.

Debris from the explosion would miss Earth. However future eruptions were potentially geoeffective as the unstable blast site moved into our planet's strike zone later in the week.

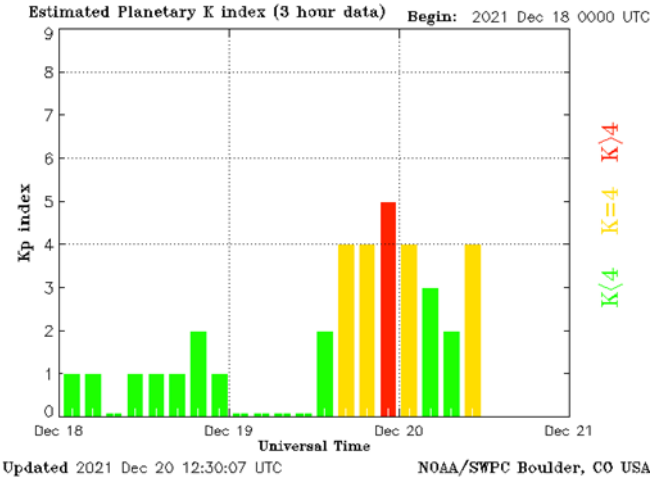
Sunday, December 19th -



NOAA forecasters were saying there was a 25% chance of M-class solar flares. The likely source, sun-spot complex AR2907-09, was almost directly facing Earth, which meant any explosions would be ge-oeffective.



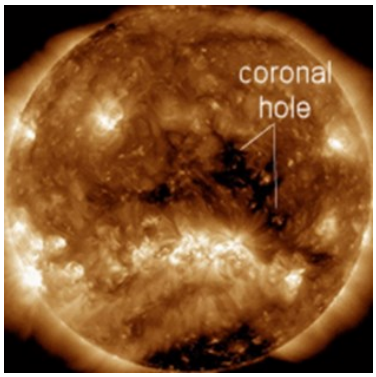
Monday, December 20th -



Sunspot AR2907 was directly facing Earth, and it was poised to erupt. There was a 20% chance of M-class solar flares and an almost 100% chance of lesser C-class flares. Minor shortwave radio blackouts and geoeffective CME's were possible on December 20-21st.

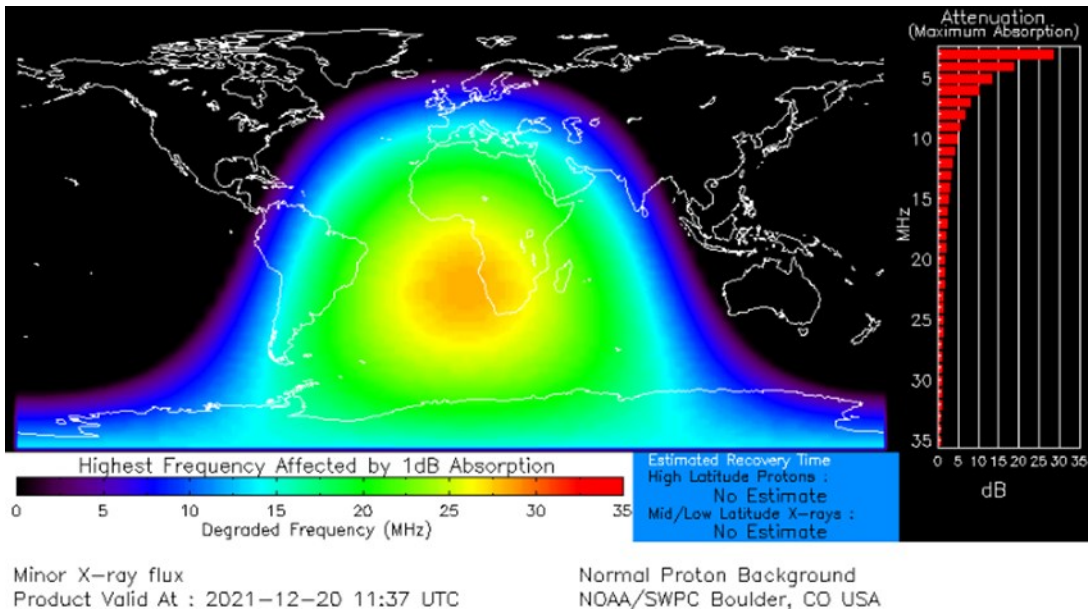
The forecast called for quiet. Instead, an unexpected stream of solar wind arrived. The stream "snowplowed" a berm of dense plasma right into Earth's magnetic field, opening a crack in our planet's magnetosphere. Solar wind poured through the gap and fueled disruption in the HF bands.

