



ROUNDTABLE

The Denver Radio Club Newsletter

Since 1917

March 2016

PRESIDENT'S MESSAGE

By Gerry Villhauer – W0GV



Hello DRC Members,

It is March already, I see some of the ground cover plants starting to bloom; I think that confirms that spring is just around the corner...we can hope anyway. You know what spring means? Antenna and tower projects that we need to put on the schedule at three of our repeater sites.

Our February meeting was another super one, with a good attendance and a terrific program. Our thanks go out to Rob Steenburg (AD0IU) for a very informative program on Solar Weather. Rob has a very entertaining style of making a very interesting subject even more interesting. If you missed Rob's presentation you will have another opportunity to see it at HamCon Colorado in May at the ARRL Convention in Keystone, Colorado. I asked Rob to make his presentation at the convention and he graciously accepted. For all the activities at the HamCon Colorado, ARRL Rocky Mountain Convention see the website at Hamconcolorado.org. Room reservations and convention registration are all available on the website.

Our March meeting program will be presented by Dwight Eckert who is employed as an Electrical Engineer in the Aerospace Industry. We invite you to come learn about Human rated spaceflight and the Colorado Connection. The Colorado Space Industry has a close connection with the Orion Crew Exploration Vehicle. Much of the work on this space vehicle was accomplished by our own Lockheed Martin Company in Jefferson County. This promises to be a very interesting program on Wednesday March 16th...Please don't miss it!

We have made changes to the way the Round Table is being distributed and hopefully everyone is aware of this change. Go to our website w0tx.org and on the left side of the page is all the different DRC WebPages. Near the bottom on the list is "The Roundtable". Click there and on the next page click on the "Click Here link in blue letters. You will then see all the RT issues from about 2007 to present. Just click on the year of interest. Another important feature is the first item at the top of the list "Round Table Index". This is a very useful feature for finding the subjects in all the RT issues. Try it; I think you will enjoy all the hundreds of subjects available to view and review.

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 Round Table.

73 for now,
Gerry (W0GV)
President



INSIDE THIS ISSUE

February- Meeting, What'd I Miss?	2	Colorado VHF Packet Network Map	8
Increase Your HT's Efficiency	3	Learning Net Report	9
Who's New In The DRC?	4	Propagation And Forecasts	12
Technical Committee Report	4	Upcoming Events & Contests	13
March Meeting Presentation	5	DRC Repeaters	14
My Ham Radio Story	6	DRC Calendar	15
Solar Update	7	DRC Board & Staff	16



FEBRUARY MEETING - WHAT'D I MISS?

By Fred, AA0JK

NOAAs senior space weather forecaster Rob Steenburgh (AD0IU), gave us an exceptional presentation outlining Space Weather and how the Sun effects Amateur Radio. At last count, 47 attendees were present to participate in the event.

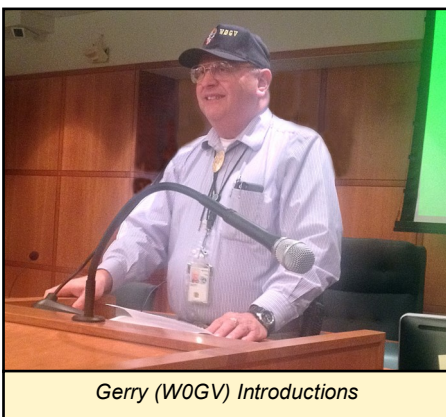
He used a PowerPoint presentation that took us through Topics covering:

- Space Weather for Radio Amateurs.
- The Ionosphere and Propagation.
- Space weather, past history, and its impact on our environment;
- Situational awareness.
- How solar activity affects your ability to communicate.
- How to navigate and use the enormous amount of NOAAs web sites tools in aiding the amateur radio operator.

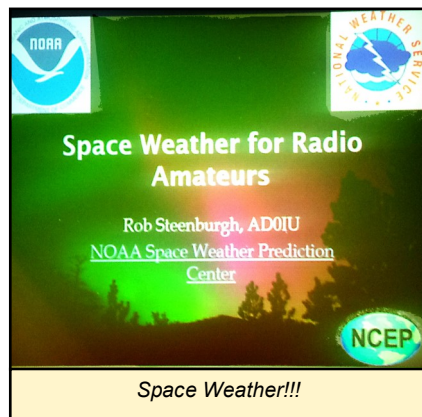
This was a treasure trove of information and tools we can use in the arena of amateur radio. All this and more in a medium that was understandable and useful to all.

Rob stated that he greatly appreciated the opportunity to speak with the Denver Radio Club. He referred to us as a great group with great questions.

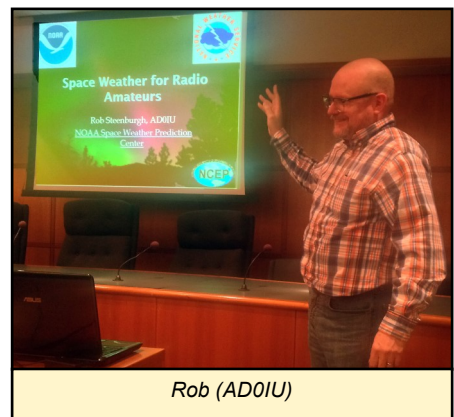
NOAA is an exceptional resource right here in our backyard, Boulder Colorado. A resource for you to take advantage of as a radio amateur operator.



Gerry (W0GV) Introductions



Space Weather!!!



