



SIERA BEACON



Carson Valley, NV

April 2019

"HAM radio is not a hobby. It's a way of life." - Carlos Beltran, XE1MW

Presentation by Gordon Mosely, KC7CA, on WWII Walkie- Talkies

Story and photo submitted by Cathy Carney KI7NIR

Gordon mesmerized SIERA members with his collection of stories and radio equipment from a by-gone era. From an early age, he remembers showing an interest in radio and electronics. He wanted his father, an Air Force officer, to bring back an Army Radio after he flew a mission on the B-52. In 1960 when he was twelve, he built a Heathkit DX-60 CW transmitter with the help of his father and the local MARS station on the Air Base.



SIERA members had a chance to handle one of the Walkie-Talkies he owns — a device that gave significant advantage to Allied Forces during the war. He also passed around an actual, working triode tube, reminding us that it was the core of the Walkie-Talkie — the first portable voice communication device.

His slideshow took us through arduous work by Edison, who used a vacuum inside the light bulb to prevent the filament from burning up. Edison also noticed a one-way phenomenon of current flowing. Fleming in England further refined this "Edison Effect," creating the first rectifier, which he called a "valve"—a term that still persists to this day in England. In the US,

Lee DeForest created a triode tube which was capable of amplifying small signals by inserting a grid of wire between the cathode and plate in 1906. The term "grid" is still used in the US. This invention of the triode tube was to make the first Walkie-Talkies possible.

Gordon also gave credit to Donald Ling, a Canadian, who had been exploring geology in remote areas in the late 1930's, communicating with a portable battery-powered radio using Morse Code when needed, and wondering how to make it possible for other members of his group lacking Morse Code skills to communicate in an emergency. Ling created the first Walkie-Talkie — subsequently improved by the Galvin Brothers (later to become Motorola). It was an essential tool on Omaha Beach in 1944. Approximately 140,000 of these 2-way radios were made for service during WWII—they provided an important advantage over the AXIS forces.

The War also affected other aspects of radio. For one thing, licensed Hams were in great demand by the military because of their radio experience.

In addition, after December 1, 1941, the only private Ham Station allowed to operate was W1AW. Communities could request a War Emergency Service (WERS) License for a community station, which only a licensed Ham could operate. This system was the precursor to RACES and ARES after the War.

All of these devices were AM. FM, which was more resistant to noise, came later. The transistor, which replaced the vacuum tube, was not available until 1947 by Bell Labs. He did stress that the three Bell physicists who created this miracle were not planning to create a revolution. They just wanted to develop a better amplifier. Gordon pointed out that, although the transistor has many advantages over the vacuum tube, there are enough reasons to use tubes (rf and audio, for instance). Some people continue to experiment and design circuits with them.

He encouraged SIERA members looking for additional insight into Walkie Talkies to Google *BC 611*, "the standard platoon level radio within [WWII] rifle and weapons companies."

Our next General meeting will be held Saturday, April 6th, at 1 p.m., at the United Methodist Church, 1375 Centerville Lane, in Gardnerville. Robert Winkelman, KI6CPW, wants to tell everyone about a new battery technology that he's learned about. Ed Eggert said he would bring his radio-controlled airplane to show the latest technology. These may be short presentations, so there will be time to socialize and get to know our newest members. Jim Marshall K6LR will provide refreshments.

Upcoming Events:

Safety Day: Saturday May 11, from 9 a.m. to 2 p.m. in Lampe Park, Gardnerville, NV. We will need people to help set up at 8 a.m. and disassemble it after the event is over. See the March Meeting Minutes for more details.

Pony Express: The Pony will come east to west through Nevada from June 17-19. There are a couple of spots open for operators at relay points along the trail. If you're interested in participating, email Tom Tabacco KE7NCJ at: smokey@pyramid.net.

Field Day: June 29-30 at the Tahoe-Minden Airport. This is a huge event that test our abilities to set up a station in a remote site and transmit to as many stations across the country as well as Mexican and Canada. We'll need operators throughout the 24-hour period. David Granish KI6EWK will be coordinating this event: ki6ewk@arrl.net

2020 Nevada Rally: April 3-4, 2020 near Goldfield/Tonopah, NV. Any SIERA members interested in helping with the Nevada Rally in November? Check out this Facebook page: <https://www.facebook.com/groups/RallyNevada2019/> or contact: Brad Denham KF6PSL in Sandy, Utah: kf6psl@gmail.com.



