



ROUNDTABLE

The Denver Radio Club Newsletter

Since 1917

100 years of amateur radio in Colorado

November 2017

PRESIDENT'S MESSAGE

BY GERRY VILLHAUER, W0GV

Hello DRC Members,

Today as I write this, it is 80 degrees and tomorrow it is to be in the 40's with frozen mix...where else but in Colorado!!

Please! Go to our website w0tx.org and see the flyer and reservation form for our Annual DRC Holiday Party on Wednesday, December 20th. It will also be in this issue of the RoundTable. As you probably know we have been over crowded the last couple years. Having a big crowd for our annual party is great, but not so comfortable for the attendees. This year that has been resolved with our new venue. We will have comfortable seating for 250 people in the ball room at the new location. No more elbow to elbow. We will have our usual fellowship, great prize drawings, a well prepared delicious meal and a general interest program suited for the whole family. Where I need your help is making your reservations early. Having a catered meal does require that we have an accurate count and payment in advance. I am sure everyone will enjoy the new location with easy access and plenty of parking. You will see more details when you read the flyer, so I will not duplicate everything here. Also, this being our 100th year anniversary makes this party even more special. Don't miss out and please get those reservations in early. Everyone attending will receive a special 100th year memento.

Our October program on Edge of Space Science (EOSS) was a huge success and well attended. Thanks to Marty Griffin (WA0GEH) and Jim Langsted (KC0RPS) for a very well prepared and presented program. They tell us they have much more information to present on EOSS than the time allowed. So, we will schedule them back for another session and get the rest of the story.

Several years ago we had Paul Olsen, P.E. (K0WSU) who is a traffic engineer, present a program on what else, traffic engineering. This was a uniquely interesting program. Paul tells us that since he last talked to us there have been interesting developments in traffic engineering way beyond the traffic signals that we see on our roads today. With the advances of vehicle to vehicle and vehicle to roadside communications it will be possible to eliminate the traditional traffic signal. Paul calls this presentation - *Beyond Traffic Signals what will the future look like?* Come to the November 15th meeting to find out more.

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 RoundTable.

And a reminder - **Please Make Your Holiday Party Reservation Early!**

73 for now,
Gerry (W0GV)
President



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OCTOBER MEETING – WHAT'D I MISS?

BY BILL RINKER, W6OAV

After introductions by W0GV, the meeting was turned over to the guest speakers Marty Griffin (WA0GEH) and Jim Langsted (KC0RPS). They gave an informative presentation about Edge of Space Sciences (EOSS). EOSS is a Denver, Colorado based non-profit organization that promotes science and education by exploring frontiers in amateur radio and high altitude balloons.



The PowerPoint began with a brief history of EOSS followed by presentations of on-board flight technology for tracking and research, Track-Point tracking software by Nick Hanks, N0LP, the types of data collected, payload development/maintenance and amateur radio applications for flight support. Then videos were played showing "post balloon burst chaos", high altitude views of the eclipse over Guernsey, Wyoming showing both the eclipse and the eclipse's shadow on earth. The presentation ended with an overview of the chase vehicles and the ground stations. The presentation ended with many good questions from the audience.



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:

Gary Watson	AD0ZH	James Gunderson	AD0ZM	Aleta Kelley	KE0HRH
Robert Thomas	K6GIS	Martin Griek	K0MRG	Forrest Kelley	AAOFK
John Movius	KD0YSE	Ann Trudeau	KA0ZFI	Jay Witthuhn	N0MEU

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.

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.

TECHNICAL COMMITTEE REPORT

By BILL RINKER, W6OAV

The following is an overview of the subjects discussed at the October Technical Committee meeting.

DRC/TSA Aurora Site

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

Status: WW0LF has sent a letter to the TSA describing the services that the DRC can provide and recommendations for the communications equipment and antennas.

Station 4 Remote Power Control

Goal: Investigate purchasing and installing Internet controlled power outlets.

Status: WG0N has installed an Internet controlled outlet power strip at Station 4. It works well. We'll install the same outlet strip at Centennial Cone.

Centennial Cone Antenna Radiation Patterns

Goal: Switch antennas and then compare the radiation patterns of 448.625 and the BrandMeister repeaters.

Status: WW0LF replaced a defective PolyPhaser on the 668.625 MHz antenna which improved the coverage.

Fusion Repeater Move

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

Status: A feasibility study is in progress. The Tech Committee is looking for suggestions for sites.



NOVEMBER MEETING PRESENTATION

By PAUL OLSON, P.E., K0WSU

The Next Generation Traffic Signals

Traffic signals have been around for over a century. So far not much has changed. However, major advances are just over the horizon. Today there is still a box of electronics controlling each traffic signal. With the advance of vehicle to vehicle and vehicle to roadside wireless communications it will be possible to eliminate the traditional traffic signal. Beyond Traffic Signals what will the future look like?

Come to the November 15th Meeting and find out.



DRC's 100TH ANNIVERSARY PINS

By W0TX STORE

If you would like to commemorate the 100th year of the Denver Radio Club then ask about getting your very own commemorative pin. The cost is \$3 for one or two for \$5. They are available at the monthly face-to-face. The picture below is a mock up of the pin. They are about 1" tall and 0.75" wide.



LEARNING NET REPORT

BY FRED HART, AA0JK

Thanks goes out to our net controllers: Larry (K0LAI), Alex (W2PBR), Steve (KD0WMO) and Jim (KD0MXD). The following topics were discussed this past month:

Trouble shooting Buddy Pole antenna and TS-2000 for high SWR.

Trouble shooting annoying beep on hand-held.

Wednesday night club meeting:

Programming your hand-held with Chirp software program. K0LAI Larry.

Grab-and-Go-box alternatives.

Those Caught in recent Hurricane storms, and Wildfires, experiencing total power losses, and communication blackouts. Seeing the benefits / need, for emergency Amateur Radio resources.

Proper calling protocol on repeaters.

Ham Radio Mobile Installation:

Wire gauge used for proper installation.

<http://www.hamradioschool.com/going-mobile-install-a-station-in-your-vehicle>

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,

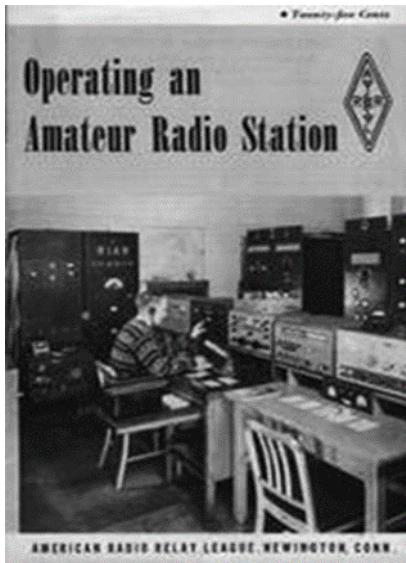
Fred
AA0JK



**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!**

MY HAM RADIO STORY

BY JACK CIACCIA, WMØG, ARRL CO SECTION MANAGER



I was introduced to the wonderful world of shortwave radio one Christmas Day way back in the mid-1950's as a young Boy Scout working on my Radio Merit Badge. My parents knew I was working towards this merit badge and bought me a Revell 'Radaradio' diode radio receiver kit for Christmas. This kit used a 1N34A germanium diode for the detector and a ferrite loop antenna versus the old-time traditional crystal radio receiver use of a piece of Galena, wire wound coil form, and a metal cat-whisker. After spending an hour or so putting this all together and grounding the radio to the water pipe on the bathroom sink, I found that I could actually hear a radio station in the headset! It was the Voice of America transmitting from Bethany, Ohio. Wow... DX!

Late at night, I found I could hear Radio Moscow. Double Wow... Real DX! Of course, in those days at the height of the "Cold War" with the radio propaganda was going on between the two Super Powers with their Multi-Megawatt shortwave radio broadcast stations, you probably could have heard the Voice of America or Radio Moscow with a wire attached to the fillings of your teeth. Then, I heard some other sort of

radio communications. I could only hear one side of the conversation of a local ham radio operator working another distant ham radio station. I was hooked! I needed to hear both sides of those conversations. I needed a better radio, one with more selectivity and more sensitivity, etc. I found out that one of my father's fishing friends had a shortwave radio and that he was willing to trade me for my AM/FM clock radio. That was a deal! Heck, that AM/FM clock radio was only used to wake me up for school anyway. Once I traded for the shortwave radio, an old 1938 Model S-19R 'Sky Buddy' receiver, I found I could hear all sorts of shortwave radio stations and lots of ham radio stations too. I could also use it to listen to Morse code and other strange noises and signals across the bands. I could even listen to my father, whose hobby was fishing for Giant Bluefin Tuna, Swordfish, and Marlin off the coastline of New England. My dad would spend as many days and nights out fishing that his business (and my mother) would allow him to. In those days, most of the maritime Ship to Shore communications were on 2638 and 2738 kHz and with my homebrew wire-wound bamboo vertical, I could now hear him on the HF Marine Radio from his boat talking with other boat captains whose boat names I also recognized. By eavesdropping on his radio communications, I could now inform my mother as to when he was headed back to port. Of course, he knew I would probably be listening and would make sure that I knew by his pointed conversation with the other boats whether or not he had caught fish and if he would be back in port by evening. This radio SWLing was really helpful when he was fishing offshore in bad weather and would have to pull into some other port until the weather broke and he could make his way back home. In the days before cell phones, this was a way to communicate, albeit one-way.

During the summer of 1958, I decided that I wanted to get my Novice Amateur Radio License. I spent just about every idle hour reading and re-reading my Novice Exam book, the Amateur Radio Operating manual or practicing sending Morse code on my code oscillator or listening to Morse code on my shortwave radio and writing down whatever characters I could hear and decipher. Finally, by that August, I felt that I was finally ready to take the Novice Class license exam.

In those days, the standard procedure for getting a Novice Class license was to go to a General Class ham who would order a Novice License test from the FCC and then act as a volunteer examiner. After 1954, and until the ARRL VE system started up, the FCC did not routinely give Novice Class or Technician Class exams at their FCC Office examination locations. There was no special accreditation to be a Volunteer Examiner back then either. Anyone with a General Class or higher license, over the age of 21, and who was not related to the examinee could serve as a volunteer examiner for a Novice or Tech-

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 nician Class licensee.