Rob (AD0IU)

INCREASE THE EFFICIENCY OF YOUR HT

By BILL, W6OAV

A well known fact is that an HT equipped with a "rubber duck" antenna is not very efficient. The "rubber duck" is a lossy helically wound shortened quarter wave antenna. Quarter wave antennas require a counterpoise.

So, where is its counterpoise? It's you! The small frame of the HT provides somewhat of a counterpoise. However, when you hold the HT, it capacitively couples to your hand and you become part of an inefficient counterpoise.

So, how do you replace yourself with a more efficient counterpoise? You use an accessory called a Tiger Tail. This article does not introduce a new concept. Instead, it provides my experience in testing and using the Tiger Tail.

The Tiger Tail is a quarter wave length of wire that is attached to the antenna connector on the HT to provide the other quarter wave element. **Figure 1** shows my version of the Tiger Tail. The name comes from a company that produced the wire in the 70's. Since the Tiger Tail was so easy to build, the company did not sell many Tiger Tails.

The company literature indicated that the Tiger Tail would provide a much improved performance. So, several of us decided to build and test a Tiger Tail. We set-up a test area in a park containing picnic tables. The transmitter was an Icom 2AT sitting on one picnic table. The receiver was an HP spectrum analyzer setup on another picnic table approximately 300' from the 2AT.

Initially, a measurement was recorded using the Icom's standard "rubber duck". Then a 19.3" hookup wire was connected to the 2AT's BNC antenna connector using a mini hose clamp and bent vertically. The signal from this configuration was 6 dB stronger! The test was repeated several times comparing the two configurations to verify repeatability.

Another test was performed with a quarter wave antenna installed in place of the "rubber duck" and the Tiger Tail still attached. The test showed another 6 dB increase in signal strength! Not bad...a 12 dB signal increase with a very small investment!

The same tests were performed on 70 cm with a 70 cm quarter wave Tiger Tail. The tests produced similar results.

One thing we noticed was that if the Tiger Tail was configured horizontally from the 2AT there was a 1 to 2 dB signal strength increase in the direction of the Tiger Tail.



Figure 1 - The Tiger Tail

HAM SITE OF THE MONTH

[K3WWP's QRP/CW Site](#)

20 Years of Promoting
Morse Code & QRP

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. 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.

Fred Gilmore	W0LPD
Patti Gilmore	K7HER
Jack Ciaccia	WM0G

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 February Technical Committee meeting. The project coordinators' call signs are in red.

AllStar Link Voter System (W0GV)

Goal: Determine the feasibility of establishing an AllStar Link Voter network.

Status: W0GV is working with Skyler, KD0WHB, and Larry, K0LAI. They have installed a test server with Asterisk software and are getting familiar with it. N0ETV has assembled a remote AllStar Link receiver for testing.

DRC/TSA Aurora Site (W0GV)

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

Status: W0GV has met with TSA representatives. He plans to have follow up meetings ASAP.

Noise at Station 4 (WW0LF)

Goal: Locate, document the power line noise source(s) and contact Xcel to correct.

Status: WW0LF is gathering the equipment and will coordinate the tests. In the meantime, the HF side of the gateway is disabled as the gateway is "deaf" due to the extreme HF power line noise level.

Redesign Packet Gateway (W6OAV)

Goal: Replace the KAM XL with a PK900. The KAM XLs are notorious for defaulting to factory settings.

Status: W6OAV has obtained DIN connectors and will construct the PK900 cables which will interface to the HF and VHF transceivers. He will then install the PK900 in place of the KAM. Once the line noise is cleared the gateway will be much more stable. (See "Noise at Station 4 above)."

Establish a DRC YouTube Channel (KB0A)

Goal: Provide access to various DRC videos.

Status: KB0A has obtained a channel. He will forward log-in info to W6OAV and to others.

220 MHz Repeater Down (W0GV)

Goal: Repair the repeater.

Status: N0ETV to troubleshoot and repair the repeater.

Low Level Hum on 6 Meter Repeater

Goal: Identify and correct the source of the hum.

Status: The repeater power supply failed. W0GV and WG0N replaced and repeater is operational.

Fusion Repeater Upgrade (KB0A)

Goal: Equip the Fusion repeater with a Wires-X Link unit to connect it to the Wires network.

Status: A temporary test link has been setup at KB0A's house. ASAP KB0A will begin gathering equipment for installing the Wires-X Link unit at Station 4.

~ 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.

EMCOMM QST

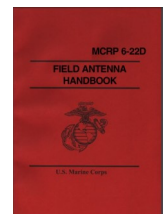
By Brennan, KE0FBK

The Denver Radio Club's EmComm coordinators are in the process of getting together a list of members who would be interested in various EmComm related activities (i.e. siren tests, emergency response, weather spotting, etc.). If you are interested in participating in a future activity(-ties), please email or call Mike Vespoli (KE0HFH), mvespoli@gmail.com, (201-741-7756) or Brennan Pate (KE0FBK), ke0fbk@outlook.com, (619-993-8140). Or, you can simply take the EmComm survey found at this [LINK](#).

MARINE ANTENNA HANDBOOK

Provided By Bill, W6OAV

For a **FREE** 150 page very comprehensive Marine Field Antenna Handbook, go to: [LINK](#).



