



ROUNDTABLE

The Denver Radio Club Newsletter

Since 1917

June 2019

PRESIDENT'S MESSAGE

BY GERRY VILLHAUER, W0GV

Hello DRC Members,

Just when we think spring is here, it snows! Go figure, but, this is Colorado.

Cathy and I made a trip to Hamvention in Xenia, OH and also visited family in Illinois. It was a good and uneventful trip. We had rain, wind and tornados everywhere we went but, we were lucky to not have any of the dangerous weather close to us; other than very hard rain storms. I have attended 7 or 8 Hamventions and this is the first one when it did not rain during the event but, there were very hard rains in the evenings. Lots of "stuff" to see as usual and an excellent time to get a first look at the new equipment being introduced by the major manufactures. The one thing I can say about the outside swap area, Humongous! I doubt you could see it all in the two and a half days of the event. And a final note on Hamvention. Cathy (N0CRZ) took and passed her General license test. Please congratulate her next time you see her.

Mark your calendars for June 22 and 23 for our Field Day Event at the Chief Hosa campground. This is a short drive up I-70 to the Chief Hosa exit. Thanks to Doron (K1DBC) for organizing our Field Day. Please go to the DRC Website, w0tx.org for more information.

Another date for your calendar is August 18, 2019. That is the date for "The Big One" our DRC Hamfest held at the Jefferson County Fairgrounds. You can print a [table reservation form](#) from our website, w0tx.org. This is our BIG event for the year and for it to be successful we need "YOUR" participation. Please get your table reservation in soon and plan to attend.

Thanks to Mark (N0MTN) for his presentation on "Summits On The Air" (SOTA). This is the time of the year for lots of SOTA activity. Listen for the stations especially on 146.520 simplex and join the fun. I have had great reports on Mark's presentation. Thanks again Mark.

Thanks to Dave (K0HTX) our Vice President, for taking care of business during my absence.

From Bill Rinker (W6OAV): As many of you know, the DRC has a Fusion repeater which provides many interesting worldwide communication capabilities. If you are interested in learning all about Fusion, plan to attend the June DRC meeting. Justin Daniels (AE2L), will present an in depth overview of the many capabilities of both Fusion and Wires-X as well as how they work. He will also contrast Fusion with DMR and D-Star. Time permitting Justin will demonstrate Fusion.

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 personally to make them feel welcome. Welcome to our newest members:

Annette Villalva - KA0JKZ	Kevin Greaney - KG1AZ	Gerald Kirshenbaum - KE0PRQ
Mark Molberg - N0MTN	Melvin Webber - N0DIY	James Neal Martin - KE0VMO
Eugene Hill - N0YPL	Warren Broderick - KA7WNK	Joel Jacobson - KE0EIN

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.

TECHNICAL COMMITTEE REPORT

BY BILL RINKER, W6OAV

The following is an overview of current issues discussed at the May meeting.

St Anthony Repeater

Goal: Improve coverage by moving the repeater and antenna to a better location on the building.

Status: Project has been approved by the hospital. A planning meeting is scheduled for June 3.

DRC/TSA Aurora Site

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

Status: The Board is reviewing the MOU received from the TSA and is corresponding with the TSA relative to the installation of wiring and coax runs.

6 Meter Repeater

Goal: Troubleshoot audio and "buzz" issues.

Status: W0GV and N0ETV will organize a work party to troubleshoot the issues and to routine the systems.

Develop Fusion Repeater Tech Support

Goal: Train several tech committee members to assist with programming and maintaining the Fusion Wires-X repeater system.

Status: K0SVT has volunteered to do the training after he finishes moving.

Move the Fusion repeater to Centennial Cone

Goal: Provide better coverage.

Status: The board has approved the move. A request has been issued to the Frequency Coordinators.

Station 4 Remote Power Control

Goal: Determine which tech committee members will be responsible for controlling the system.

Status: A list will be developed over the next few weeks

MAY MEETING - WHAT'D I MISS?

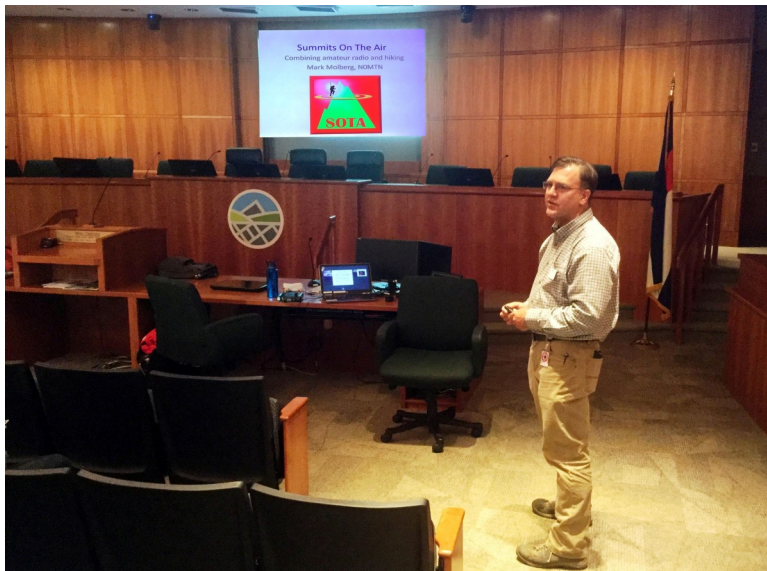
By BILL RINKER, W6OAV

After introductions chaired by Dave (K0HTX), the meeting was turned over to the guest speaker Mark (N0MTN). Mark's PowerPoint presentation was titled "Summits On The Air" (SOTA). Mark began the presentation by defining SOTA's objective as encouraging hams to operate temporarily from mountain summits, combining hiking and mountain climbing with operating their stations from these mountain summits. He also defined the various terms used in SOTA operations, such as Activator, Chaser, etc.

Mark described the various types of activities involved in SOTA, the awards, the points and operating procedures. He described commonly used frequencies, types of equipment, and typical setups. The latter was documented with some very interesting pictures of setups on various mountain tops.

Complete information can be found at <https://www.sota.org.uk/>.

Also, current spots and other activities can be viewed at <http://www.sotawatch.org/>



LEARNING NET REPORT

BY FRED HART, AA0JK



Thanks go out to our Net Controllers: Doron (K1DBC).

The following topics were discussed this past month:

- FT4 Digital-mode
- Field Day
- TH75A Kenwood Dual Band HT
- Astro Saber 3 Motorola VHF Digital
- TK-880 Kenwood UHF
- P 7100 Harris Portable Radio
- Yaesu FT-70 vs FT- 60
- RT Systems software / cables
- QSL's – Hard-copy vs Logbook of The World software
- Awards Managers / Card Checkers - <http://www.arrl.org/dxcc-card-checker-search>
- Local Repeater Groups
- Fusion fidelity
- Tube fidelity vs Digital sound

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 via w0tx@w0tx.org or elmer@w0tx.org.

We are always looking for additional net control operators. If you would like to participate we can help you with the basics of becoming a net controller. This is a great opportunity to learn and get experience running a net.

