



# ROUNDTABLE

The Denver Radio Club Newsletter

Since 1917

January 2019

## PRESIDENT'S MESSAGE

BY GERRY VILLHAUER, W0GV

Hello DRC Members,

Happy New Year! Cathy and I wish everyone a very happy and blessed 2019!

Our only meeting for December was our annual Holiday/Christmas Party on December 5th. I believe it is safe to say we had another very successful party. All comments I have received have been very positive. It is always great to see a large group gathered together for such a gala event. I want to thank every one of you who helped with the preparation, and especially those who stayed and helped clean up. This year was the best ever for getting picked up and out of there at a decent hour. A BIG special thanks to my Cathy (N0CRZ). I am sure you all know that without her organizational skills, the party probably would not happen. Also thanks to my daughter Marcy and granddaughter Kaylea, for spending all day helping and Job's Daughters Bethel #5 for serving.

Chris Kissner, our program presenter, did a wonderful job informing us how to prep for emergencies and disasters. His point is to make us think about these events that can and do happen and, how a little preparation can make a huge difference on the outcome. Again, I have heard many great comments on his presentation. He is very definitely well prepared and a very dynamic speaker.

Our January 16th meeting will be given by Robert White (K0RCW). Robert will compare and contrast MMDVM hot spots used with a variety of VHF and UHF modes such as DMR, C4FM, DSTAR, etc and a quick overview of the Raspberry Pi compatible Pi-star MMDVM software. Of particular interest to the club will be the analysis of the new OpenSpot 2 which features simple setup integrated Wi-Fi in a tiny plug-and-play package. Robert always has an entertaining way of doing presentations. Mark your calendars for January 16th and get the DRC New Year off to a good start.

I also want to mention, we are in winter season and as you all know, and the weather can change quickly. If travel conditions are deemed to be unsafe, we will put out a cancellation notice or other related information in the timeliest manner possible. If the weather looks questionable on a meeting night, listen to our 145.49/448.625 and 449.350 repeaters for last minute information prior to setting out to the meeting.

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



### The DRC needs you!

Please contact W0GV ([w0tx@w0tx.org](mailto:w0tx@w0tx.org)) if you are interested in helping with:

Tower climbers for antenna maintenance: Training will be provided by our experienced tower climbers.

Chairperson for DRC Field Day in 2019: Assistance and guidance will be given to new chairperson. You will have help.

## 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:

Donald Schultz - KE0TRI	Bobby Robinson - KE0TRE
Edward - Turkowski - N2KVZ	Justin Norton - KE0OYO
Mary Dickson - KD0YGG	Ronald Kelberg - N0SXI
W. Zachary Dickson - AD0HT	Thomas Laughlin - N8BG
	Matthew Durell - KD0UPC

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.

### DRC/TSA Aurora Site

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

Status: WWOLF has sent a letter to the TSA describing the services that the DRC can provide and recommendations for the communications equipment and antennas. The TSA has responded with an MOU which the DRC is reviewing.

### Station 4 Remote Power Control

Goal: Install Internet controlled power outlets.

Status: WG0N has installed an Internet controlled outlet power strip at Station 4. The equipment will be reconfigured and the system tested ASAP.

### Fusion Repeater WIRES Interface

Goal: Train several club members how to program and maintain the Fusion Repeater system.

Status: Pending

### Check Station 4 and Squaw Antennas

Goal: Inspect antennas before winter sets in.

Status: WG0N will check antennas ASAP.

### *The History of Sparky*

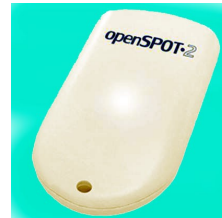
The club logo was originated by Miriam Juza, xyl of Marvin, W6FGD (SK), ex W0FYF. Miriam was looking for something to put on Marv's letterheads, and as a surprise for him, she drew "Sparky". Possibly in 1956, during the presidency of Carl Smith, W0BWJ (SK), permission was given to the club for its use as that was the year it first appeared on the club's publication, The Round Table. The original design of Sparky riding a lightning bolt, and holding a code key, has not been changed - but other alterations have been made in past years, namely the addition of "Denver Radio Club" encircling him and a coat of arms by Roy Raney, KØOVQ (SK).

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## JANUARY MEETING ANNOUNCEMENT - HOTSPOTS!

BY ROBERT WHITE, K0RCW

Welcome to the world of digital radio internet gateway, or hotspots. At the January meeting, I'll bring several different hotspots for demonstration and show how to set them up to access the DRC Brandmeister/DMR repeater talkgroup 310804. Hardware shown will include the new OpenSpot 2 from the SharkRF company as well as a couple of alternatives. A hotspot connects you and your HT to the world via the internet and using protocols such as DMR, System Fusion/C4FM, D-STAR NXDN, P25 and even POCSAG. Talk to the world from the comfort of your home, no repeater required!