MARCH MEETING PRESENTATION

By Dwight Eckert

I invite you to come and learn about Human rated spaceflight and the Colorado connection. Colorado has a close connection with the Orion Crew Exploration Vehicle (CEV). Much of the work on this vehicle is accomplished by your neighbors here in Jefferson County at Lockheed Martin. This vehicle is designed to take humans out of low Earth orbit and into the exploration of space. With the Orion CEV, we plan to visit many interesting heavenly bodies including near Earth asteroids, the Moon and eventually Mars.

I have over 35 years of experience in Electrical Engineering in the Aerospace Industry. Much of my career has been in support of the exploration of Deep Space including sample return from the tail of a comet (Wild II) and several Mars Exploration missions. I now work on the U.S. human rated space program as the Orion Spacecraft Avionics Architect.

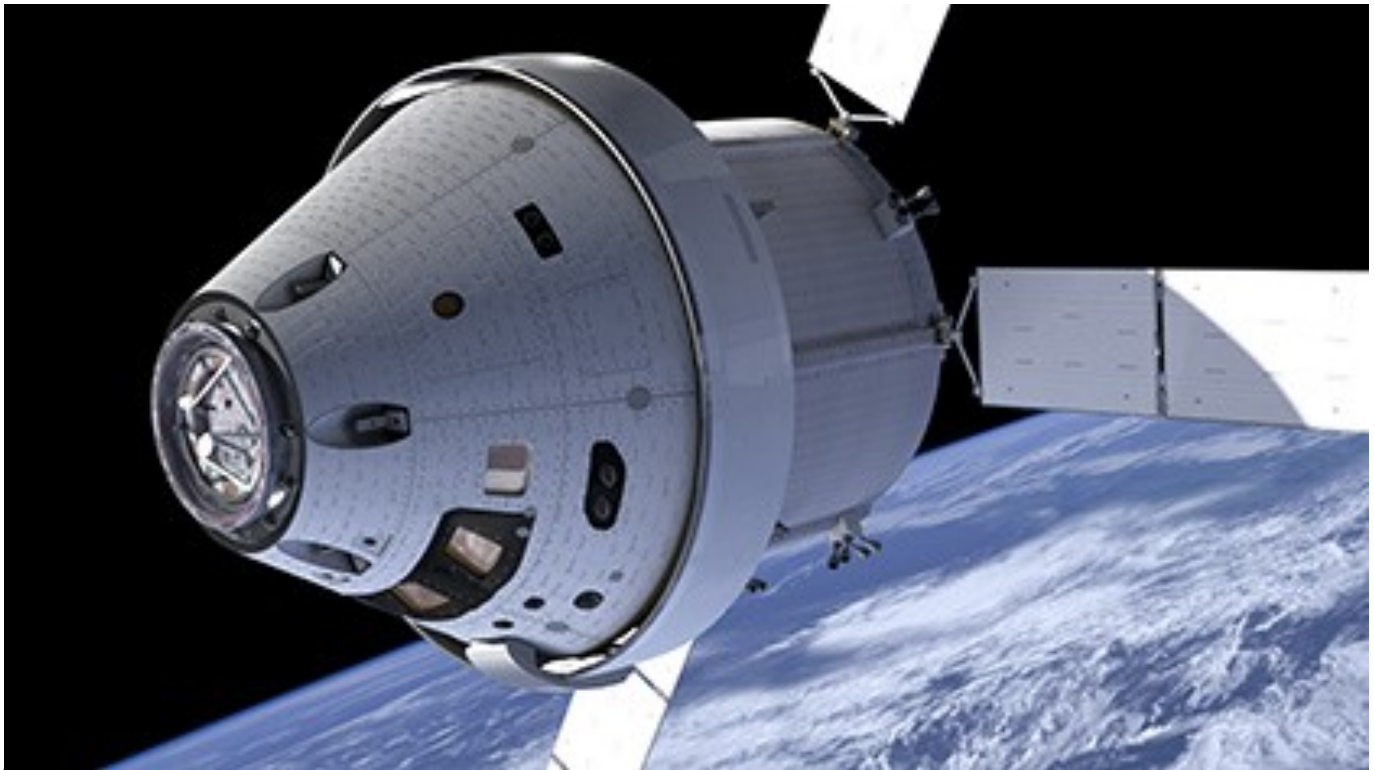


Figure 1 - Orion, Courtesy of NASA

**Don't forget to join in Wednesday nights at 7:30p.m. for the
DRC Learning Net on 145.49/448.625 Repeaters!**

NOTICE NOTICE NOTICE NOTICE

By Gerry, W0GV

As you can imagine, publishing the RoundTable news-letter is a task which takes a lot of effort; especially to produce a monthly publication of the quality of the current RoundTable. It has become necessary to add to the staff required to publish the RoundTable.

We are looking for additional Associate Editors to assist with this task. Volunteer Associate Editor(s) would be trained by the current Editor and Associate Editor, so as to compliment the staff and contribute to our product. I stress the point that candidates would be trained to become competent assistants.

Please consider helping with this important task. I believe it will be a very rewarding experience to contribute to the development of the RoundTable; which is the life-blood of our growing club. Please contact me with any questions. Gerry (W0GV) at w0gv@hotmail.com or my number which is listed on page 16 of this issue. Thanks in advance!



The Denver Radio Club
Is an ARRL
Special Service Club
Support your hobby
Join the ARRL TODAY



MY HAM RADIO STORY

By Bill, W6OAV

We would like to run a monthly column profiling DRC members' stories about how they got into the ham radio hobby, their interests and backgrounds. The purpose of this column is to introduce DRC members to each other and to find commonalities between them. Please participate by answering the questions shown in the example below. Please use Microsoft Word set to Arial and 10 point. Submit to w6oav@arrl.net.