The Radio Sun
10.7 cm flux: 115 sfu

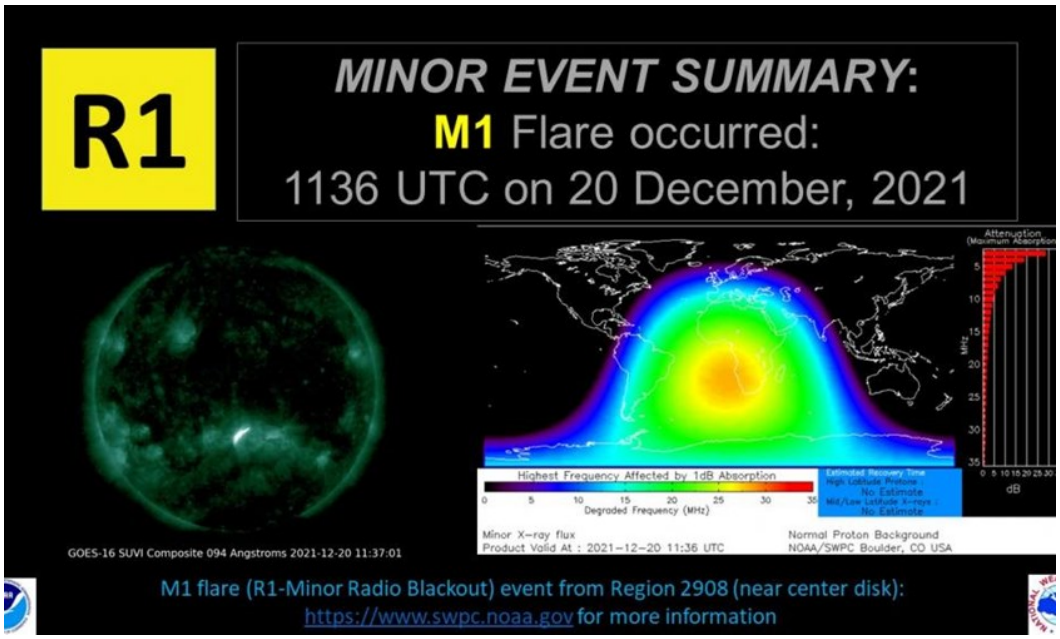


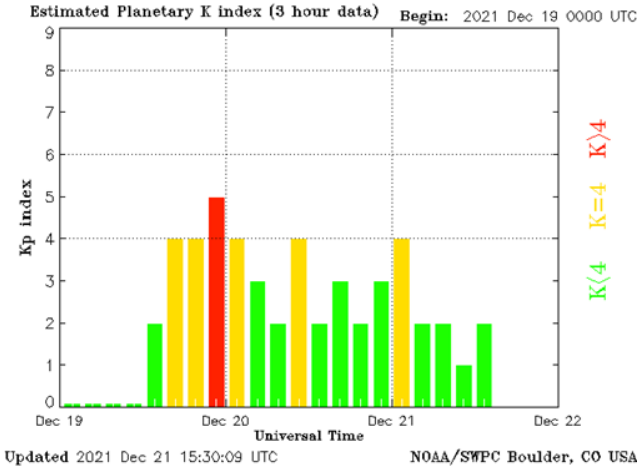
Solar wind flowing from this equatorial coronal hole reached Earth on December 21-22. Credit: SDO/ AIA

Sunspot AR2908 produced an M1.9-class solar flare on December 20th (1136 UT). A pulse of X-rays ionized the top of Earth's atmosphere, causing a minor shortwave radio blackout over the south Atlantic Ocean.