Net controllers are always needed to perform Emergency Communications services. The Amateur Radio Emergency Service® (ARES) consists of licensed amateurs who have voluntarily registered their qualifications and equipment, with their local ARES leadership, for communications duty in the public service when disaster strikes. <http://www.arrl.org/ares>. In the event of emergencies such as floods, fires, or other public service, the amateur radio community is always ready to help. If you have an interest in participating, when the need arises, learn and train now to be prepared. For additional information contact our EmComm Coordinator: Mike Vespoli (KE0HFH) at emcomm@w0tx.org.

If we don't have the answer here on the net, we have a lot of experienced hams in the club that can help. Questions can also be submitted on the YAHOO Learning Net web page <https://groups.yahoo.com>. Here you will also find information from past activity that you might find of interest.

Getting that first Technician license? Upgrading to General or Extra? We're here to help. We would encourage those who have been Hams for several years to also join us. Your experience and input is welcomed. What topics would you like to discuss? Join us Wednesday nights, 7:30 PM, 145.490, 100 Hz PL tone & linked to 448.625, 100 Hz PL tone.

(Note: The third Wednesday of the month is devoted to the DRC club meeting. Elmer Session: 6 PM, Main Meeting: 7 PM. See the [W0TX web site](#) for additional information.)

73,

Fred
AA0JK

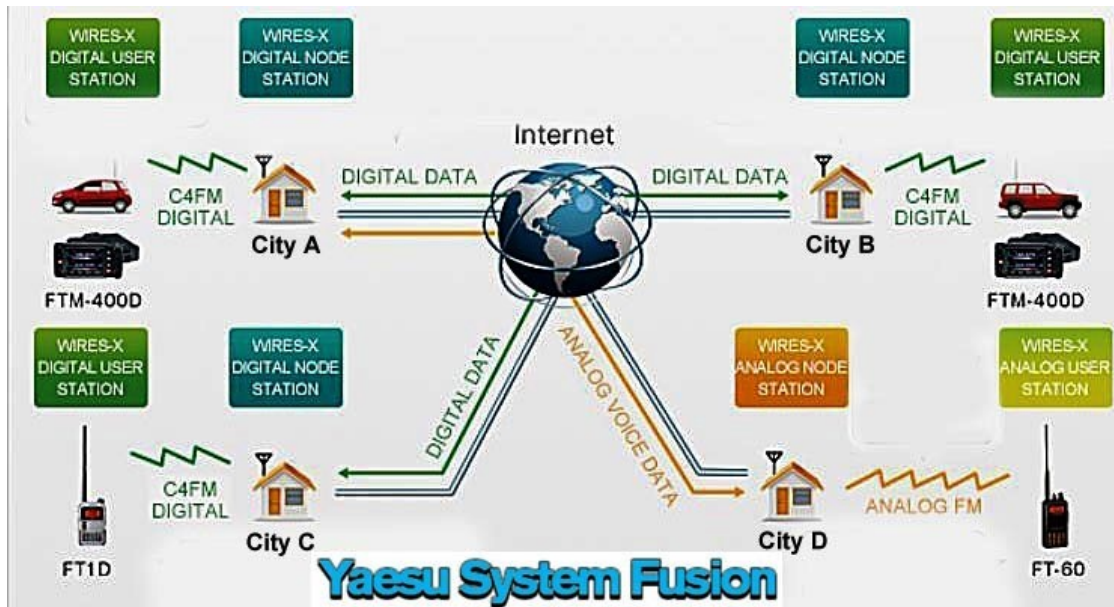
ELMER SESSION START TIME
The Elmer Session Starts at 6 p.m. before the regular 3rd Wednesday DRC Meeting! All are welcome. Meet in Hearing Room # 2.
Come join in on the sharing of information.

THE ROUNDTABLE ARCHIVE - w0tx.org/RoundtableArchive/

JUNE MEETING PRESENTATION

BY BILL RINKER, W6OAV

As many of you know, the DRC has a Fusion repeater which provides many interesting world-wide communication capabilities. If you are interested in learning all about Fusion, plan to attend the June DRC meeting. Justin Daniels, AE2L, will present an in depth overview of the many capabilities of both Fusion and Wires X as well as how they work. He will also contrast Fusion with DMR and D Star. Time permitting Justin will demonstrate Fusion.



TOWER HELP REQUESTED

FROM RON FRANKLIN, WB0HWP

I have a 40 ft crank-up tower. The rotator needs to be taken down, and fixed. It possibly needs a new rheostat. I have an antenna switch that needs to be replaced. It has been there for a very long time. The Inverted V antenna needs a new center bracket. When I put up the tower, I put a Ringo Ranger on the top, that needs to be replaced.

I don't expect all this work to be done for nothing, that is something that needs to be worked out. If you would be willing to assist, please give me a call. 303-989-3911 or 303-919-3287

Ron
WB0HWP

WHEAT RIDGE SIREN TEST

BY BRENNAN PATE, AD0UZ

The DRC will provide radio comms for Wheat Ridge during the annual siren test on June 12th. Participants need to be on-site at 10:30 AM and check-in with Net Control. The Net will be run by Jim Beall (K0TOR) on 145.490/448.625. After the 11 AM siren test is completed observations will be radioed in. Within the next few days we will be contacting those who helped last year.

If you would like to assist with either test, please contact Jim Beall (K0TOR) or Brennan Pate (AD0UZ) (see last page of Roundtable).

LAKWOOD SIREN TEST

BY FRED HART, AA0JK

Local Amateur Radio Operators come together to assist the Lakewood city government in testing the communities emergence alert, and siren systems.

The City of Lakewood measures 44.05 square miles, and is located west of Denver, with a population of 154,400+ residents. The City is home to a mix of retail/commercial businesses, and unique residential neighborhoods.

An annual test of the emergency siren warning system is performed to insure proper operation prior to our severe weather season.



Due to the 44.05 square mile area, this task requires the inspection of 28 stations simultaneously. A large task for a limited number of personal at Lakewood.

So how does the needed test get accomplished? The amateur radio community steps-up to perform the task. Local Hams came out in inclement weather to cover 28 stations. Two coordinating personal to link the net-control with the individual operators monitoring, and relaying the needed information back to the Lakewood central office.

Jim Beall (K0TOR), net control, and Brennan Pate (AD0UZ) preformed the necessary link to collect, and present the exercise results to the Lakewood staff.



Sirens may seem 'old school,' but are still the fastest way to alert people in a wide area — particularly with an active population that enjoys the outdoors like we have in the Lakewood area.

Please note, calls to home lines may also be utilized in emergencies, so if you no longer have a land-line, register your cellphone at CodeRED, and get weather alerts from NOAA on your phone.

Thanks goes out to all who participated. It was greatly appreciated. This voluntary service to the community by Hams, when public service is needed prior to, and when disaster strikes, is what defines us as Amateur Radio Operators. Hardly Amateur, we're professional grade in times of need.

73,

Fred
AA0JK

FIELD DAY 2019 INVITATION

BY FRED HART, AA0JK

It's that time of year again for our annual ARRL Field-Day gathering.

The Denver Radio Club will be at the Chief Hosa campgrounds to promote Amateur Radio, and practice our emergency response skills. Come one, come all, join us June 22 – 23 for our annual event.