~ Sample Story ~

MY HAM RADIO STORY

By Bill, W6OAV

How did you get interested in ham radio?

As a young teenager I used to "tune the world" with my grandmother's Zenith radio console. I would often come across interesting broadcasts that weren't commercial shortwave stations. The content was incredibly interesting. I had to find out who were these folks. One day while in the local library I came across a manual titled "The Amateur Radio Handbook". Ahha! I had discovered who these folks were and I had to join them. A few

months later in 1955, I became KN0ANL. I have been continuously active as K0ANL, DL4GT, LX4GT, and W6OAV as well as holding several MARS calls.

What are your favorite activities in the hobby?

Home brewing equipment and antennas, HF mobile and digital HF/VHF modes.

What is your most memorable experience(s)?

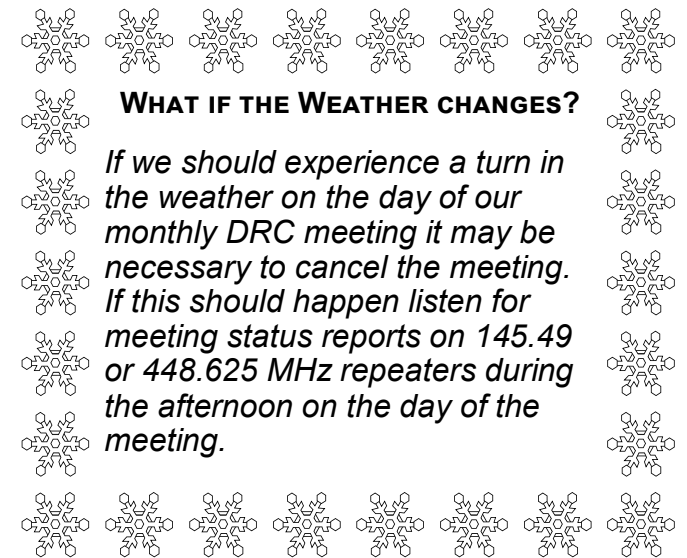
Operating during Solar Cycle 19, the best Solar Cycle ever measured. As a young ham I thought it was normal to work the world day or night with a few watts and a piece of wire. Later I learned about Solar Cycles!

What is your background?

After studying electrical engineering in college, I spent 5 years working as an Air Force technician responsible for maintaining guidance systems in nuke surface to surface missiles. After the Air Force I worked for 38 years as a data-comm and tele-comm engineer designing and troubleshooting related systems.

What are your additional hobbies?

Travelling, hiking, photography, Photoshop and video editing with Sony Vegas.



WHAT IF THE WEATHER CHANGES?

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.

ELMER SESSION START TIME

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

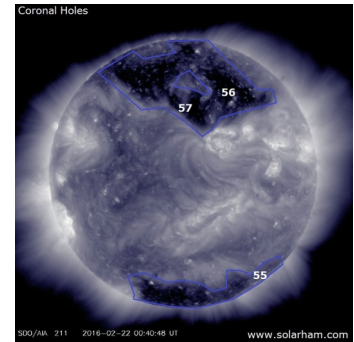
Come join in on the sharing of information.

SOLAR UPDATE

PROVIDED BY FRED, AA0JK

Week One

Solar activity was at very low levels. Region 2494 was showing signs of growth while producing a number of C-Flares, however the region did decay and remained stable. All other regions were stable or in a state of decay. Region 2497 was numbered after turning into view off the east limb. Earth crossed through a fold in the [heliospheric current sheet](#), sparking a G1-class geomagnetic storm. Feb. 9th a minor CME was expected to deliver a glancing blow to Earth's magnetic field. NOAA forecasters said there was a 40% chance of polar geomagnetic storms when the CME arrives.



COSMIC RAYS CONTINUED TO INTENSIFY: In January, it was reported that [cosmic activity was expected to intensify in c rays](#). Measurements were far in February indicate that the trend would be continuing. The balloon flight over California on Feb. 5th detected the highest value yet: Cosmic rays, which are accelerated toward Earth by distant supernova explosions and other violent events, are an important form of space weather. They can [seed clouds](#), [trigger lightning](#), and [penetrate commercial airplanes](#). Indeed, measurements have shown that someone flying back and forth across the continental USA, just once, can absorb as much ionizing cosmic radiation as 2 to 5 dental X-rays. Likewise, cosmic rays can affect mountain climbers, high-altitude drones, and astronauts onboard the International Space Station. This type of radiation is modulated by solar activity. Solar storms and CMEs tend to sweep aside cosmic rays, making it more difficult for cosmic rays to reach Earth. On the other hand, low solar activity allows an extra dose of cosmic rays to reach our planet. Indeed, the ongoing increase in cosmic ray intensity is probably due to a decline in the solar cycle. Forecasters expect solar activity to drop sharply in the years ahead, and cosmic rays are poised to increase accordingly.