Grid Chase Request

Ken Bunzey, K7EAZ, (kenab@comcast.net) works FT8 or SSB on 20M and 40M, but does not do CW. He would love to schedule a contact anytime, confirmed on LOTW, but he would love to contact these grid squares especially: DM19 DM29, DM18, DM17, DM27, DN00, DN01, DN11, DN21. See his QRZ page, <https://www.qrz.com/db>, for more information about Ken and his grid chasing.

Ken's grid map on his QRZ page. As you can see, there's a huge hole where Nevada is.

Repeater Business:



Jeff Brown K5BLS wants to thank everyone who has donated to the repair and replacement of the CARS 147.27 repeater on McClellan Peak. The club has \$1200 to put toward bringing this repeater back into full and reliable use, not only for amateur use, but for emergency communications and DCART use as well.

Also, SIERA members have been generous in their donations to the Leviathan 147.33 repeater. Debbie Williams reported at the March meeting that the repeater fund has collected \$536. This fund is separate from club dues and will go to hire a professional climber to install the repeater equipment on the CHP tower.

Linked Repeater PL Change: Jeff Brown has completely replaced the Minden 443.750 repeater and the PL is now 156.7

Personal Repeater: Dale Yanz AJ6IX has his own repeater that he invites everyone to use. It's located at 444.450mH with a plus offset and PL 107.2. His Echolink code is AJ6IX-R node: 244875.

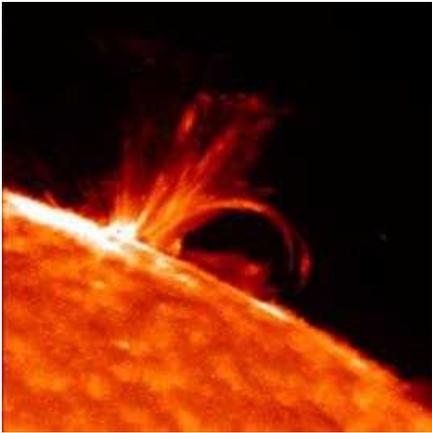
February 40 meter article update: The ARRL reported on Tuesday Feb 25, 2019 that Russian "Sunflower" coastal radar, located east of Vladivostok, is being heard nights on 3,716 kHz and 6,860 – 7,005 kHz, as well as on several 60-meter frequencies, and Chinese wideband over-the-horizon (OTH) radar also appeared on 7.000 MHz in early January

Solar Cycle 24 Update

submitted by David DeAngelis K1SCN

Increasingly deteriorating HF propagation conditions have been the topic of discussion on *The Watering Hole* (Wednesday nights on 147.33/126.24Mhz @ 7:30PM local). The main questions seem to be: How long will these conditions persist? What is the expected date of the arrival of a new solar cycle?

Solar magnetic activity follows a roughly 11-year periodic change affecting sunspot activity, solar radiation, solar flares and CME's. These changes have a profound effect on radio propagation. Periods of severe disturbance can not only wipe out HF radio propagation but can also affect signals in the VHF and UHF regions.



Radio signals in the VHF band (30 to 300 MHz) can be distorted beyond recognition by a disturbed ionosphere. Radio signals in the UHF band (300 MHz to 3 GHz) that transit a disturbed ionosphere for satellite communication, can be so affected that the receivers involved may not be able to keep locked to the carrier frequency. At solar maximum HF propagation can be greatly enhanced allowing for contacts to be easily made between points many thousands of miles apart. But, solar max also carries with it an increase in solar flares and CME's that are capable of totally wiping out radio signals into the UHF range. At solar minimum, HF propagation is not so easy and can be more readily affected adversely by disturbances in the geomagnetic field caused by solar

wind.

The official date of solar max for Cycle 24 (the present cycle) was April 2014 (see <http://www.solen.info/solar/images/cycle24.png>). Assuming that the sun follows a regular 11 year cycle – which it doesn't – solar minimum should be reached near September of 2019 and solar max sometime in 2024-25. Charts displaying the historic and predicted 10.7cm solar flux, international sunspot numbers, and solar cycle sunspot number progression can be found on WM7D's Solar Resource Page at: www.wm7d.net/hamradio/solar/index.shtml. You can examine the data and make your own determinations, but, if you split the difference in the predicted values, it would appear that we will be in solar minimum conditions through the year 2020.

Solar minimum has effects beyond degrading radio propagation. Spaceweather.com wrote on March 1, 2019: “However, not all Solar Minima are alike. The last one in 2008-2009 surprised observers with its depth and side effects. Sunspot counts dropped to a 100-year low; the sun dimmed by 0.1%; Earth's upper atmosphere collapsed, allowing space junk to accumulate; the pressure of the solar wind flagged while cosmic rays, normally repelled by solar wind, surged to Space Age highs. All these things are happening again.”