Field Day is Ham Radio's open house. Every June, more than 40,000 Hams throughout North America set up temporary transmitting stations in public places to demonstrate Ham Radio's science, skill, and service to our communities and our nation. It combines public service, emergency preparedness, community outreach, and technical skills all in a single event. Field Day has been an annual event since 1933, and remains the most popular event in Ham Radio.



(AA0JK's First Field-Day? No, not quite.)

<http://www.arrl.org/files/file/Field-Day/2019/ARRL%20Field%20Day%202019%20PSA.mp4>



What's new? FT8 now, with appropriate software versions and proper setup, now can accommodate the Field Day exchange. Field Day stations should ensure that the software they're using (e.g. WSJT-X, MSHV) can support the Field Day exchange, and has been configured to do so.



(AA0JK's Field Day Station on the air.)

Chief Hosa Campground is located in Genesee Park only 20 minutes west of Denver. Take I-70 west to exit 253. The Denver Radio club will be on the North side of I-70. Stay to the right and follow the DRC posted signs for the event.

We welcome the public to come learn more about Ham Radio!

Hope to see you all there.

73,

Fred
AA0JK



ARE YOU ADDICTED TO HAM RADIO?

SUBMITTED BY BILL RINKER, W6OAV

ORIGINAL BY CHARLES WINKLER

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If you identify with at least 5 of these you are. Enjoy.

You Might be Addicted to "Ham Radio" if:

1. When you look at a full moon and wonder how much antenna gain you will need.
2. When a friend gets a ride from you and remarks that you have a lot of "CB's" in your vehicle, it turns into an hour long rant on how "ham radio" is not "CB radio".
3. When someone asks for directions, you pause, wondering if long or short path would be best.
4. When you can look at a globe and be able to point to your antipode (and you know what an antipode is).
5. Your cell-phone ring tone is a Morse code message.
6. You have accidentally said your Amateur Radio call sign at the end of a telephone conversation.
7. Your favorite vacation spots are always on mountain tops.
8. You see more antennas than road signs while driving your car.
9. You have driven onto the shoulder of the road while looking at an antenna.
10. Porcupines appear to be fascinated with your car.
11. If you ever tried to figure out the operating frequency of your microwave oven.
12. For Bachelors: When you look around your bedroom and see wall to wall ham gear and ask: Why am I still single?
13. The local city council doesn't like you.
14. You think towers look pretty
15. Your family doesn't have a clue what to get you for Christmas, even after you tell them.
16. Your HF amplifier puts out more power than the local AM and FM radio stations.
17. The wife and kids are away. The first thing that goes through your head is that no one will bother you while you call "CQ DX" a few hundred times.
18. When you pull into a donut shop and the cops on their coffee break ask if they can see your radio setup.
19. You refer to your children as your "Harmonics".
20. Your girlfriend or wife asks: "You're going to spend \$X,XXX.XX on what???"
21. You actually believe you got a good deal on an eBay purchase.
22. When you see a house with a metal roof, and your only thought is what a great ground plane for an antenna that would be.
23. You have pictures of your radio equipment as your opening page on your desktop computer.
24. Every family vacation includes a stop at a Ham radio store.
25. The first question you ask the new car dealer is: "What is the alternator's current output"?
26. You buy a brand new car based on the radio mounting locations and antenna mounting possibilities. Forget about the gas mileage.
27. You have tapped out Morse code on your car's horn.
28. A lightning storm hits nearby and takes out your new Laptop Computer, Plasma TV, DVD Recorder and Electronic Wall Telephone, but all you care about is if your radios are okay.
29. Your wife has had to ride in the back seat of the car because you had radio equipment in the front seat.
30. During a love making session with your wife, you stop to answer a DX call on the radio.
31. Your wife threatens you with divorce when you tell her that you are going on a "fox" hunt.
32. Talking about male and female connectors makes you feel excited.
33. You dream of big, comfortable, knobs, but not on women.
34. When you are house hunting, you look for the best room for a radio shack and scan the property for the best possible tower placement.

35. When house hunting, you give your realtor topographical maps which show local elevation.
36. The real estate agent scratches his/her head when you ask if the soil conductivity is high, medium, or low.
37. You have Ham radio magazines in the bathroom.
38. When your doorbell rings, you immediately shut down the amplifier.
39. Fermentation never enters your mind when "homebrew" is mentioned.
40. Instead of just saying no, you say "negative".
41. You have used a person's name (Roger) to indicate an acknowledgement.
42. You become impatient waiting for the latest Amateur Electronic Supply (AES) catalog to arrive.
43. You have found yourself whistling "CQ" using Morse code.
44. You always schedule the third weekend in May for a vacation.
45. You walk carefully in your back yard to avoid being "close lined" by elevated antenna radials and low antennas.
46. You have deep anxiety or panic attacks during high winds or heavy ice storms.
47. You and the FedEx/UPS men are on a first name basis.
48. You really start to miss people that you've never seen.
49. Your exercise machine has a Morse code keyer.
50. You walk through the plumbing section at the hardware store (Lowe's or Home Depot) and see antenna and tower parts.
51. Your neighbors thought you were nuts when you ripped up your lawn to bury chicken wire for a ground system.
52. Your next door neighbor thinks that your wife is a widow.
53. Your wife has delivered meals to your "ham shack".
54. If you sold all your radio equipment, you could pay off your home mortgage.

RECOGNIZING HAM DIGITAL MODES

BY BILL RINKER, W6OAV

Digital modes have become very popular on the HF and VHF ham bands. New digital modes are frequently appearing. This is mainly due to home PCs with built-in soundcards equipped with digital mode decoding/encoding software. Keeping up with these digital modes is tough! One of the main problems encountered by hams is how to identify what they are hearing or seeing on a computer waterfall.

G4UCJ has a great website that will help one to identify the various digital modes. The website describes the various digital modes and presents waterfall pictures of these modes. The website also provides mp3 recording of the digital modes which will help one to recognize the type of digital mode being monitored.

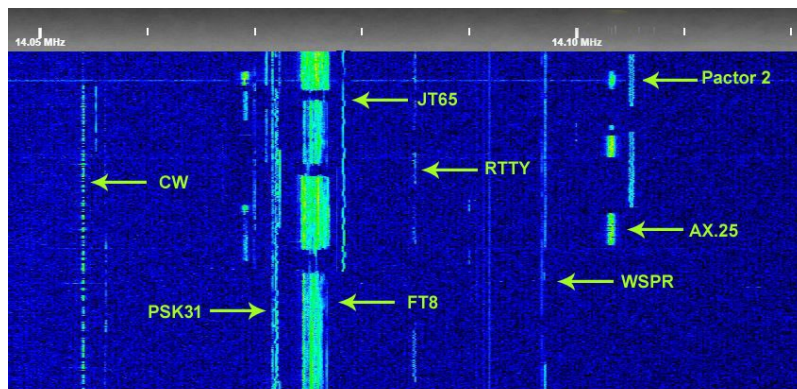


Figure 1 - Waterfall view showing a typical "digital day" on 20 meters.

G4UCJ's website is accessible at http://www.hfradio.org.uk/html/digital_modes.html.