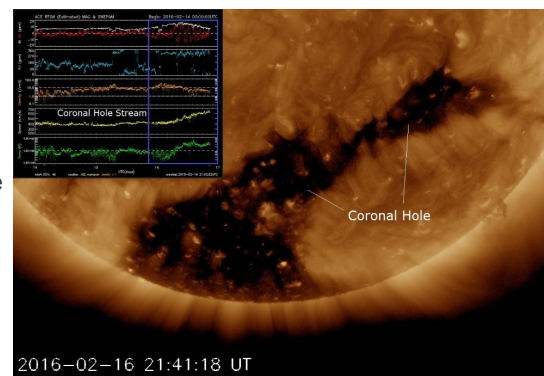
Week Two

EARTH-DIRECTED CME: Sunspot AR2497 [erupted](#) on Feb. 11th (2103 UT), producing a C9-class solar flare and hurling a coronal mass ejection (CME) in space. Newly-arriving images from SOHO show that the CME had an Earth-directed component. NOAA analysts say it would reach our planet on Feb. 15th, possibly sparking minor geomagnetic storms. More auroras were in the offing. On Feb. 12th, a CIR was expected to hit Earth. CIRs, or "co-rotating interaction regions," are transition zones between fast and slow-moving solar wind streams. Solar wind plasma piles up in these regions, producing density gradients and shock waves that do a good job of sparking auroras. NOAA forecasters say there was a 35% chance of polar geomagnetic storms when the CIR arrived

Week Three

Massive Coronal Hole opens releasing high speed solar wind.

MAGNETIC EXPLOSION ON THE SUN: A magnetic filament snaking across the sun's southern hemisphere exploded during the late hours of Feb. 18th. NASA's Solar Dynamics Observatory recorded [a beautiful movie](#) of the explosion. Debris flew away from the sun in the form of a coronal mass ejection (CME), but the storm cloud was not expected to be heading for Earth.



Week Four

Solar activity was very low. The largest flare of the period was a B5/Sf at 21/1304 UTC from Region 2505. Slight decay was observed in the smaller intermediate spots of Region 2505 with consolidation occurring in the trailing spots. Region 2504 continued to decay and Region 2501 was stable. At 21/1200 UTC, a partial-halo CME was observed in the coronagraph. The event was correlated with back sided flaring first observed in STEREO-A EUVI 195 imagery at 21/1125 UTC. No Earth-directed CMEs were observed.

Forecast...

Solar activity is expected to be very low with C-class activity likely and a slight chance for an M-flare (R1-R2, Minor-Moderate) for the forecast period due primarily to the flare potential of Region 2505.

COLORADO VHF PACKET NETWORK MAP

BY BILL, AC0VC

This map was created in an attempt to aid those using packet for the first time as well as those who have been using it for a while. The map was created as an aid. Locations may not be accurate. The stations shown are 24/7 stations. There are some on packet that come and go. Those are mostly stations using software and not a true TNC.

I will update the map as needed. I hope this helps everyone better understand the VHF network we have. I believe our packet network exceeds others even in the larger cities in the U.S. The HF community has embraced it. They now have a better understanding of where stations are located and how to maneuver around once they cross over from HF 20 meter network to the VHF network.

The stations shown in green are reliable nodes. Most stations are nodes but the green ones will get you around. Connect to one of these nodes and view the Heard list. Then connect to the station you chose. You may need to use more than one node to reach your station of choice.

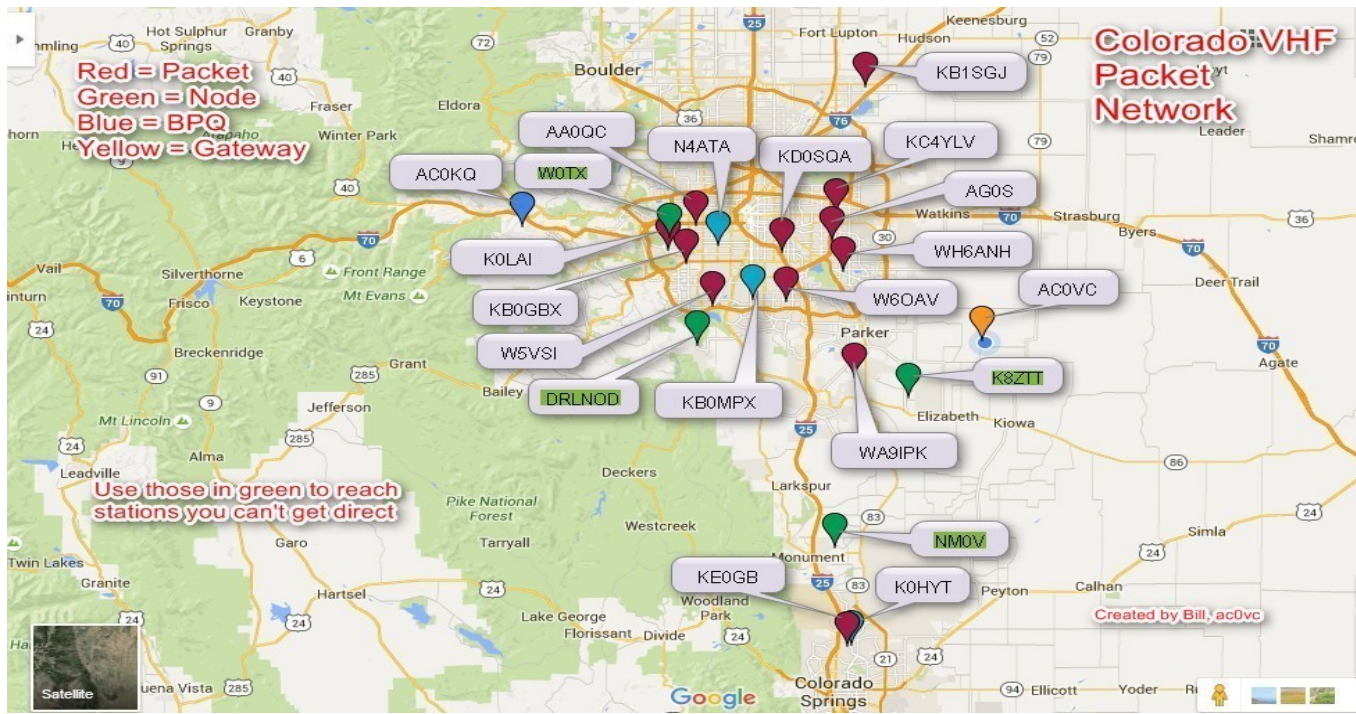
We have several BPQ systems as well. BPQs are in blue. These can be accessed using RF or the Internet. Telnet into the BPQ and type an "n" command to list the Nodes heard by the BPQ. You will be amazed at the stations across the country and even other parts of the world you may connect to from there.