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## DECEMBER MEETING NOTES

WRITTEN BY BRENNAN PATE, AD0UZ

PHOTOS BY FRED HART, AA0JK

About 80 people attended the DRC's Christmas Party. The event was at the same location as last year's party. Gerry (W0GV) kicked it off by introducing the people who organized the event and then dinner was served by Gerry's granddaughter and friends.

Chris Kissner energetically presented a course on "Prepping Basics." He talked about possible problems in our area and set the stage for why any level of "prepping" is a good idea.

He outlined the "Stages of Preps" and his main point was to encourage people to just start somewhere; get the basics taken care of. He went over the "Rule of 3", water storage, common needs (i.e. supply of meds), etc. As Chris said, he barely scratched the surface and encouraged everyone to do the research and do you what you need to do to protect you and your loved ones.

After the presentation, Gerry did the raffle drawing. There were universal gift cards, connectors, gift certificates, etc. The grand prize was a Yaesu FT-4X HT.





**LEARNING NET REPORT**

BY FRED HART, AA0JK

Thanks go out to our Net Controllers: Doron (K1DBC), and Alex (KS0E).

The following topics were discussed this past month:

- CCARC list of VHF band plan for Colorado, Kevin (AD0GX)
- FT8 Upgrade: <http://www.arrl.org/news/view/wsjit-x-2-0-full-release-now-available-ft8-enthusiasts-urged-to-upgrade-now>
- FT8 Operating Guide by ZL2IFB: <https://dx-world.net/ft8-operating-guide-by-zl2ifb/>
- Fusion: setup and use on local repeaters.
- DMR vs Fusion
- AMSAT Fox Project: <https://www.amsat.org/meet-the-fox-project/>
- FT8 Mode is the Latest Bright Shiny Object in Amateur Radio Digital World: <http://www.arrl.org/news/ft8-mode-is-latest-bright-shiny-object-in-amateur-radio-digital-world>
- FT8 Intro: <https://youtu.be/QoCngsKW9tc>
- FT8 Demo: <https://youtu.be/UE8Wxi0BYNI>
- KE0OG on FT8: <https://youtu.be/zHXScGrsw-A>
- New Amateur Radio FM Transponder CubeSat Now in Space: <http://www.arrl.org/news/new-amateur-radio-fm-transponder-cubesat-now-in-space>
- Flightware ADSB feeder using RPI and RTLSDR: <https://swling.com/blog/2017/03/making-a-flightaware-ads-b-feeder-with-a-raspberry-pi-3-and-rtl-sdr-dongle/>



Elmer: The person who teaches and nurtures the neophyte ham radio operator. A mentor for Amateur



Radio Operators. Almost all hams have had at least one Elmer in their Amateur Radio life. Many have had the privilege of being an Elmer to a new ham. The term "Elmer" (meaning someone who provides personal guidance and assistance to would-be hams) first appeared in QST in a March 1971 "How's DX" column by Rod Newkirk, W9BRD. Newkirk called them, "the unsung fathers of Amateur Radio."

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](mailto:w0tx@w0tx.org) or [elmer@w0tx.org](mailto: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. 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 [em-comm@w0tx.org](mailto:em-comm@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

## ALL THINGS FRED

BY THE EDITOR, AD0UZ

As you likely know, Fred (AA0JK) is a prolific writer for the Roundtable. Well, his writing was also published in this month's QST! See page 78 for his article on ham radio and flying.



### SOLAR UPDATE

PROVIDED BY FRED HART, AA0JK

#### SPOTLESS SUN HURLS A CME TOWARD EARTH

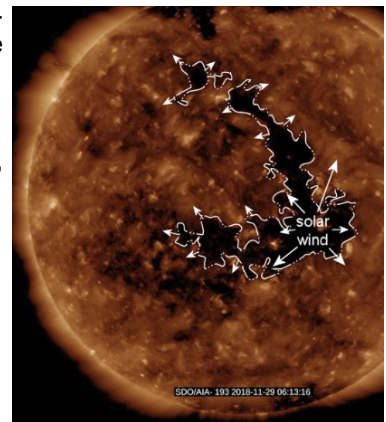


November 30th - A filament of magnetism in the Sun's southern hemisphere erupted, hurling a CME with an expanding cloud in an Earth-directed component. The slow-moving CME would deliver a glancing blow to our planet's magnetic field, sparking polar geomagnetic storms.

This coronal hole opened up, allowing solar wind to escape. We've seen this coronal hole before. It opened in June and, since then, it has been spinning around the Sun, whipping Earth with solar wind once a month. It was expected to lash out again.

