



ROUNDTABLE

The Denver Radio Club Newsletter

Since 1917

100 years of amateur radio in Colorado

August 2017

PRESIDENT'S MESSAGE

BY GERRY VILLHAUER, W0GV

Hello DRC Members,

I hope your summer is going well. Mine has been super busy, most recently a trip to Oshkosh Wisconsin to Airventure 2017. If you are an airplane person and have never been there for the annual event sponsored by the Experimental Aircraft Association (EAA) you need to go. It is such a huge event that it is hard to describe it.

Remember that August 20th is our annual DRC Hamfest at the Jefferson County Fairgrounds. You can visit our website W0TX.ORG for details. Come out, have a great time with your fellow hams and support the club.

Another thing to remember is our September meeting. At this meeting we elect or re-elect four members to our board of directors and our club President, Vice President, Secretary and Treasurer from the folks on the eight member board. If you are interested in running for a board position, please contact one of our board members.

Thanks to Bill (W6OAV) for his presentation on Sporadic E on the VHF bands at our August meeting. It was a very interesting and timely program because July and August are the prime months to take advantage of Sporadic E operation.

Our August meeting program will be given by Larry Irons (K0LAI) and the subject will be Packet radio. Packet radio has been around since the 1980s when personal computers were mated with radios. Since then many types of submodes of packet radio have emerged including APRS and Winlink 2000. We have several members who are very involved in packet and would be happy to have more members evolved in this digital mode. Come and learn how you can learn to enjoy this mode of ham radio.

Thanks to our new members for making the DRC "Your Club". Please come to meetings and other events and stay active. Your name and call will be listed in this issue of the Round Table.

73 for now,

Gerry (W0GV)
President



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JULY MEETING – WHAT’D I MISS?

BY BRENNAN PATE, ADOUZ

The July meeting had about 40 people in attendance with a few guests. Bill (W6OAV) gave a talk on Sporadic E (Es). His experience with the mode goes back decades and his presentation was chock full of information about this mode that is, well, sporadically available.

Bill started off by giving some background on the ionosphere and the characteristics of Es. For example, Es is characterized by small clouds of intense ionization which can support 27 – 225 MHz. The best season is in the summer with skip distances of 100 – 900 miles. It occurs about 60 – 100 days/year on 6m and 2 – 3 times/year on 2m.

Es is known for quick QSOs due to fading and Bill outlined the differences between refraction vs. reflection. He gave some supportive data for theories as to why Es occurs (i.e. sun, thunderstorms, wind shear, meteors), but indicated that the ultimate cause is unknown.

To determine if Es is active, aside from just getting on the radio and calling CQ, one can scan for beacons and 26 MHz commercial radio station links, peruse several websites (i.e. dxmaps.com/spots/map.php), and monitor the call frequencies.

Bill finished out the presentation by providing some information on the modes, how to complete a QSO and some other miscellaneous details.



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:

- | | | | |
|----------------|-------|--------------|--------|
| Lawrence Fagan | K0MHO | John Neilson | KC0RF |
| Patrick Stever | VE3PZ | Brian Bell | KE0LNS |

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.

ATTENTION

The DRC Board of Directors nomination and election process will take place during the September face-to-face meeting. If you are interested in running for a position, please contact one of the club’s board members. Their contact information can be found at the end of the Roundtable or at W0TX.org.

TECHNICAL COMMITTEE REPORT

BY BILL RINKER, W6OAV

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

DRC/TSA Aurora Site (WW0LF)

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

Status: The board will discuss producing a business case for the TSA detailing who the DRC is and what the DRC can do for the TSA. This document can be passed to our various TSA contacts as the TSA changes their organization (which happens often).

Station 4 Remote Power Control (K0RCW)

Goal: Investigate purchasing and installing Internet controlled power outlets.

Status: K0RCW will determine which pieces of equipment at Station 4 and Centennial Cone need remote power control and determine the best units to purchase.

Centennial Antenna Radiation Patterns (K0HTX)

Goal: Compare the radiation patterns of the 448.625 and the BrandMeister repeaters.

Procedure: Have several remote stations monitor their S Meters as the coaxes are swapped at the transmitters. Note: WA6RZW and WH6ANH do not have full scale readings on 448.625 and have volunteered to participate in the test. Need to find a few more volunteers who do not have full scale S meter reading on 448.625. Also, when the test is performed, the coax to the receive side of the radio will be replaced.

Fusion Repeater Move (W0GV)

Goal: Discuss the feasibility of moving the Fusion repeater to a better coverage location.

Status: Feasibility study is in progress.

Lightning Protection at Centennial Cone (K0HTX)

Goal: Add lightning protection on cable coming in from the micro wave link.

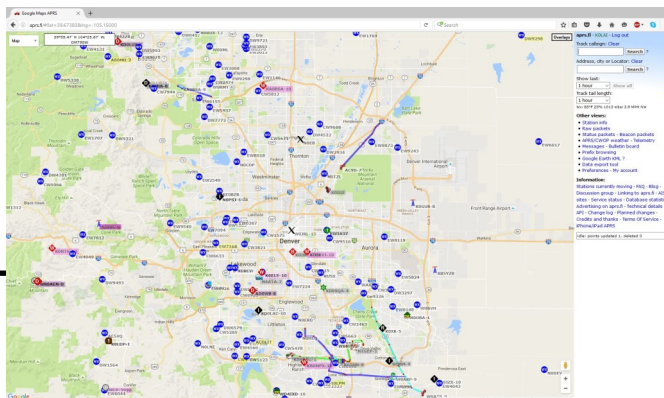
Status: Will probably occur when the 448.625/BrandMeister pattern test performed.

AUGUST MEETING PRESENTATION: INTRODUCTION TO PACKET RADIO, ARDOP, WINLINK AND APRS

BY LARRY IRONS, K0LAI

Packet radio has been around since the 1980s when personal computers were mated with radios. Since then many types of submodes of packet radio have emerged including APRS and Winlink 2000. We will explore the basics of packet radio and then dive into some of the details of the various derivatives. We will learn how to

send and receive messages and email via packet radio.



CALLING ALL QSLs...

BY BRENNAN PATE, AD0UZ

This month's QSL card was provided by Roger (AD0WG).



Roger's description of his card's photo:

I shot the photo using my Celestron 11" (28cm) Schmidt-Cassegrain telescope, with a DSLR body in prime focus configuration. If you look closely, you will see the silhouette of the International Space Station as it transits the face of the moon. Astronomy and photography are a couple of my other hobbies, and I like to combine them when I can. I particularly enjoy observing or imaging interesting celestial objects and events, such as transits, eclipses, comets, satellites, meteor showers, etc.

If you would like to have your QSL card featured in an upcoming edition of the Roundtable please send a copy of it (PDF or JPG) to drc.editor@gmail.com.

Alternatively, if you have received a unusual or exotic one in the past and would like to share it, then send it on over.

LEARNING NET REPORT

BY FRED HART, AA0JK

Thanks goes out to our net controllers: Larry (K0LAI), Alex (W2PBR), and Steve (KD0WMO).

Topics discussed this past month:

- Learning CW helpful aids:
 - MFJ-401 Keyer
 - MFJ- 461Decoder
 - MFJ- 465 CW Keyer/Reader
- Solar issues effecting our HF bands. Protecting our electrical grid from CME's.
- Portable / backpack antennas. The MP-1 Super antenna. The Buddi-Pole. End fed-Dipoles.
- ARRL – Supporting those that provide services that protect our ability to enjoy our Hobby, and serve our community. The ongoing, increasing, expense of providing these services. QST – July 2017 – p9. “Mythbusting”.
- Replacing memory batteries in your radio.
 - Caution: Trying to solder these button size batteries can be hazardous. Heating improperly with a soldering iron can cause the battery to explode. Wearing safety gear, such as face shields, is a must. Better yet, don't try it. Consult someone with experience and pay them to replace the battery.
- Field Day activities. It was a great one this year.



Our Wednesday night face to face meeting was quite energetic. Lots of questions and activity from those looking to get into amateur radio and those providing incite and advice. Thanks to all.

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. In the event of emergencies such as floods, fires, or other public service, the amateurs 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 Coordinators: Mike Vespoli (KE0HFH) and Brennan Pate (AD0UZ), at emcomm@w0tx.org.

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.

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 / 448.625.

(Note: The third Wednesday of the month is devoted to the DRC club meeting. See the [W0TX web site](#) for additional information.)