My father's cousin owned a Radio & TV repair business and knew a manufacturers' rep for RCA tubes that was a ham. Mike arranged for me to take the Novice Class test at this ham's home. Cliff Smith, W1PPN (now SK) was the ham and my Novice Class examiner. Cliff was a well-known 160-meter DXer. I remember his home station was located right on the oceanfront in Barrington, RI. He had a monster of a Longwire antenna strung high across a saltwater marsh on the inlet of the bay. His rig was the classic Johnson Desk Kilowatt with a Collins 75A4 receiver. The ultimate ham radio station for those days. I nervously took the Novice exam and was excited to hear that I had passed. Now, all I had to do was wait to receive that coveted piece of paper from the FCC. In those days, it took approximately 60 days for the FCC to process these exams and issue the license. I made many, many fruitless trips to the mailbox before it finally showed up. Finally, after what seemed forever, there in the day's mail was my brand new FCC license with my newly-minted Novice Class callsign, K N 1 I V Y

Charles Dickens, about 100 years earlier in his classic novel "Tale of Two Cities" had unknowingly made in his opening sentence an early assessment of my Novice radio experience. "It was the best of times; it was the worst of times." I was like a deer mesmerized by the headlights of radio technology.

There was a "dark side" to the Novice license history at that time. I remember browsing through an old QST from about 1956 and in the Correspondence section, there were several letters complaining about Novices and how they were ruining ham radio. I don't know how prevalent that attitude was back then, but QST did publish the anti-Novice letters as well as those of other hams who supported the then-new Novice license. "No kids, no lids, no space cadets" was one ham's slogan, and he was not alone in those sentiments.

Another "dark side" was the difficulty some of us had in getting to a test session. After 1954, all Novice exams were given by mail, but the General exam was given only at Regional FCC Offices. You could get a Conditional Class license (equivalent to a General Class) if you lived more than 75 airline miles from an FCC office, but 75 miles airline miles could be many more miles in actual road travel distance. Novices who lived less than the Conditional 75 mile distance but more than a few dozen miles from an exam point could find it a real hardship to get to the FCC test site. Later, in 1965, the FCC extended the Conditional Class license distance up to 175 miles, which could mean an even longer 350+ mile round-trip for some hams just to take their license exams. My nearest Regional FCC Office exam center was at the Commonwealth Building in Boston, Massachusetts some 42 airline miles away from my home in Providence, Rhode Island. When I finally was ready to take my General Class license, my father had to close his sporting goods store for a day in order to drive me to the Commonwealth Building through notorious Boston traffic and then wait for me to take the exam. I still remember his encouraging words just before I took my test... "I hope you are ready to pass this test because I'm not making another *#@!ing trip up here" – No pressure there! Eventually, my father got interested in ham radio too, learned the Morse code and eventually earned his Novice Class license with the callsign of KN1LQG.

In 1958, the Novice class frequency privileges were simple to remember. From 3.7 to 3.75 mc, CW; 7.15 to 7.2mc, CW; 21.1 to 21.145 mc, CW and on 144-148 mc, CW and Phone. There were complaints from some Generals' then that "those annoying Novices should not be allowed on the

(Continued on page 7)

new 15-meter band". In September of 1958, right after I received my Novice license, the FCC started up the Citizen's Band Radio, Class D, using AM phone. The seldom used 11-meter ham band was taken away from the amateurs and given to those #@*ling CB'ers. That was the prime subject of conversation on the air by hams of that time for many, many months. I applied for one of those new Citizen Band licenses too (CB licenses were mandatory then). I received the CB callsign 1W2754. In 1958, there were about 160,000 hams in the U.S. and about 50,000 CB'ers.



I now began to assemble my Novice amateur radio station. I already had my old vintage 1938 Hallicrafters S-19R 'Sky Buddy' receiver that was less than adequate on all bands. The main feature that they advertised about this radio is that it was a Superhet! I bought and built the Heathkit QF-1 Q-Multiplier for it and that helped the receiver out a little bit and gave me some much needed additional sensitivity and selectivity. Later on (in 1962) I built a Knight Kit R-100A, single conversion 9-tube shortwave receiver with a built in Q-Multiplier. It was definitely a step up in technology from my old S-19R receiver.

My first transmitter was the venerable Heathkit DX-40. My parents staked me to the acquisition of this basic old transmitter. In the one-way negotiation with my father, it was decided that I could pay them back by mowing lawns (at \$2.00/lawn) at our house, my grandparent's house and my uncle's house every weekend. The price of the Heathkit DX-40 was \$64.95 plus shipping from Benton Harbor, Michigan. It took a few days to build and then I had to troubleshoot it for another few days afterward. It was during that time that I learned about cold-solder joints. Soldering is not an acquired art, nor is it something you inherit genetically... it must be learned one burn at a time. Heathkit had introduced the DX-40 in January 1958. It was designed for the 80 to 10-meter ham bands and it used stacked B+ for the oscillator and buffer tubes (both 6CL6's). The final amplifier tube was a 6146 rated at 75 watts CW or 60 watts on AM phone. A switch on the rear panel selected between one of three crystals or an optional, external VFO once you achieved your General Class License. There were 6 tubes altogether and the plate voltage on the 6146 final amplifier was 710 volts. I was very careful not to measure that voltage with one of my fingers!



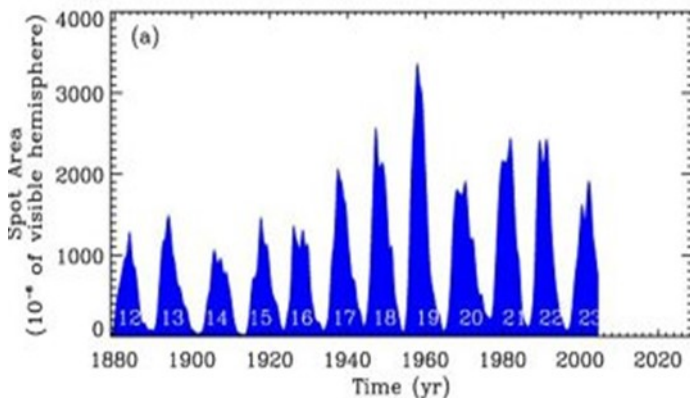
Tuning the DX-40 was also a new experience for me. The grid current had to be set to 3 milliamps and then the plate current needed to be dipped and raised alternatively with the antenna tune and final tune controls. The input power was the product of the resulting plate current times the plate voltage. Before initiating a CQ, I would place the transmitter in the tune position (on very low power) and key down the straight key while tuning my not-so-accurate S-19R receiver to locate my transmit frequency. There was no such thing as digital frequency readout and only the most expensive receivers at that time had 100 kilocycle calibrators and/or accurate analog scales. Since Novices did not have phone privileges on most of the HF bands (except for a portion of the 10M band), I did not need a microphone, but I did need to buy some crystals. I opted for 7166 kilocycles, which was in the middle of the 40-meter Novice band, 7150-7200 kilocycles. For 15 meters, I ordered an additional 7045 kilocycle "rock", which tripled up to 21,135 kilocycles in the Novice portion of the 15-meter band. The DX-40 was a rig that was tailor-made for the new Novice with ambitions to upgrade. In 1958, the Novice license was only good for one year and it was non-renewable. A new Novice had one year to increase his code speed from 5 wpm to

Continued from page 7)

13 wpm and to study up on the theory, memorize 6-10 schematics including Colpitts and Hartley oscillators and full & half-wave rectifiers, plus learn additional mathematical formulas about series and parallel resistance, reactance and memorize and understand the then-current ham radio rules and regulations.

The only antenna that I felt I knew enough how to build back in 1958 was a dipole. I designed and built one for the CW portion of the 40M band that would resonate on the 15M CW band as well. Our family home was a large Victorian era house (built circa 1880) with a very steep 12/12-pitch (45°) four-gabled roof. Getting onto the roof was a feat in itself and I had to have assistance from my uncle, a construction worker, to get that part of the antenna up and attached to one of the steep eaves. The other side of the 40M Dipole was attached to a 55-foot tall telephone pole that my father had installed years ago for our Yagi TV antenna. Now that I think about it, I had a taller antenna system back then than I'm able to have now!

I didn't have a coaxial antenna relay to switch between the S-19R receiver and DX-40 transmitter, so I set up a big knife switch to use for the antenna TR switch. I think we all must have got this same idea for an antenna switch-over from watching old 'mad scientist' horror movies. This switch arrangement also created a ready-made source of RF burns! My ham shack was located right there in a corner of my bedroom. I can remember leaving the knife switch ungrounded and then going to bed during a midsummer's night thunder boomer. And, because I knew just enough about ohms law to respect and fear lightning beyond all sense of logic, I just laid there and hoped for the best, rather than getting up and trying to ground that knife switch. Fortunately, I was lucky enough not to have had my antenna struck directly (or even indirectly) during that event. The little EMP arcs were really fascinating to see in the dark, though!



About the time I was getting my Novice feet wet in ham radio, we were in the midst of Solar Cycle 19 and some of the highest sunspot activity ever recorded in recent history with daily numbers in the 190 range! From what I can remember reading back then, the Northern Lights were even observed in Mexico three times during the year 1958. One day in July of 1959, a HUGE solar flare went off that virtually killed all HF communications in the Northeastern US for the better part of a week. The Aurora Borealis could be seen as far south as Providence, RI where I lived. It interrupted utilities, Airline communications,

etc... The New England Telephone & Telegraph Company measured voltages as high as 150 volts across their lines. It was a "humdinger" of a solar event. Imagine the damage that could have caused if we had our modern satellites and cell phones back then! Being a young Novice I did not know much about solar flares, or how they affected radio communications and even what had just happened. I came home from school, turned my ham radio on and began to listen but I could not hear a signal on any of the bands. It was pretty much dead. I immediately thought the worst, and I remember spending half that day taking apart and checking my receiver and re-aligning it and testing the tubes and capacitors, etc... Later that week, another ham friend explained to me what had taken place and how it affected the radio waves, etc... I felt a little foolish but relieved that it wasn't my receiver after all.

Getting on the air was a different story. Now that my station was set up and working as well as it could, I decided it was time now to make some CW QSO's on 40 meters. I quickly realized that my 5 wpm code speed had already diminished somewhat due to the inactivity of waiting for my license from the FCC for those 60 days, plus the additional delay of getting my station built and set up. So, now I was really

scared! The only thing worse than “mike fright” is “key fright”. My first few QSO’s were marked as “lost” in my first logbook entries. The one thing I knew for sure was that I was definitely getting out because hams were *gulp* answering my CQ’s! Fraught with panic, fear and that fleeting thought of “why am I doing this?” I had almost given up being a ham due to the lack of anyone to Elmer me and because of the relatively few contacts I had made so far. I finally managed to stumble through a few complete QSO’s right up to the 73’s. Those hams on the other end had the patience of Job to stay with me while I nervously pounded that old J-38 key. Eventually, I got pretty confident in my CW sending and receiving and was logging more and more complete QSO entries into my logbook.

