



ROUNDTABLE

The Denver Radio Club Newsletter

Since 1917

November 2016

PRESIDENT'S MESSAGE

By Gerry Villhauer, W0GV

Hello DRC Members,

Just when we think winter is here; we get this beautiful Indian summer weather. For us hams, extra time to get those last minute antenna projects done. DRC did just that; we had a small antenna party at our Squaw Mountain repeater site. We checked the antennas, feed lines and connectors and made a repair to the weather proofing on a connector. Hopefully we are good for another winter without problems. Once it snows, Squaw is only accessible by snowmobile, snow cat or snow shoe. The latter, something I would not want to do.

For your calendar, please mark Wednesday December 21st. That will be the day for our annual DRC Holiday Party. We will have fellowship, food, prizes and a great general interest program. Look for more details in the December Round Table.

Thanks to Dave O'Farrell (WB0IXV) for a super program on Morse Code and CW operations at our October meeting. Even if you are not a Morse operator, Dave provided a lot of history and information. Hopefully some of you may have a spark of interest to learn and operate Morse; it is not as difficult as you may imagine.

Our November program will have another bit of Morse Code involvement but, in a totally different aspect. If you recall, Lee Reedy (KE0COP) gave us a program on the Kepler Deep Space Project a few months ago. Lee will be back at our November meeting to tell us about a totally different satellite called the Aeronomy of Ice in the Mesosphere or (AIM) for short. The interesting thing about this satellite is that the normal commanding of the ship failed early on after launch. Then, engineers discovered they could communicate with it via Morse Code CW. This will be an extremely interesting presentation. Don't miss it, mark Wednesday November 16th on your calendar now.

Thanks to all of you who recently joined and made the DRC "Your Club". Please stay active on the air, come to meetings, programs and events. Your name and call will be listed in the body of the Round Table.

73 for now,
Gerry (W0GV)
President



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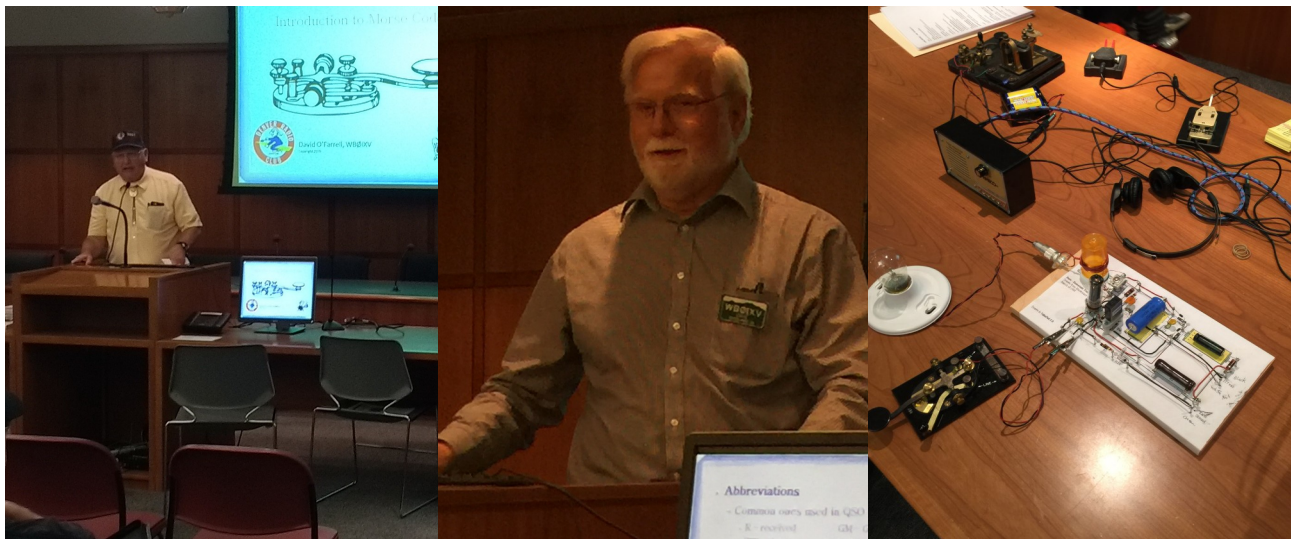
OCTOBER MEETING – WHAT'D I MISS?

By Brennan Pate, AD0UZ

President Gerry Villhauer (W0GV) started the meeting by greeting everyone and starting the introduction round which included two new visitors. Gerry then introduced the guest speaker, David J. O'Farrell (WB0IXV). David handed out a reference sheet and "Code Course" CD from the CW Fists Club (<http://fistsna.org/>). He then proceeded through a thorough presentation on Morse code.

He talked about the two main versions (American and International), how it's considered by many to be the first digital mode, its efficiency, and its fundamental differences from SSB. He outlined some common learning theories (i.e. Farnsworth and Koch), the expected learning period, recommendations for training, and specific requirements for transmitting. He then went on to show examples of different kinds of keys, the common Q signals and pro signs, and a few examples of common QSOs. He talked about some of the history of communications using semaphores, local historical events, such as a Heliograph contact between Mount Ellen, Utah, and Mount Uncompahgre, Colorado)([Link](#)) and ([Link](#) - see section 67), and the use of Morse code on the railways.

Finally, he talked about versions of telegraph codes in several other languages which made me thankful I do not have to learn the Chinese version. If you would like to view the slides that Dave presented, please visit the Estes Valley Amateur Radio Club site ([Website](#)) and see the PDF or PPT versions under the "Amateur Radio License Class" section. For additional resources, see the notes on page 3.



Gerry (W0GV), David (WB0IXV), & David's gear display.

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. We have a number of activities throughout the year and we'd like very much for you to participate in serving your community.

Aleksandr Voishchev	KE0JFG
Bob Carver	KB0XT
James R. Carter	KF6HMR
Jim Ross	KA8ABD
Keith Barto	KD0QLV

If you have questions please feel free to ask on any of the repeaters or see the contact information on the last page of this publication. Also please join us once a month at the regular club meeting on the 3rd Wednesday at 7:00 p.m. For new hams we have the Elmer session which starts at 6:00 p.m. before the regular meeting.

More information can be found on the Denver Radio Club website at www.w0tx.org.

(Continued from page 2) OCTOBER MEETING – WHAT'D I MISS?