73,

Fred
AA0JK

**Don't forget to join in on Wednesday nights at 7:30 p.m. for the
DRC Learning Net on the 145.49/448.625 (no PL) repeaters!**

SOLAR UPDATE

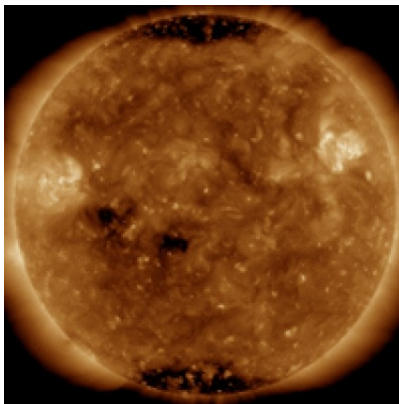
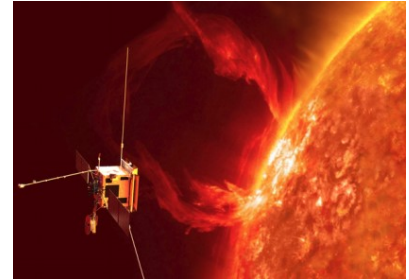
PROVIDED BY Fred Hart, AA0JK

Week One

Saturday, July 1st, 2017

HERE COMES A CME:

A coronal mass ejection (CME) left the sun on June 28th, and it was expected to reach Earth on July 2nd, NOAA forecasters estimate a 45% chance of [G1-class](#) geomagnetic storms when [the CME](#) arrived.



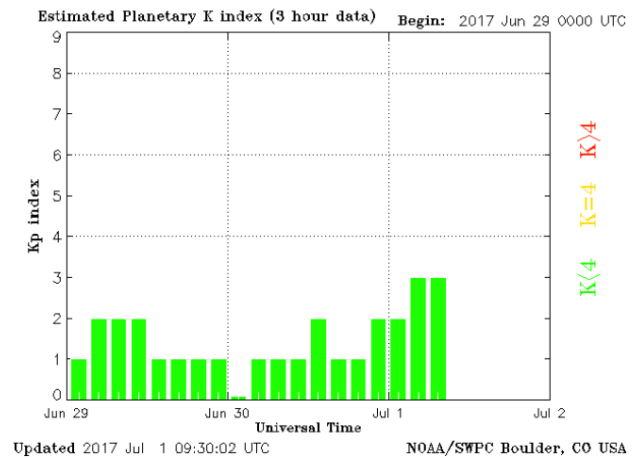
There are no large coronal holes on the Earthside of the sun. Credit: NASA/SDO.

Spaceweather was currently at a standstill. Solar activity was at very low levels with the lone visible sunspot (2664) currently stable. Geomagnetic activity was also at quiet levels and this trend was expected to continue over the following 48 hours.

A weak coronal mass ejection (CME) observed on June 28th was predicted to deliver a glancing blow to our geomagnetic field on July 2nd. A minor geomagnetic disturbance was predicted to be possible at higher latitudes.

Sunday, July 2nd

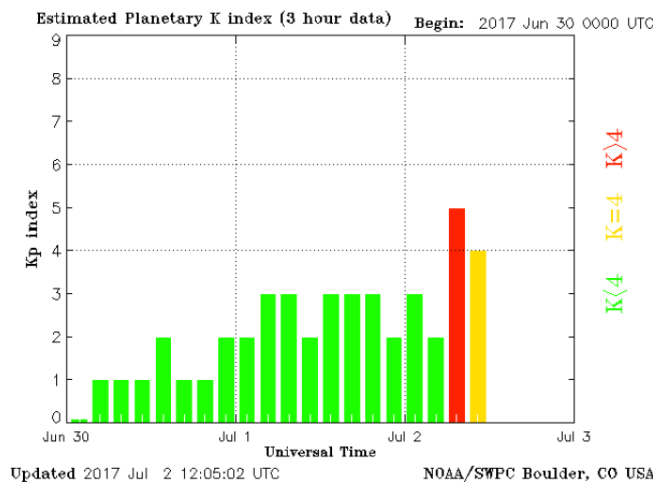
CHANCE OF STORMS FORECAST: NOAA forecasters said there was a 65% chance of G1-class geomagnetic storms on July 2nd as Earth passed through a magnetized wake of a CME. The CME swept past Earth on July 1st, but did not immediately trigger any geomagnetic disturbances.



Band Conditions:

Solar
SFI: 71
A: 11
K: 5

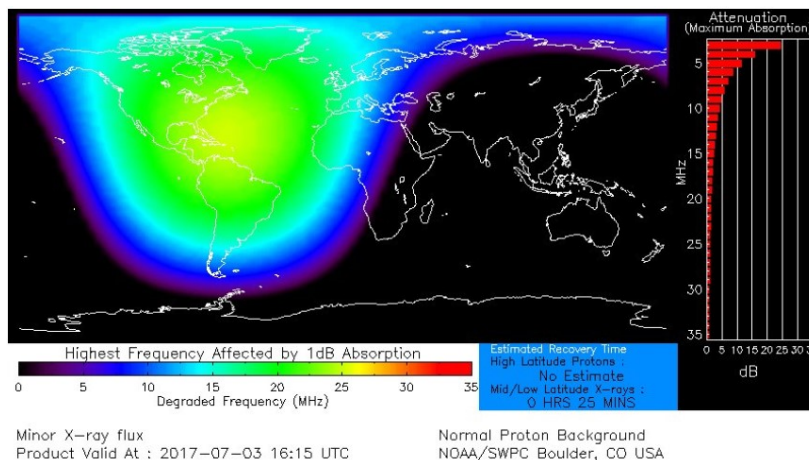
HF Band Day/Night
80m-40m Poor/Poor
30m-20m Poor/Poor
17m-15m Poor/Poor
12m-10m Poor/Poor



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Monday, July 3rd

MINOR GEOMAGNETIC STORMS: Minor geomagnetic storm conditions were observed on July 2nd, as Earth moved through the turbulent wake of a passing CME. July 3rd was expected to be quiet, followed by a return to minor G1-class storming on July 4th, when a solar wind stream was to hit our planet's magnetic field.

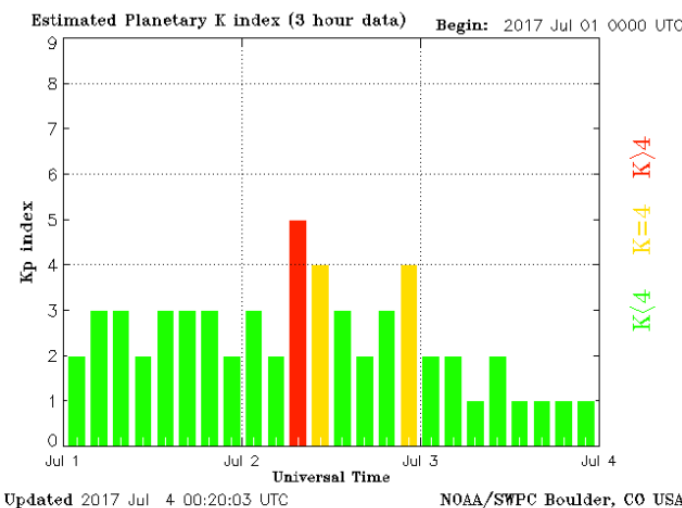


July 03 16:15 UTC : Minor R1 radio blackout was in progress ($\geq M1$ - current: M1.3) M1.3 solar flare.

Band Conditions

Solar
SFI: 71
A: 18
K: 1
Sunspots: 11

HF Band Day/Night
80m-40m Fair/Good
30m-20m Fair/Fair
7m-15m Poor/Poor
12m-10m Poor/Poor

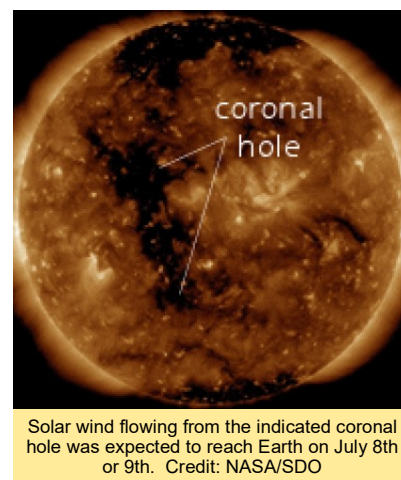


Wednesday, July 5th

SOLAR WIND STREAM WAS APPROACHING EARTH: A high-speed stream of solar wind was approaching Earth. Estimated time of arrival: July 8th or 9th. Minor G1-class geomagnetic storms were possible during the weekend ahead when the solar wind was to make first contact with Earth's magnetic field.

SUNSPOTS WERE VANISHING: On July 5th, the sun was blank; no sunspots.

This marked the 44th day in 2017 without sunspots. So many blank suns is a clear sign that Solar Minimum is approaching. The last time the solar cycle shifted in this way, ~10 years ago, the sun plunged into the deepest Solar Minimum in a century. Between 2008 and 2009, sunspots were absent al-



Continued from page 6)

most all the time; cosmic rays from deep space penetrated the solar system in [record numbers](#), and Earth's upper atmosphere [collapsed](#). We are on the verge of this happening again.

July 4th, at a meeting of researchers, reports that acoustic waves inside the sun shifted frequencies during the previous Solar Minimum (2008-2009), and those frequency shifts have persisted to the present day. "This lends weight to speculation that a fundamental change in the nature of the [sun's magnetic] dynamo may be in progress," they stated recently, as published in the Royal Astronomical Society monthly notices. These findings suggest that another deep Solar Minimum could be in the offing. Stay tuned for more blank Suns.