(December 1st 0949 UTC) While the sunspots were absent, solar flares were low, and filaments had not presented eruption risks to Earth. A strong coronal hole solar wind stream, was on its way to Earth. Geomagnetic conditions were expected to intensify.

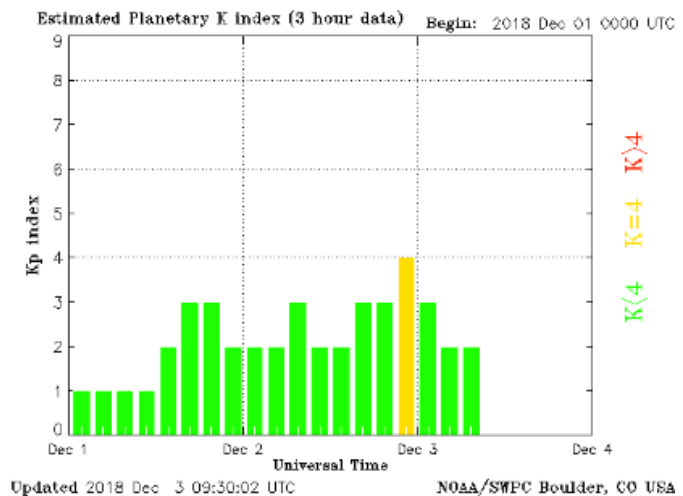
If the solar wind was to reach speeds as fast as 500-550 km/s, we would have gotten a G1 (Kp=5) storm. Note, only the northern part of the hole was open.



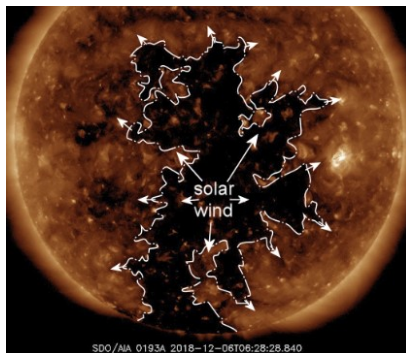
Band conditions change from day to day and hour to hour, but by using current solar information, you can better plan your amateur radio activities. Band conditions depend on the peculiarities of the ionosphere at a given instant in time, and the band you are listening to.

#### KP Index:

- ~ [0-3]: Green - Stable/Calm Magnetosphere.
- ~ [4] Yellow - Unstable Magnetosphere.
- ~ [5+] Red - Geomagnetic Storm Conditions.



December 6th - CME MISSES EARTH: A coronal mass ejection (CME) that was expected to hit Earth's magnetic field on December 5th, did not develop. The solar storm cloud missed Earth, sailing south of our planet



A HOLE IN THE SUN'S ATMOSPHERE: A large hole in the Sun's atmosphere was facing Earth and spewing a stream of solar wind in our direction. NASA's Solar Dynamics Observatory was monitoring the structure, shown here in a false-color UV image taken on December 6th.

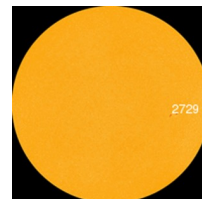
The hole was so large it almost completely bisects the solar disk, stretching more than a million kilometers across the Sun's equator.

We've seen this hole before. It has been spinning around with the Sun, lashing Earth with solar wind approximately once a month since September. Last month, the lashing commenced on November 9th, lasted for two days, and caused sharp tremors in the geomagnetic field. Solar winds were blowing faster than 600 km/s.

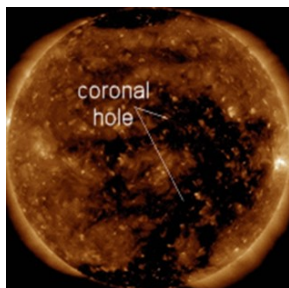
Solar wind flowing from this hole was expected to return on December 8th or 9th.

New sunspot AR2729 was crackling with minor B-class solar flares. Credit: SDO/HMI

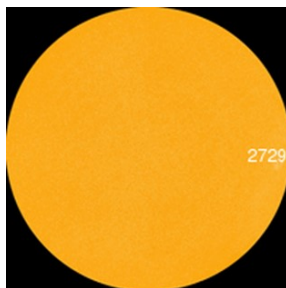
(December 6th 0912 UTC) Despite a new and growing sunspot group, solar flares were absent. Solar wind was calming with the next intensification ~36-48hrs away, due to the Earth-facing coronal hole.



December 8th - THE SOLAR WIND HAD ARRIVED: Earth was entering a high-speed stream of solar wind.