Chasing DX was fun and I had some success on 15-meters but the better DXing was to be had on 40-meters at about 4 AM, well before I left for school. Chasing that DX created many long days at high school that were punctuated by my yawning throughout some not-so-exciting classes. The first Canadian and South American stations I worked were great DXing achievements for me. Eventually, I made it “across the pond” and had a few QSO’s with stations in Europe, particularly with stations in England and France. I was particularly proud of being able to work the Little America KC4AAA station on McMurdo Sound in the Antarctic being operated by the US Navy and some USGS scientist hams during “Operation Deep Freeze III” and the IGY of 1957-58. I would relay them the Boston Red Sox scores weekly because most of those Navy Seabees were from NAS Quonset Point, RI and were big Red Sox fans. The QSL card from KC4AAA was hand delivered to me the following summer one day with a knock on my door by one of the regular Navy hams I had kept in contact with at the key. What a wonderful surprise!

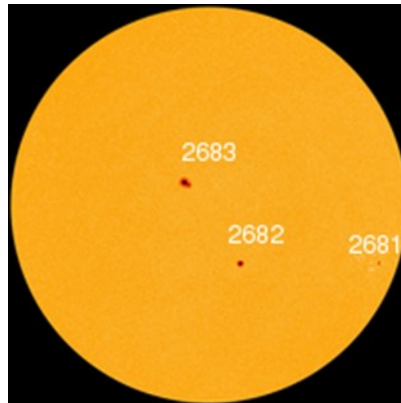
With the high sunspot activity at the time, some Novices were earning the Worked All Continents (WAC), Worked All States (WAS) and even the DXCC award. I wasn’t one of them, though. One of the nice things about being “rock bound” in those days by the few crystals you possessed, was that you could easily find other stations that you’ve worked within the 5 to 10 kilocycles that you typically searched near your “rock’s” frequency. When I would get home from school, I would typically try to make a few QSO’s before going out to hang with my friends and getting my homework finished. I was fortunate to have found on the ham radio another young ham my age in Fairborn, Ohio who regularly operated very near my 15-meter frequency. He was a Boy Scout too, also in the midst of trying to obtain the Eagle rank and subsequently we had many things in common. His callsign was KN8MTK, “Mighty Tough Kid”. His name was Ken and we would spend the better part of an hour catching up on our weekly activities and whatever else we thought was worth discussing back then. Usually, they were radio related discussions. But we also pounded the brass about our hopes, dreams and future plans for our lives after high school. He was my first on-the-air pal and I looked forward to those QSO’s each week. We both graduated high school in 1960. He was headed out west to Washington State because his dad was being transferred there by the Air Force and he planned to work in a state forestry program and I was working on a charter fishing boat again that summer before heading out to college. We promised that we would listen for each other the next fall if we could get our General Class licenses and both be back on the air. Alas, we lost touch. For many years, I had often wondered what had happened to my old radio pal.

Fast forward 50 years >> By Ken Anderson, WØETT ~ Besides rag chewing a couple times a week on 15m while we were juniors and seniors, Jack, KN1IVY and I worked each other in a couple of contests back then: Novice Roundup – back when it was two weeks long – and the November Sweepstakes; I think he beat me in both! Other than a few local ham teenagers I met at the Dayton ARA, Jack was my on-air pal who I worked most often that first year and a half. We kind of lost track once I left OH in summer of 1960 to go to college in WA State. I graduated from High School in June ’60 and left for Washington State to work for the state forestry summer program. Later that fall, I went to Centralia College in WA for freshman year and got the callsign K7MFF. I only had it for a year when my Dad retired from the Air Force and the rest of the family moved to Denver, CO. I ended up at the Univ.

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Week One

October 1st - RETURN TO QUIET: The solar wind around Earth was slackening, allowing our planet's magnetic field to return to a quiet state after two days of storming. However, the quiet was expected to be short-lived. At this time of year even a gentle gust of solar wind can disrupt the geomagnetic field, and HF propagation.

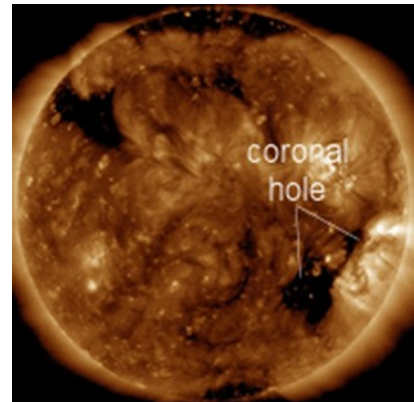


None of these sunspots posed a threat of strong solar flares. They all had stable magnetic fields, not being inclined to explode. Credit: SDO/HMI

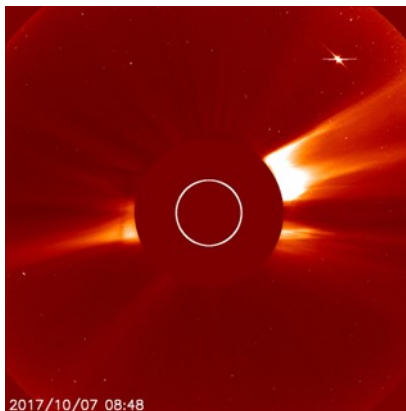
Coronal Holes

Solar wind:
Speed: 416.8 km/sec
density: 6.4 protons/cm³

October 7th - SOLAR EXPLOSION: On October 6th, magnetic fields near the sun's western limb crisis-crossed and exploded, sending a coronal mass ejection (CME) into space. The Solar and Heliosphere Observatory (SOHO) caught the expanding cloud racing past Mercury.



Solar wind flowing from the indicated coronal hole was expected to reach Earth on October 6-7. Credit: NASA/SDO.



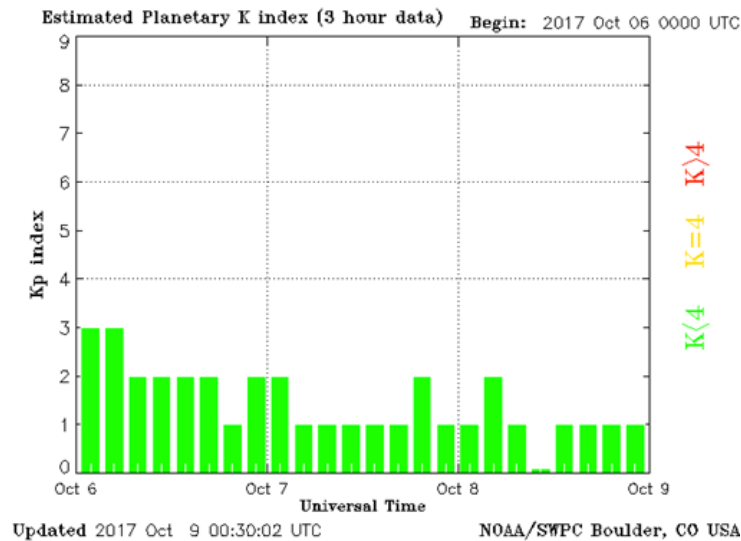
Credit: LASCO C2 (via SOHO)

X-ray Solar Flares
6-hr max: B4 1924 UT October 6th
24-hr: B9 1634 UT October 6th

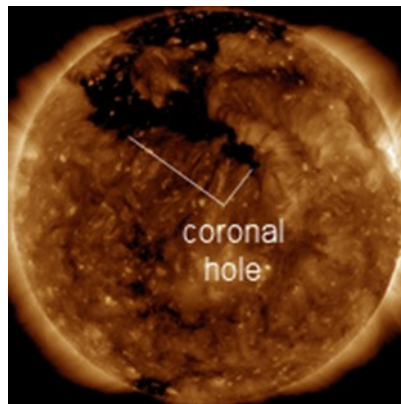
X-ray Solar Flares

Scientists classify solar flares according to their x-ray brightness in the wavelength range 1 to 8 Angstroms. There are 3 categories: X-class flares are big; they are major events that can trigger planet-wide radio blackouts and long-lasting radiation storms. M-class flares are medium-sized; they can cause brief radio blackouts that affect Earth's polar regions. Minor radiation storms sometimes follow an M-class flare. Compared to X- and M-class events, C-class flares are small with few noticeable consequences here on Earth.

Week Two



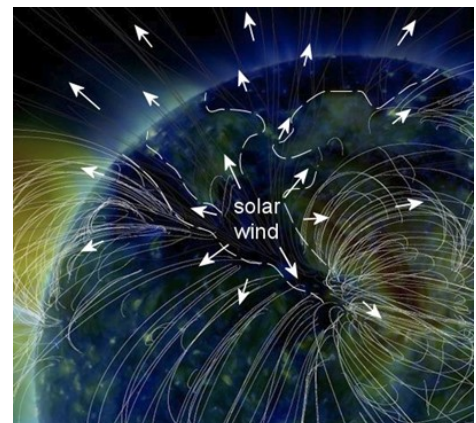
October 8th - Not much was happening on the sun as the visible disk was spotless, with region AR2683 turning onto the west limb. There was no chance for noteworthy Earth facing solar flares. A solar wind stream flowing from coronal hole #34 was expected to reach Earth by October 11th . Minor (G1) geo-magnetic storming was possible at higher latitudes.



Solar wind flowing from the indicated coronal hole was expected to reach Earth late on October 10th . Credit: NASA/SDO.

SOLAR WIND STREAM APPROACHED EARTH: A hole opened in the sun's atmosphere and solar wind was spewing from the ragged gap at faster than 600 km/s. The structure stretched more than 350,000 km southward from the sun's north pole.

This the image to the right shows a coronal hole, a region where the sun's magnetic field opens up and allows solar wind to escape. The emerging stream of gaseous material was expected to reach Earth during the late hours of October 10th or 11th , bringing with it a chance of polar geomagnetic storms.



October 10th - Zero Sun Spots

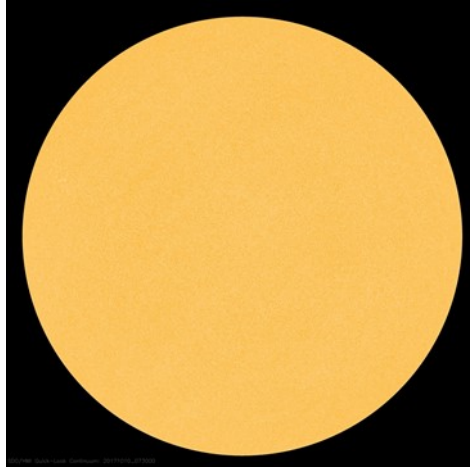


Image courtesy of SDO/HMI.