Other good websites describing various digital modes, some with MP3s are:

<http://wb8nut.com/digital/>

<http://www.w1hkj.com/FldigiHelp-3.21/Modes/>

https://www.electronics-notes.com/articles/ham_radio/digimodes/digital-modes-summary.php

<http://yorkradioclub.org/wp-content/uploads/2017/03/digimodes.pdf>

FUNNY NOISES

SUBMITTED BY MEL MINNICK, K0MEL, WITH PERMISSION FROM
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N1FN@MTECHNOLOGIES.COM
FIRST PUBLISHED IN "THE LOW DOWN", JULY 2010

By The Numbers - Morse Code after Restructuring. The expression "by the numbers" is used to describe a process that is defined in sequential steps, and usually it is the best way to do anything that is complicated.

If you are undergoing brain surgery, for example, you probably will want your doc to do it "by the numbers." If you are building a transceiver kit, you will probably be working with numbered instructions and you can easily end up in trouble if you don't do it "by the numbers."

But the expression has another meaning when applied to running a business or other organization, and management by the numbers is fraught with peril. We have a generation of MBAs in charge of many of our corporations (and even government departments) who have been trained to run their operations "by the numbers." After all, numbers are how we measure our successes and failures in business and in government, and numbers don't lie. Or do they?

Maybe the numbers themselves don't lie, but there is nothing to stop you, me, or the government from using numbers to support some fairly serious lying! You can indeed run an organization effectively if (a) you have accurate numbers, (b) you understand what the numbers mean, and (c) you know what to do about it. Generally speaking, if there is a problem in the numbers (sales going down, costs going up, whatever...) the effective manager will verify the relevance and accuracy of the numbers, look for the causes that underlie the problem, and act accordingly. That's doing it by the numbers.

If you don't do it by the numbers you might well act to solve a problem that doesn't exist, and you could end up creating a worse problem than the one you were trying to fix. Therein lies the biggest problem faced by the Amateur Radio Service today. Amateur Radio is 'run' by two organizations, the FCC and the ARRL. The FCC has a complex agenda which includes Amateur Radio but with a very low priority. The numbers that drive the FCC are the dollars that they can get for administration and regulation of communications. Administration of the Amateur Radio Service is generally left to the ARRL, which has historically done a very good job. It has become increasingly apparent, however, that the ARRL is currently working with inadequate numbers, doesn't fully understand the numbers that they have, and has absolutely no idea of what to do about it. Here's what happened:

In the late 1990s the ARRL saw a sharp decline in membership, found a corresponding decline in FCC license numbers, and concluded that the hobby was in serious trouble. The decline in membership was a fact. The decline in license numbers was also a fact, so it was seized upon as an explanation for declining League membership.

From there, the League somehow concluded that the numbers were declining because there were too many "barriers to entry," that is, it was too hard to get an amateur radio license. By this time the written

exams were almost a joke—public question banks and “cram courses” online and elsewhere that would guarantee you an exam pass in a weekend. The problem must be Morse code. And after all, there were thousands of people clamoring for elimination of the code qualification, many of them well organized and (apparently) well-funded.

So, despite multiple surveys indicating that a majority of League members wanted the code tests to continue, the League decided that they had to go. How could this be, if the League is a membership organization? Financially, the ARRL is essentially a publishing organization—by far the majority of its resources go to publication of QST and books. A decline in League membership is the same thing as a decline in subscriptions to QST, and advertising revenue is directly tied to subscription numbers. So, yes, QST was in trouble and there for the League was in trouble. The publishing and editorial staff at any normal magazine, confronted with declining subscriptions and renewals, will try very hard to find out why the magazine is not meeting the needs of its readers. They will take steps to change the magazine, or else the magazine will go under. QST and its parent organization were in the unique position of being able to change the hobby. Or so they thought. “More people will become hams if it is easier to get a license,” they thought.

The one thing they could do to make it easier was to reduce the Morse requirement. In April of 2001 the 13 and 20 WPM code requirements were eliminated, with dramatic and immediate results. Everybody and his dog upgraded to General or Extra at the first opportunity. But the hoped-for increase in new licenses did not happen. “Aha,” thinks the League, “any Morse requirement is too much.” And so in 2005, the Morse requirement was eliminated completely. Undoubtedly the League expected a big influx of new hams, but it didn’t happen.

The decline in League membership (i.e., QST subscriptions) was not due to the difficulty of the Morse test, or any other “barrier to entry.” All print magazines are seeing declines due to the prevalence of more timely modes of mass communication. The content of a magazine is frozen at least a month before delivery to subscribers. Who among us wants to read news that we saw on the Internet or TV a month ago?

As at April 1 2000, QST was one of four national magazines. The ARRL proposed retaining a 5 WPM Morse requirement for the Extra Class license. The cynic in me suspects that this is because survey after survey has shown that the majority of ARRL members wanted the code requirement to be retained.

Ironically, the FCC saw what the League could not, that this was a nonsensical proposal, and the FCC eliminated the code requirement entirely. As something that can be and often is done by Cub Scouts for a merit badge, a 5WPM qualification is really no Morse qualification at all, and associating it with the Extra ticket borders on insulting. As my own Elmer told me a long time ago, “Your 5 WPM test gets you a license to learn Morse.” devoted to non-specialized amateur radio.

Since then one has gone out of business and the remaining three are all struggling. The decline in FCC license numbers had still another explanation. There was a big influx of no-code Technician licensees following the elimination of the code requirement for the Tech license. Why? We forget what the world was like before cell-phones.

Large numbers of no-code techs got their tickets specifically so that they could use local repeaters and autopatch (access to the telephone system through the repeater). Getting a ham license was a lot easier and less expensive than getting the old-fashioned mobile phones. But there was little in League membership or in QST to hold their interest, the great mass of General and above hams were somewhat less than welcoming, these folks had no need for the license once cell-phones became readily available. So they didn’t renew their licenses after expiration, creating a drop in license numbers that was a significant as the original increase.

So there was a decline in FCC license numbers, but it was not necessarily an indication of a problem. That's where we get into the notion of "validity and relevance."

The ARRL (and QST's) market can easily be defined as active amateur radio operators. Unfortunately, there is nothing in the FCC database to indicate whether an amateur is actually using the privileges of his ticket. From there we can easily see that substantial changes in the overall license numbers, and even the numbers for new licenses, give us no idea at all about changes in the active population. For all we know the number of active amateurs could have been increasing steadily over the last ten years.

Haven't we QRP operators noticed an increase in CW activity on the bands, and haven't the phone operators been complaining that the bands are too crowded? There's another important question here that didn't get asked and couldn't have been answered—what is the "right" size for the amateur population?

If numbers are declining a bit, is that necessarily a bad thing? If they are increasing is that automatically a good thing? The only thing that we could say about those numbers, with any confidence at all, was that current subscriptions to QST were not enough to keep QST in the style to which it had become accustomed. It is sad that the ARRL failed to understand amateur radio demographics, sadder if they deliberately distorted the picture to support their own preconceived notions, and beyond sad if they were motivated and blinded entirely by institutional self-interest.