Credit: SDO/AIA



Credit: SDO/HMI

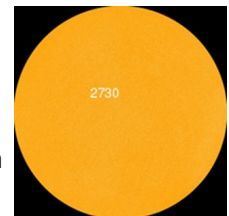
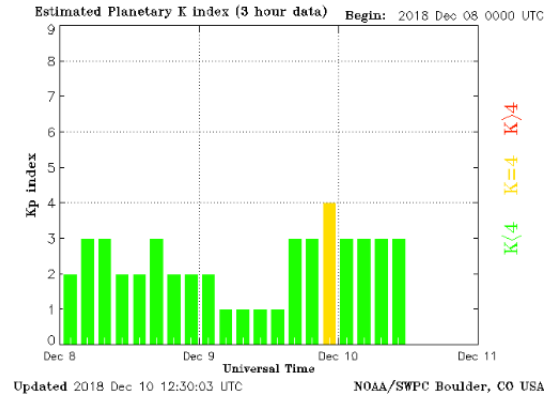
Sunspot AR2729 had a stable magnetic field that posed no threat for strong solar flares.

(December 8th 0949 UTC) Solar wind was intensifying due to the coronal hole, but only at modest levels. Further intensification was possible over the weekend, and NOAA was monitoring a bright region at the incoming limb for more sunspots.

(December 9th 1008 UTC) Solar wind was plateaued at modest levels. New sunspots were crackling but not producing any significant solar flares.

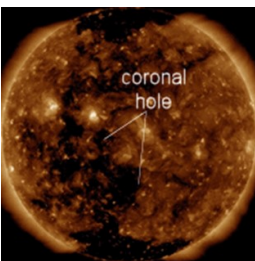
December 10th - MAGNETIC MISMATCH IN THE SOLAR WIND: For the third day in a row, Earth was inside a

stream of fast-moving solar wind. Inside the stream, wind speeds were topping 600 km/s, yet there were no geomagnetic storms. Why not? There was a mismatch: Magnetic fields inside the solar wind stream were pointing North, the same direction as Earth's magnetic field. "North" versus "North" prevents the type of magnetic link-up that leads to storming.



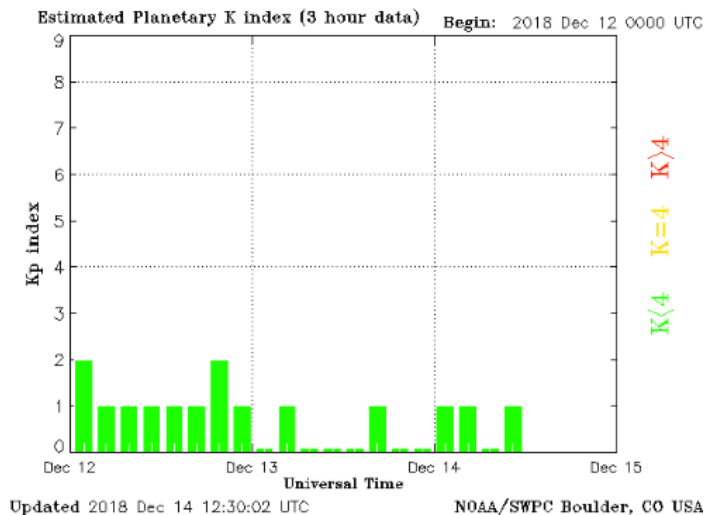
December 12th - (December 6 -12) had sunspots on five of the seven days.

Sunspot AR2730 was small and posed no threat for strong solar flares, a typical solar minimum Sunspot. Credit: SDO/HMI



Solar wind flowing from this coronal hole was expected to reach Earth on December 15th. Credit: SDO/AIA

(December 13th 1016 UTC) Solar wind was quieting down as Earth made its exit from a coronal hole stream. There were no sunspots or significant eruptions, but the Earth-facing coronal hole would have its solar wind arrive in ~2-3 days.

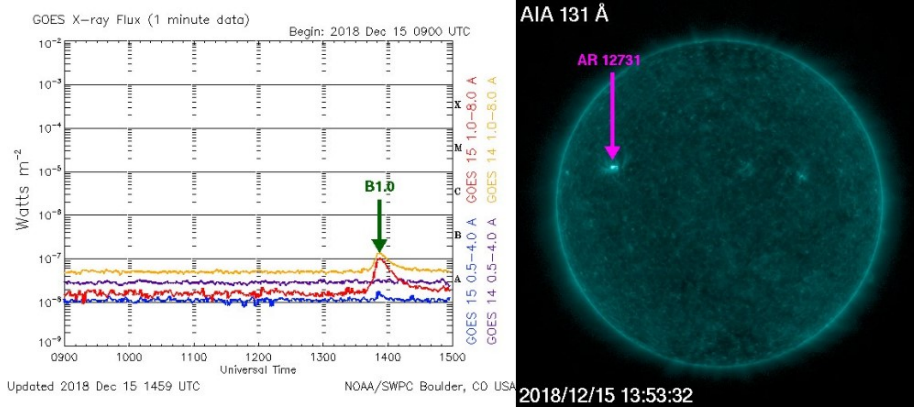


(December 13th 1016 UTC) Solar wind was quieting down as Earth made its exit from a coronal hole stream. There were no sunspots or significant eruptions.