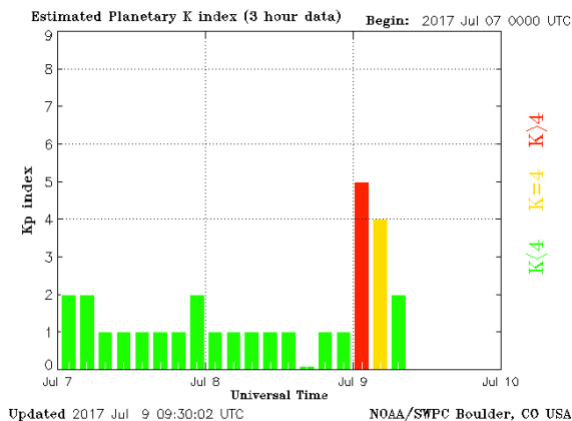
Band Conditions:

Solar
 SFI: 72
 A: 4
 K: 2
 Sunspots: 0

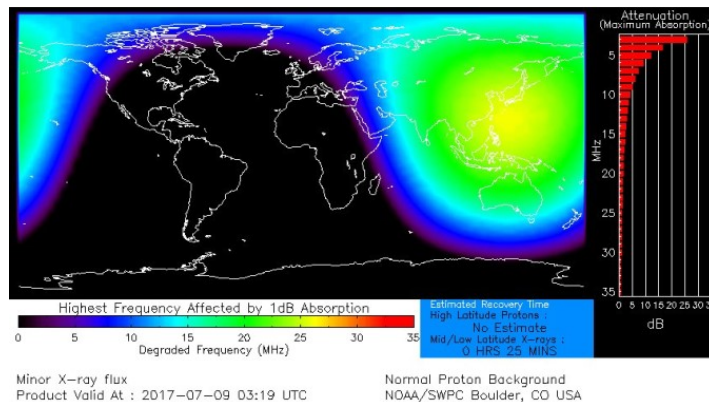
HF Band Day/Night
 80m-40m Fair/Good
 30m-20m Fair/Fair
 17m-15m Poor/Poor
 12m-10m Poor/Poor

Week Two

July 9th



Minor G1 geomagnetic storm (Kp5) Threshold Reached: 02:30 UTC



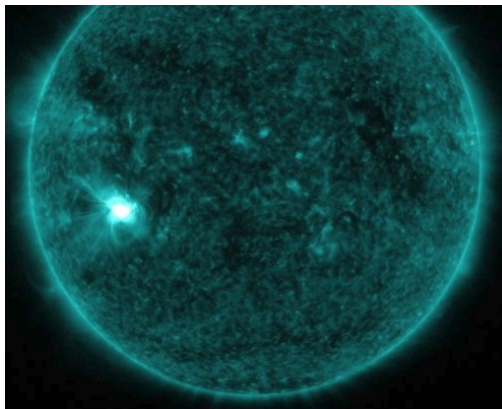
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Minor R1 radio blackout was in progress.

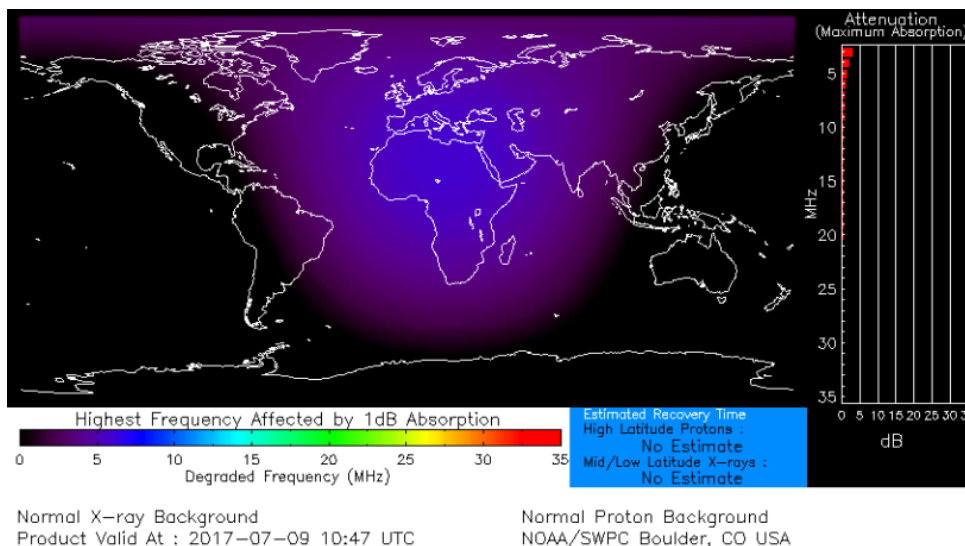
A minor G1-class geomagnetic storm occurred during the opening hours of July 9th as Earth made first contact with an incoming stream of solar wind. The storm had subsided, but NOAA forecasters estimate a 60% chance of additional storms during the following 24 hours.

SOLAR FLARE AND RADIO BLACKOUT: Big sunspot AR2665 erupted on July 9th at 0318 UT, producing an [M1.3-class](#) solar flare. NASA's Solar Dynamics Observatory recorded the extreme ultraviolet flash:



UV and X-radiation from the flare bathed the top of Earth's atmosphere on the day-side of our planet. Ions produced by this electromagnetic pulse altered the normal propagation of shortwave radio transmissions over east Asia and Australia. [This radio blackout map](#) from NOAA shows the geographical regions affected. People who might have noticed blackouts, fades, and other transmission irregularities include aviators, mariners, and Ham Radio Operators.

D-Layer Absorption



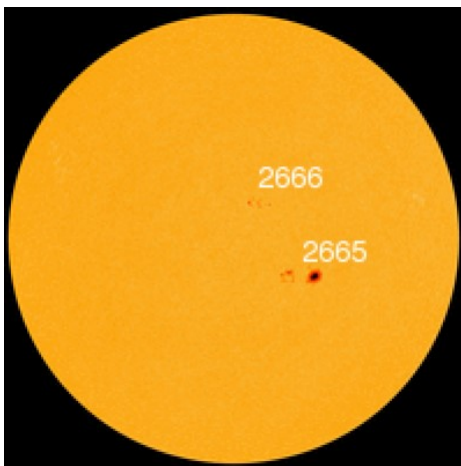
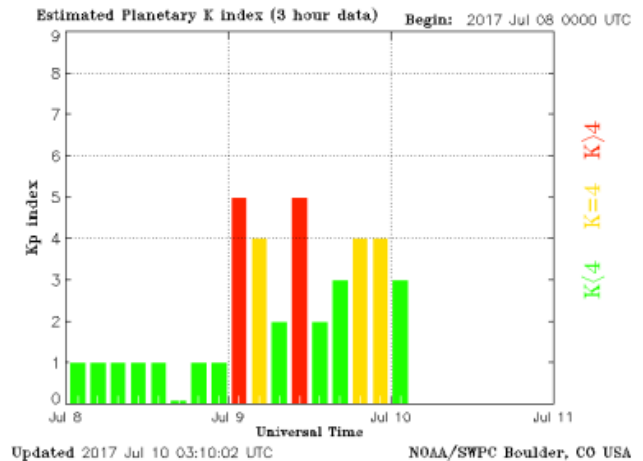
Conditions in the D region of the ionosphere have a dramatic effect on high frequency (HF) communications and low frequency (LF) navigation systems. The global D Region Absorption Predictions (D-RAP) depicts the D region at high latitudes where it is driven by particles as well as low latitudes, where photons cause the prompt changes. The D-Layer map above is synced with the GOES-15 X-Ray flux data also shown above.

*July 10th @ 00:45 UTC
Big Sunspot a Flare Threat*

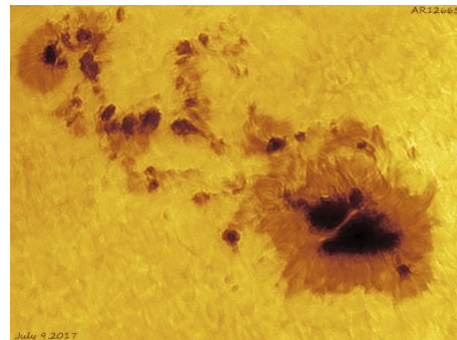
Large sunspot 2665 continued to evolve in the southeast quadrant and had produced a number of minor C-Flares and one low level M-Flare. The active region had a beta-gamma magnetic configuration and was expected to produce additional moderate M-Flares during the following 24 hours. An eruptive flare at this point was predicted to be Earth directed. The Sun's rotation had the sunspot almost directly facing our planet.

SOLAR FLARE AND RADIO BLACKOUT: Sunspot AR2665 had grown into a behemoth almost as wide as the planet Jupiter, stretching more than 125,000 km from end to end and containing dozens of dark cores, the active region was an easy target for backyard solar telescopes.