But if the League's perception of a problem was sad, their attempts to solve it have been pathetic. They still seem to be operating under the assumption that interest in the hobby is declining because it is too hard to get a license. As one who fairly recently earned his wings, I can tell you that it is a whole lot harder to get a private pilot certificate than it is to get an Extra class ham license. If you want to fly, you'd better plan on investing hundreds of hours over the course of about a year, and somewhere between six and ten thousand dollars. You will have to pass a written test, and also a check ride with an FAA examiner. Hard work? Yep. Expensive? You bet. So please explain me this: There are 2 million licensed private pilots in the US. There are approximately 695,000 licensed amateur radio operators. There are approximately 700,000 active pilots, compared with who knows how many active hams. What can we conclude from those numbers?

Simply this, which I will immodestly call "N1FN's first law of hobby economics:" If people really want to do something they will find a way to do it, regardless of time, effort, and expense. The corollary is equally obvious and important: if people don't want to do something, it doesn't matter how easy it is.

And thus we arrive at N1FN's second law of hobby economics: You can't make people want to do something. If the ARRL wants to get more people into amateur radio, they are wasting every bit of time, money, and effort that they are expending to make it easier. Instead they should be focusing on promotion of the core aspects of the hobby, including but not limited to HF CW. You won't get a whole lot of recruits by showing them how easily they can get a license to do things that they can already do better and cheaper with a cell phone, or with a computer and the Internet. By and large, I am convinced that QRPers, intentionally or otherwise, do better job of promoting the hobby to the public at large than the ARRL does.

If you want to... it will be done!
It Can Be Done, DO IT!

Links:

[Antennas!](#)

[ARES](#) - Amateur Radio Emergency Service

[ARRL](#) - American Radio Relay League

[Coast Guard Club](#) and Amateur Radio Net

[Coast Guard Radioman](#)

[Code, The](#): A Hostage Rescue Story
[Extra Class License](#)
[Hand Keys](#) on display by OZ2CPU
[FISTS](#) The International Morse Preservation Society
[K9DE](#) Learning and Using Morse Code
[Maritime](#)
[Memberships](#) and Wallpaper
[Memorizing Morse code](#) by Wolf at 1728 Software Systems
[Morse code alphabet](#) and phonetics
[Morse code](#) by visible light! (Aldis lamp and Heliograph + a free simulator download)
[Morse Code Company](#) - All things Morse!
[Morse code memories](#) from telegraphers
[Morse code music](#) by Phil Tulga - it's great fun!!
[Morse Telegraph Club](#)
[MRX Morse Code for Windows](#) Software by an ex Royal Navy Wireless Telegraphist!
[N9BOR](#) Loves Morse code!
[NAQCC](#) - North American QRP CW Club
[Q and Z](#) signals
[QRP](#) and Amateur Radio
[QRPP Award](#)
[Solar Flux](#) and Terrestrial Activity
[Spark Gap](#) info by John S. Belrose
[Spark Gap Recording](#) from 1921 by VK7RO
[Text to Morse code](#) MP3 converter
[Theodore Roosevelt McElroy](#) - World's Champion Radio Telegrapher
[The Telegraph Office](#) - a resource for wire and wireless telegraph key collectors and historians
[University of Denver](#) - The Electromagnetic Telegraph
[W1AW](#) Code Practice Transmissions
[ZUT](#) Coast Guard CW Operators Association
[CQRP](#) - COLORADO QRP CLUB
[SKCC](#)- Straight Key Century Club
[RRI/QNI](#) - Radio Relay International
<http://www.rogerwendell.com/morsecode.html>

SOLAR UPDATE

PROVIDED BY FRED HART, AA0JK

(Graphic - *Parker Solar Probe*)

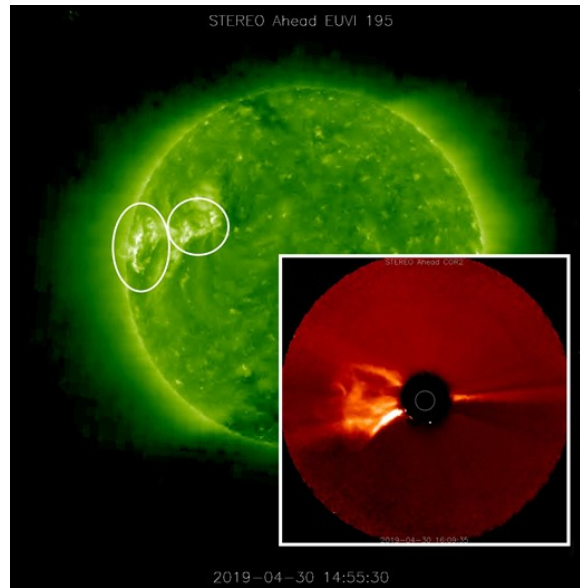
After a quiet two weeks in solar geophysical activity, May introduced the return of Region AR2736 (renumbered AR2738)

As AR2738 returned to Earth view, it was giving the solar flux a much needed boost. This meant radio propagation was returning to the high side of marginal levels for amateur, and shortwave operators on the Earth's day-side.

May1st - Far side fireworks. There was a period of geomagnetic unrest as a large hole in the Sun's atmosphere was turning toward Earth as it spewed solar wind in our direction.

There were two eruptions from two separate areas on the far side, but one eruption was way bigger than the other.





Two area's on the Sun's far side seemed to have sprung into life. Three eruptions took place. See the image above.

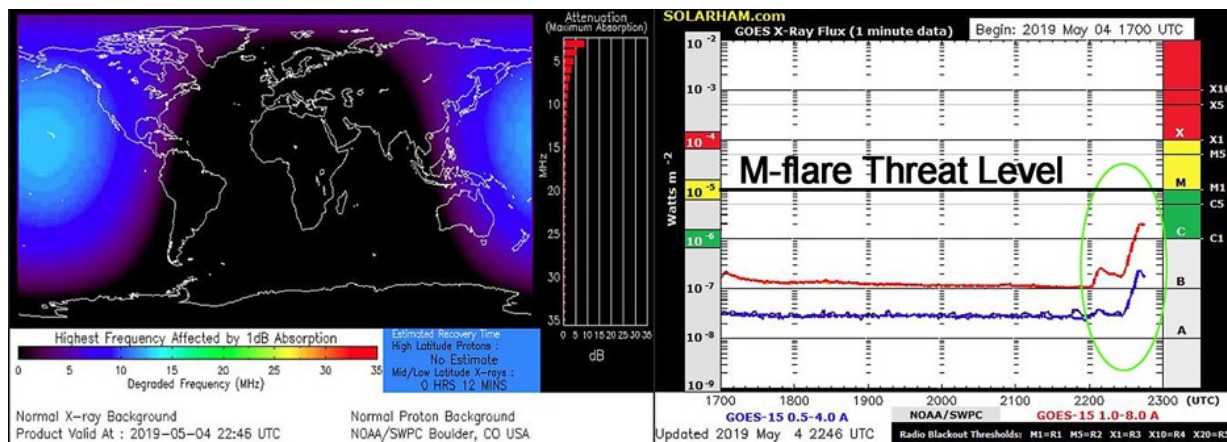
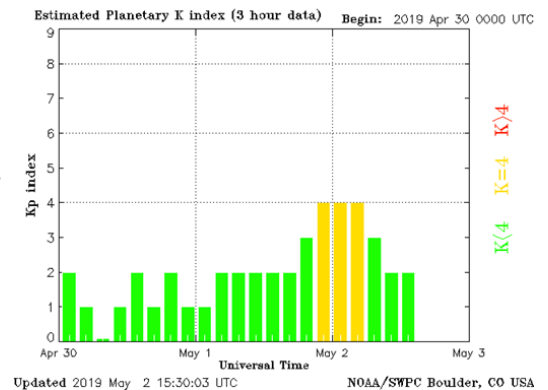
The two eruptive areas were seen by STEREO Ahead EUVI 195 and the largest of the three coronal mass ejections was seen by STEREO Ahead COR2 (STEREO's Extreme UltraViolet Imager – EUVI).