Additional Morse Code Resources, as provided by Dave:

K6RAU Code Course: <http://www.pdarri.org/K6RAU/>

Recordings:

FISTS: <http://fistsna.org/store.html>

W5YI Group: <http://www.w5yi.org/catalog.php?sort=17>

ARRL: <http://www.arrl.org/shop/Your-Introduction-to-Morse-Code-audio-CDs/>

VIS: <http://visradio.com/frame/ars-f.htm>

Computer programs:

G4FON (Koch method): <http://www.g4fon.net/>

Just Learn Morse: <http://www.justlearnmorsecode.com>

On line mentoring:

CW Ops Club: www.cwops.org

Code Oscillator Museum: <http://www.n4mw.com/cpo.htm>

Groups with slow speed (QRS) code operators:

FISTS – The International Morse Preservation Society: <http://www.fistsna.org/> 7.028, 7.048, 7.118 10.118, 14.058, 21.058, 21.1

SKCC – Straight Key Century Club: <http://www.skccgroup.com/> 7.055, 7.120, 10.120, 14.050, 21.050, and other

eBooks:

"Zen and the Art of Radiotelegraphy": <http://www.qsl.net/ik0yqj/enu/index.html>

"The Art and Skill of Radiotelegraphy": <http://zerobeat.net/tasrt/index.html>

"Morse Code: Efficient or Over the Hill": QST, January 2009, page 55

MORSE EXPRESS: 10691 E. Bethany Dr., Suite 800, Aurora, CO 80014, (303) 752-3382, <http://morseexpress.com/>

TECHNICAL COMMITTEE REPORT

By Bill Rinker, W6OAV

The October meeting was devoted entirely to discussing BrandMeister which the Tech Committee is considering installing on the DRC's DMR repeater. A description of BrandMeister can be found at https://www.hamdigitaal.nl/?wpfb_dl=236.

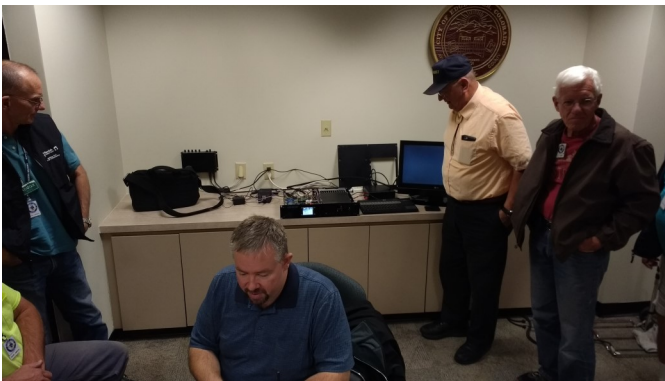
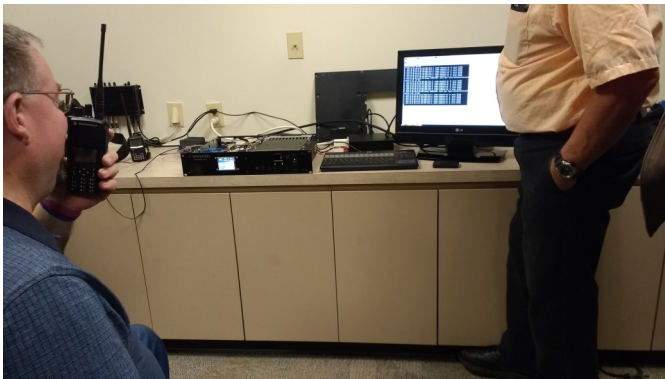
The meeting started with Dirk, N2PDQ, giving a presentation covering the features of the BrandMeister network, the pros and cons of BrandMeister and how to incorporate Brandmeister into the DRC's DMR repeater. Dirk then demonstrated BrandMeister operation using DMR HTs and his portable BrandMeister repeater which he had setup in the conference room.

The presentation and demonstration convinced the board/tech committee to go ahead with the project. The installation will take place while the DMR repeater is located at Station 4 to provide easy access for installation and testing. Once the repeater is working properly, it will be moved to Centennial Cone.

See page 4 for pictures from this month's meeting.

~ Editor's Note: The Technical Committee meeting is open to members of the DRC. It is held in the Arvada room, starting at 6:00 p.m. on the evening of the DRC monthly meeting.

(Continued from page 3) TECHNICAL COMMITTEE REPORT



EmComm Note

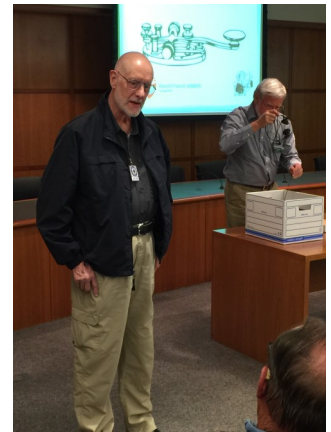
By Brennan Pate, AD0UZ

The ARRL website has some good information about ARES (<http://www.arrl.org/ares>). You can get introductory information, download the ARES and ARES Field Resources Manuals and sign up for the ARES Newsletter (<http://www.arrl.org/ares-e-letter>). The latter has some interesting tidbits that you can quickly scan through.

Elmer's Session

By Jessie King, N0HI

Each month the DRC's "Learning Net" volunteers hold a session just before the regular club general meeting. They will do their best to answer any questions you may have about Ham Radio. It is an interactive session where the group joins in and shares information with each other. Come join in at 6:00 p.m. and contribute to the discussion.



Attendees and Elmer Gary (KD0SQA).

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.

So, You THINK It's PEACEFUL IN YOUR HAM SHACK?

By Bill Rinker, W6OAV

Here's food for thought. You're probably sitting in a comfortable chair in your quiet ham shack and reading this newsletter. Well, things aren't so quiet around your ham shack! In fact, they are quite violent! Let's see why.