At the writing of this article my station, ac0vc, is the only 2 meter to 20 meter Gateway, shown on the map as a yellow balloon. By connecting to my node on 2 Meters you can use the "x" command to crossover to stations on the HF network.

You may connect for a keyboard to keyboard QSO or connect to a Mailbox to leave a message. There are several other applications for packet but these are the most common. Traffic handling is another.

The map is available on the [DRC website](#). There is also an active map which is always up to date on [Google MyMaps](#). This map has only the Red, Blue Green and Yellow balloons. Clicking on a balloon will display additional station information. This function is also a work in progress.

Are you interested in Packet but not quite sure exactly what it all about? Check out the [TAPR website](#) for some useful information.



W0TX LEARNING NET REPORT

By Fred, AA0JK



Learning Net and Yahoo Learning group topics discussed this month:

- Contests and how to work contest stations.
- The North American QSO Party, and how to participate.
- Education and resources to expand your Ham Radio skills.
- Being a Net Control operator.
- Vanity calls
- Equipment and reviews.
- The Yaesu ATAS-120 Screwdriver Antenna for 40m - 70cm ([eHam Review](#))
- The Yaesu FT-857 HF Transceiver. ([eHam Review](#))
- The ICOM IC-7100 HF+VHF+UHF Transceiver. ([eHam Review](#))
- Ham Radio Deluxe Software. ([eHam Review](#)) ([YouTube Review](#))
- MFJ-1622 Apartment Antenna ([eHam Review](#))
- Comet CTC-50M Flat Cable Window Gap Coax Jumper ([eHam Review](#))
- TYT MD380 DMR Radio ([eHam Review](#))

Great topics from our group. We certainly enjoy everyone's input and 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 at 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. 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 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 or 448.625. (Note: The third Wednesday of the month is devoted to the DRC club meeting. See the [W0TX web-site](#) for additional information.



**The ARRL
Rocky Mountain Division Convention**

May 13-15, 2016

**At the beautiful Keystone Conference Center
in Keystone, Colorado**

Two action packed days of informational forums, nationally recognized speakers, opportunity to get on the air at the W1AW/Ø special event station, vendors galore, VE testing, fun contests and of course the Wouff Hong ceremony.

Registration Now Open!

REGISTER AT: www.hamconcolorado.org

LOOKING BACK AT THE DRC PROVIDED BY WOUI) ROUNDTABLE, NOVEMBER 1960

Even in the "old days" it was hard to get volunteers! Anyone recognize the calls in the want ads?

Readin' the Mail

(From Splatter Chatter)

The Ft. Collins group of hams had a stake in the recent election. A base station was set up at the Sheriff's office. With mobiles scattered throughout the area, all one had to do to register for voting was call the Sheriff's Office, then a relay to the nearest mobile and up would drive a TVI chariot complete with a notary public. Of course both parties were duly represented by WØKTX and KØHRS. Even in politics ham radio enthusiasts cooperate. Congratulations, gang, on a function of public service.

Ø—Ø—Ø

BUY-SELL-SWAP

FOR SALE—Excellent condition, Gonset Mobile Twins: G-66B, G-77. WØRQI, 7998 Chestnut Ave., Littleton. PY 4-4284

FOR SALE—Viking II with VFO, \$200 NC 183 D Receiver like new, \$225. D104 Push to talk mike and stand, \$25. Don, KØCEQ, SK 6-2373

FOR SALE—Complete mobile rig. VFO transmitter (6146), class B modulator, mike, power supply, antenna loading coil, and receiver converter. First \$50 buys it. Len Wright, WØUQM. EA 2-3206

TRADE—Ham gear, components, etc. to swap for trading stamps. Dennis, KØBTO

FOR SALE—Pair of 810's modulated with 810's class B. In two racks. 800 watts for \$250. Roscoe, WØSYA, PE 3-3823.

FOR SALE—Compact all-band kilowatt rig with vacuum condenser, B&W pi modulators, 750 ma. power supply, variac seven meters. Also have factory wired Eico 720 modulator. Misc. tubes. Milo, WØYEB, SU 1-5898.

FOR SALE—Johnson Valiant, Match Box and HRO 50T with four sets of coils all for \$450. Ed Perkins, WØOHI, 625 Roosevelt Ave., Loveland, Colo.

WANTED—Used amateur band receiver Peter Rueck. WE 4-0272.