(The Cor2 coronagraphs are part of the Sun-Earth Connection Coronal and Heliospheric Investigation (SECCHI) package onboard the twin STEREO spacecraft.)

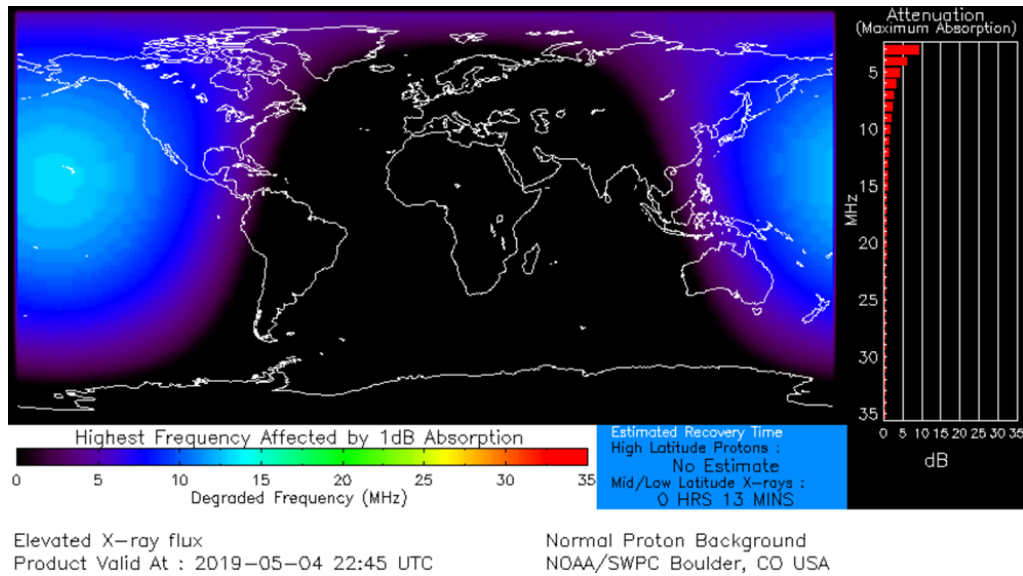
May 2nd - The solar wind had arrived: Earth was inside a stream of solar wind flowing from a large hole in the Sun's atmosphere. With wind speeds exceeding 500 km/s (1.1 million mph).

Solar wind was elevated in intensity but only to modest levels-as geomagnetic storms were resulting from it. A sunspot was about to crest into view, and had been erupting heavily in the previous 3 days.

The Sun really woke up, as to not only having some fast solar wind hitting Earth, it had brought us up to active conditions, We also had 4 solar storms that were launched on the Sun's backside in less than 48 hours!



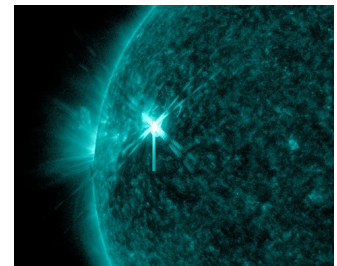
May 4th - Returning regions AR2740 were firing solar-storms, and C-class flares before they were even totally in view! Ham Radio, and emergency radio operators experiencing noisy band conditions. GPS reception was unsettled near the dawn - dusk terminators.



Pacific radio brownout: Returning sunspot AR2740 erupted during the late hours of May 4th, producing a C2-class solar flares at 22:43 UTC. Extreme ultraviolet radiation briefly ionized the top of Earth's day-side atmosphere, producing a brownout of shortwave radio signals over the Pacific Ocean. Frequencies affected were mainly below 10 MHz.

Ships at sea and Ham Radio operators may have noticed the disturbance. The Sunspot was a big one, especially considering that we are in a deep solar minimum.

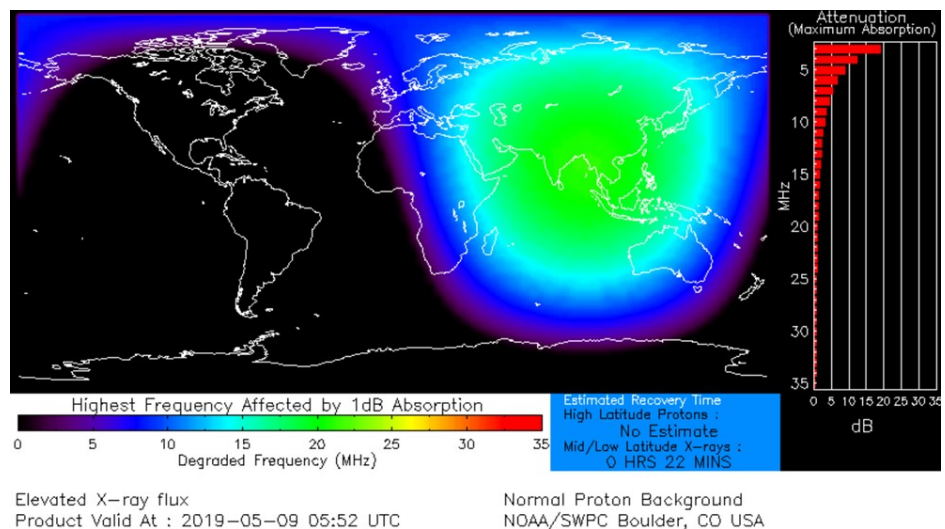
Image courtesy of SDO/HMI



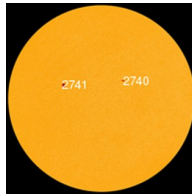
Region AR2740 continued to move into a better Earth facing position and was crackling with C-Class solar flares. One of these flares nearly broke the M-Class threshold measuring C9.9 at 05:10 UTC. The flare itself was a very rapid and not likely the source of a noteworthy coronal mass ejection (CME). The sunspot region had a delta magnetic configuration, and was expected to produce additional C-Flares, and isolated M-Flare during the following 24 hours.

It was also noted that another sunspot was turning into view off the east limb, but did not appear to be as active as AR2740.

May 9th - Another solar flare: May 9th began with a bang. Big sunspot AR2740 produced another solar flare, this time an impulsive C7-category explosion.