Solar-Terrestrial Data - <http://www.n0nbh.com>

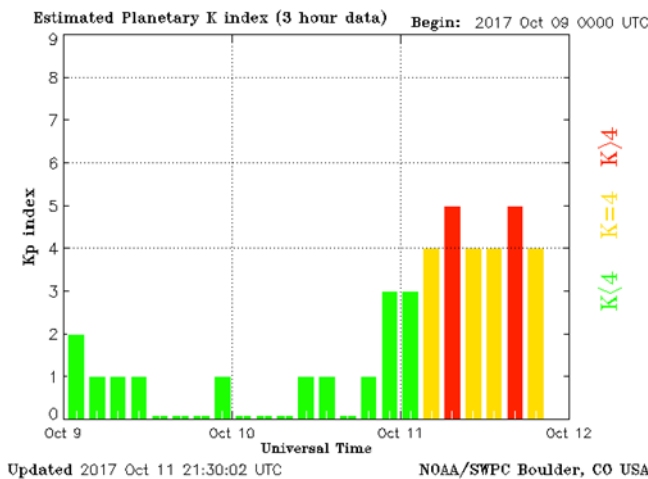
10 Oct 2017 0909 GMT SFI 72 SN 0 A 3 K 0 / PIntry X-Ray A4.9 304A 100.4 @ SEM Ptn Flx 0.19 Elc Flx 148.00 Aurora 1/n=1.99 Aur Lat 67.5° Bz -0.2 SW 314.6	VHF Conditions <table border="1"> <thead> <tr> <th>Item</th> <th>Status</th> </tr> </thead> <tbody> <tr><td>Aurora</td><td>Band Closed</td></tr> <tr><td>6n EsEU</td><td>Band Closed</td></tr> <tr><td>4n EsEU</td><td>Band Closed</td></tr> <tr><td>2n EsEU</td><td>Band Closed</td></tr> <tr><td>2n EsNA</td><td>Band Closed</td></tr> <tr><td>EHE Deg</td><td>Good</td></tr> </tbody> </table> MUF ES - SEASON BREAK MS 0 MIN 6 12 18 UTC MAX	Item	Status	Aurora	Band Closed	6n EsEU	Band Closed	4n EsEU	Band Closed	2n EsEU	Band Closed	2n EsNA	Band Closed	EHE Deg	Good	HF Conditions <table border="1"> <thead> <tr> <th>Band</th> <th>Day</th> <th>Night</th> </tr> </thead> <tbody> <tr><td>80m-40m</td><td>Good</td><td>Good</td></tr> <tr><td>30m-20m</td><td>Fair</td><td>Fair</td></tr> <tr><td>17m-15m</td><td>Poor</td><td>Poor</td></tr> <tr><td>12m-10m</td><td>Poor</td><td>Poor</td></tr> </tbody> </table> Geomag Field INACTIVE Sig Noise Lvl S0-S1 MUF US Boulder 8.42 Solar Flare Prb 1%	Band	Day	Night	80m-40m	Good	Good	30m-20m	Fair	Fair	17m-15m	Poor	Poor	12m-10m	Poor	Poor	Current Solar Image
Item	Status																															
Aurora	Band Closed																															
6n EsEU	Band Closed																															
4n EsEU	Band Closed																															
2n EsEU	Band Closed																															
2n EsNA	Band Closed																															
EHE Deg	Good																															
Band	Day	Night																														
80m-40m	Good	Good																														
30m-20m	Fair	Fair																														
17m-15m	Poor	Poor																														
12m-10m	Poor	Poor																														

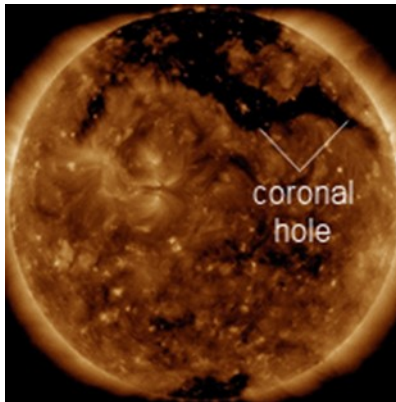
(C) Paul L. Herrman 2013

For current solar data as depicted in the above chart, see the W0TX web page. Image Source: hamqsl.com

October 11th - GEOMAGNETIC STORM PREDICTED (G1-CLASS): NOAA forecasters said there was a 70% chance of G1 class geomagnetic storms on October 11th, when a stream of solar wind was expected to make contact with Earth's magnetic field. The solar wind was flowing from a hole in the sun's atmosphere with peak speeds greater than 600 km/s.

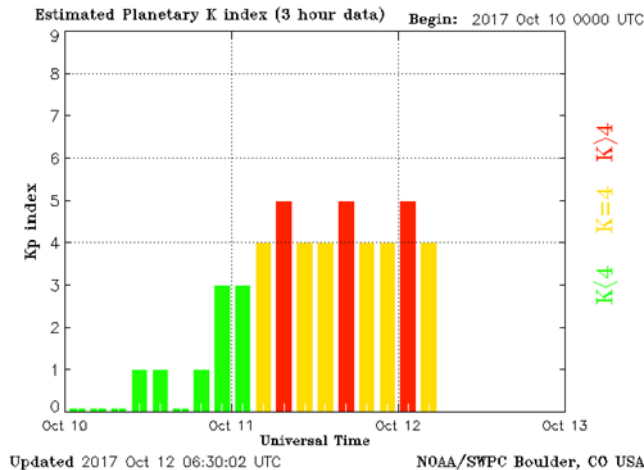
Contact – The solar wind makes contact. Kp 5 levels reached on October 11th.





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

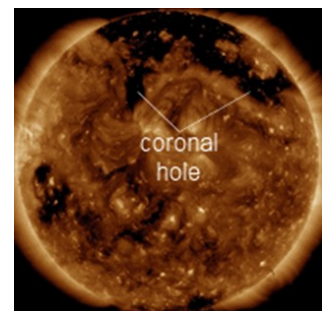
October 12th - An expected solar wind stream was moving past Earth at greater than 500 km/s. G1 minor geomagnetic storming was being observed at higher latitudes.



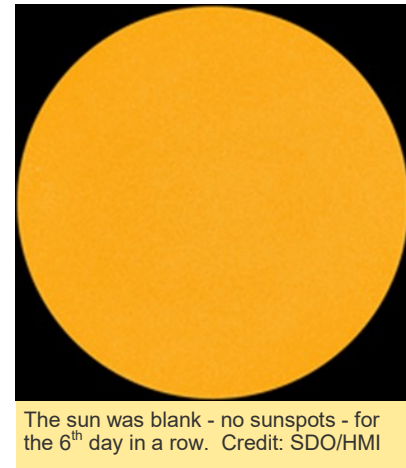
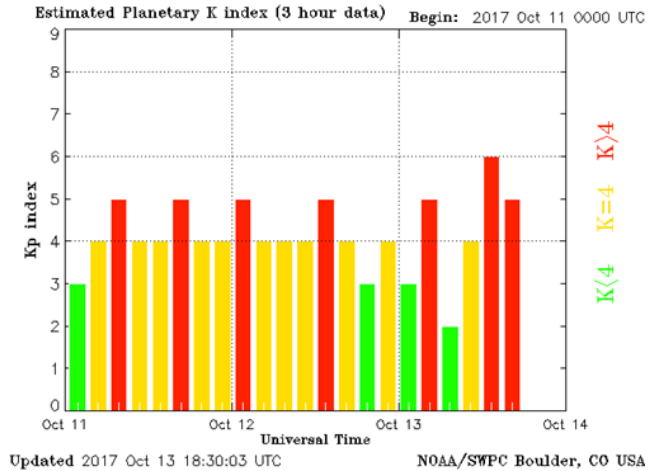
Fast Wind Returns: Solar Storm, 10-12-2017 - <https://youtu.be/pJDK3fGmVXg> (Dr. Tamitha Skov)

GEOMAGNETIC STORMS WERE IN PROGRESS: Minor G1 class geomagnetic storms were underway as Earth moved through a stream of fast-moving solar wind. Earth was expected to remain inside the spray of electrified gas for a period of 24 to 48 hours. Magnetic activity was expected to reach category G2 levels on October 13th.

October 13th - Moderate G2 Geomagnetic storms were observed. An ongoing solar wind stream continued to move past Earth. G2 geomagnetic storm warnings were in effect. Geomagnetic Kp indices of 6 were reached.



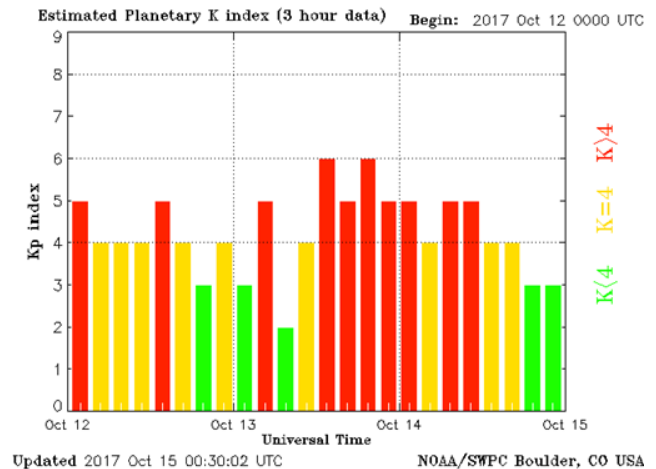
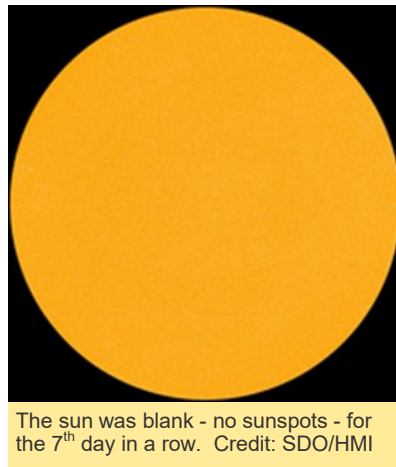
Earth was inside a stream of solar wind flowing from the indicated coronal hole. Credit: NASA/SDO.



October 14th - **SOLAR WIND INTENSIFIES:** Unexpectedly, solar wind speeds were continuing to increase for the 5th day in a row. On **October 14th**, electrified gas was blowing around Earth faster than 700 km/s. NOAA forecasters reported that there was a 75% chance of G1-class geomagnetic storms during the following 24 hours.

Week Three

October 15th



NO SUNSPOTS. A minor G1-class geomagnetic storm was underway. This marked the 5th consecutive day that polar geomagnetic storms had been observed. A remarkable string considering that there were NO SUNSPOTS on the face of the sun. Despite a blank sun, it can still produce stormy space weather. The solar wind continued to blow at faster than 550 km/s.

It just illustrates that there is more to space weather than just sunspots that affect HF propagation.