Page Eight

EDITORIAL**The Responsible Few**

"Of course," said John Q. Hamateur, escorting a rake around his leaf-covered lawn, "if there's a real emergency, I'll be there to help. But I just can't take part in Simulated Emergency Test. Gotta get this lawn cleaned up, you understand."

John Q. was not alone. All over the city—all over the country, for that matter, they were saying it. "If there's ever a real emergency . . ."

In the meantime, John Q. and his counterparts can't be bothered. John, like all amateurs in the U.S. gets his license free and enjoys the protection of government regulations. He has been told, and professes to understand, that he gets his license and protection because it is in the public interest, convenience or necessity—not just for his own enjoyment. John would be the first to agree that he has a responsibility to the public in return for his privileges as an amateur. But to him, that responsibility is met merely by saying "If . . ."

Meanwhile, at AREC or RACES exercises, the same few responsible amateurs represent the hundreds of amateurs in this area. True enough, their numbers will be swelled in the event of a critical need, but until that need arises, can those few operators impress relief agencies and the public in general with the ability, willingness, and **public interest, convenience, or necessity** of the amateur?

Put it another way. You might tell yourself that you know that rules of emergency operation and need no training. But when the emergency comes and you check in to the RACES or AREC network to offer your services, what will happen? The operator in charge has never heard of you. He doesn't know your capabilities or background. Will he be able to trust you with important traffic at a time like that? He won't even try.

Sure, you'll be there when the real emergency comes, John Q. But by that time they won't need an amateur service anymore.

Ø—Ø—Ø

"Buy-Sell-Swap" ads are available free to members of the Denver Radio Club at the rate of two ads per membership year. More than two ads per year or ads to non-members will be charged at the rate of \$3.50 per ad of reasonable length.

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 12.

Handles

Across

- 1. New year's eve party
- 4. 32-down companion
- 10. Yagi, for one
- 14. What a keeper may keep
- 15. Throat ornaments
- 16. 1960s kit maker
- 17. Roman WARC band?
- 18. Demodulate
- 19. Horn sound
- 20. Top report, for short
- 21. Bigger than mins.
- 22. Coke flavor source
- 24. Superman player
- 26. Alternate G-land prefix
- 27. 86, 87 and 89 source
- 28. VU place
- 31. Pilot's prediction
- 33. ___ jacket
- 36. Venetian royal
- 38. 10m does it, with spots
- 42. This puzzle's subtheme
- 45. Uruguay prefix
- 46. Unpopular spots
- 47. Final (amp) resting place?
- 48. Elephant grp.
- 50. "Oh no!"
- 52. Sporadic E band
- 55. Zero
- 57. ARES's cousin
- 61. With anger
- 63. Bygone airline
- 65. Average name
- 66. Audio characteristics
- 67. Chicken
- 69. PQ leaders
- 70. "No ifs, ___ ..."
- 71. Epic name for SV folks

- 72. Gray
- 73. What crank-up sections do
- 74. 25-down variety
- 75. Gate type

Down

- 1. Benton Harbor lunchbox
- 2. Pet prefix?
- 3. Possible Indy prefix
- 4. Toledo team member
- 5. Say K
- 6. Grass shacks
- 7. Draft pick
- 8. Nutcase
- 9. Chemical class
- 10. Kind of test
- 11. Irish prefix
- 12. Inverter label

- 13. "Of, by and for the radio amateur", e.g.
- 23. Allow to be known
- 25. Leif Ericson's rig?
- 26. Like the Mystery Tour
- 29. Drill wielder: Abbr.
- 30. Zero place
- 32. Cochise's rig?
- 33. Eastern contest club
- 34. W6 airport
- 35. Brouhaha
- 37. IT9 erupter
- 39. W1 sect.
- 40. Batt. term.
- 41. ZP dir. from W2
- 43. Austrian prefix
- 44. Part of H.M.S.
- 49. Deep space object

- 51. Professor's aide
- 52. Big rig?
- 53. Moldovan prefix
- 54. Not 70-across
- 56. Spandex brand
- 58. Madison Avenue worker
- 59. 9Q-land
- 60. Benton Harbor lunchbox
- 62. Radiosport, for short
- 63. Math subj.
- 64. "Houston, ___ had a problem"
- 68. "?"

1	2	3		4	5	6	7	8	9		10	11	12	13
14				15							16			
17				18							19			
20				21				22		23				
24			25			26					27			
			28		29	30			31		32			
33	34	35			36			37		38		39	40	41
42				43					44					
45						46					47			
			48		49		50			51				
52	53	54		55		56				57		58	59	60
61			62					63	64			65		
66					67		68					69		
70					71							72		
73					74							75		

FACT OF THE DAY

Ground Plane Radials

The number of ground plane antenna radials needed for efficient operation depends on the height in wavelengths of the ground plane above ground. Nearly all the electric field from the vertical radiator will return to as few as three or four ground plane radials if the radials are high above ground. However, if the radials are at ground level as many as 180 radials are needed for highly efficient operation, because otherwise a significant percentage of the electric field will pass between the radials and return through comparatively high-resistance soil. The number of radials required for high efficiency diminishes rapidly with radial height above ground, such that at a radial height of one-quarter wavelength eight to ten generally are adequate. ©2005 Martek International All rights reserved.



~ Ham Tip ~

If you have knowledge of a **GREAT** ham radio related website or just a general tip, let us know and we will share it with the rest of the DRC membership here in the RoundTable. Send to n0hi@arrl.net.