We enjoyed an extended period of moderately fast solar wind. The weak storming kept condition at unsettled levels.

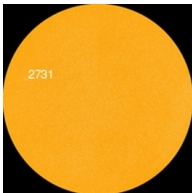
Three new active regions were facing Earth and boosting solar flux. Amateur Radio conditions were expected to improve over the following week.



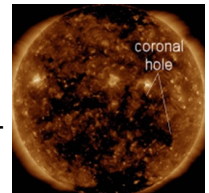


B1.0 flare (non-eruptive) from AR 12731, cycle-24 region. Hope was that this region would produce improved band conditions while it was on the Earth facing side.

New sunspot AR2731 was small and did not pose a threat for solar flares. Credit: SDO/HMI

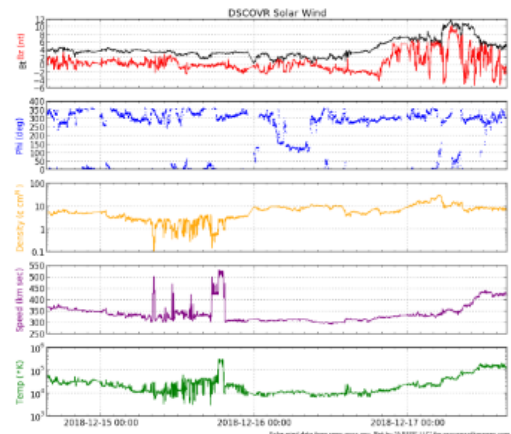
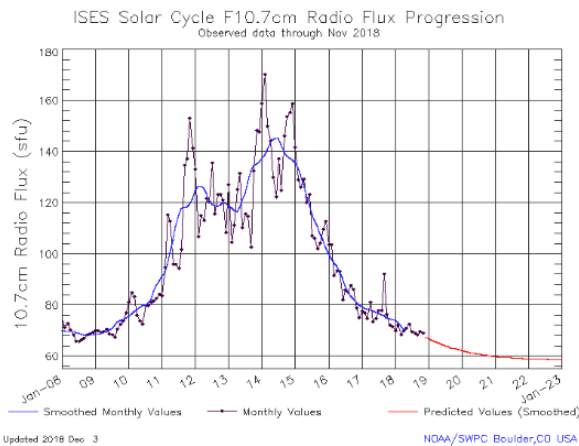


GEOMAGNETIC UNREST PREDICTED: A shallow hole in the Sun's atmosphere was facing Earth, spewing a minor stream of solar wind toward our planet. Polar geomagnetic unrest was likely when the gaseous material arrives on December 16th. This event would not rise to the level of a geomagnetic storms.



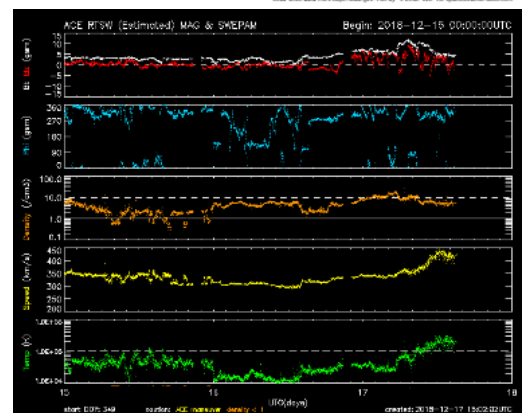
Solar wind flowing from this coronal hole was expected to reach Earth on December 16th or 17th. Credit: SDO/AIA

December 16th - Tiny Sunspot AR2731 unleashed a minor B1 – class solar flare on December 15th. No radio blackouts or other effects were reported after the feeble explosion. Credit: SDO/HMI



Usually we can judge solar activity by sunspot numbers and solar flare magnitudes, but sometimes that is not the case. The sunspots can be inactive or the flares can be on the side of the Sun, or there could be filaments, coronal holes, nano flares or other activity. The radio flux is a great all-around measurement of activity.

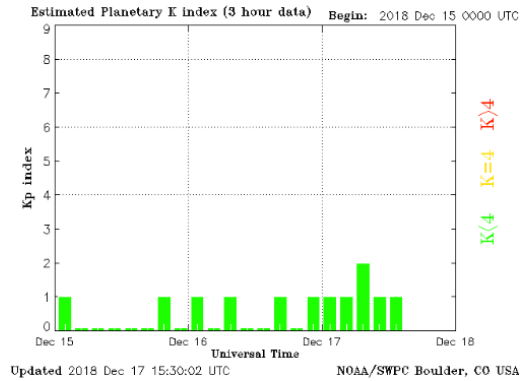
(December 17th 1036 UTC) Solar wind from the coronal hole had arrived. Geomagnetic conditions were expected to intensify, but were unlikely to reach storm levels without further intensification. (See images to right.)