Solar-Terrestrial numbers at 12:13 UTC October 15th:

SFI:69 SN:0

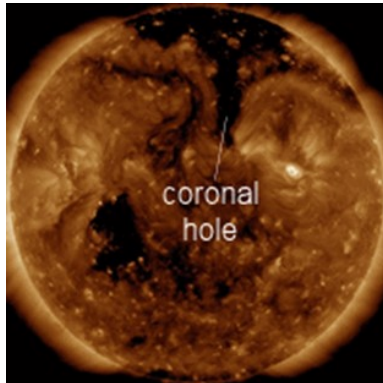
Ap31 Kp3 Indices

Solar Wind: 613.8

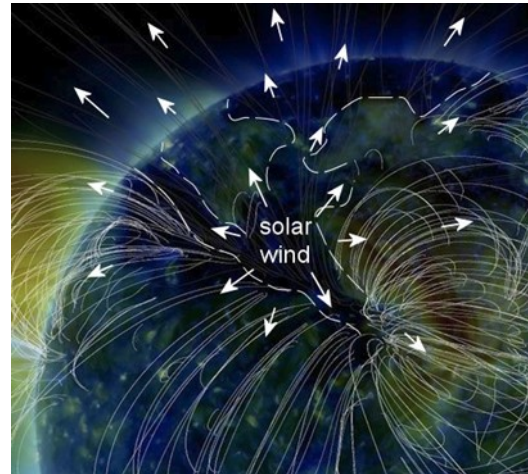
MUF at Boulder Colorado – 7.98 MHz

(Solar data provided by the Space Weather Prediction Center at Boulder, Colorado).

October 16th - Earth was finally exiting a fast-moving stream of solar wind after a five day long stretch of polar geomagnetic storms. Forecasters expected the quiet to be short-lived, as geomagnetic activity was expected to return on October 18th.

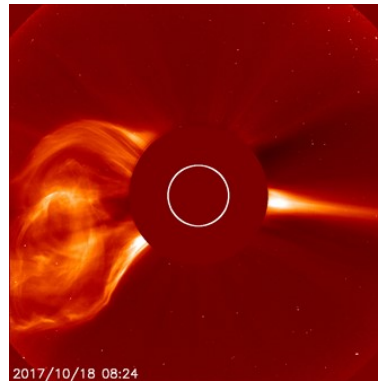


Solar wind flowing from this coronal hole was forecast to reach Earth on October 18th. Credit: NASA/SDO.



The above images show a coronal hole, a place in the sun's atmosphere where the magnetic field peels back and allows solar wind to escape. Solar wind spewing from this hole hit Earth's magnetic field on October 11th . It mimicked the effect of a CME, (a cloud of gas hurled toward us by an exploding sunspot), rattling our planet's magnetic field and lighting up the polar regions. Five days of G1 and G2 class geomagnetic storming ensued. Coronal holes are present during all phases of the solar cycle, even Solar Minimum when sunspots are scarce. They are a key reason why space weather never stops.

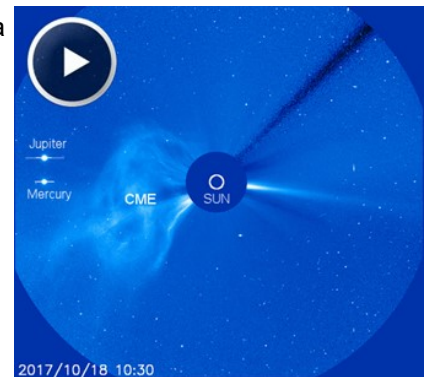
October 18th

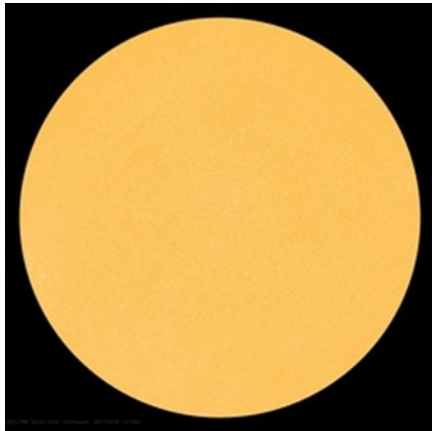


Credit: LASO C2

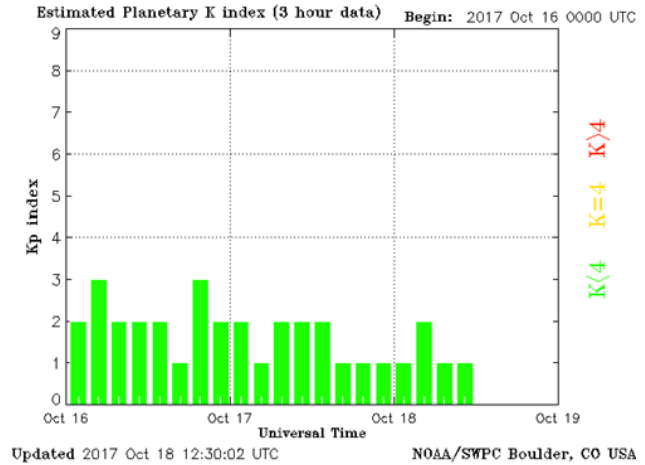
Coronal Mass Ejection (CME), behind the Sun's East limb. This image was visible on LASO C2. The filament eruption was directed away from Earth.

The massive cloud of plasma (CME) raced away from the blast site, right into a bright conjunction. Jupiter and Mercury were less than one degree apart when the CME passed by. Image Credit: The Solar and Heliospheric Observatory (SOHO).





Zero sun spots. Image courtesy SDO/HMI.



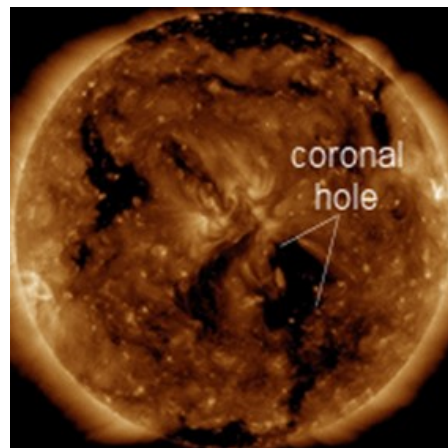
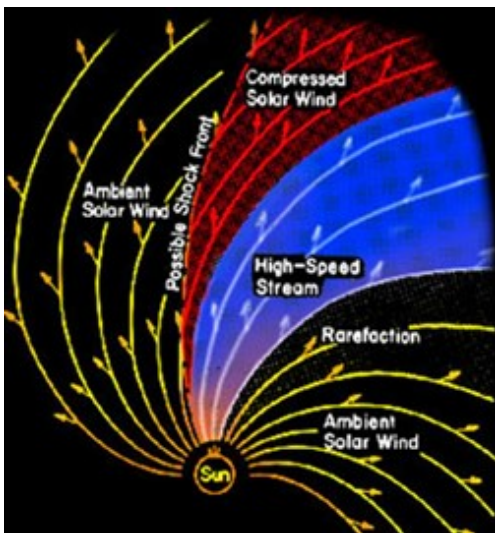
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Solar-Terrestrial Data
18 Oct 2017 1250 GMT
SFI: 70 SN: 0
304A: 50.0 @ EVE
A 6 K 1
X-Ray: B1.8
Aurora: 2/n=1.99
Mag (Bz): -2.0
Solar Wind: 387.0
MUF Boulder 8.99
    
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The U.S. Department of Commerce, NOAA, Space Weather Prediction Center, was reporting Solar activity to continue at low levels.(18th -20th)

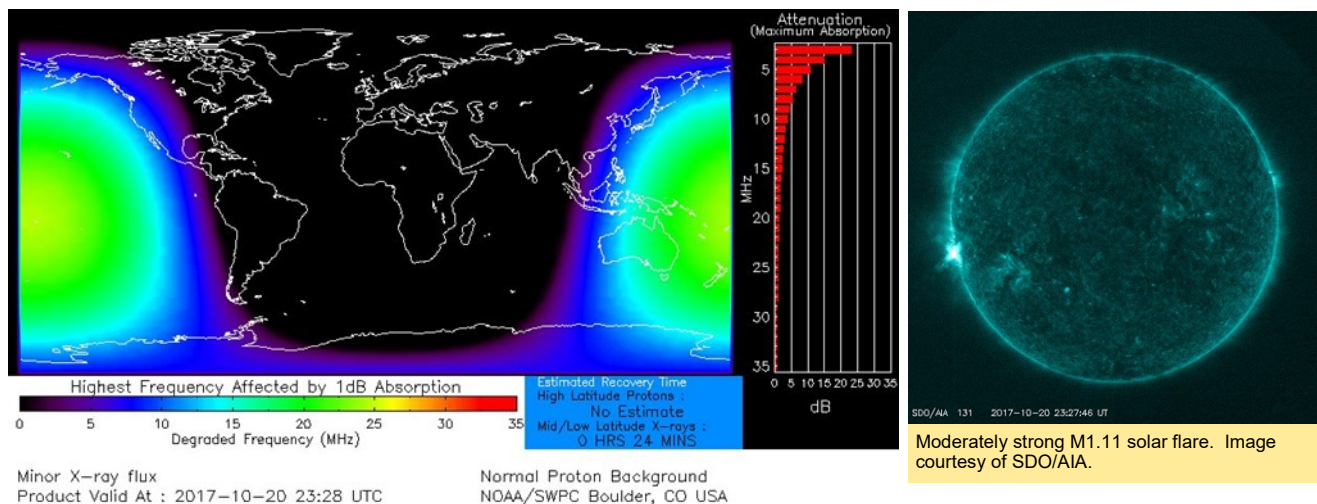
Solar activity was expected to continue at very low levels for the following three days, (October 18th-20th).

October 19th - CO-ROTATING INTERACTION REGION: NOAA forecasters estimated a 55% chance of polar geomagnetic storms on October 21st when a co-rotating interaction region (CIR) was expected to hit Earth's magnetic field. CIRs are transition zones between fast, and slow, moving solar wind streams. Solar wind plasma piles up in these regions, producing density gradients and shock waves that do a good job of disrupting HF propagation.



Solar wind flowing from this coronal hole was expected to reach Earth on October 21st . Credit: NASA/SDO.

Radio Black Out - minor R1 radio blackout was in progress.

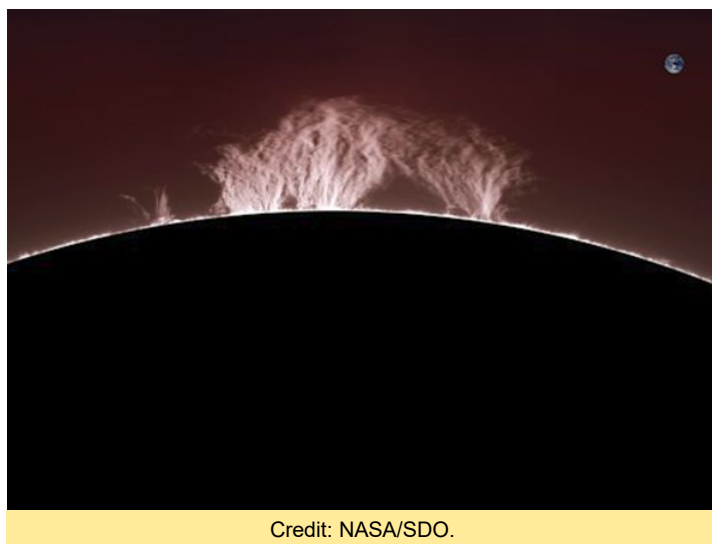


Surprise! Solar activity reached moderate levels. A low level M-Flare (M1.1) was observed at 23:28 UTC (October 20th) around the remnants of old region AR2682, now turning into view off the southeast limb. This was the same region that previously was numbered AR2673 in September, and produced a number of X-Class solar flares. X-Flares were not expected.