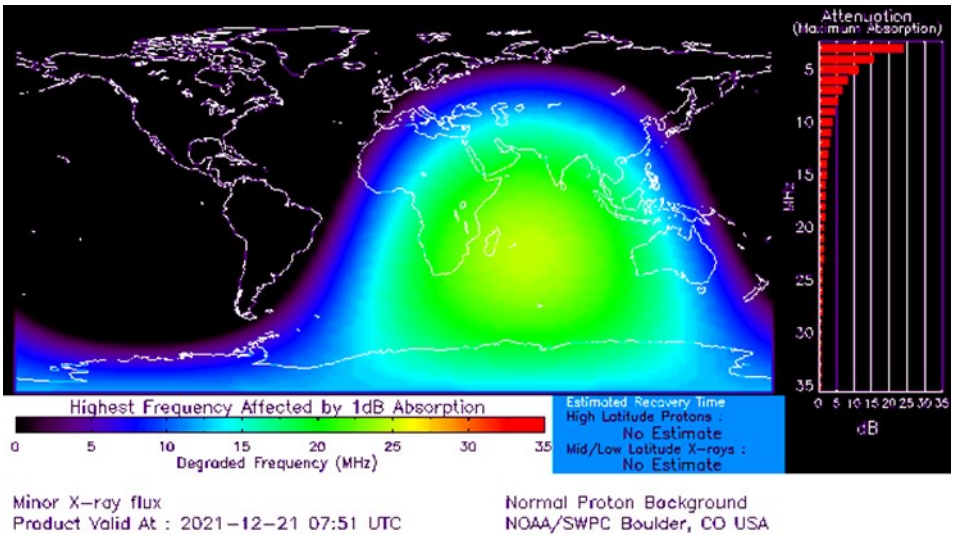


December 21st - An M1 x-ray flare (R1-Minor Radio Blackout) occurred at 1136 UTC (6:36am ET) on 20 December, 2021. This flare was associated with coronal mass ejection (CME) signatures noted in radio observatory data and GOES-SUVI imagery. The source of this flare was NOAA/SWPC Region 2908. Analysis of this potential CME would continue as more data and coronagraph imagery become available.

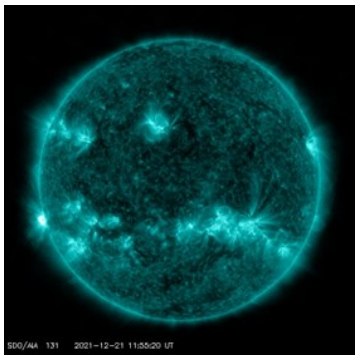


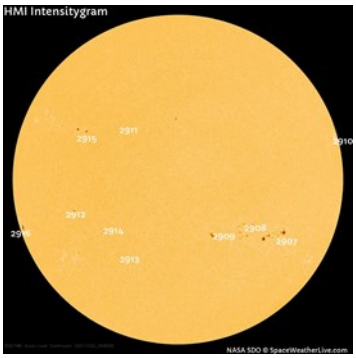


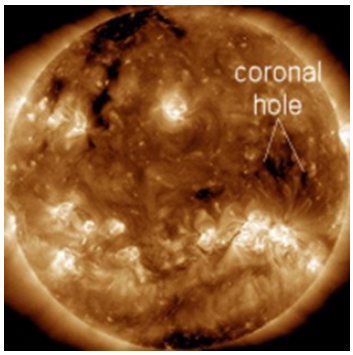
December 22nd -



Large solar x-ray flares can change the Earth's ionosphere, which blocks high-frequency (HF) radio transmissions on the sunlit side of the Earth. Solar flares are also associated with Coronal Mass Ejections (CMEs) which can ultimately lead to geomagnetic storms. SWPC sends out space weather alerts at the M5 (5x10-5 Watts/mw) level. Some large flares are accompanied by strong radio bursts that may interfere with other radio frequencies and cause problems for satellite communication and radio navigation (GPS).







There were 10 numbered sunspot groups on the solar disk--the most since the peak of the previous Solar Cycle almost 11 years ago. Credit: SDO/HMI

Sunspot number: 147

Earth was inside a stream of solar wind flowing from the indicated coronal hole. Credit: SDO/AIA
Solar wind speed: 571.8 km/sec

The Radio Sun: 10.7 cm flux:137 sfu

Forecast: Prepared by the U.S. Dept. of Commerce, NOAA, Space Weather Prediction Center. A. NOAA Geomagnetic Activity Observation and Forecast. The greatest observed 3 hr Kp over the past 24 hours was 3. The greatest expected 3 hr Kp for Dec 22-Dec 24 2021 is 4. No G1 (Minor) or greater geomagnetic storms were expected. No significant transient or recurrent solar wind features were forecast.

A slight chance for S1 (Minor) solar radiation storms exists due to the proximity of regions 2907 and 2908 to the western limb.

C. NOAA Radio Blackout Activity and Forecast. Radio blackouts reaching the R1 levels were observed over the past 24hours. The largest was at Dec 22 2021 0706 UTC.