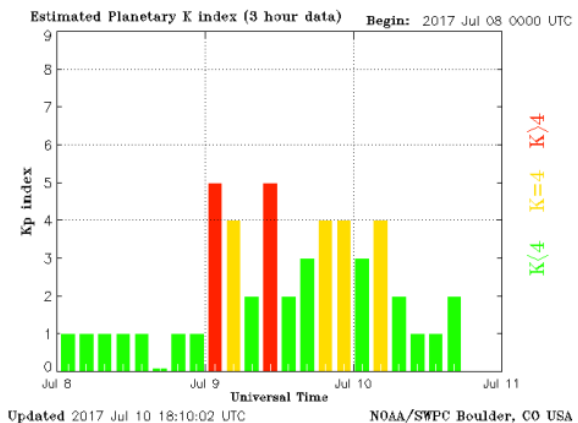
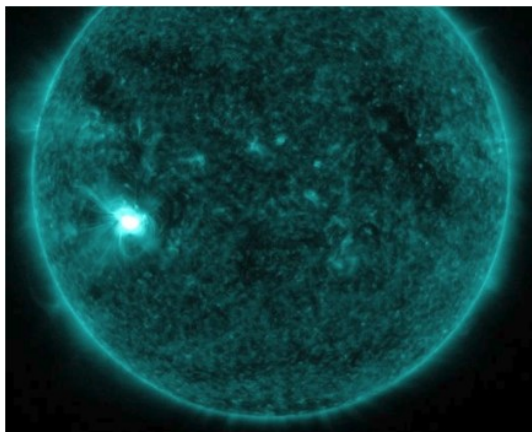
Active region 2065, an area of intense and complex magnetic fields, rotated into view and was growing quickly July 5th. Such sunspots are common occurrence, but are less frequent as we head toward solar minimum. This sunspot was the first to appear after the sun was spotless for two days.



NASA's SDO Watches a Sunspot Turn Toward Earth
<https://youtu.be/nNng0KrNUuI>

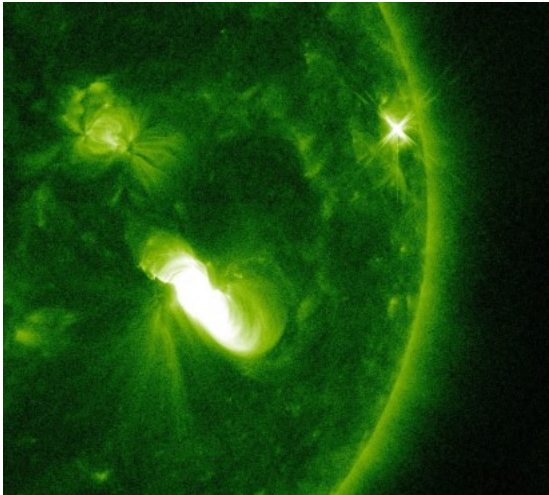


On July 9th at 0318 UTC the big sunspot erupted, producing an M1.3-class solar flare. Telescopes on-board NASA's Solar Dynamics Observatory recorded the explosion's extreme ultraviolet flash.



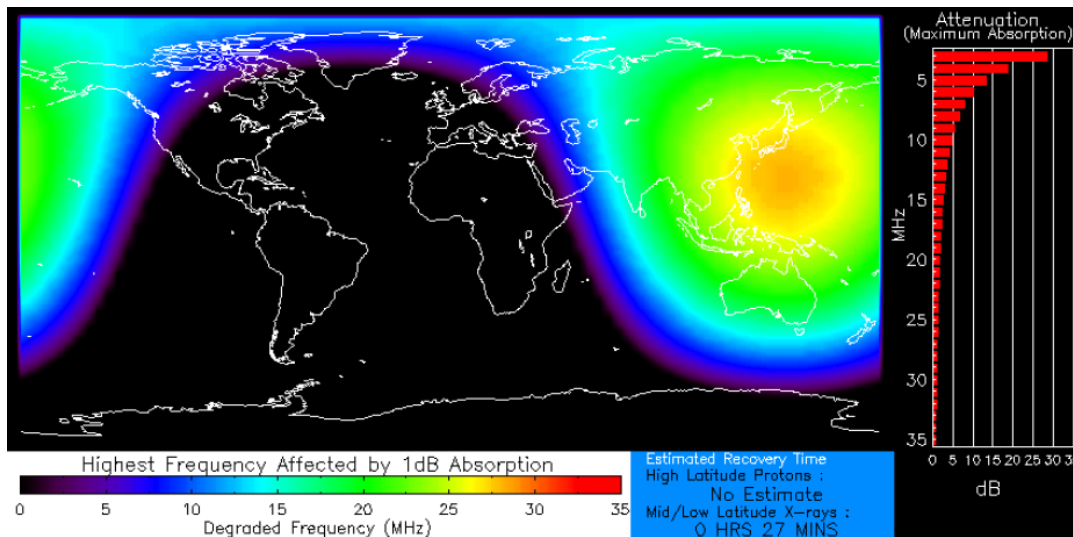
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July 14th



Long Duration M-Flare : Image courtesy of the Solar Dynamics Observatory (SDO) capturing a long duration M-Flare, (M2.3), around region 2665. Also notice the impulsive flare captured towards the west limb. Imagery suggested a coronal mass ejection (CME) could be associated.

GLOBAL D-LAYER ABSORPTION

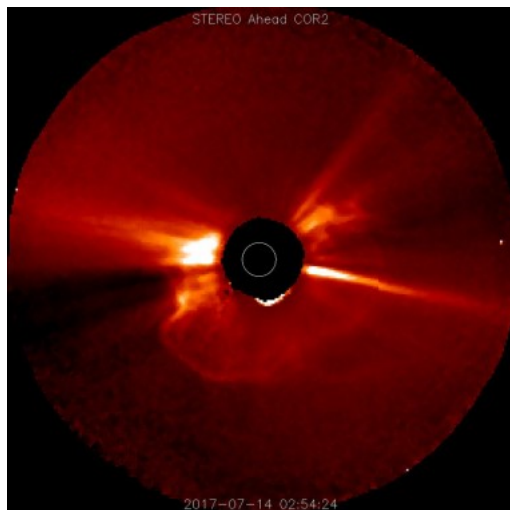
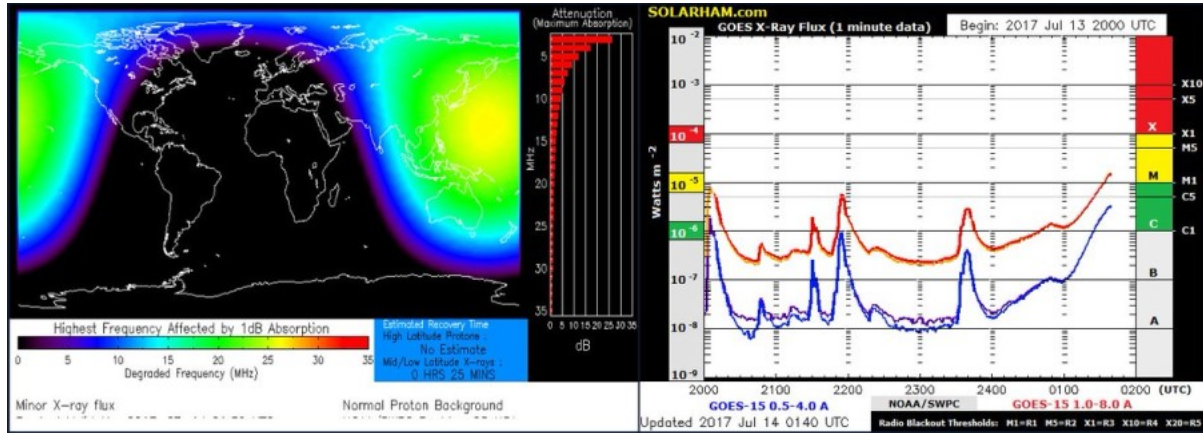


Minor X-ray flux
 Product Valid At : 2017-07-14 02:43 UTC

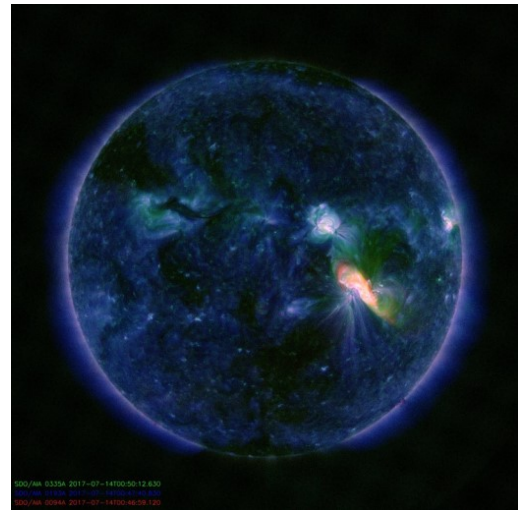
Normal Proton Background
 NOAA/SWPC Boulder, CO USA

Slow rising M-Flare was in progress around region 2665.