“But”, you may ask, “I thought I heard about reversed-polarity sunspots that would signal the beginning of the new solar cycle?” Well, the good news is that, yes, there have been as many as twenty such reversed-polarity sunspots that have been reported dating back as far as 2017 (www.solen.info/solar/cycle25_spots.html). However, until the reversed-polarity sunspots occur in larger numbers, we will still be stuck in Cycle 24.

Like terrestrial weather, space weather can vary daily or hourly and, in fact, by the minute. During solar minimum, monitoring solar-terrestrial conditions can pay off handsomely, if you know what to look for. The 10.5cm (2800Mhz) Solar Flux Index (SFI) is measured once daily at Penticton Radio Observatory in British Columbia, Canada. The

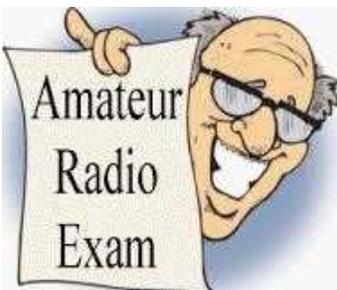
SFI is an excellent indicator of solar activity and the values can range from below 50 s.f.u. (solar flux units) to above 300 s.f.u. More details on Penticton can be found at: https://www.nrc-cnrc.gc.ca/eng/solutions/advisory/solar_weather_monitoring.html

At this writing, the SFI values seem to be hovering between 64 and 71. During solar max the SFI values can be well over 100. So, the higher the number, the better the HF conditions can be.

The estimated A-p (planetary) and K-p indices, on the other hand, are measured and reported every three hours. Using data from ground-based magnetometers located in Sitka, Alaska; Meanook, Canada; Ottawa, Canada; Fredericksburg, Virginia; Hartland, UK; Wingst, Germany; Niemeck, Germany; and Canberra, Australia, the NOAA Space Weather Prediction Center (SWPC) derives and reports an estimated planet-wide index number. This data is used to describe the magnitude of geomagnetic storms. A K-index number of more than 4 results in NOAA issuing a geomagnetic storm Alert or Warning. More information can be found at: www.swpc.noaa.gov/

There are other factors that affect radio propagation: Ionizing radiation levels – X-rays and EUV (extreme ultra-violet) – electron densities, MUF, F1 and F2 altitudes, and D-level absorption to name a few. For the sake of presenting a total picture though, I should also stress that the time of day and geographic location are also critical factors in radio propagation (see www.arrl.org/propagation for up to date HF propagation charts). The basic SFI, and A-p K-p indices remain the least complicated and easiest to understand predictors for describing radio propagation conditions. Because this data is collected from a variety of locations on the planet and on differing schedules, it is possible that the information you find on the internet can seem to be inconsistent. Please note that the SFI measured once daily at the Penticton Observatory is the official global source for SFI. A-p and K-p indices broadcast by WWV represent the “mid-latitude” values for Boulder, Colorado, and may not be representative of conditions around the whole world. If you don't want to wait until eighteen minutes after the hour to listen to the WWV data, it is available on the internet at: www.swpc.noaa.gov/products/geophysical-alert-wwv-text .

For a more detailed explanation, the article titled *Understanding Solar Indices* found at www.arrl.org/files/file/Technology/tis/info/pdf/0209038.pdf or in the September 2002 issue of QST on pages 38-40 contains more extensive information on this topic, and also has better supporting graphics than I can provide here.



ARRL Licensing Exam: SIERA offers licensing exams on the third Saturday every odd month at 9 a.m. at Station 51 Fire Station at 777 South Stewart St., Carson City. Bring a photo ID, a copy of your license if you're upgrading, and \$15. Contact: Greg Moore KG7DMI at KG7DMI@frontier.com for more information.

The next Licensing exam: May 18th.

Be sure to check the expiration date on your license to make sure you don't miss renewing with the FCC. If it expires, you will need to take the exams all over again. Also, whenever you move, notify the FCC of your new mailing address.

Ten candidates showed up for the March exam with three leaving without becoming ham radio operators. Two of the candidates retook the test a second time, one of which passed! You really do have to study for these exams.

It breaks down like this: three new Technicians, three new Generals, one of which took and passed both Tech and General. One Extra, David Thompson, passed all three exams. We're all hoping David joins our VE team.