73,

Fred
AA0JK

DRC's Trading Post

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

Past Round Table Pages

Provided By Woody Linwood, W0UI

A page from the April 1958 edition.

NEW PLASTIC MAKES ALL BAND ANTENNA POSSIBLE

Demand for a highly efficient all band antenna by the amateur radio operator has increased in the past few years. Several companies and many individuals realizing the potential sales for such an item have done a considerable amount of research on many ideas, none of which has proven satisfactory.

Successful achievement of a good voltage standing wave ratio has always caused efficiency to be appreciably impaired. High efficiency has always been accompanied by narrow bandwidth.

A technical breakthrough finally came early this year. Malo Aero Corporation Laboratory scientists, developers of many unique plastics, developed a plastic material with a varying dielectric constant inversely proportional to the square of frequency. Mathematically it is described in equation 1.

$$k \approx \frac{1}{f^2} \qquad \text{EQ. 1}$$

k being the relative dielectric constant
f is frequency

A coaxial transmission line was built with Malo plastic used as the dielectric material. Exhaustive tests were made on the transmission line and conclusive proof of the validity of the theory was obtained. The electrical length of the transmission line remained the same as the frequency was varied between 20 and 200 megacycles.

The next step was to build a dipole antenna fed with conventional 72 ohm coaxial transmission line, and to put a sleeve over the dipole element. The sleeve was made of Malo plastic. The theory was that the electrical length of the element would change as described in equation 2.

$$L \approx \frac{1}{f^2} \qquad \text{EQ. 2}$$

where L is electrical length, and f is frequency.

Some difficulty was encountered because the change in electrical length was not inversely proportional to the change in frequency, that is Δ L was not inversely proportional to Δf.

The solution to this, an obvious one, was that resonance did not occur at all frequencies because of the changing capacity to ground.

$$\text{Since } X_c = \frac{1}{2\pi fC} \qquad \text{EQ. 3}$$

$$\text{Therefore } C = \frac{1}{2\pi fX_c}$$

Xc is the capacitive reactance which changed through the plastic sleeve, causing a corresponding change in the capacity to ground.

-10-

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

amazonsmile
You shop. Amazon gives.
Search for Denver Radio Club @ smile.amazon.com

Note to DRC Members:

Our club depends on the involvement and participation of YOU, our members. Do you have a skill or interest that could help the club. Maybe you want to volunteer to be on a committee? Like to write? Have ideas for improving what we do? Speak up and let someone know, all ideas are welcomed and participation is always helpful. ~Editor

Random Site Of The Month
Mike's Ouds

The Round Table Archive

Go to: http://www.wotx.org/roundtables.htm

The Round Table Article Index

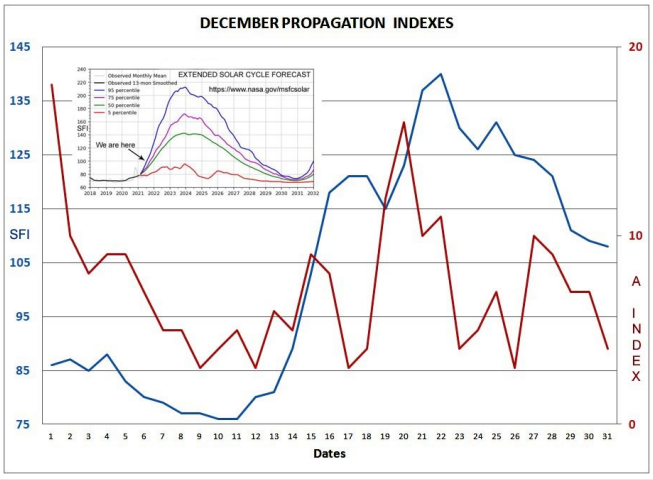
Go to: http://www.w0tx.org/RoundtableArchive/-RoundTables-Index.pdf