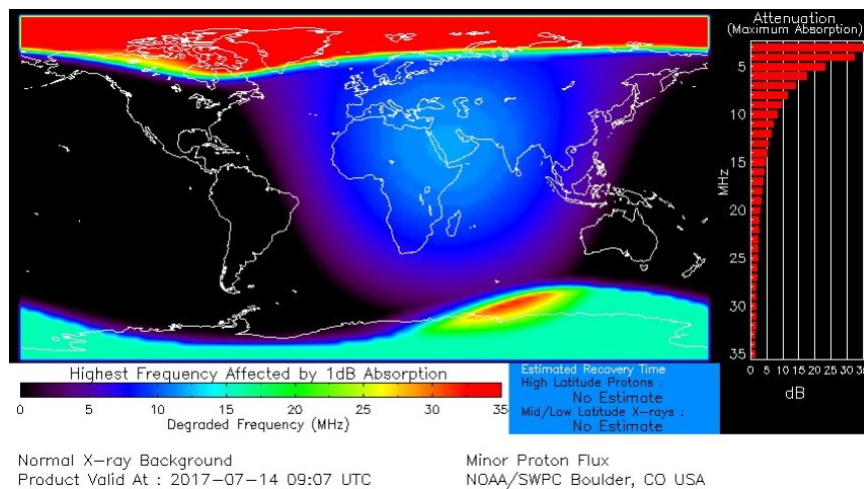
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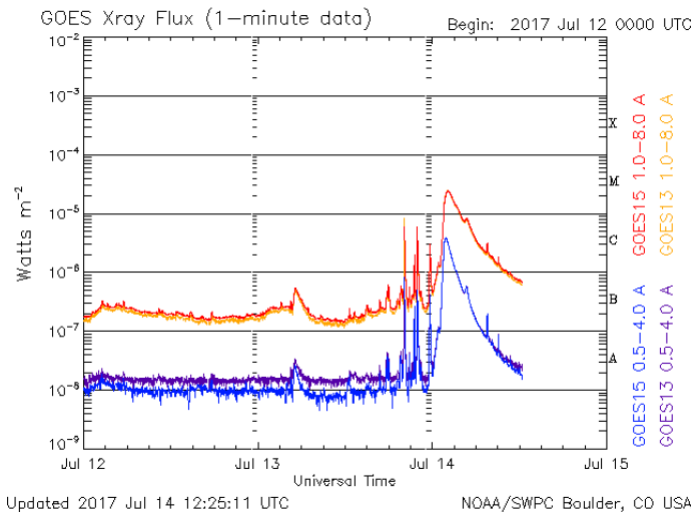
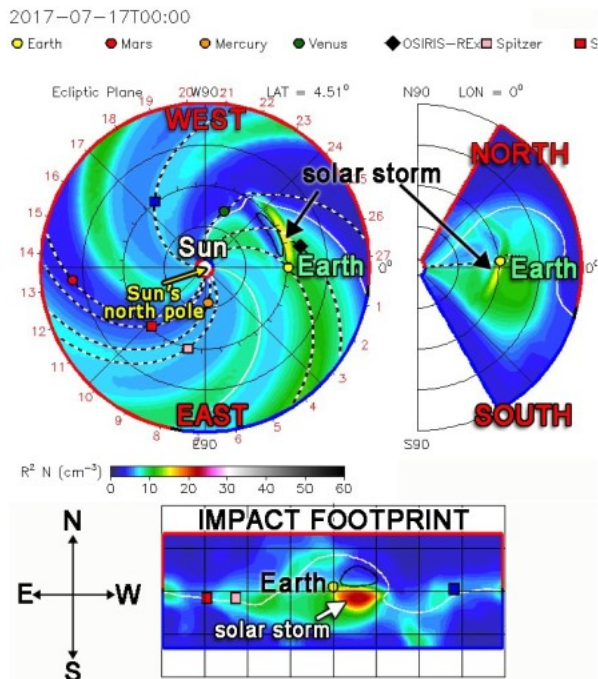
The M2.4 flare looked highly eruptive. STEREO AHEAD Spacecraft, showed an expanding cloud of solar plasma that was expected to be earth-directed.



Long duration solar flare was in progress from big AR2665! Earth directed CME was expected!



[Dr. Tamitha Skov @TamithaSkov](#): The Sun jumped into action! A glancing blow from this solar storm on July 17 (shown in pic) followed by another storm that was launching!



Summary of July 14, 2017 Space Weather Events

R1 14/0209 UTC	S1 14/0900 UTC	G2 CME Arrival 16 and 17 July
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RGN 2665

M2 Flare

CME: est speed 825 km/s

2017/07/14 03:30

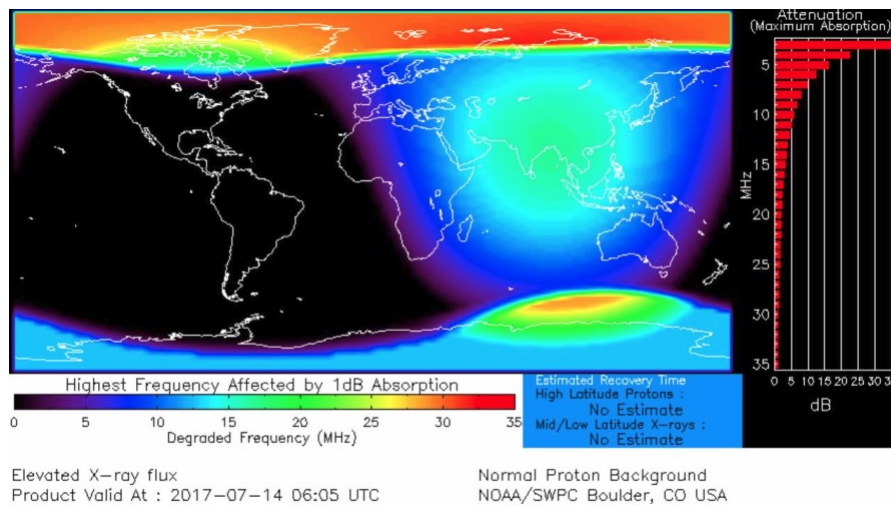
Long Duration M-Flare / CME / G2 Storm

Finally a noteworthy event to report. A long duration M2.4 solar flare was observed around region AR2665 in the southwest quadrant beginning at 01:05 UTC (July 14th). The flare was associated with a 10cm Radio Burst (TenFlare) lasting 44 minutes and measuring 130 solar flux units (SFU). A Type IV radio emission was also logged at 0202 UTC. Updated imagery by SDO suggested a coronal mass ejection (CME) was associated.

Moderate Storm Watch Added: A moderate G2 geomagnetic storm watch was in effect beginning July 16th. The CME produced by the flare was expected to impact our geomagnetic field and was expected to effect HF Propagation.

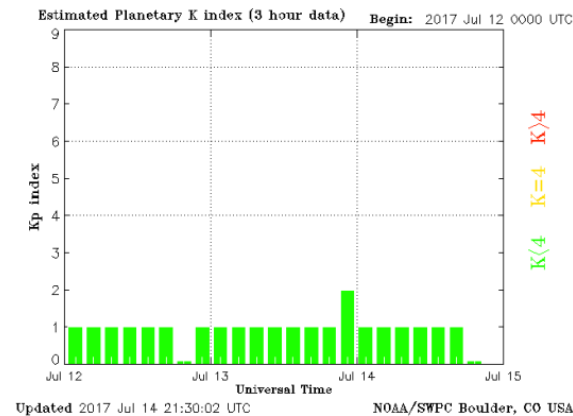
STRONG SOLAR FLARE AND CME: After days of suspenseful quiet, huge sunspot AR2665 finally erupted on July 14th (0209 UTC), producing a powerful and long-lasting [M2-class](#) solar flare. Extreme ultraviolet telescopes onboard NASA's Solar Dynamics Observatory recorded the blast:

Remarkably, the explosion persisted for more than two hours, producing a sustained fusillade of X-rays and energetic protons that ionized the upper layers of Earth's atmosphere. Shortwave radio blackouts were subsequently observed over the Pacific Ocean and especially around the Arctic Circle. This map from NOAA showed the affected geographic regions.



Of even greater interest was the coronal mass ejection (CME). The explosion hurled a bright CME away from the blast site, and it appeared to be heading for Earth: This expanding cloud was expected to reach our planet on July 16th.