As expected this region remained unstable! The Solar flare looked to be occluded, (part blocked by the Sun's edge), so it could become larger than a M1.1!
~ Dr. Tamitha Skov

October 20th - Type II Radio Emission Began. Time: 2335 UTC October 20th 2017 Estimated Velocity: 344 km/s.

SOLAR PROMINENCE: An enormous wall of plasma was towering over the northeastern limb of the Sun. (October 19th) "The field of view here is 328,000 miles wide".

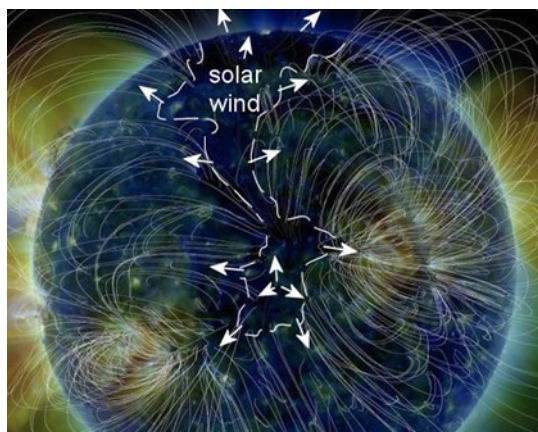
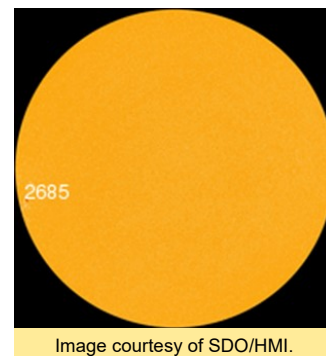


Astronomers call this a "hedgerow prominence." Hot glowing plasma inside the structure is held aloft by unstable solar magnetic fields.

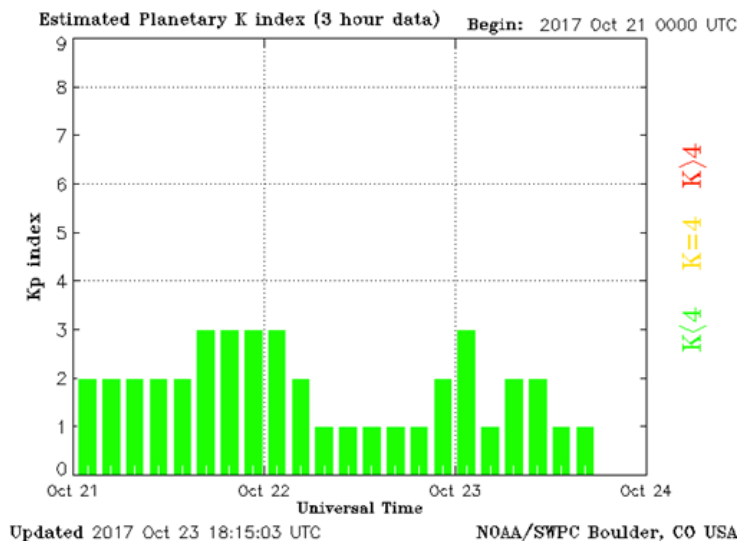
Week Four

October 22nd - Sunspot AR2685 , old AR2673, makes its third trip around the south-east limb. The once behemoth region (August 29th – September 10th), this old antagonist was still capable of producing another M1 class solar flare.

ATMOSPHERIC CANYON ON THE SUN: A large hole has opened in the sun's atmosphere, cleaving the Earth-facing side of the sun with a gaseous canyon more than 700,000 km long. This image, based on data from NASA's Solar Dynamics Observatory, shows the structure directly facing Earth on October 21st :

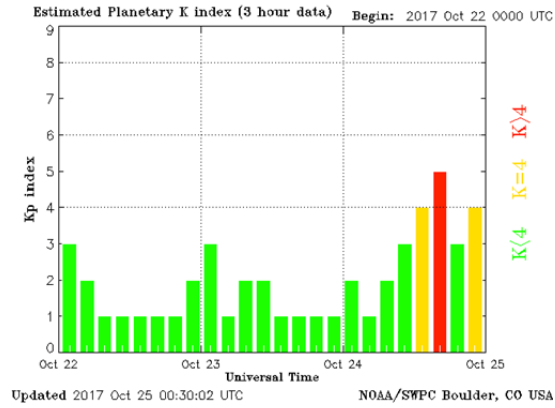


This is a coronal hole--a region where the sun's magnetic field peels back and allows solar wind to escape. Solar wind is emerging at speeds between 600 km/s and 700 km/s. When this fast-moving material reached Earth in two days, it could spark polar geomagnetic storms, G1-class (minor) storms on October 24th, possibly intensifying to G2-class (moderately strong) on October 25th.



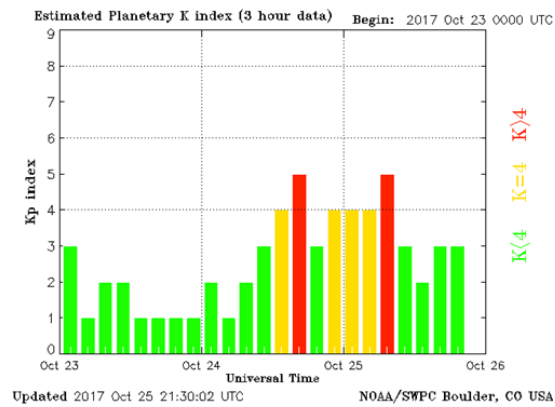
October 24th - 19:40 UTC: Storm Warning / Coronal Hole Stream.

An expected high speed solar wind stream was moving past Earth at above 500 km/s. Minor (G1) to Moderate (G2) geomagnetic storming was possible at higher latitudes over the following days.

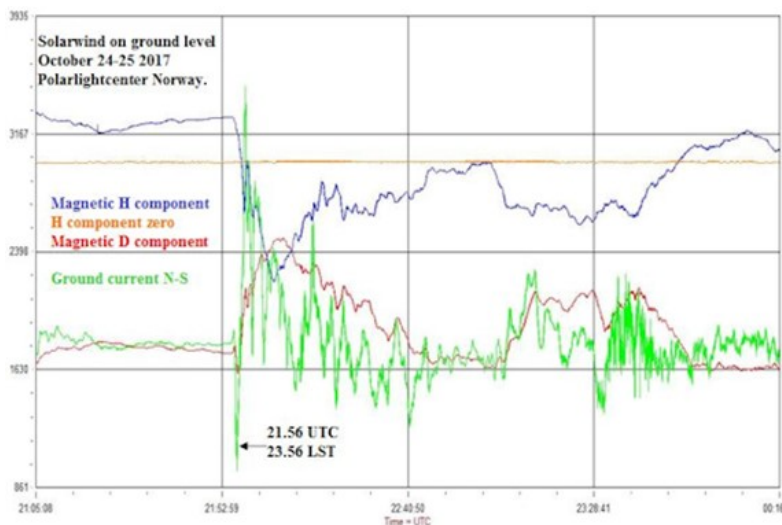


EXTENDED WARNING: Geomagnetic K-index of 5 was expected.

October 25th - First Contact. The solar wind storm was instigating G1-class storming during the late hours of October 24th.



In Norway, Rob Stammes, of the Polar-light-center, experienced first contact in a different way. Electricity began to flow through the ground and Stammes' magnetic sensors went haywire:



The expected solar wind arrived as a kind of shock-wave on his instruments just before local midnight. In this plot, the green curve shows ground currents induced by the sudden storminess of the local magnetic field.

Forecast

24 hr Summary:

Solar activity was very low with no flares on the visible disk. Region AR2685 and Region AR2686 were both inactive. No Earth directed CMEs were observed in available corona-graph imagery.

Forecast:

Solar activity was expected to remain very low, with a slight chance for C-class flares thru October 27th

73,

AAØJK
Fred

FALL TECHFEST

By JED BAER, KD0YMG

I wanted to let everyone know about the upcoming Fall TechFest, produced by the 285 TechConnect Radio Club - NA0TC. The TechFest is an annual event with 5 hours of presentations on technical topics related to amateur radio, plus a "demo corner" where club members show off some of their operating technology. The TechFest will be held Saturday, Nov 11th, at the Lakewood Elks Lodge at 1455 Newland Street in Lakewood, CO. Please visit the following websites for additional information.

Club website is: <http://na0tc.org/>

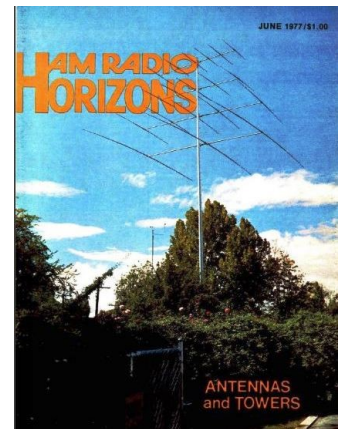
TechFest page: <http://na0tc.org/doku.php?id=techfests>

Flyer: http://na0tc.org/lib/exe/fetch.php?media=club:2017_fall_techfest_flyer.pdf

**FREE HAM RADIO MAGAZINES!**

By BILL RINKER, W6OAV

Interested in reading a great ham radio magazine that is available at no charge on the Internet? If so, access the "Ham Radio Horizons" web site <https://archive.org/details/hamradiohorizons>. This 1970s magazine was a popular VHF and newcomer emphasis ham radio magazine. There are a lot of interesting articles in this magazine.

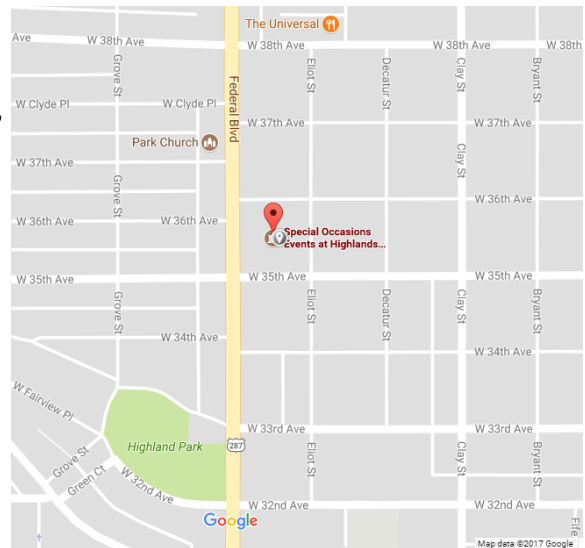
**ATTENTION**

The DRC Board of Directors meetings are held on the 4th Wednesday of the month and are open to any member. Due to scheduling of meeting space, the board does not always meet at the same location and on occasion meetings are held via Skype. Anyone wishing to attend, please contact a board member prior to meeting night for specific information.