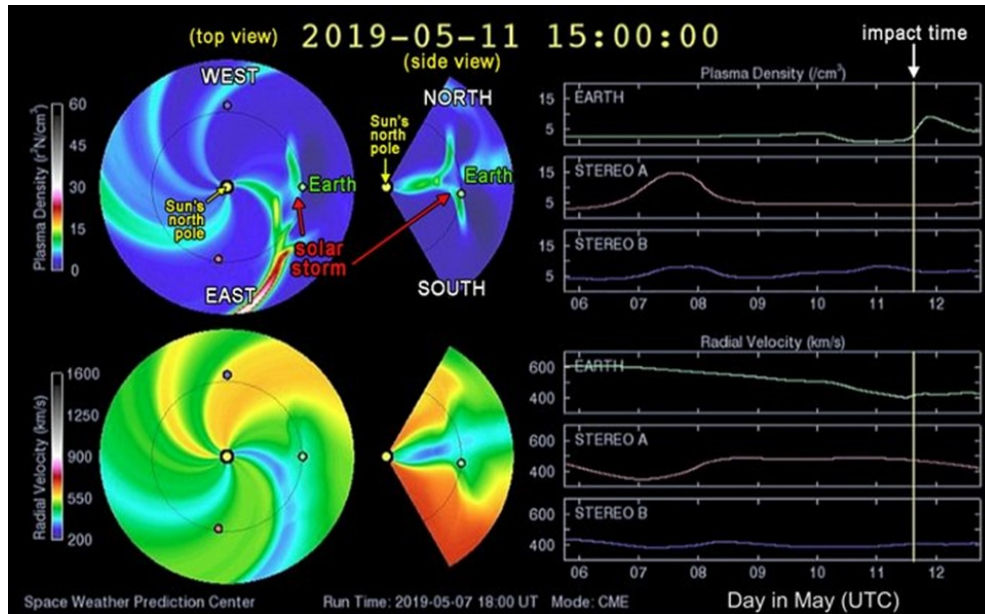


Radiation from the flare briefly ionized the top of Earth's atmosphere, causing a brownout of shortwave radiation over Asia and the Indian Ocean. Frequencies affected were mainly below 20 MHz. Ham radio operators and ships at sea using shortwave transceivers may have noticed the disturbance on May 9th around 05:50 UTC.

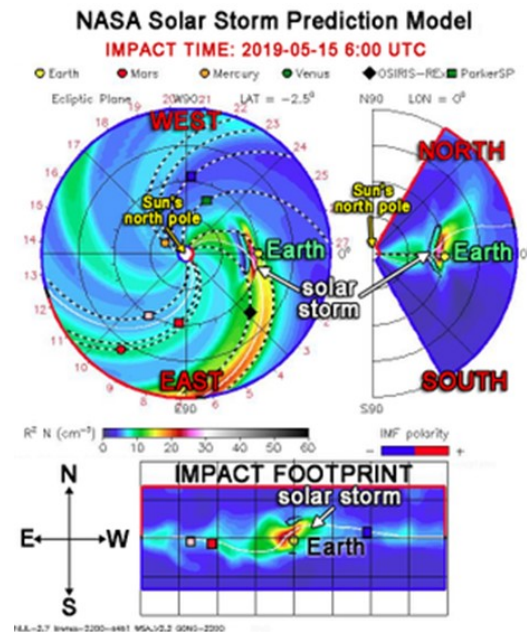
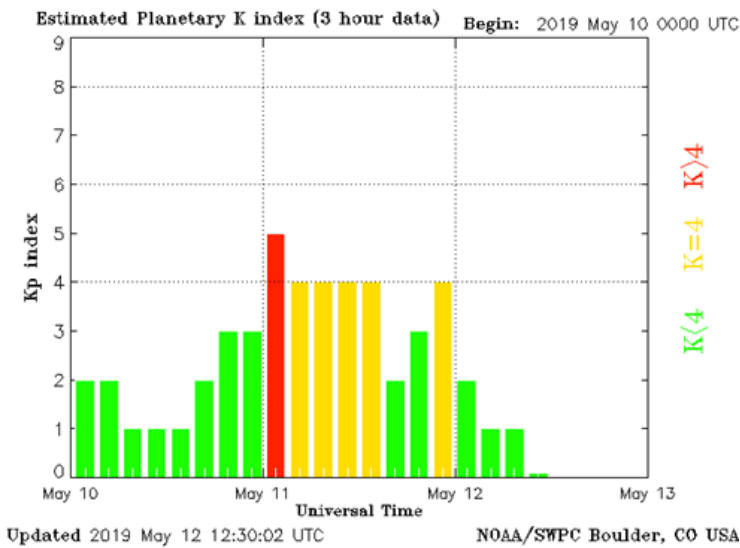


May 11th - Minor geomagnetic storm: A minor G1-class geomagnetic storm was underway on May 11th, following a CME impact. The initial blow on May 10th was weak, causing little disturbance to our planet's magnetic field. Storm conditions developed later as Earth moved into the CME's turbulent wake.

Sunspot AR2740 was decaying and posed a declining threat for solar flares. Credit: SDO/HMI



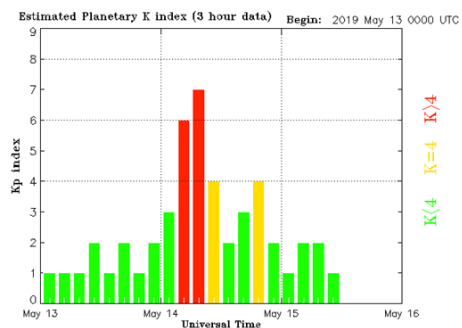
A direct hit! Coronagraph data and an NOAA prediction model confirmed a solar-storm would hit Earth! Impact near mid-afternoon May 11th. Emergency communications, Ham Radio, and GPS reception issues were expected on Earth's night side.



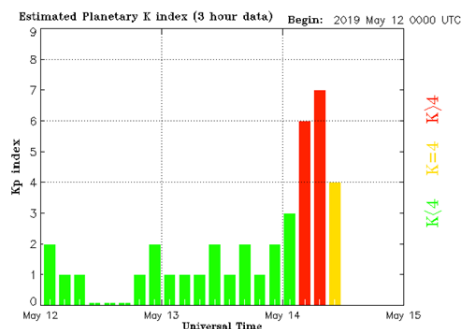
May 14th - Geomagnetic K-index of 7 Threshold was Reached: 2019 May 14 08:59 UTC. Synoptic Period: 06:00-09:00 UTC

May 14th 10:55 UTC: The phi angle shift in the solar wind brought incredibly more-intense geomagnetic disruptions. At the time, a level 3 geomagnetic storm was underway, and those CMEs were still coming.

Solar-Terrestrial Data - http://www.n0nbh.com			
06 May 2019 1836 GMT		VHF Conditions	HF Conditions
SFI 75 SN 14		Item Status	Band Day Night
A 4 K 1 / Plntry		Aurora Band Closed	80n-40n Fair Good
X-Ray B1.4		6n EsEU Band Closed	30n-20n Fair Fair
304A 95.2 @ SEM		4n EsEU Band Closed	17n-15n Poor Poor
Ptn Flx 0.22		2n EsEU Band Closed	12n-10n Poor Poor
Elc Flx 129.00		2n EsNA Band Closed	Geomag Field VR QUIET
Aurora /n=		EME Deg Fair	Sig Noise Lvl S0-S1
Aur Lat No Report		MUF	MUF US Boulder NoRpt
Bz 1.0 SW 368.0		MS	Solar Flare Prb 11%
		0 6 12 18 UTC MAX	(C) Paul L Herrman 2013



Updated 2019 May 15 15:00:02 UTC NOAA/SWPC Boulder, CO USA

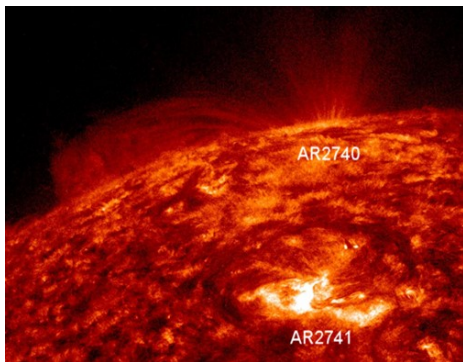


Updated 2019 May 14 12:30:02 UTC NOAA/SWPC Boulder, CO USA

May 15th 11:25 UTC: Geomagnetism was calming down. There were no solar flares, but CME's were due to impact Earth over the following 24 hours.