Our solar system consists of the sun, the earth and eight other planets. Our solar system is a very small speck in a gigantic Galaxy, also known as the Milky Way. The Galaxy consists of billions of other solar systems. Everything is moving at different speeds in different directions. As shown in Figure 1 while you're sitting in your comfortable chair, you are moving in many different directions at the same time. Here's what you are experiencing:

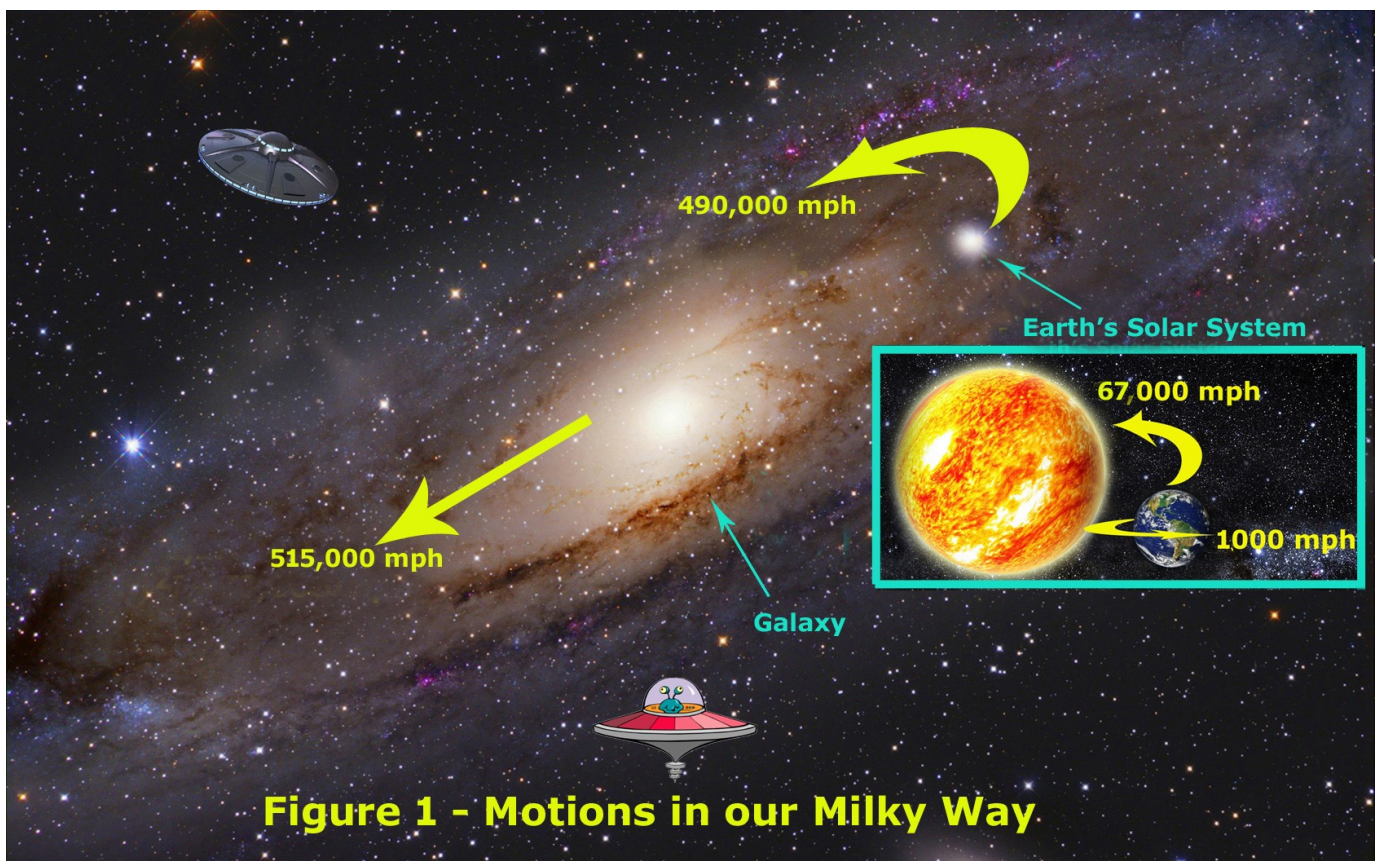
- The earth is spinning approximately 1,000 mph on its axis at the equator.
- The earth is travelling around our sun at approximately 67,000 mph.
- Our solar system is rotating around the Galaxy at approximately 490,000 mph.
- Our Galaxy is moving through space with our solar system at approximately 515,000 mph.

Keep in mind that there are many billions of other galaxies travelling at incredible speeds in many different directions (collision courses)! So, there is a lot going on outside of your quite ham shack!

References:

⇒ <http://earthsky.org/space/milky-way-rotation>

⇒ <https://www.scientificamerican.com/article/how-fast-is-the-earth-mov/>



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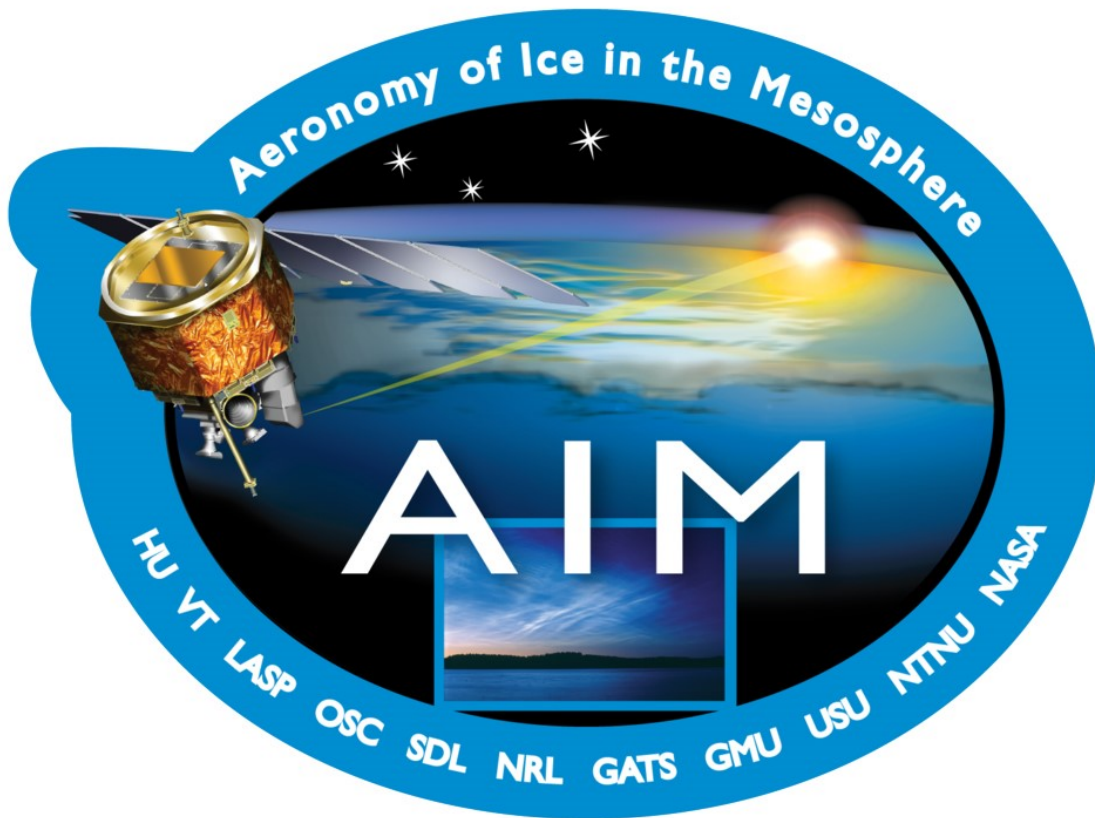
NOVEMBER MEETING PRESENTATION