DRC'S HOLIDAY PARTY - CELEBRATING 100 YEARS

ADAPTED FROM W0TX.ORG, BY BILL HESTER, N0L4J

The 2017 DRC holiday party celebrating the DRC's 100th Anniversary is on Wednesday, December 20th at the Highlands Masonic Center. The Center is located at: 3550 North Federal Blvd, Denver. Park and enter on the south side. Doors open at 5:15 and dinner is at 6:00. There will be great fellowship, prize drawings and a presentation. There won't be any crowding this year as we have seating for 250. The dinner is catered (\$18.00/person) and your entrée choices are rotisserie chicken or meatloaf with two sides, salad, cornbread, desert and a beverage. The dinner is by pre-paid advance reservation only. To download the form, please go to DRC's site at: w0tx.org/webdev/HolidayDinnerReservationForm2017.pdf. Please help us by making your reservation early. Thanks!



CW GETS THE MESSAGE THROUGH IN WAKE OF HURRICANE IRMA

FROM ARRL.ORG AS SUGGESTED BY Fred Hart, AA0JK

Any CW operator worth his or her salt will tell you that CW is the mode that gets through when all others fall short of the mark. CW certainly did the job for Chet Hogue, N3BK, who handled dozens of messages for residents of Florida's Lower Keys in the days following Hurricane Irma in September.

"A message from a Big Pine Key man to his girlfriend, who evacuated with their young daughter and was waiting to hear how he weathered the storm, was one of about 80 sent out over the airwaves by ham radio enthusiast Chet Hogue in the days following Irma's destruction," reporter Katie Atkins wrote in *The Keynoter* in describing Hogue's activity.

"Things here are still incredibly a mess!" Hogue told ARRL this week.

The Summerland Key charter captain, known as "Captain Chester," weathered the storm in place. He noted that the primary frequencies handling traffic were quite busy, so he got on CW, which, he told Atkins, allowed him "to relay messages clearly." He operated from a station at his home as well as from his boat.

According to the news report, Hogue would transmit message traffic gathered from residents trying to get in touch with family and friends outside the area. He urged anyone interested in Amateur Radio to visit the ARRL website. "It's just neat, this system," he told Atkins. "With a piece of wire and a car battery, you can talk around the world." Hogue told ARRL that he "escaped" to the Keys in 2010 after recovering from an injury suffered in a vehicle accident. "I haven't been active in some time, but have kept my 'bug-out bag' ready for just this situation," he said. "[This] was my first emergency, as it was for many who passed traffic for me."

Hogue's father — also Chester — is N3VA, and his dad and some of his friends got him interested in Amateur Radio. Hogue entered the military as a teenager and, he said, realized the vital importance of communication.

Hogue used a 100 W radio powered from deep-cycle marine batteries, a G5RV antenna on shore and a fiberglass vertical antenna on his charter boat. He kept a handwritten log on a piece of cardboard.

"This is a good reason for all of us to learn CW and use it on the bands, and become skilled at sending and receiving CW," remarked Whitey Doherty, K1VV, a CW stalwart who shared the news story with ARRL Headquarters. — *Thanks to "Captain Chester" Hogue, N3BK, The Keynoter, and Whitey Doherty, K1VV*

<http://www.arrl.org/news/view/cw-gets-the-message-through-in-wake-of-hurricane-irma>

WHAT'S IN A PI?

BY FOREST SHICK, WA2MZG & BILL HOPKINS, AA2YV
FROM THE NOVEMBER EDITION OF THE RARA RAG
[NEWSLETTER OF THE ROCHESTER AMATEUR RADIO ASSOCIATION, INC.](#)

Try It - You'll Like It

If I ask you to imagine the taste of an apple pie, I could bet your Pavlovian taste buds would respond accordingly. Your ample experience with that culinary creation would give you away, because you probably like apple pie. That was my experience with the "Pi," a Raspberry, but in a different way.

I have spent many years at the bench working with 8, 16 and 32 bit microcontrollers – some of them DSP and ARM processors – and frankly, I wasn't at first thrilled with the Raspberry Pi phenomenon, first cooked up in 2012 somewhere in a British technology kitchen. Today, millions salivate, whenever they see the little computer, especially when it is spiced up with peripherals.

What happened? I saw the article in the April 2017 issue of QST Magazine that described running WSJT-X on a Pi. For those unaware, WSJT-X is a new software program for ham communication, using JT9, JT65 and other digital modes especially useful in weak-signal environments. So, why not? I took up the Raspberry Pi computing challenge; this technological world didn't seem especially daunting to me.

At this stage, I didn't think beyond possible uses for the Pi besides running WSJT-X. So I just ordered what I thought I would need – so much so, that I ended up with enough for two working Pi computers. (Haven't you done the same thing when ordering parts?) Now, one computer will run with WSJT-X, and the other is sitting here waiting for its own application.

I won't describe for you how to download the necessary software or to set up and run your own system; there are enough excellent websites out there that describe all this. Instead, I will give a list of the hardware I think you might purchase, based on my own experience. Additionally, I will list some websites that give you meaningful information. Speaking of meaningful information: don't be afraid to ask fellow hams. We have a lot of them in RaRa and outside our region with great experience. As for me: I'm still a beginner. If you think this Pi and the WSJT-X mode could be for you, take a bite.

The Recipe

To get things moving, let's start with the websites I found that were useful for cooking up this Pi adventure. The best one of all is: <https://www.raspberrypi.org/>. This is the official Raspberry Pi Foundation website. It has everything from explanations, to instructions, to projects, to blogs. Read the site thoroughly before you begin, otherwise, you will just get your fingers messy with technology dough and not cook up anything. Begin with your head: read! Don't worry that the information is too in-depth. They've done an excellent job of "feeding" you knowledge, one bite at a time.

Other websites should be considered, because of their slightly different recipes – to keep the imagery unified here – can show you how others imagine how things are done with the Pi.

Here are some other web sites:

- The Pi Hut, at: <https://thepihut.com/>
- Adafruit Learning System, at: <https://learn.adafruit.com/>
- Raspberry Pi Spy, at: <https://www.raspberrypi-spy.co.uk/>
- Pimoroni, at: <https://shop.pimoroni.com/>
- ModMyPi, at: <https://www.modmypi.com/>
- CanaKit, at: <https://www.canakit.com/>
- Viaboot, at: <http://viaboot.com/>
- Element 14, at: <https://www.element14.com/community/docs/DOC-78156/l/raspberry-pi-7-touchscreen-display>

And finally, WSTJ-X

- WSJT-X Home at: <https://www.physics.princeton.edu/pulsar/K1JT/wsjsx.html>
- Installation Instructions, at: <http://wsprnet.org/drupal/node/5567>

Ingredients

Here are items you may wish to purchase, what they are and their approximate cost. It's always worth hunting around to find deals or kits; you may reduce your costs. (This is part of the fun of cooking something up.)

What you'll need to get started:

- ◆ one Raspberry Pi 3 – the computer: \$40
- ◆ two heat sinks: \$3
- ◆ one 32 Gbyte, Class 10 micro SD Card: \$13 (you might already have one)
- ◆ one Pi case: \$8
- ◆ one 5-volt, 2.5A power supply with a micro USB connector: \$8
- ◆ a monitor (a TV with an HDMI input would work perfectly)
- ◆ a keyboard with USB connection
- ◆ a mouse

If you find the right kit (ca. \$50 and up), all items except the monitor, keyboard and mouse are included. Those kits come with the operating system already installed on the SD card (this becomes your hard drive), and a book of instructions. I purchased a kit from Viaboot and one from Canakit.

Don't let the book included in a kit make you think you now understand everything. Read the Raspberry Pi Foundation web site first. Start with the HELP page. Then click on GET STARTED WITH RASPBERRY PI. Everything you need to get started is explained there.

My First Pi

It was not burned at the edges, but on the other hand, it was not "well done" either. My goal in running the WSJT-X on the Raspberry Pi was to have a small computer to run with my Elecraft KX3. All I would need then was an LCD display and a small keypad.

Here's what I purchased:

- ◆ Raspberry Pi 7-inch touchscreen display, 800 X 480 resolution: \$60
- ◆ Housing (There are many specifically designed for the LCD and Pi. The LCD with a touch screen eliminates the need for a keyboard and mouse: fantastic!)

The first Pi was very nice, except that the display orientation was upside down! I simply added `lcd_rotate=2` to the config file to correct that. (I found the instructions online.)



Sometimes a pie isn't big enough for all your ingredients. Ditto here with my WSJT-X program. It was larger than the display area that the LCD would permit. There seemed to be no obvious way to resize the form, nor could I find a method to redefine the displayed resolution. The solution was to contact the ham operator of the QST article. He gave me the link to the display he was using.

In the process of looking for a new display, I came across a 10-inch display that seemed to fit the bill – but – it was not a touchscreen. In the end, I purchased the display and the necessary keypad, shown on



the next page.

The Whole Pi

Putting the second Pi together was obviously easier than on the first try. Everything worked the first time out! - Hurrah for the Raspberry Pi! – The WSJT-X form fit the display. By simply moving the USB connectors of my KX3 and my RigBlaster from my laptop to the Pi and by copying the set-up information

for WSJT-X from the laptop to the Pi, I was operational on JT65.

The Cooking Moral

Now, I’m told that to make an honorable apple pie in a large glassware pie pan, you will need at least 45 minutes to do the preparation and then another 45 minutes to an hour to bake it. All you get out of it is about 8 pieces, and when it’s eaten up, well, that’s it. You’ll have to start all over, if you want more. But with my recipe, you can have years of great fun. Get cooking.

EMCOMM NOTE

BY BRENNAN PATE, AD0UZ

With winter coming we all know there are certain things we can do to prep ourselves, families, vehicles, equipment and homes, for the season. I’d like to get some winter operations and emergency prep tips from you readers and publish them in an upcoming edition of *The Roundtable*. Particularly any tips or tricks that may not be well known, but that could be very useful. Things like carrying steel wool and a 9V battery, or a small package composed of dryer lint, Vaseline and toilet paper rolls, to use for quick firestarters. Please send any tips or tricks that you have to drc.editor@gmail.com.