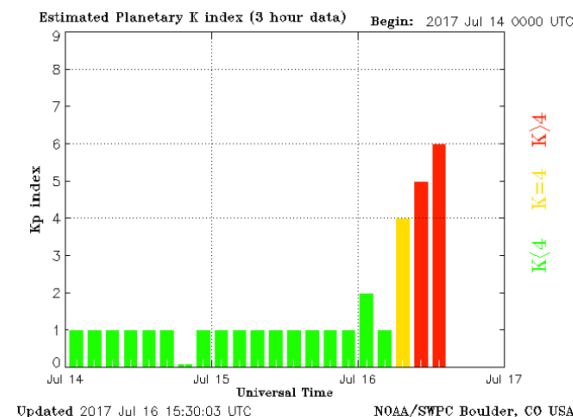
The calm before the storm.



Week Three

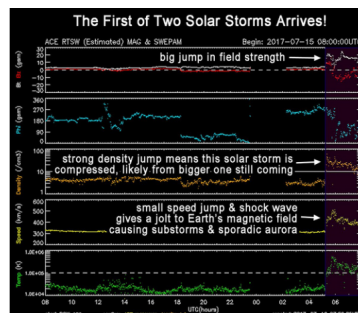
THE CME HAD ARRIVED: A coronal mass ejection, (CME), hurled toward Earth by sunspot AR2665 on July 14th, had arrived. Its leading edge hit our planet's magnetic field on July 16th at approximately 0545 UTC. NOAA forecasters stated that there was a 75% chance of G1- or G2-class geomagnetic storming later in the day as Earth passed through the CME's magnetized wake.

This sunspot was expected to affect our planet for the following days ahead.



G2 geomagnetic storm (Kp6) Threshold Reached: 1454 UTC

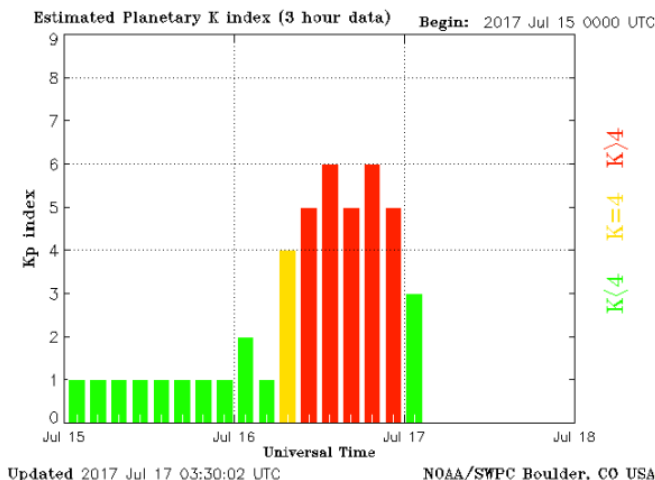
Massive Sunspot Launches Big Solar Storm at Earth



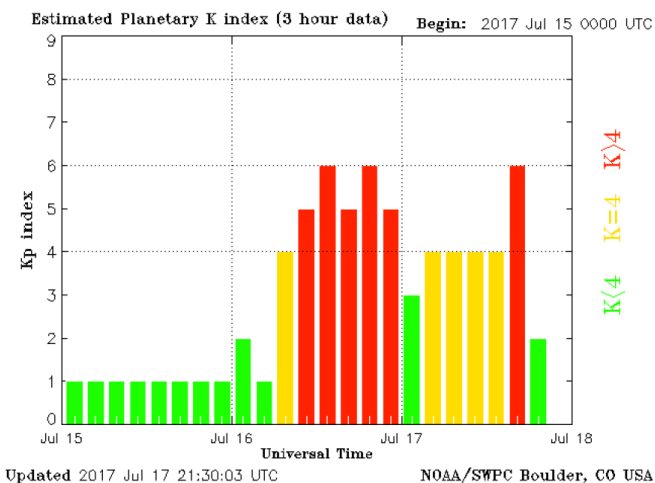
TamithaSkov: <https://youtu.be/TiAV-Xv7Jik>

Massive Solar Flare was Set to Strike Earth. Possible Carrington Event Scenario: <https://youtu.be/yzeQH2O4pzU>

July 16th: Duck and Cover - Earth was Hit by a Massive Solar Flare.



NOAA forecasters said there was an 80% chance of minor G1-class geomagnetic storms on July 17th as Earth moved through the wake of a CME that hit our planet's magnetic field.



July 19th

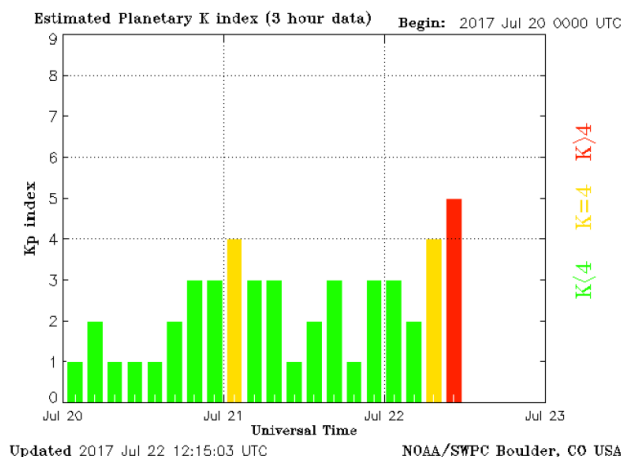
Return to Quiet

The visible disk was blank once again as sunspot 2665 rotated behind the west limb. Solar activity was expected to return to quiet levels during the following 24-36 hours.

Geomagnetic activity also returned to quieter levels following periods of minor to moderate storming.

July 22

GEOMAGNETIC UNREST: A stream of solar wind flowing from a hole in the sun's atmosphere was gently buffeting Earth's magnetic field. This was causing geomagnetic unrest around the poles.



ON THE FAR SIDE OF THE SUN, big sunspot AR2665 rotated off the solar disk, beginning a two-week transit of the far-side of the sun. AR2665 would no longer be visible, but we knew it was still active. On July 20th, a coronal mass ejection (CME) billowed over the edge of the sun, signaling an explosion in the sunspot's magnetic canopy: A minor storm was being observed as an elevated solar wind stream was contributing to minor (G1) geomagnetic storming at higher latitudes.

Week Four

July 23rd

BLANK AND QUIET SUN: The sun was blank (no sunspots) for the 5th day in a row. This stretch of spotlessness was propelling the sun even deeper into Solar Minimum. NOAA forecasters said the chance of a significant solar flare for the following three days was no more than 1%.

July 26th

"WHITE SUNSPOT": Sunspot numbers had dropped to zero as dark cores associated with sunspot activity vanished. Instead of dark spots, the sun had a light spot.

The correct name of this phenomenon is "faculae." It is a cousin of sunspots.

Regular dark sunspots are magnetic islands on the surface of the sun. Magnetic fields in these areas are typically thousands of times stronger than Earth's magnetic field. Sunspot magnetic fields are so strong, they block the flow of heat from the nuclear furnace below. They appear dark because they are relatively cool compared to their surroundings.

Faculae are also made of magnetic fields. However, the magnetism of faculae is concentrated in much smaller bundles than in sunspots. Instead of blocking heat from below, they essentially form corridors that allow us to see into sun's hot interior, creating an apparent bright spot on the surface of the sun.

These bright structures are more common than you might think. During the peak of a sunspot cycle, faculae actually win out over sunspots and make the sun appear slightly (about 0.1%) brighter at Solar Maximum than at Sunspot Minimum.

Forecast:

Solar activity is expected to be very low on days one through three (26-28 July).

73,

Fred
AAØJK

DENVER RADIO CLUB ORIGIN FOUND?

BY FRED HART, AA0JK

A lot has changed over the years, and loss of records makes it hard to track the history of the Denver Radio Club.

The Wars that shut down radio activity. The constant changes in amateur call signs and call zones create a real challenge when it comes to tracking our history.

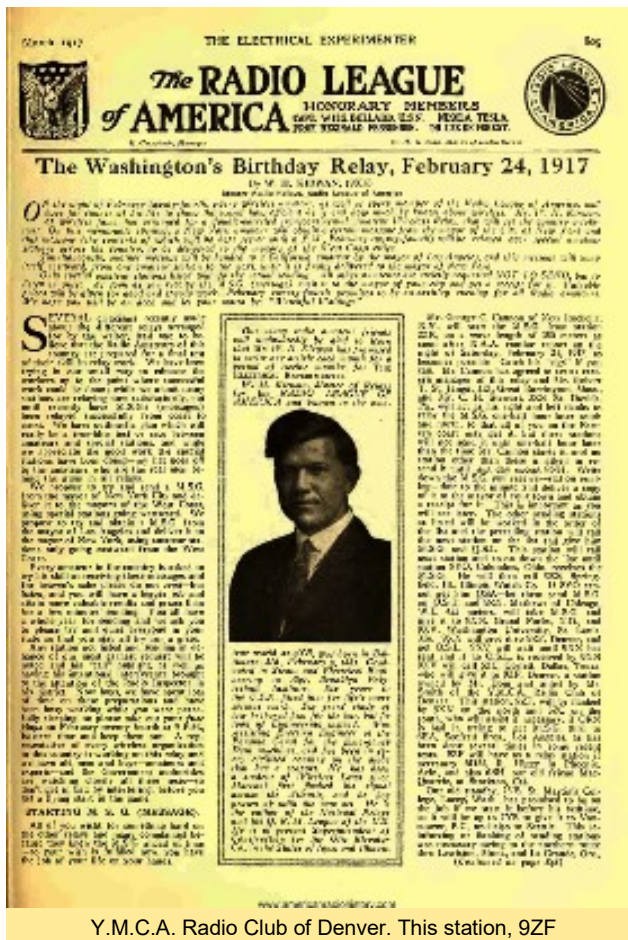
With a lot of research, radio station 9ZF came up as the only club related amateur radio station. And how convenient, it is traced to 1917; the same year as the stated origin of the Denver Radio Club.