Learn About Solar Wind:

- [Red] Negative Bz Is Disruptive To Earth's Magnetic Field
- [Blue] Shows The Polar Angle Of The Magnetic Field
- [Orange] Avg. SW Density Is 0.1-10 Protons/Cubic Centimeter
- [Yellow] Avg. SW Speed Is 350-400 Kilometers/Second
- [Green] SW Temp Over 500,000K Is 'High'

Solar Wind Introduction: [https://youtu.be/ kZ6HSPkf8U?list=PLHSoxioQtwZcJj\\_9cLLz7Bggso7qg2PDj](https://youtu.be/kZ6HSPkf8U?list=PLHSoxioQtwZcJj_9cLLz7Bggso7qg2PDj)

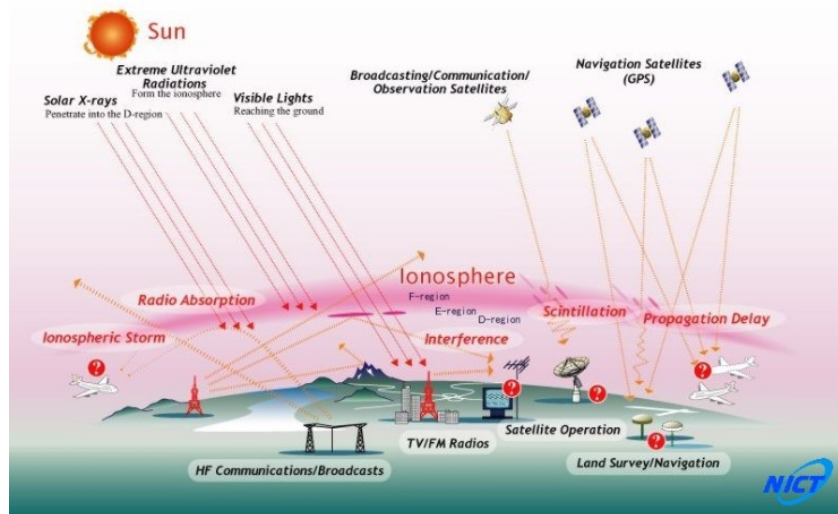


KP Index [0-3] Green - Stable/Calm Magnetosphere. [4] Yellow - Unstable Magnetosphere. [5+] Red - Geomagnetic Storm Conditions

Solar-Terrestrial Data - <a href="http://www.n0nbh.com">http://www.n0nbh.com</a>		VHF Conditions		HF Conditions	
83 Dec 2018 1117 GMT		<b>Item</b>	<b>Status</b>	<b>Band</b>	<b>Day Night</b>
SFI 69	SN 0	Aurora	Band Closed	80n-40n	Fair Good
A 12 K 2 / PIntry		6n EsEU	Band Closed	30n-20n	Poor Poor
X-Ray <A1.0		4n EsEU	Band Closed	17n-15n	Poor Poor
304A 94.2 @ SEM		2n EsEU	Band Closed	12n-10n	Poor Poor
Ptn Flx 0.14		2n EsNA	Band Closed	Geomag Field QUIET	
Elc Flx 2.21		EME Deg	Good	Sig Noise Lvl S1-S2	
Aurora /n=		MUF	ES - SEASON BREAK	MUF US Boulder NoRpt	
Aur Lat No Report		MS	0 MIN 6 12 18 UTC MAX	Solar Flare Prb 10%	
Bz 2.8 SW 458.6				(C) Paul L Herrman 2013	

For current data, see posting on DRC W0TX website.

### Ionospheric Effects on Radio Applications



The ionosphere surrounding the Earth, is closely related to our daily life, because it greatly affects propagation of radio waves for broadcast and telecommunications, or it degrades positioning accuracy of GPS.

December 19th - SOLAR MINIMUM DEEPENS: The solar cycle was at low-ebb. December 19th marked the 208th day in 2018 that the Sun has been without spots, doubling the number of spotless days in 2017. The count won't be able to double again in 2019; there aren't enough days in the year! Nevertheless, we can expect a further deepening of Solar Minimum in the year ahead with, literally, hundreds of spotless days to come. Stay tuned for increased cosmic rays, and long-lasting holes in the Sun's atmosphere.

(December 19 1032 UTC) Solar wind remained intensified due to the coronal hole structure and IMF, but the stream was modest, and was producing no geomagnetic unrest.

December 20th - UNEXPECTED SOLAR WIND: Unexpectedly, Earth had entered a stream of solar wind blowing ~600 km/s.