Along with our usual VE team, future VEs Malek Davarpanah, KI7DYM and Chuck Gervie, KI7PGI, helped out.

On March 8th, we also held an exam session for a class up at Northwestern College in Carson City. Greg Moore was contacted by Professor Elizabeth Tattersall KE7OBI. Her class is doing an experiment that will require the transmission of APRS and Telemetry. Most of the VE team is still gainfully employed, so Bob K7VOC, Guenther KU8B and Greg were enough to legally administer the exams, but they really needed more help. Dave De Angelis K1SCN agreed to help out. Thank you Dave!

A last minute addition to our VE team was Barry Bettman K6ST. You may know Barry as one of the NCO's of the SNARS noon net. We ended up with six students and one Professor taking the exam. In the end we ended up with three ham radio operators.

Congratulations

Professor Thomas Herring	KJ7EWN	
Jason Logan	KI7EWO	
Kobey Workman	KJ7EWP	
Susan Happe	KJ7FEG	Tech
Abby Bennett	KJ7FEH	Tech
Charise Whitt	KJ7FEI	Tech
Bill Stanley	KJ7EFJ	General
Cliff Deeseth	KJ7DKB	General
Robert Yandow	K7GUU	General
David Thompson	AG7T?	Extra (Call sign didn't post with the group.)

TARA HAM CRAM AND EXAM: April 20 at 9 a.m. at Barton Hospital, South Lake Tahoe.

1989 Volvo For Sale:

Robert Winkelman, KI6CPW, wants to sell his 1989 Volvo for \$2,000. It has 200K miles on it, but according to a mechanic at Christiansen's Auto, it's been well-maintained. If you're interested, email Robert at: radish4u@charter.net

DCART News:

During March's DCART meeting, we discussed problems members have had using packet on their home stations. While the Raw Peak repeater has an automatic re-dial function enabling operators to break in during high-usage times, the repeater seems to

be busy most of the time. Bob Williams K7VOC stated that during an emergency, this repeater would be unavailable because of this usage. Dale Yanz KJ6IX has also tried to use packet on his station to little effect. He did find that FLdigi works well on HF, though. Maybe this- During emergencies, cell phones and the Internet may not be available and VHF/UHF/HF voice may be the useful modes as well as other digital modes like Winlink and FLdigi. Packet radio should still be studied for backup and potential logistical traffic.

After the meeting, members toured the 911 Dispatch Center to see where the cubicles are being placed. One is for Reception and the other will be the DCART radio station, W7SR. It is located outside the Dispatch Center itself to kept audio interference at a minimum, yet be close enough for passing messages during emergencies. Members also had the opportunity to meet Peanut the pit bull, one of the dispatcher's service dogs. She was very friendly, loves to be petted, and is a fine ambassador for the breed. Outside the building is the CM11, a specially-equipped communications RV for deployment. There are three positions in this close-quartered vehicle for operators.

Nets Available in Carson Valley and Beyond:

The SNARS Noon Net daily on 147.150.

Daily Carson & Eagle Valley net, 6 p.m. on 28.435 MHz USB

BARC Nightly Net, 8 pm on 146.655 pl 131.8, ragchew and pre-check-in at 7:30 p.m.

DCART Net, Mondays at 6:30 p.m. on 147.270.

TARA Net, Mondays at 7:30 p.m. on 147.240.

SIERA VHF Net, Tuesdays at 7:30 p.m. on 147.330.

SIERA HF Net, Tuesdays at 8 p.m. on 3982kHz.

Plumas County Net, Tuesdays at 7:30 p.m., on 145.470.

Brad Smith's (WT6B) Watering Hole, Wednesdays at 7:30 p.m. on 147.330,

"questions and answers pertaining to amateur radio."

SKYWARN at 7 p.m. Wednesdays.

NV ARES Net Thursdays at 7 p.m. Echolink conf server NV-GATE

152566 IRLP Western Reflector Ch8:9258

SNARS Hospital Net, Fridays at 10:00 a.m. on 147.030 or 147.150

(SNARS Linked Repeaters: <https://snars.org>)

RARA Rural Amateur Radio Assn., Fridays at 8 p.m. on 147.180 pl 123

ARES HF Net, Saturdays at 7 a.m. on 3965kHz (+or - QRM).