Could this be the origin of our club's beginning as Sparkie proclaims in our club logo?

This being the 100th year as a club, this could hopefully reveal our clubs beginning.

73,

Fred
AA0JK



Y.M.C.A. Radio Club of Denver. This station, 9ZF

2 METERS AND PROPAGATION

BY BILL RINKER, W60AV

Ever wonder what happens to your 2 meter signal after it leaves your antenna. This article shows how different terrains and distances affect the signal. The data was derived from a ground wave program written by G4FGQ (SK). The output of the program pretty much agrees with what I have experienced over the years.

The charts in this article assume a receiver that is calibrated to read S9 with 50 microvolts input and 6 dB per S unit.

Chart 1 shows the 2 meter path loss and resulting S meter readings between two mobiles located five miles apart and running 10 watts into quarter wave verticals. The path

Terrain	Path Loss (dB)	S Units
Sea water	125	7.6
Fresh water	153	3.0
Agriculture plains	155	2.6
Pastoral, low hills	157	2.2
Flat, densely wooded	159	1.9
Steep hills, some forest	161	1.7
High rise, city center	167	0.5
Mountain regions	169	0.2

loss would be a few dB greater at 450 MHz and much less at HF.

Chart 2 shows the 2 meter path loss and resulting S meter readings between two mobiles running 10 watts as the distance between them increases. The terrain between them is agriculture plains. The chart shows two S meter readings, one for mobiles using quarter wave antennas and the other for mobiles using 5/8 wave wavelength antennas. Note that the 5/8 wavelength antennas give the mobiles an extra 2.5 mile range. The radio horizon between the mobiles is 9.3 miles. This means that the loss between them increases drastically once the mobiles exceed this distance. The radio horizon varies with frequency. It is shorter on UHF and greater on HF.

Granted there are many variables in the above situations. However, these charts, especially Chart 1, provide a pretty good idea of what does happen to 2 meter propagation.

Miles	Path Loss (dB)	S Units (1/4)	S Units (5/8)
0.5	250	9 + 2.2 dB	9 + 8.4 dB
1.0	127	7.3	8.3
2.5	143	4.6	5.6
5.0	155	2.6	3.6
10.0	167	0.5	1.5
11.2	171	0.0	0.9
13.7	177	N/A	0.1

EMCOMM NOTE

BY BRENNAN PATE, AD0UZ

We are currently in talks with some representatives from the city of Denver to discuss how DRC members can assist with their shelter operations. We will be looking for DRC members who are willing to help with those functions in the future.

While there are not any formal requirements at the moment, we want to be as effective as possible in our work. In order to effectively assist them, it is recommended that members complete the following National Incident Management System (NIMS) courses:

- IS-100.b – [Introduction to the Incident Command System \(ICS\)](#).
- IS-200.b – [ICS for Single Resources and Initial Action Incidents](#).
- IS-700.a – [National Incident Command System \(NIMS\) An Introduction](#).
- IS-800.b – [National Response Framework, An Introduction](#).

More details forthcoming as we obtain them.

~ 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

LOOKING BACK AT THE DRC, PROVIDED BY WOODY LINWOOD (W0UI)**August 1965 - Convention Report and DRC's participation in the great Denver flood.****PRESIDENT'S COLUMN**

Round Table, August, 1965

Another convention has come and gone. We were very pleased to again meet old friends and also sorry that many were unable to make it. We especially missed the Nebraska gang and hope they will be able to make the next one wherever it may be held.

It has been suggested that each of the directors have a column in the Round Table to give the news of their activity. It appears that this has a lot of merit and it is hoped that the directors will be able to do this.

As most of you know our Managing Editor, K0FXE, suffered major flood damage, but he is relocating at a new place of business and was able to publish the convention program on time.

Speaking of the flood, we are pleased to commend all who worked so hard on this emergency communication project. Amateur Radio received a lot of very fine publicity in this regard and hope that all will be able to follow-up on this and expand the cooperation with the news media for the good of amateur radio. Al Auten, W0ECN, the trustee of our station W0OUI was able to man the station in short order and this gave the Red Cross the communications we are committed to. They were very pleased with the results. It is hoped that the capabilities of W0OUI and the Denver Radio Club as a whole will be expanded as a beneficial aftermath of the flood disaster.

TAYLOR S. SHREVE, W0CXW
President, Denver Radio Club

FROM THE EDITOR'S DESK

As this column is being written I don't know if there will be enough copy to fill the Round Table. We will have to wait until after the printing to tell. Many things in our Community have been affected by the recent flood, including the Round Table. The President's Column explains our Managing Editor's flood loss. I regret that two excellent Round Table articles were lost; HORIZONTAL DEFLECTION TUBES by Chick Cotterell, W0SIN, and FUN 1965 STYLE, a fine mobile article by Tim Thimyan, W0FZG.

While on the subject of articles I want to mention the result of a few discussions with some of the Club members on the Round Table. It seems to be the consensus that more information is wanted on Club activities. We have some 17

committees or quasi-committees in the Club. A few of these, such as the Refreshment Committee, wouldn't be expected to have activities to report, but most do. So how about it Directors and Committee Chairmen—how about a few words each month on the activity that you are responsible for?

If you missed reading page 106, July '65 issue of QST look it up. You'll find a very interesting article by Chic Cotterell, W0SIN. Chic's article deals with a very interesting topic and after reading it a little soul-searching may be in order.

MEL, WA0GFI

A PUBLIC SERVICE THANK YOU

Mrs. Ella Bush of Grant, Nebraska arrived in Denver on April 16 for a corneal transplant. The doctors had told her there was usually a two or three day wait for a cornea to become available. She finally received a telephone call the morning of April 23 that it looked as though it would be that night for the operation.

After the operation, Mrs. Bush asked the doctors why it had been a week before the operation. They told her that there had been no corneas available locally at the time. Since they must be transplanted within a reasonably short time, it is not possible to store them in the manner of blood in the blood bank. The doctor said that when they had no immediate hope of getting a local cornea by Thursday noon, April 22, they then contacted the Society for the Prevention of Blindness. The Society placed a call for the cornea with Jim Breckenridge, WA0CHT. He put the call out on the network and was picked up by Theodore A. Hunter of Iowa City, Iowa, W0NTI. Through the cooperation of these people and a hospital there, the doctors were informed the following morning that a cornea had been put on a plane to Denver. When it arrived, the doctors found it to be in excellent condition and the operation was performed that night.

Mrs. Bush is very appreciative to all persons involved and she would like to take this means to publicly thank Jim Breckenridge and Ted Hunter. She will forever be grateful to them for their assistance in restoring her sight. She would also like to encourage all persons with healthy eyes to donate them after death to others in need. This can be done through a hospital, a doctor or through the Society for the Prevention of Blindness and should be done now while in good health.

GERRY, K0UNL

Words are from the Technician license manual. The solution for the puzzle is on the next page.