December 21st - Space weather wasn't very exciting the third week of December, with only minor disturbances, and no sunspots.

As the New Year approaches, we could be in for some bigger storms, as solar activity on the back facing side rotates into Earth view. This could be good for radio propagation.

(December 22nd 1040 UTC) Solar wind was calm, solar flares were absent. The coronal holes were-intensifying the solar wind stream as we entered week four.

Band Conditions: <https://twitter.com/bandconditions>

For more information concerning radio propagation, see the ARRL Technical Information Service at <http://arrl.org/propagation-of-rf-signals>. For an explanation of numbers used in this bulletin, see <http://arrl.org/the-Sun-the-earth-the-ionosphere>.

As reported in [space.com](http://space.com) on December 7th, 2018, a study by Bhowmik and Nandi published in the peer reviewed Nature Communications on December 6th suggests that the new cycle will begin about a year from now and peak in 2024. Solar Cycle 25 should be of similar or of greater intensity than Solar Cycle 24.

Prepared jointly by the U.S. Dept. of Commerce, NOAA, Space Weather Prediction Center. UPDATED 2018 December 22nd 1230 UTC.

24 hr Summary... Solar activity was very low. No Earth-directed CMEs were observed in available coronagraph imagery.

Forecast: Solar activity was expected to remain at very low levels on December 22nd thru 24th.

73,

Fred  
AA0JK

**WHAT IF THE WEATHER CHANGES?**  
*If we should experience a turn in the weather on the day of our monthly DRC meeting it may be necessary to cancel the meeting. If this should happen listen for meeting status reports on 145.49 or 448.625 MHz repeaters during the afternoon on the day of the meeting.*

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## REMEMBER WHEN?

By BILL RINKER, W6OAV

The purpose of this memory article is to let the newer hams know what ham radio was like in the late 50s and early 60s and to bring back memories to the older hams like me.

Many of us back then grew up building Heathkits. The manuals were very comprehensive and easy to follow. They contained lots of illustrations and good troubleshooting instructions. The kits performed well. Old timers reading this might want to check out the URL below. It contains pictures and descriptions of all the Heathkits that were produced. Also, there is an in-depth description of the history of Heathkit. The URL should bring back a lot of good old memories!

<http://www.heathkit-museum.com/hvmham.shtml>

By the way, Heathkit is alive again. Checkout their URL at <https://shop.heathkit.com/shop>



Credit: [shop.heathkit.com/shop](https://shop.heathkit.com/shop)

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## AN IN-DEPTH DISCUSSION ABOUT HF MOBILE ANTENNAS

By BILL RINKER, W6OAV

AD5X has developed an in depth discussion covering about all aspects of HF mobile antennas. His PDF is at <http://www.ad5x.com/images/Presentations/AD5XMobileOpsHintsandKinks.pdf>. The PDF is well worth reading.

Some of the subjects discussed are:

- In depth mobile HF antenna theory.
- Antenna efficiencies.
- Antenna mounting and noise considerations.
- Antenna construction and "tricks".
- Antenna Accessories, Tools.
- Hints and kinks.



**FACT OF THE DAY**

**Nickel-Metal-Hydrate Batteries**

Nickel-metal-hydrate (NiMH) batteries have a useful life of about 400 charge/discharge cycles if they are not misused. They have four important advantages compared to nickel-cadmium batteries. They have 40-percent higher charge density. They run longer on a charge. They are more 'environmentally-friendly.' They have a less discharge memory and because of that they do not need to be deeply discharged before each re-charge. However, occasional deep discharges tend to improve their run-time performance.

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**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

**HAM SITE OF THE MONTH**

[DRC's Learning Net Yahoo Group](#)