By Lee Reedy

Reaching Back 150 Years to do Satellite Commanding Today

You often hear about Hams communicating with the International Space Station, but did you know that even today there are spacecraft on orbit whose only command path is using Morse Code? The Aeronomy of Ice in the Mesosphere (AIM) satellite studies noctilucent (or "night-shining") cloud formations. They hover on the edge of space. Thin, wispy clouds, glowing electric blue. Some scientists think they're seeded by space dust. Others suspect they're a telltale sign of global warming. And whatever causes them, they're lovely.

AIM is a low Earth orbiting satellite that experienced a serious commanding problem early in its life that would not allow normal commanding of the spacecraft. The mission was thought lost until clever engineers figured out how to command AIM using Morse Code. At the November meeting, Lee Reedy will present details on the AIM mission and how engineers used Ham skills to save it and still use it for collecting science on this fascinating phenomenon today.



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

LEARNING NET REPORT

By Fred Hart, AA0JK

Thanks goes out to our Net controllers: Gary (KD0SQA), Larry (K0LAI), Alex (W2PBR), and Steve (KD0WMO).



Topics and activities this past month:

- Triband antenna height: Antenna Height / Performance <https://www.arrl.org/files/file/antplnr.pdf>
- Radiowave 20/40 Dipole Antenna not loading: High SWR.
- Antenna Analyzer SARK-100 Mini-60: <http://www.eham.net/reviews/detail/10856>
- Fractal Antenna / Log Periodic: <http://www.eham.net/ehamforum/smf/index.php/topic.72394.0.htm>
- Circularly polarized antenna design for AMSAT used on 70cm
- Controlled Impedance "Cheap" Antennas - Kent Britain (WA5VJB)
 - <http://www.fredspinner.com/W0FMS/CheapYagi/vjbcy.html>
 - <http://www.qsl.net/w6dps/SimpleYagi.html>
 - <http://www.arrl.org/vhf-beams>
- Reciprocal operating permit. Amateur radio international operation: <http://www.arrl.org/international-operating>
- Kenwood TM 742A vs TM 649
- Yaesu FT857D repair.
- Mobile installation and mounts.
- Kenwood TS480SAT and TNC for HF Packet.
- CW Morse Code: AE Morse Code Tutor: <https://youtu.be/Vdj17vqq6uM>

Learn Morse Code (CW) for ham radio and practice another mode of operation.

AE Morse is a Droid application that teaches you Morse code (CW). It has an interactive screen for learning the alphabet plus much more. The best way to learn Morse code is by ear.

The YAHOO Learning Net web page <https://groups.yahoo.com> is a good resource for your questions.

Note also that the American Radio Relay League is the best source for information on all topics related to amateur radio. There is a wealth of information available from past articles in QST. Publications are available on all aspects of the hobby. Some even come with software. If you are not already a member of the ARRL, its highly recommended. <http://www.arrl.org/home>

We certainly enjoy, and appreciate everyone's participation. Thanks to all.

If you are listening and don't yet have your license, you can contact us at the W0TX website, or via w0tx@w0tx.org and elmer@w0tx.org. If we don't have the answer 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.

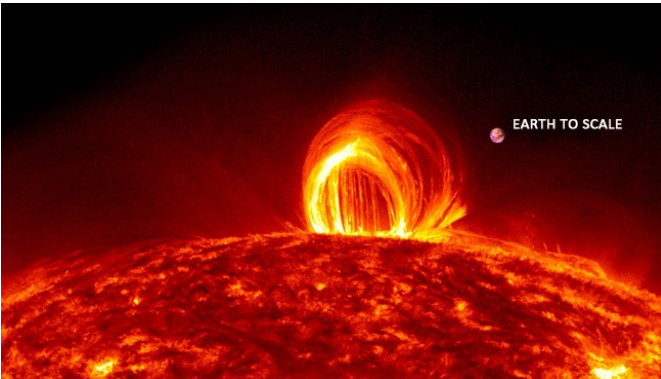
Getting that first Technician license? Upgrading to General or Extra? We're here to help. We would encourage those who have been Hams for several years to also join us. Your experience and input is welcomed.

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](http://www.w0tx.org) web site for additional information.)

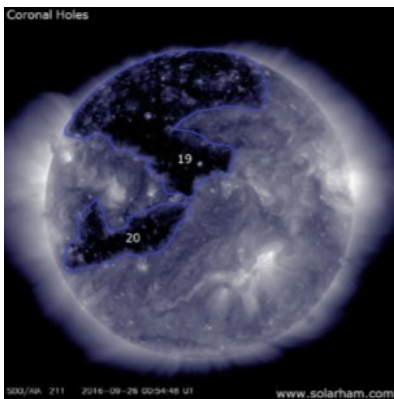
SOLAR UPDATE

Provided By Fred Hart, AA0JK



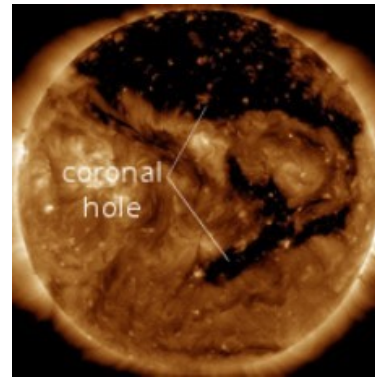
Week One, October 2-7

October started with isolated periods of minor (G1) geo-magnetic storming resulting from a pair of coronal holes turning toward Earth September. 28-29.



Earth was in a fast moving solar wind storm.

Coronal Holes: 01 Oct 16



Earth is inside a stream of solar wind flowing from the indicated coronal hole. Credit: NASA/SDO.

Monday, October 3rd we had one day where the visible solar disk went spotless. However, a new region, 2598, was forming in the northeast quadrant.