R E C E I V I N G L V F K C E
 E P E R I E N S B U F Y D I E
 E E T H O L G S L S O N V T E
 I N T E G R A T E D G W X E E
 L E A D O C C F L U T D N N M
 G E A R O C N N C D B L Z G H
 T E L E M E T R Y E T E E A O
 C Y A I L A T I G I D H I M E
 D E L A O D E A E P A D E O A
 A L A M E T S D C N P N T R A
 O E N A T S O T O H D A J T A
 H D A E E H E D A M O H F C A
 A D N M T N E S E G P S C E R
 O M R A T N E Y T E F A S L R
 A T C I B A A C N H H E Q E R

Word List:

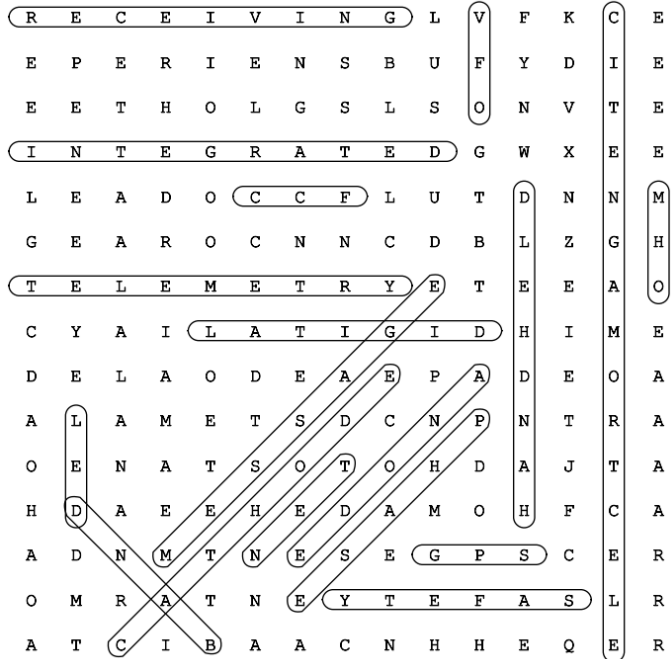
ANODE	BAND	CATHODE	DIGITAL
ELECTROMAGNETIC	FCC	GPS	HANDHELD
INTEGRATED	LED	MESSAGE	NET
OHM	PHASE	RECEIVING	SAFETY
TELEMETRY	VFO		

FACT OF THE DAY

Surge Protectors

A variety of devices used to limit power-line voltage surges can be classified as surge protectors. Power utility companies install various types of lightning arresters on power distribution lines and associated equipment primarily to protect their own equipment, but those arresters also serve to reduce the amplitudes of lightning-strike and lightning-induced surges transmitted to homes and businesses. Homes and business generally should have two additional types of power-line surge protection. They should have service-entry surge protection and point-of-use surge protection. Both are available in several physical forms and utilizing a variety of different technologies that have a complexity of advantages and disadvantages.

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

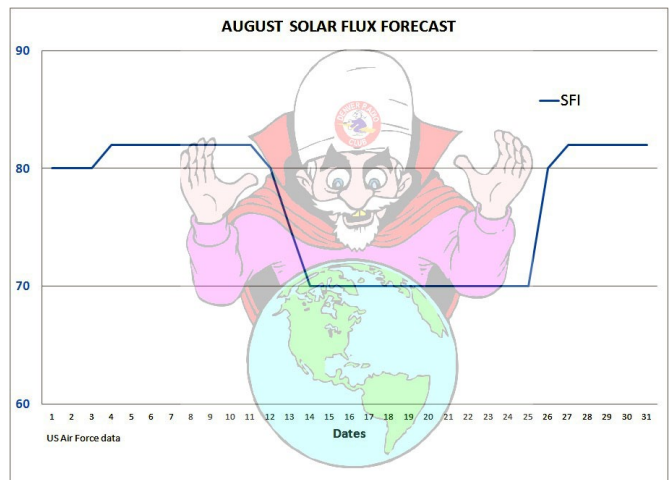
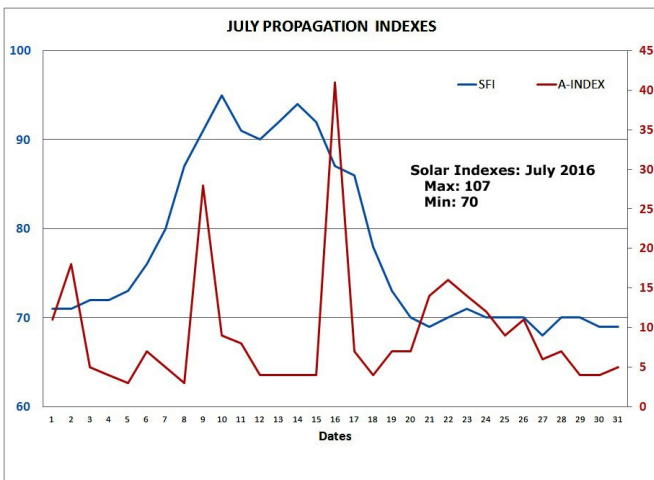
THE ROUNDTABLE ARTICLE INDEX
 Go to: <http://www.w0tx.org/RoundtableArchive/-RoundTables-Index.pdf>

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. Issues of the *RoundTable* are available at [http://www.w0tx.org/RoundtableArchive/2010-RoundTables/RT201009\(SEP\).pdf](http://www.w0tx.org/RoundtableArchive/2010-RoundTables/RT201009(SEP).pdf)



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UPCOMING EVENTS
HAMFESTS & CONVENTIONS

Event	Date	Location	Sponsor Website
DRC Hamfest	08/20/17	Jefferson County Fairgrounds	Denver Radio Club

UPCOMING ARRL CONTESTS & EVENTS [ARRL CONTEST CALENDAR](#)

Contest	Start Date	Start Time	End Date	Stop Time	Notes
222 MHz & Up Distance	08/05/17	1800 UTC	08/06/17	1800 UTC	New contest
10 GHz & Up - Round 1	08/19/17	6:00 AM local	08/20/17	Midnight local	
RTTY Rookie Roundup	08/20/17				

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
Maryland-DC	08/12/2017	08/13/2017	Anne Arundel Radio Club	
Ohio	08/26/2017	08/27/2017	Ohio QSO Party	
Hawaii	08/26/2017	08/28/2017	Hawaii QSO Party	
Kansas	08/26/2017	08/27/2017	Kansas QSO Party	
Colorado	09/02/2017	09/03/2017	Pikes Peak Radio Amateur Association	
Tennessee	09/03/2017	09/04/2017	Tennessee QSO Party	2016 date
New Hampshire	09/16/2017	09/17/2017	Port City Amateur Radio Club	2016 date

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<>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, 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



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AUGUST 2017							<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 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	3	4	5 222 MHz & Up Distance Contest - Begins 1800 UTC	
6 222 MHz & Up Distance Contest - Ends 1800 UTC	7	8	9 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	10	11	12	
13	14	15	16 DRC Meeting Elmer 6 PM General 7 PM	17	18	19 10GHz & Up Contest - Begins 6AM local	
20 DRC HAMFEST 8:30 - 1, Jeff Co Fair-grounds 10GHz -Ends Midnight local RTTY Rookie Roundup	21	22	23 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	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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VE Team	KC2CAG	Tom Kocialski	720-284-1911	kc2cag@arrl.net
Web Master	N0LAJ	Bill Hester	Check Roster	Check Roster

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 20th of the Month. ~ Editor

Sunday August 20th - Jefferson County Fairgrounds **DENVER HAMFEST**



Denver Radio Club, WØTX

2017

Since 1917

DEALERS FLEA MARKET PRIZES

More Tables & Less Crowding

FORUMS FCC EXAMS

FOOD INDOORS

Admission: \$6 (Children under 13 free w/adult)

Tables: Advance Purchase: \$12 (Paid by Aug 18) At the Door \$16

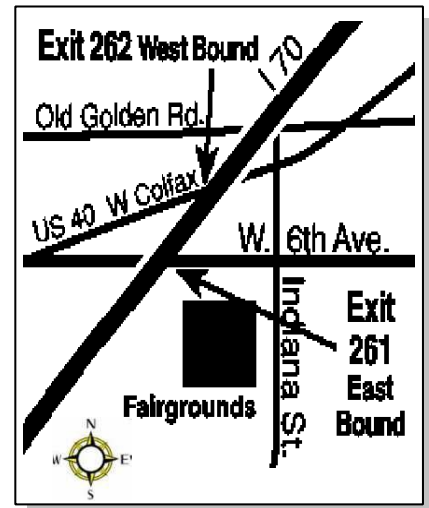
Hourly Door Prizes - Main Drawing at Noon
(Must be present to win)

Doors Open: 8:30 AM - 1:00 PM

License Testing/VE Exams at 10 AM (Vendor Set-Up Starts at 7:30 AM) Talk-In: 145.490- /448.625- PL 100.0Hz

GPS: Lat 39d 43' 19"N Lon 105d 10' 15"W

Handicapped Parking & Access Available



Jefferson County Fairgrounds

WWW.WØTX.ORG

15200 West 6th Avenue Golden, CO

For more info visit our website or contact:

Jason Smallwood, ACØUA, 303-429-2536 E-Mail: drctest@wøtx.org

Advance Table Reservation Form

Make checks payable to: Denver Radio Club, do not mail cash!

Payment is required with reservation and must be received by August 18, 2017 to obtain the \$12 per table advance registration price

AC Power is limited, available on a FCFS basis. Reservation confirmations will be emailed. Vendor badges & tickets will be provided at the Hamfest. Tables must be claimed by 8:30 AM or they will be subject to resale - no refunds

Save the upper portion of this flyer for your records

Name: _____ Call: _____

Org: _____ Phone: _____ Email: _____

of Tables _____ @ \$12.00 each = _____ # of Vendor

Admissions _____ @ \$6.00 each = _____ *Denver Radio Club* **DENVER HAMFEST**

August 20th 2017

AC Power: __yes __no Total Enclosed : _____

Special Requests: _____

Please mail all reservations to (New Address): Denver Radio Club, 7780 Bradburn Blvd., Westminster CO 80030-4526