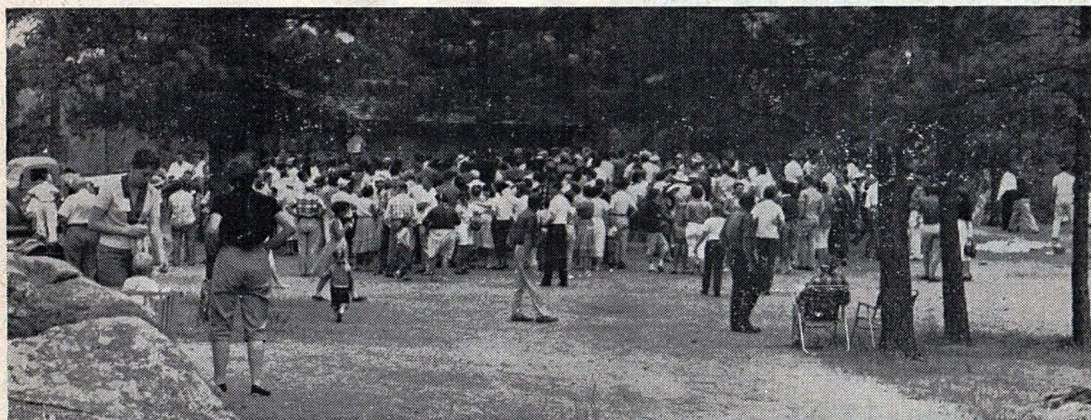
~ GET PUBLISHED ~

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 1960 - DRC Again Participates in the Annual Leadville to Fairplay Burro Race

HOPEFUL TICKET HOLDERS



PART OF THE HAMFEST crowd is shown gathering for the main event of the day—the prize drawing. Over \$1000 in prizes were given away.

RADIO COVERS BURRO RACES

Chic WØSIN, recently received a letter of appreciation for radio assistance in the Leadville to Fairplay Burro races from the Fairplay Chamber of Commerce and at the same time requested radio communication for the July 31, 1960 event.

The Rocky Mountain Canary doesn't sound too interesting to the ham lot until they bring in radio. This year's response was real fine. A fixed station was set up in the pavilion at the finish line manned by four operators. Using the equipment and call of WØSIN, the fixed station detail arrived in Fairplay at about 8:50 a.m. After having coffee and locating the officials, WØSIN/Ø was ready to go on the air at 9:45. The cooperation of the Fairplay Chamber of Commerce and Leadville Lions Club was excellent, especially to those who climbed on top of a store building and power pole to fasten the antenna.

Howard, KØDCW, was on the mike most of the time also doubling on the public address system. As you know, he could modulate the 23 miles from Leadville to Fairplay without use of amplifier if it wasn't for the 13,188 foot Mosquito Pass between them. Often times the P. A. mike would be picking up the mobile station from the speaker and giving out the information

direct to the thousands waiting at the finish line.

There were 12 entries with 3 dropping out before hitting the summit(rain and sleet). The time was 3 hrs. 40 min. 36.6 sec. for Charles Griffin of Dillon. The record was set last year at 3 hrs. 33 min. 4.4 sec. by this year's second place burro bouncer, Joe Glavinick.

This year's 12th annual event saw a first. Barbara Nagel of Englewood was the first woman to cross the finish line. In all, 7 out of 12 finished the race.

Fixed station participants were KØ's DCW Howard, PGM Lys, WJH Lou and WØAJH Roy.

Mobileers were WØ's GVT Bill, EKD Russ, OZV Ray, LO Larry, SIN Chic and KØ's PND Walt, EPD Russ, IYC Norv, ILK Bill, AOA Major and W5VOF/Ø. Denver fixed participating stations were KØOVQ Roy, and WØVDY Ralph.

We are pleased to report that several XYL's accompanied the OM's. Bless them and we were glad to see them out.

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

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

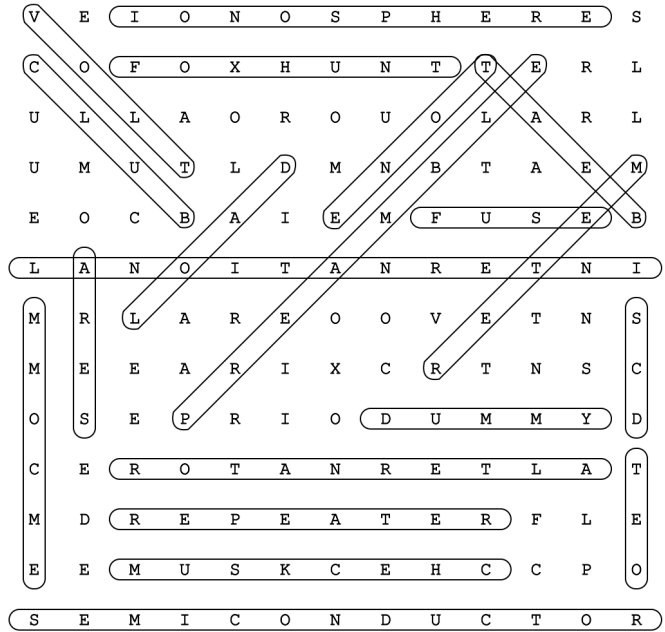
Word List:

ALTERNATOR	ARES	BEAT	CHECKSUM
CLUB	DCS	DUMMY	EMCOMM
FOXHUNT	FUSE	INTERNATIONAL	IONOSPHERE
LOAD	METER	OET	PREAMBLE
REPEATER	SEMICONDUCTOR	TONE	VOLT

FACT OF THE DAY

Temperature vs. Reliability

Electronic equipment life is directly related to operating temperature according to the Arrhenius function which predicts that each 18 degree F (10 degree C) increase in operating temperature reduces mean electronic component operating life by 50 percent. Conversely, each 18 degree F (10 degree C) decrease in operating temperature increases mean electronic component life by 100 percent. It is possible to decrease the inside case temperature of many electronic products that much by simply adding a fan or blower, especially if they are not already forced-air cooled. Fans and blowers suitable for use in many types of equipment have become very inexpensive (\$5 or so from wholesale suppliers) in recent years, because of their widespread use in computers. Where \$5 may double the life of \$1000 radio, what are you waiting for? Even if a suitable blower will cost \$20, where can you find a better investment? ©2005 Martek International All rights reserved



HAM SITE OF THE MONTH

[DRC's Holiday Dinner Reservation Form](#)

THE ROUNDTABLE ARCHIVE

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

THE ROUNDTABLE ARTICLE INDEX

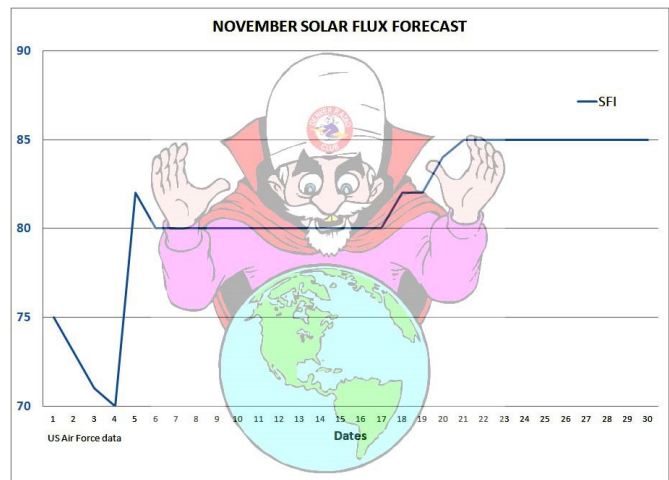
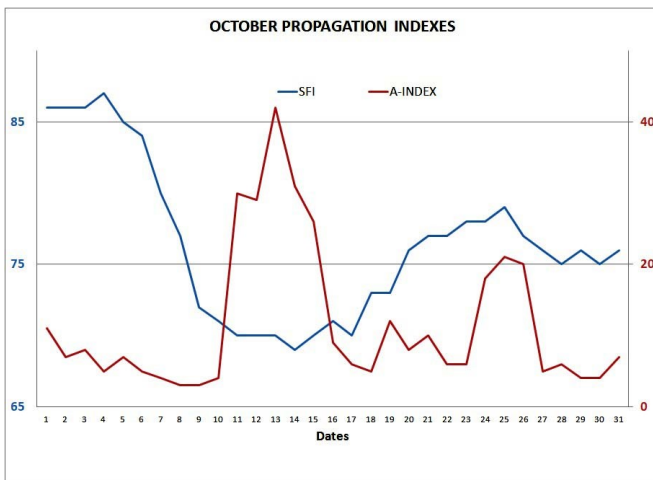
Go to: <http://www.w0tx.org/RoundtableArchive/-RoundTables-Index.pdf>

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
285 TechFest	11/11/17	Lakewood Elks Lodge	285 TechConnect Club

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

Contest	Start Date	Start Time	End Date	Stop Time	Notes
EME - 50 to 1296 MHz	11/04/17	0000 UTC	11/05/17	2359 UTC	
November Sweepstakes - CW	11/04/17	2100 UTC	11/06/17	0259 UTC	
November Sweepstakes - PH	11/18/17	2100 UTC	11/20/17	0259 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	11/11/2017	11/12/2017	Western KY DX Association	
Montana	01/27/2018	01/28/2018	Flathead Valley Amateur Radio Club	Based on 2017 date.
British Columbia	02/03/2018	02/04/2018	Orca DX and Contest Club	
Vermont	02/03/2018	02/04/2018	Radio Amateurs of Northern Vermont	Based on 2017 date.
Minnesota	02/03/2018	02/03/2018	Minnesota Wireless Association	
South Carolina	02/24/2018	02/25/2018	Columbia Amateur Radio Club	
North Carolina	02/25/2018	02/26/2018	Raleigh Amateur Radio Society	Based on 2017 date.
Idaho	03/10/2018	03/11/2018	Idaho QSO Party	

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. 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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NOVEMBER 2017							DRC Net Sundays at 8:30 p.m. on 145.490 / 448.625 (no PL)
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
			1 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	2	3	4 EME 50 - 1296 MHz Contest - Begins 0000 UTC November Sweepstakes CW - Begins 2100 UTC  Full Moon	
5 EME 50 - 1296 MHz Contest - Ends 2359 UTC 	6 November Sweepstakes CW - Ends 0259 UTC	7	8 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	9	10   Last Quarter	11	
12	13	14	15 DRC Meeting Elmer 6 PM General 7 PM	16	17 10GHz & Up - Ends 2359 UTC	18 November Sweepstakes Phone - Begins 2100 UTC  New Moon	
19	20 November Sweepstakes Phone - Ends 0259 UTC	21	22 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	23 	24	25	
26  First Quarter	27	28	29 Learning Net 7:30 p.m. 145.490 / 448.625 (No PL)	30			

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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.

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