RARA, Rural Amateur Radio Association, Saturdays 7:30 a.m. on 3965kHz

New Hams Net, Sundays at 1 p.m. 146.760 pl 123

National Traffic Service Net, Sundays at 6:15 p.m. on 3945kHz

- High Stability temperature compensated master Oscillator installed.
 - Dual receivers, offers split operation for DX contacts
 - Internal Antenna tuner installed.
 - Yaesu DNR (Dynamic Noise reduction), Plus IF shift and Contour controls.
- Has been my "daily driver" for 7 years. Works perfect. Look up reviews on EHAM.

BREAKFAST AND LUNCH GATHERINGS

8 a.m. breakfast every fourth Saturday at the Tail Dragger Café at the Minden-Tahoe Airport.

11:15 a.m. lunch every Wednesday at Jethro's on Kimmerling in Gardnerville

General Meeting Minutes for March 2, 2019

Call to order: 1:00 p.m.

Membership

Twenty-eight out of 67 registered members and several guests were present. Guests including **Dave Thompson**, who will be taking his exams Saturday, March 16; **Robert Plant** from the State of Nevada Emergency Operations Center; **John Bigley**, ARRL Section Manager for Nevada; and two younger guests, one who has already earned his Technician license, and the other who is currently in **Jeff Cauhape's** class, studying to take the Technician exam.

Treasurer's Report for January and February 2019

Checking Account

Starting Balance	2287.73
Deposits	
Membership	122.00
Total Deposits	122.00
Withdrawals	0
Ending Balance	2409.73

Savings Account

Starting Balance	4070.69
Dividends	.16
Ending Balance	4070.85
Grand Total	6480.58

The Treasurer clarified that the money for Leviathan repeater repairs comes not from dues, but from member donations (hence the collection jar at the front table for each meeting). We have collected \$536 since July, some of which has been spent on new antenna and coax. The California Highway Patrol (CHP) is building a new system that will eventually require we move our Leviathan repeater. This will require a licensed contractor to move the antenna, with an estimate of \$1,000 not being unrealistic.

Member and visitor contributions

Safety Day

Lampe Park in Gardnerville will host the annual Safety Day on Saturday, May 11, from 9:00 a.m. to 2:00 p.m. Setup will begin around 8:00. The SIERA mobile unit will be on hand to demonstrate how amateur radio helps first-responders and the community during emergencies. Volunteers are needed to provide old and young visitors with the chance to experience Ham radio, and better understand its role in emergency situations.

Pony Express Re-ride

Tom Tabacco is still seeking Pony Express operators for the middle of the week. The route is East to West, June 17 (est. 5:00 a.m.) to June 19. One station is needed for the 278 route at Garden Pass (paved road). Also needed is someone with a 4-wheel drive vehicle from Grubbs Well to Dry Creek Ranch. The route ends at the Friday station near Stateline, where the operation is turned over to California.

Field Day

Field Day is scheduled June 22/23; the weekend after the Pony Express Re-Ride. A volunteer from SIERA is needed to coordinate our activities on Field Day. Please contact our president **Jeff Cauhape** if you are willing.

State of Nevada Emergency Operations Center

Robert Plant from the State of Nevada Emergency Operations Center was a guest at our meeting. He said that W7DEM and W7CARS Radio Clubs have merged. State ARES/RACES is willing to staff the Emergency Communications Center for Amateur Radio Events. NDEM is also able to support Ham Radio groups with communications for their events. David Law, the section leader for ARRL Carson City DEM, has new portable cache radios that can be assigned for public safety events. NDOT is upgrading the state repeater system starting with the new P25 Phase II beginning with Southern Nevada. Robert encouraged SIERA members to contact him with any questions or comments at rplant@dps.state.nv.us

DX Contesting

Some members reported on their activities in the ARRL DX competition this weekend. They found good propagation in contacting Hawaii, Alaska, and Japan, and encouraged additional members to participate.

ARRL Section Manager Raffle

After Gordon's presentation, our visitor **John Bigley**, the Nevada Section Manager for ARRL (N7UR@arrl.org), distributed raffle tickets for several ARRL publications, with winners pulled from the hat. He encouraged members to contact him if they had questions, recommendations, or an item for ARRL to publicize.

Viewing the Past

Tom Tobacco had been cleaning out his bookshelves. He brought several decades-old radio books for interested members to look at and take home with them. The books are a vivid testament to how things have changed!

Adjournment

The meeting adjourned at 2:22.

Check us out on Facebook: <https://www.facebook.com/SIERA>

If you have a photo and news to share, an announcement that can't wait for the Beacon, or a radio to sell, send an email to: scauhape2002@yahoo.com. We'll get it on Facebook for the world to see.



Remember, send your photos and news to:
scauhape2002@yahoo.com.