THE ROUNDTABLE ARCHIVE

Scan the QR code or go to <http://www.w0tx.org/RoundtableAccessPage.htm>

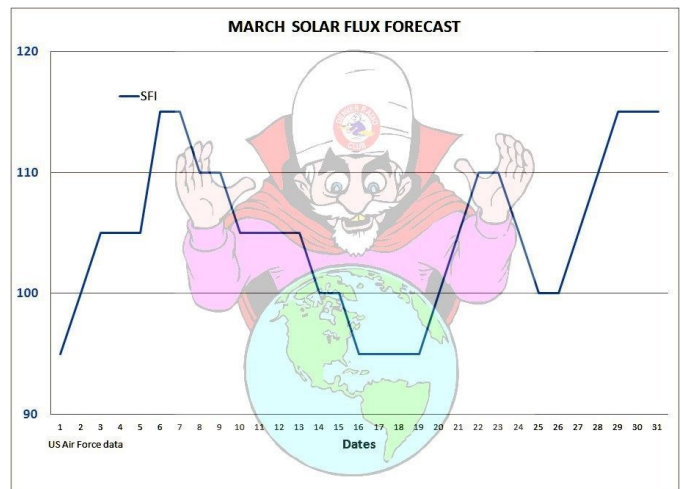
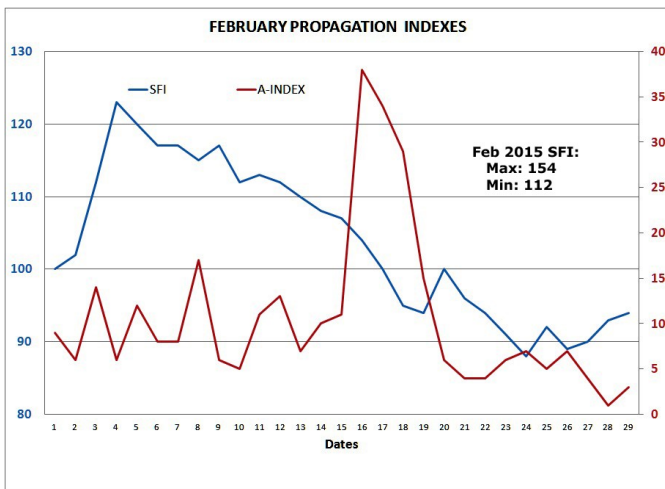


PAST & FUTURE PROPAGATION CONDITIONS

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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UPCOMING EVENTS

HAMFESTS & CONVENTIONS

Event	Date	Location	Sponsor Website
LARCFest 2016	03/26/16	Longmont, CO	Longmont Amateur Radio Club
Rocky Mountain Division Convention	05/13/16	Keystone, CO	HamCon Colorado
MARC Tailgate Party	06/04/16	Delta, CO	Montrose Amateur Radio Club

UPCOMING ARRL CONTESTS

[ARRL CONTEST CALENDAR](#)

Contest	Start Date	Start Time	End Date	Stop Time	Notes
International DX-Phone	03/05/2016	1800 UTC	03/06/2016	2359 UTC	
Rookie Roundup - Phone	04/17/2016	1900 UTC	04/17/2016	0359 UTC	
June VHF	06/11/2016	1800 UTC	06/13/2016	0259 UTC	
Kids Day	06/18/2016	1800 UTC	06/18/2016	2359 UTC	
Field Day	06/25/2016	1800 UTC	06/26/2016	2059 UTC	

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
Idaho	03/12/2016	03/13/2016	Idaho QSO Party	
Oklahoma	03/12/2016	03/13/2016	Oklahoma DX Association	
Wisconsin	03/13/2016	03/14/2016	West Allis Radio Amateur Club	
Louisiana	03/19/2016	03/20/2016	Louisiana Contest Club	
Mississippi	04/02/2016	04/03/2016	ARRL Mississippi Section	
Missouri	04/02/2016	04/03/2016	BEARS – St. Louis	
Georgia	04/09/2016	04/10/2016	Georgia QSO Party	
New Mexico	04/09/2016	04/10/2016	Santa Fe Amateur Radio Club	
Michigan	04/16/2016	04/17/2016	Michigan QSO Party	
Ontario	04/16/2016	04/17/2016	Contest Club Ontario	
North Dakota	04/16/2016	04/17/2016	North Dakota	Based on 2015 date.

DRC REPEATERS

BAND	Freq / Shift / PL Tone	Additional Information
6m	53.090MHz (-1MHz) 107.2Hz PL	
Packet	145.05MHz<>14.105MHz	2 meter / 20 meter gateway. Useable by Technicians on 2 meters. See January 2015 RT.
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.
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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MARCH 2016		<i>DRC Net Sunday's at 8:30 p.m. on 145.490 / 448.625 (No PL)</i>				
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1  Last Quarter	2 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	3	4	5 ARRL International DX - Phone Begins 0000 UTC
6 ARRL International DX - Phone Ends 2359 UTC	7	8  New Moon	9 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	10	11	12
13	14	15  First Quarter	16 DRC Meeting Elmer 6:00 p.m. General 7:00 p.m.	17	18	19
20	21	22	23 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)  Full Moon	24	25	26
27	28	29	30 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	31		

DRC BOARD OF DIRECTORS

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Web Master	N0LAJ	Bill Hester	Check Roster	Check Roster

~ 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

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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. ~ Editor