SPOTLESS SUN: This latest episode of spotlessness continues a year-long trend of falling sunspot numbers, heralding the approach of Solar Minimum.

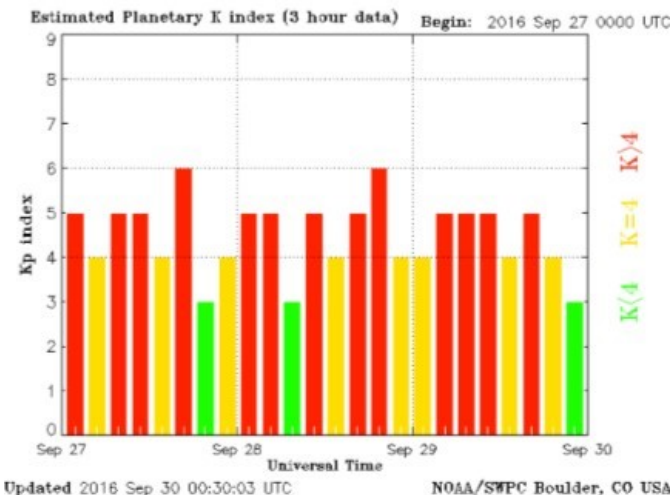
October 6th the visible solar disk. Solar activity is currently at very low levels. Both sunspot regions 2598 and 2599 are stable.

Week Two October 8-14

Monday, October 10th, 2016

EARTH-DIRECTED CME: A magnetic filament in the sun's northern hemisphere erupted on October 8th 1600 UT. The explosion hurled a faint CME into space. NOAA analysts said the storm cloud could deliver a glancing blow to Earth's magnetic field on October 13th.

SURFING THE HELIOSPHERIC CURRENT SHEET: October 10th, Earth passed through a fold in the heliospheric current sheet, a vast undulating system of electrical currents.



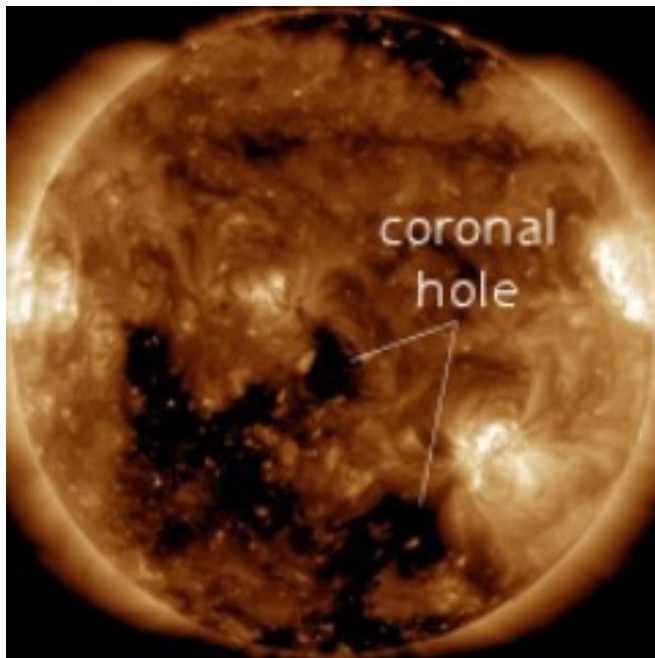
ELMER SESSION START TIME

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.

(Continued on page 9)

Continued from page 8)



Coronal Holes: 12 Oct 16

Solar wind flowing from this broad coronal hole was expected to reach Earth as early as October 15th. Credit: NASA/SDO

Week Three October 16–21

Geomagnetic Storm in Progress

A high speed solar wind stream was moving past Earth at over 700 km/s and a minor (G1) geomagnetic storm was in progress. A moderate (G2) storm watch was also expected to be in effect for the following 24 hours.

Monday, October 17th, 2016

"THE SKY EXPLODED" ON OCTOBER 16th: As predicted, Earth entered a fast-moving stream of solar wind. First contact produced a bright display of auroras over the northern reaches of Scandinavia. The Sun's Coronal Tail Wags its Photospheric Dog.

Recent set of images give a first-ever detailed view of the interior structure of umbrae – the dark patches in the center of sunspots – revealing dynamic magnetic fields responsible for the plumes of plasma that emerge as bright dots interrupting their darkness. The high-resolution images show the atmosphere above the umbrae to be finely structured, consisting of hot plasma intermixed with cool plasma jets as wide as 100 kilome-

ters.

<http://www.njit.edu/features/innovations/liu-sunspot-rotations.php>

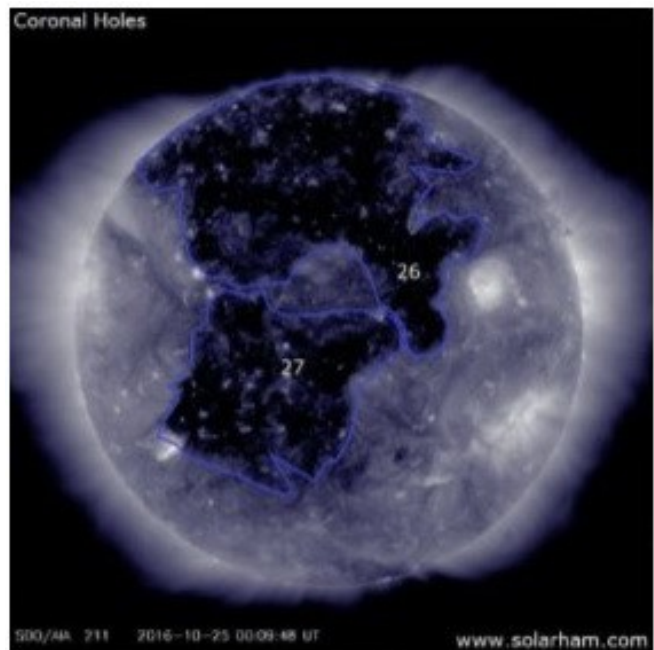
Week Four October 22 – 31

Sunday, October 23rd, 2016

CME IMPACT: A minor coronal mass ejection (CME) that left the sun on October 20th was expected to reach Earth on, October 23rd, delivering a glancing blow to our planet's magnetic field. A high-speed solar wind stream was expected to follow close behind the CME. The combined effect of the CME+solar wind could spark G1- to G2-class geomagnetic storms on October 24th and 25th.