**THE ROUNDTABLE ARCHIVE**

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

**THE ROUNDTABLE ARTICLE INDEX**

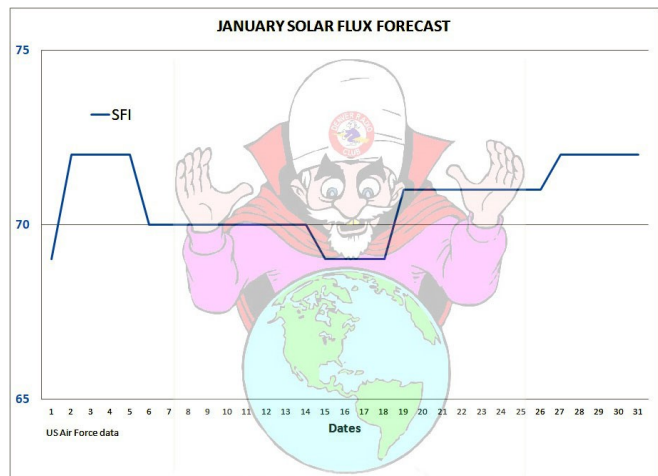
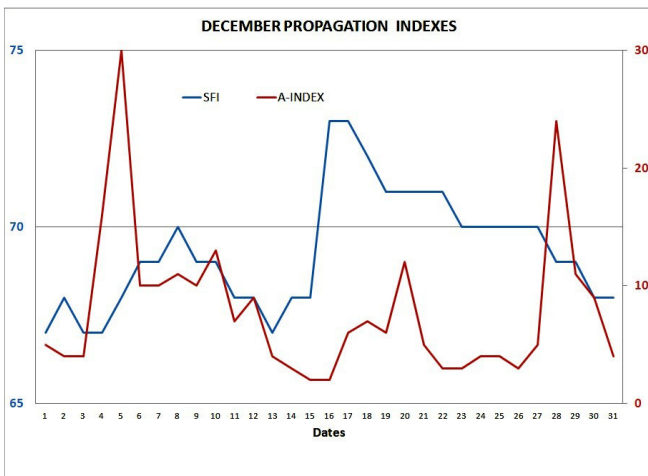
Go to: <http://www.w0tx.org/RoundtableArchive/-RoundTables-Index.pdf>

**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
Winter 2019 Hamfest	01/19/19	Larimer Cnty Fairgrounds (McKee 4H)	<a href="#">Northern Colorado ARC</a>
The Swapfest	02/17/19	Adams County Fairgrounds	<a href="#">Aurora Repeater Assoc.</a>

**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
Montana	01/26/2019	01/27/2019	<a href="#">Flathead Valley Amateur Radio Club</a>	
Vermont	02/02/2019	02/03/2019	<a href="#">Radio Amateurs of Northern Vermont</a>	
Minnesota	02/02/2019	02/02/2019	<a href="#">Minnesota Wireless Association</a>	
British Columbia	02/02/2019	02/03/2019	<a href="#">Orca DX and Contest Club</a>	
South Carolina	02/23/2019	02/24/2019	<a href="#">Columbia Amateur Radio Club</a>	
North Carolina	02/24/2019	02/25/2019	<a href="#">Raleigh Amateur Radio Society</a>	
Oklahoma	03/09/2019	03/10/2019	<a href="#">Oklahoma DX Association</a>	
Idaho	03/09/2019	03/10/2019	<a href="#">Idaho QSO Party</a>	
Wisconsin	03/10/2019	03/11/2019	<a href="#">West Allis Radio Amateur Club</a>	
Louisiana	03/16/2019	03/17/2019	<a href="#">Louisiana Contest Club</a>	



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**ATTENTION**

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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 the 70cm / 448.625MHz machine.
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 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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


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**8400 E. Iliff Ave #9, Denver, CO 80231**

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**24 HOUR FAX 303-745-7394**

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<b>JANUARY 2019</b>		<b>DRC Net Sundays at 8:30 p.m. on 145.490 / 448.625 (no PL)</b>				
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		<b>1</b> <b>Straight Key Night -</b> Starts 0000 UTC Ends 2359 UTC 	<b>2</b> <b>Learning Net</b> 7:30 p.m. 145.490 / 448.625 (No PL)	<b>3</b>	<b>4</b>	<b>5</b> <b>Kids Day</b> 1800—2359 UTC <b>RTTY Roundup</b> Begins 1800 UTC  New Moon
<b>6</b> <b>RTTY Roundup</b> Ends 2359 UTC	<b>7</b>	<b>8</b>	<b>9</b> <b>Learning Net</b> 7:30 p.m. 145.490 / 448.625 (No PL)	<b>10</b>	<b>11</b>	<b>12</b>
<b>13</b>  First Quarter	<b>14</b>	<b>15</b>	<b>16</b> <b>DRC Meeting</b> Elmer 6 p.m. General 7 p.m.	<b>17</b>	<b>18</b>	<b>19</b> <b>January VHF</b> Begins 1900 UTC
<b>20</b> <b>January VHF</b> Ends 0359 UTC (Monday)  Full Moon	<b>21</b> 	<b>22</b>	<b>23</b> <b>Learning Net</b> 7:30 p.m. 145.490 / 448.625 (No PL)	<b>24</b>	<b>25</b>	<b>26</b>
<b>27</b>  Last Quarter	<b>28</b>	<b>29</b>	<b>30</b> <b>Learning Net</b> 7:30 p.m. 145.490 / 448.625 (No PL)	<b>31</b>		



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Club Librarian	WG0N	Dave Baysinger	303-987-0246	<a href="mailto:wg0n@arrl.net">wg0n@arrl.net</a>
Education Coordinator	AA0JK	Fred Hart	303-420-3536	<a href="mailto:elmer@w0tx.org">elmer@w0tx.org</a>
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**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](mailto:drc.editor@gmail.com).

*Subject:* I'm located in...

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