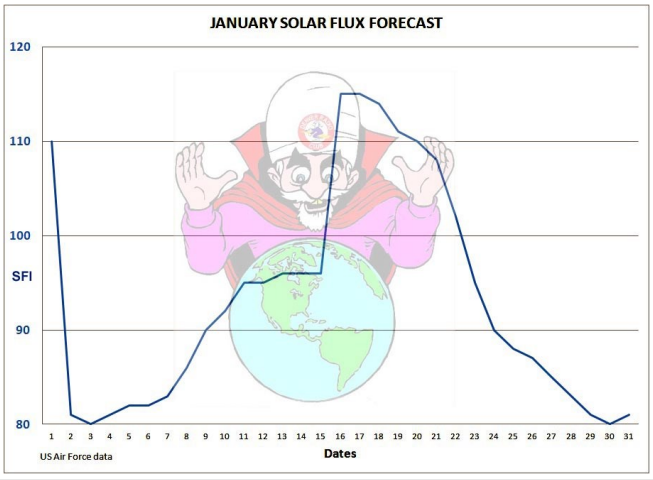
Past & Future Propagation Conditions

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





Upcoming Events

Hamfests & Conventions

Event	Date	Location	Sponsor Website
Winter Hamfest	1/15/22	The Ranch, Loveland	ncarc.net
The Swapfest	2/20/22	Adams County Fairgrounds	n0ara.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
British Columbia	02/05/2022	02/06/2022	Orca DX and Contest Club	
Minnesota	02/05/2022	02/05/2022	Minnesota Wireless Association	
Vermont	02/05/2022	02/06/2022	Radio Amateurs of Northern Vermont	
South Carolina	02/26/2022	02/27/2022	SC QSO Party	
North Carolina	02/27/2022	02/28/2022	North Carolina QSO Party	
Idaho	03/12/2022	03/13/2022	Idaho QSO Party	
Oklahoma	03/12/2022	03/13/2022	Oklahoma DX Association	
Wisconsin	03/13/2022	03/14/2022	West Allis Radio Amateur Club	
Virginia	03/19/2022	03/20/2022	Virginia QSO Party	

The Denver Radio Club
is an ARRL Special Service Club

Support your hobby and *join the ARRL today!*

http://www.arrl.org/

Attention

SUPPORT THE DRC FROM YOUR AMAZON PURCHASES

You can now support your Denver Radio Club when you make purchases from Amazon.com. Amazon Smile donates 0.5% of your purchase to the non-profit (501.c.3) organization of your choice. This is at no additional cost to you. To support the DRC just visit smileamazon.com. Select Denver Radio Club, Inc. as the organization you want to support and proceed with your order as usual. Amazon Smile will credit the DRC automatically. Thank you for your support.

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**

JANUARY 2022

DRC Net Sundays at 8:30 p.m. on 145.490 / 448.625 (no PL)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 **Straight Key Night** - Begins 0000 UTC - 2359 UTC 
2 **Kids' Day** - Begins 1800 UTC - 2359 UTC	**3**	**4**	**5** **Learning Net** 7:30 p.m. 145.490 / 448.625 (No PL)	**6** Last Quarter	**7**	**8** **RTTY Roundup** - Begins 1800 UTC
9 **RTTY Roundup** - Ends 2359 UTC	**10**	**11**	**12** **Learning Net** 7:30 p.m. 145.490 / 448.625 (No PL) New Moon	**13**	**14**	**15** **January VHF** - Begins 1900 UTC
16 **January VHF cont.**	**17** **January VHF** - Ends 0359 UTC 	**18**	**19** **DRC Online Meeting** Elmer 6 p.m. Meeting 7 p.m.	**20** First Quarter	**21**	**22**
23 **30**	**24** **31**	**25**	**26** **Learning Net** 7:30 p.m. 145.490 / 448.625 (No PL)	**27**	**28** Full Moon	**29**

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

DRC Board of Directors

President	W0GV	Gerry Villhauer	303-467-0223	w0gv@hotmail.com
Vice-President	K0KPS	Kevin Schmidt	303-475-9234	k0kps@arrl.net
Secretary	WW0LF	Orlen Wolf	303-279-6264	owolf@mines.edu
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Board Member	N0XRX	Mark Thomas	720-438-0848	n0xrxradio@gmail.com
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Board Member	WG0N	Dave Baysinger	303-987-0246	wg0n@arrl.net
Board Member	KB0CHT	Jeff Irvin	*Check Roster*	*Check Roster*

DRC Staff and Volunteers

Benevolent		Carolyn Wolf	303-279-1328	Contact owolf@mines.edu
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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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Tech. Committee Chair	W6OAV	Bill Rinker	*Check Roster*	*Check Roster*
Trustee	WW0LF	Orlen Wolf	303-279-6264	owolf@mines.edu
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Website & YouTube	N0LAJ	Bill Hester	*Check Roster*	w0tx@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 drc.editor@gmail.com.

Subject: I'm located in…

Editor's Note

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 drc.editor@gmail.com. The submission deadline is the 25th of the Month. ~ Editor