October 25th

Two large coronal holes were turning into a geoeffective Earth facing position. The solar wind speed was expected to begin increasing within the following 12-24 hours. When this same coronal hole feature faced Earth in September, the solar wind speed increased to above 700 km/s and brought along with it periods of Moderate

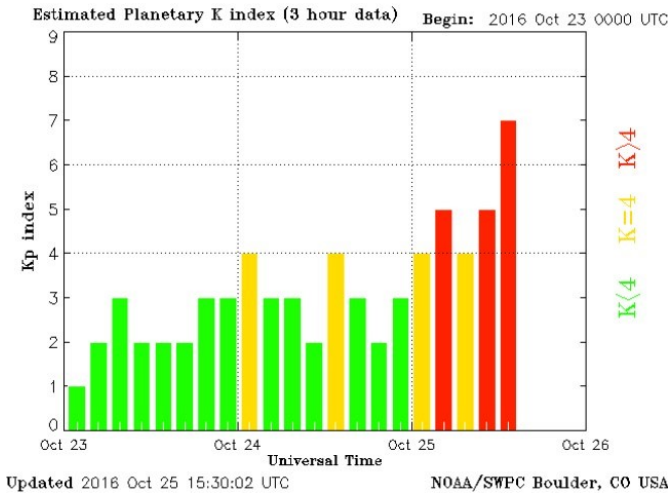


(G2) geomagnetic storming. The same outcome was expected to take place again.

Forecast: Solar activity is expected to continue at very low levels, with a slight chance for C-class flares all three days (25-27 Oct).

U.S. Dept. of Commerce, NOAA, Space Weather Prediction Center and the U.S. Air Force.

Continued from page 9)

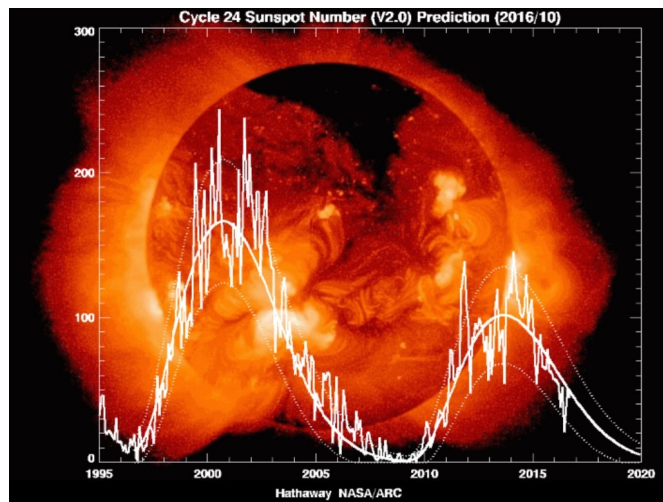


AMAZON SMILE

By Jessie King, N0HI

If you shop at Amazon, there is a way you can help the Denver Radio Club by selecting the DRC as your charitable organization, so each time you shop, a small contribution is made by Amazon to the DRC at zero cost to you. You can read more about it at [Amazon Smile](#).

Every little bit helps the club maintain and provide excellent systems for our membership.



Sun Spot Prediction

<https://youtu.be/9gX49SznRIs>

Credits: NASA's Goddard Space Flight Center/SDO/ Steele Hill

Massive arches of solar material brighten and stream over an active region on the sun's surface in this animation of imagery captured by NASA's Solar Dynamics Observatory, or SDO, on September 29th, 2016. Active regions are areas of particularly strong and complex magnetic fields. Charged solar particles travel along and illuminate the magnetic field lines above this region. The Earth is inset in the video for scale. SDO captured this video in a type of light that is invisible to human eyes, called extreme ultraviolet light. The imagery is colorized here in gold.



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





CELEBRATING YOUR CLUB'S ELMERS MIGHT ENCOURAGE OTHERS

By Dan Romanchik, KB6NU

Sam, W5KF, recently sent me a link to the Elmers' page on the Norman, OK South Canadian Amateur Radio Society (SCARS) website. Not only is it a listing of the club members who have stepped forward to Elmer new members, but also provides ways to honor current and past Elmers. This is from the SCARS newsletter:



"Elmer List on the W5NOR.org website

"This week we talk about a brand new feature on the W5NOR web site. In the amateur radio community, an experienced amateur radio operator who mentors a new or prospective ham is commonly called an "Elmer". In our hobby, that seems to be a great way for knowledge to be transferred.

"Yes, we all have taken an FCC test to receive our license, however that's only the starting point. Remember that person that helped you set up your first radio, or gave you the courage to press the PTT button, or answered endless questions about a radio, or an antenna? That's the kind of thing we're talking about.

"Thanks to a great suggestion from Gary Skaggs WB5ULK [not sure it was my idea. – Editor], we've created the SCARS Elmer Page, located at <http://w5nor.org/elmers>, for us to celebrate Elmers; past, present, and future. We provide a place for Elmers to list their specialty, and contact information, which allows new hams to find someone they can ask questions of.

"Since this is a new section of the web site, this list is rather short. If you're willing to help others on a given topic, send a message to n5hzz@arrl.net and you will be added to the list. Right now we need lots of different categories, like antennas, radio setup, HT programming, contesting, satellite operation, high power operation, test gear, building your own gear, repairing radios, APRS, D-Star, DMR, CW, logging, etc. oh well, you get the idea.

"You don't need a PhD to be listed here. You just need a willingness to help others in a given area. It's OK to be a new ham, and be listed here. You may have just struggled through your first space contact, but you'll have infinitely more knowledge than the person who's been a ham for 40 years, and has never tried that portion of the hobby.

"Also, there is a link to the "ARRL Elmer Award" page of the American Radio Relay League's web site. Here, you can enter your favorite Elmer's name and callsign. The ARRL will print a nice certificate, and mail it to the address you enter. Yes, for FREE! This certificate can either be mailed to your favorite Elmer, or you can mail it to yourself so you can present it to them personally. Feel free to order an Elmer certificate, and present it to your Elmer at an upcoming SCARS meeting. Talk with one of the officers before the meeting to get your place on the agenda. What a great way to recognize these people for their extra efforts.

"Finally, we've got a place to list YOUR favorite Elmer in our SCARS Elmer Hall-of-Fame. This is the place to memorialize your Elmer, whether they are SCARS members, Silent Keys, or not. I've already listed a few Elmers on the list from my own travels through the hobby. We'd love to list the people that help us all succeed.

"So, please help make this page useful, visit the SCARS Elmer page at: <http://w5nor.org/elmers> and be listed as an Elmer, and list your favorite Elmers."