The remains of old sunspot AR2740: Reports of tall plumes of gas rising over the Sun's northwestern limb appeared to be old sunspot AR2740.

Here was the view from NASA's Solar Dynamics Observatory:



The prominence rose almost 50,000 km above the edge of the Sun. That meant it was 4 times as tall as Earth.

While sunspot AR2740 was about to disappear, an even bigger sunspot AR2741 was approaching the same spot for an even more flamboyant display.

May 20th - Geomagnetic activity was at quiet levels. Another coronal mass ejection, CME, was expected to deliver a glancing blow to our geomagnetic field but missed or was too weak to be noticed. The geomagnetic forecast released by the NOAA Space Weather Prediction Center (SWPC) was no longer calling for geomagnetic storming conditions.

Prepared jointly by the U.S. Department of Commerce, NOAA, Space Weather Prediction Center. UPDATED 2019 May 20 00:30 UTC

Summary: Solar activity was very low. Region 2741 (N05W77, Hax/alpha) was stable and inactive. No Earth-directed CMEs were observed in available satellite imagery.

Forecast: Solar activity was expected to remain very low.

73,

Fred
AA0JK

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](#)



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

[DRC's Repeater Listing](#)

THE ROUNDTABLE ARCHIVE

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

THE ROUNDTABLE ARTICLE INDEX

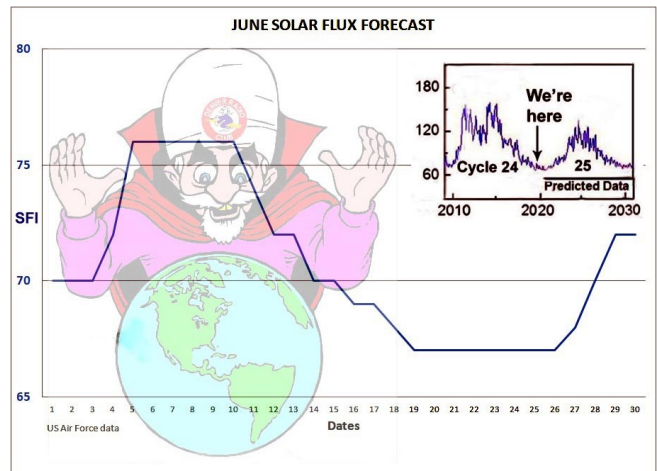
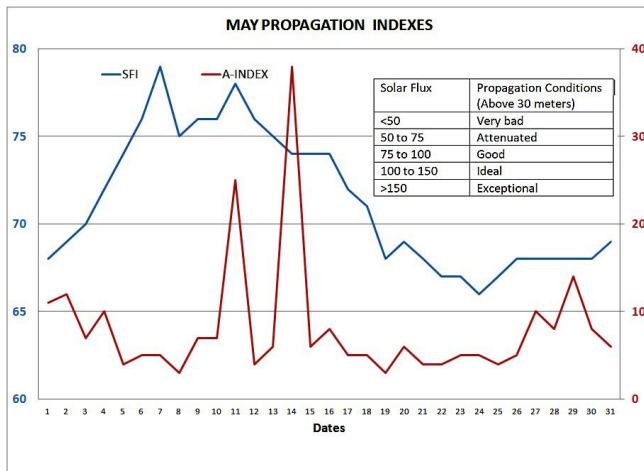
Go to: <http://www.w0tx.org/RoundtableArchive/-RoundTables-Index.pdf>

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 *Roundtable* 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
Montrose ARC Tailgate Party	06/01/19	Delta Lions Club Pavillion	ARRL Posting

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
Kentucky	06/01/2019	06/02/2019	Paducah Amateur Radio Association	
West Virginia	06/15/2019	06/16/2019	West Virginia State Amateur Radio Council	
Maryland-DC	08/10/2019	08/11/2019	Anne Arundel Radio Club	
Hawaii	08/24/2019	08/26/2019	Hawaii QSO Party	
Kansas	08/24/2019	08/25/2019	Kansas QSO Party	
Ohio	08/24/2019	08/25/2019	Ohio QSO Party	
Colorado	08/31/2019	09/01/2019	Pikes Peak Radio Amateur Association	
Tennessee	09/01/2019	09/02/2019	Tennessee QSO Party	
Alabama	09/07/2019	09/08/2019	Alabama QSO Party	
Iowa	09/21/2019	09/22/2019	Story County ARC	
New Jersey	09/21/2019	09/22/2019	New Jersey QSO Party	
Washington	09/21/2019	09/22/2019	Western Washington DX Club	
Maine	09/28/2019	09/29/2019	Wireless Society of Southern Maine	
Texas	09/28/2019	09/29/2019	Texas QSO Party	
California	10/05/2019	10/06/2019	California QSO Party	
Nevada	10/11/2019	10/13/2019	Sierra Nevada Amateur Radio Society	
Arizona	10/12/2019	10/13/2019	Radio Society of Tucson (RST)	

ATTENTION

SUPPORT THE DRC FROM YOUR AMAZON PURCHASES

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DRC REPEATERS

BAND	Freq / Shift / PL Tone	Additional Information
6m	53.090MHz (-1MHz) 107.2Hz PL	
Packet	145.05MHz<>14.105MHz	2 meter / 20 meter gateway. Useable by Technicians on 2 meters. See January 2015 RT.
2m	145.490MHz (-) 100Hz PL	Linked to 70cm / 448.625MHz. 1° disaster net f.
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. 2° net f.
70cm	449.775 MHz (-) 100Hz PL	Yaesu Fusion Digital, Wires-X and analog. 100 Hz tone required for analog.
70cm	446.7875MHz (-)	BrandMeister Repeater: Slot 1 – Wide Area Traffic, Slot 2 – Local Talk Group 310804



HRO 12 STORE BUYING POWER WORKS FOR YOU!!








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e-mail: denver@hamradio.com

JUNE 2019		<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
2	3  New Moon	4	5 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	6	7	8 June VHF - Starts 1800 UTC
9 June VHF continued	10 June VHF - Ends 0259 UTC  First Quarter	11	12 Wheatridge Siren Test 11 AM Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	13	14 	15 Kids Day 1800—2359 UTC
16 	17  Full Moon	18	19 DRC Meeting Elmer 6 p.m. General 7 p.m.	20	21	22 Field Day - Begins 1800 UTC 
23 Field Day - Ends 2059 UTC 30	24	25  Last Quarter	26 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	27	28	29

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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 RoundTable 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 RoundTable RoundWorld.
To respond to this request send your information to drc.editor@gmail.com.

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