I think this is a wonderful idea, and I hope that you will consider doing something similar in your club. A little recognition could go a long way, and we need all the Elmers we can muster. And, if you're already doing this, please send me a link. I'll add that link to my website, KB6NU.Com.

=====

When he's not Elmering new hams, you'll find Dan building kits and working CW on the HF bands. He is the author of the "No Nonsense" amateur radio license study guides, and blogs about amateur radio at KB6NU.Com. You can contact him by e-mailing cwgeek@kb6nu.com.

LOOKING BACK AT THE DRC PROVIDED BY WOODY LINWOOD (W0UI) - ROUNDTABLE, JUNE 1960

Roundtable's list of nets (most of which were on HF) and 6 meter activities.

WE PAY CASH or TRADE

**FOR: ★ COMMUNICATION RECEIVERS
★ TEST EQUIPMENT ★ TRANSMITTERS
Need Gear? Better come in -- may have it!**

PAT'S CAMERA & LOAN OFFICE

(Next Door to RAPSCO)

1610 Larimer

CH 4-0155

NET SKEDS**COLORADO EMERGENCY PHONE**

0800 Sunday—3890 kc.

SIX METER

2000 Monday—50.3 mc.

LCL-YL

0900 Monday—7235 kc.

COLORADO STATE 2 METER

2130 every night—146.25 mc.

HI NOON

1200 Monday-Saturday—7240 kc.

COFFEE CLUB

0600 Monday-Saturday—3985 kc.

COLORADO WEATHER (CWYN)

0650 Monday-Saturday—3945 kc.

DENVER AREA RACES

0900 Sunday—29.624 mc.

1930-2000 Tues., informal (members & non-members welcome)

SIX METER CD

1900 Tuesday—50.35 mc.

ENGLEWOOD CD

2000 Wednesday—29.500 mc.

COLORADO CW

1900 Monday-Friday—3655 kc.

OBS (W0KQD, Irene)

1230 Mon., Wed., Fri.—7225 kc.

12th REGIONAL

1900 every night—3570 kc.

NEW MEXICO BRASSPOUNDERS (NMBP)

1900 Mon., Wed., Fri.—3570 kc.

12th REGIONAL (TWN)

No. 1—1815 Mon.-Fri.—7060 kc. (summer)

No. 2—2000 Mon.-Sun.—3570 kc.

BEEHIVE UTAH NET (BUN)

1230 Mon.-Sun.—7272 kc.

SIX METERS AND UP

The past two months have been wild ones for a lot of the local crew on 6 mtrs. Dx has been rolling in from all directions and all signs indicate this will be continuing through the summer.

—Ø—

The E.B.Q. in May was at Walts, KØCLJ. Fifteen members and at least half that many XYL's were at the meeting. The net members are donating \$1.00 each towards the purchase of a used portable TV set to be fixed up and used by the TVI committee. The committee is hoping to locate two more portables. Plans are to locate one TV set in each sector of Denver. At present the committee has only one set, and it is greatly overloaded with TVI complaints.

—Ø—

WØWYZ, Ray; KØBTO, Dennis and KØWXY, John are in mobile operation now.

—Ø—

WØRQI, Larue is moving to South Denver to be closer to work.

—Ø—

New calls on 6 are KØDAY, John; KP4AMN/Ø, Vick and at least 3 others that I'm not acquainted with at this time.

—Ø—

June 5 was the date picked for the Porsche Hill Climb Race. About 5 or 7 mobiles will be present for the timing of the race, even better results than last year are expected.

—Ø—

June 12 is the date for the High-Banders Picnic at Washington Park. A large group is expected as usual. Hi.

—Ø—

A reminder that after June 6, 50 to 50.1 mc. will be for CW use only as ordered by ARRL.

73's for now and CU on 6,

Glenn, WØIJR.

This puzzle is provide courtesy of Chris Codella - W2PA. The URL for his website is w2pa.com. The solution for the puzzle is on page 14.

Phunetics

Across

- 1. How puzzle ends
- 6. Suffix with hard- or soft-
- 10. Radio personality K2ORS
- 14. Improvised
- 15. Suffix with radi- or modul-
- 16. Put in stitches
- 17. Whinny
- 18. Sailor's rum drink
- 19. Partner of FIGS
- 20. Outfit for dancing?
- 23. Dozen dits
- 24. Mo. for VHF QP
- 25. Legislate
- 29. Mo. for ID, OK, VA and WI QP's
- 30. HZ pilgrimage
- 32. US Army station
- 33. TA bigwig
- 37. Barren

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

- 68. If follower, to a programmer
 - 69. C's low in the bands
- Down**
- 1. Unchecked items on a DXCC list, for example
 - 2. Brainstorms
 - 3. Adds water to latex, say
 - 4. DXing LIDs, slangily
 - 5. See 58 down
 - 6. DL opera composer
 - 7. Take ___ (travel)
 - 8. Tripod place
 - 9. "Cogito ___ sum"
 - 10. OP lead-ins
 - 11. DXCC item (abbr.)
 - 12. Hams are on it
 - 13. Nets make it up
 - 21. KH6 is in it, but not for DXCC

- 22. Celebrate
- 26. Normal operator state in a contest, hopefully
- 27. Provide food for
- 28. Low cards
- 29. HK0 place
- 30. HHS, predecessor
- 31. Fire remnant
- 33. Route to VU from W9, e.g.
- 34. Tube cap
- 35. Test, on 7.002 MHz, perhaps
- 36. Hardly a beauty
- 37. T
- 38. Mode on 7.178 MHz, probably
- 40. W6 area net
- 41. Sm. radios
- 46. Decline

- 47. Jersey call
- 49. Moldova prefix
- 50. Large-eyed lemur
- 51. Lifted, so to speak
- 52. Crushes, as in a contest
- 53. Scoundrel
- 54. Flower towers?
- 56. Phone op's need
- 57. Countess's husband
- 58. With 5 down, ultra short wave moonbounce signal?
- 59. Brainwave radio?
- 60. Like yagi elements in winter
- 61. Shack on wheels

FACT OF THE DAY

Folded Unipole Antenna Bandwidth

A folded unipole antenna has significantly wider bandwidth than an unfolded vertical radiator, because its characteristic impedance is lower. Note that the characteristic impedance of a radiator is not the same as its radiation resistance. The characteristic impedance of a radiator is its radio-frequency impedance without the effects of radiation. Folding a radiator to create two adjacent radiators produces an effect equivalent to a substantial increase in radiator diameter which lowers the characteristic impedance while raising the radiation resistance. The length required for resonance becomes less and the reactive component of the antenna impedance is greatly reduced, which significantly increases antenna bandwidth.

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

HAM SITE OF THE MONTH
[RFCEC Electronics Course](#)

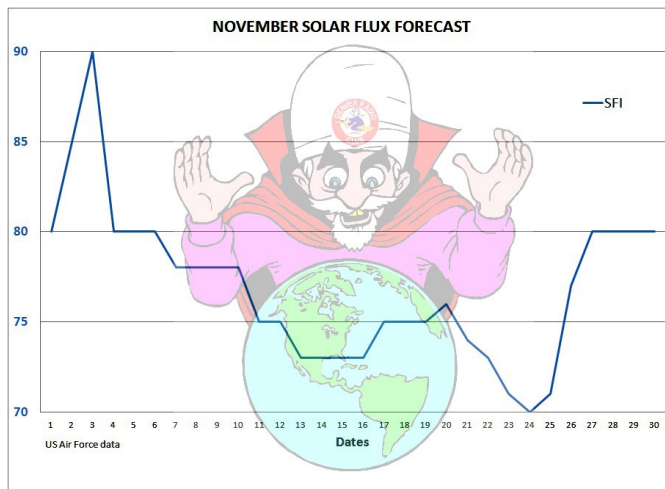
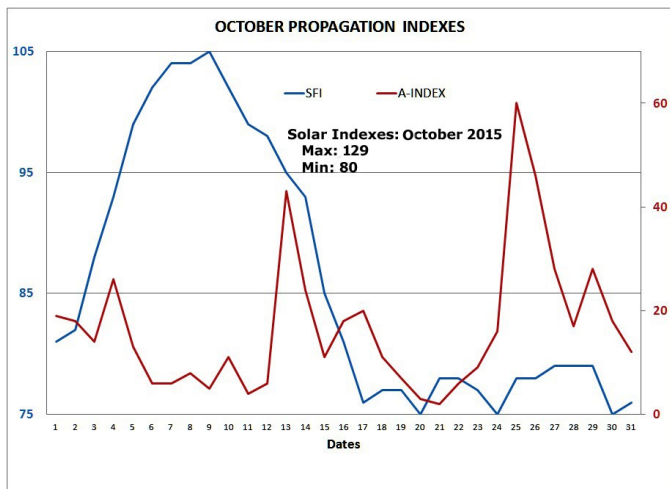
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 Go to: <http://www.wotx.org/roundtables.htm>
THE ROUNDTABLE ARTICLE INDEX
 Go to: <http://www.w0tx.org/RoundtableArchive/-RoundTables-Index.pdf>

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
TechFest	11/05/16	Lakewood, CO	285 TechConnect Radio Club
The Swapfest	02/19/17	Adams County Fairgrounds	Aurora Repeater Assn., Cherry Creek Young ARC, & Rocky Mountain

UPCOMING ARRL CONTESTS [ARRL CONTEST CALENDAR](#)

Contest	Start Date	Start Time	End Date	Stop Time	Notes
Nov. Sweepstakes – CW	11/05/2016	2100 UTC	11/07/2016	0259 UTC	
Nov. Sweepstakes – Phone	11/19/2016	2100 UTC	11/21/2016	0259 UTC	
EME - 50 to 1296 MHz	11/19/2016	0000 UTC	11/20/2016	2359 UTC	

UPCOMING QSO PARTIES

The following are the Contests not sponsored by the ARRL. Please submit additions for future issues.

State/Province	Start Date	End Date	Sponsor Website	Notes
Kentucky	11/12/2016	11/13/2016	Western KY DX Association	
Montana	01/28/2017	01/29/2017	Flathead Valley Amateur Radio Club	Based on 2016 date.
Vermont	02/04/2017	02/05/2017	Radio Amateurs of Northern Vermont	Based on 2016 date.
Minnesota	02/04/2017	02/04/2017	Minnesota Wireless Association	Based on 2016 date.
British Columbia	02/04/2017	02/05/2017	Orca DX and Contest Club	Based on 2016 date.
South Carolina	02/25/2017	02/26/2017	Columbia Amateur Radio Club	
North Carolina	02/26/2017	02/27/2017	Raleigh Amateur Radio Society	Based on 2016 date.

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 the 70cm - 448.625MHz machine.
2m	147.330MHz (+) 100Hz PL	Local Area, Members Auto-Patch Does Not TX a PL!
2m	147.330MHz (+) 131.8Hz PL	Test Mode Operation. Send signal reports to Tech Committee.
1.25m	224.380MHz (-) 100Hz PL	
70cm	447.825MHz (-) DCS~073; NB 12.5; +/- 2.5	Saint Anthony's Note: This is a narrow band repeater requiring DCS.
70cm	448.625MHz (-) 100Hz PL	Linked to the 2m - 145.490MHz machine.
70cm	449.350MHz (-) 100Hz PL	Wide area coverage with Echolink Node # 4140.
70cm	449.775 MHz (-) 100Hz PL	Yaesu Fusion Digital / Analog, 100 Hz Tone Required for Analog.
70cm	446.7875MHz (-)	MotoTRBO Repeater Slot 1 – DMR-MARC WW, Slot 2 – Local



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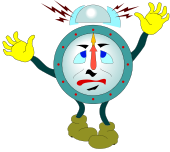




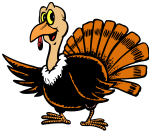

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NOVEMBER 2016							<i>DRC Net Sunday's at 8:30 p.m. on 145.490 / 448.625 (No PL)</i>
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
		1	2 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	3	4	5 ARRL Nov. Sweepstakes – CW Begins 2100 UTC	
6 	7 ARRL Nov. Sweepstakes – CW Ends 0259 UTC  First Quarter	8	9 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	10	11 	12	
13	14  Full Moon	15	16 DRC Meeting Elmer 6:00 p.m. General 7:00 p.m.	17	18	19 ARRL Nov. Sweepstakes Phone Begins 2100 UTC ARRL EME - 50 to 1296 MHz Begins 0000 UTC	
20 ARRL EME - 50 to 1296 MHz Ends 2359 UTC	21 ARRL Nov. Sweepstakes Phone Ends 0259 UTC  Last Quarter	22	23 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	24 	25	26	
27	28	29  New Moon	30 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)				

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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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