

# The Oscillator

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## All Face to Face Club Meetings & Village Facilities (The Bunker) are Still Closed!

### September 25, 2020 and October 23, 2020 Meetings

We will meet but the venue is unknown at this time. It could be in person, on the internet via Zoom or on the Club Repeater. In any case the meetings will start at 7:30 PM on the given Friday and follow our normal agenda. Program material is always needed. There will be monthly Board meetings. Please check into our nets to keep up with Club news.

### From The President's Desk

Stay well and 73, Todd, KA9IUC

I am sure getting tired of this rut we are in. It has been six months with no end in sight. I went for my annual wellness check at my doctor and one of the questions was are you bored and losing interest in things you liked to do. The healthy answer is no but this year it's different. I really miss what I usually do and now it seems like I am always looking for busy work. Oh well, life goes on.

Thank goodness for ham radio events on the internet. Elsewhere in this edition of The Oscillator is an article on internet events both single events and monthly or repeating events. Check it out.

Attendance at meetings and net checkins is down. At meetings it has been the officers, board members and a very few others. On the nets it's the same group of ten to fifteen. The only exception is the 3862 SSB net. It's doing well and growing. I am very concerned with the current level of participation in Club activities. I want it to increase participation in important upcoming Club activities such as meetings, elections and membership renewals not that far away.

I took a drive out to the Bunker to see how things were since I have not been there in six months. I only did an external inspection. The beam, verticals and 160M dipole all look to be OK. It looks like one leg of the 40M inverted V is down and the satellite antennas are misaligned. The roof of the Bunker looks like a forest, trees, bushes and tall grass. We are trying to get access to the interior of the Bunker.

I am sure looking forward to resuming normal Club activities when all of this is behind us. In the mean time, there is plenty to do so don't sit idle and mope.

## **Officers, Board Members, & Committee Heads for 2020**

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## **Club Meetings & Nets**

Club meetings are the 4<sup>th</sup> Friday of each month 7:30 pm at the Village of Hazel Crest Village Hall, 170th and Holmes. All are welcome and refreshments will serve. Don't forget to bring a Friend.

## **Club Hangouts:**

The Club's Repeater 146.805 WD9HSY/R & 146.49 Simplex 442.375 Homewood, 441.300 Grant Park WA9WLN/R, "Waldofar" 443.325 Frankfort WD9HSY/R & 147.165 Kankakee Co. WD9HSY/R All UHF's use a 114.8 PL & All VHF's use a 107.2 PL

## **Club Nets**

2 Mtr FM 49'ers Net Wednesday, 8:00 PM Local, The Club's Repeater 146.805 -600kc 107.2 PL  
2 Mtr FM Preparedness Net Sundays, 8:00 PM local, The Club's Repeater 146.805 -600kc 107.2  
10 Mtr SSB Net Thursdays, 8:00 PM local on 28.490 SSB USB  
40 Mtr Tri-Town Alumni Net Weekdays, 2200 UTC 7.285 SSB LSB  
80 Mtr SSB Net Saturdays, 9am local 3.860 SSB LSB

## **Tri-Town 10 meter net**

As previously announced Jerry, K9PMV, of Blue Island, has reactivating this net. The net meets each Thursday at 8 PM on 28.490 MHz SSB. So far Jerry has had as many as 7 check ins plus some DX stations. Of late it has been a core group of 4-5 check ins.. There are general discussions on ham related subjects and other topics of interest. Please support Jerry's efforts by getting on 10 Meters and check into the net!

## 2020 Tri-Town RAC Calendar (All COVID-19 Pending)

September 25	Meeting - to be determined
October 23	Meeting - to be determined
November 20	Meeting - to be determined
December 18	Meeting/Christmas Party/Elections - to be determined. Note Christmas party has been cancelled and normal meeting date of the fourth Friday is Christmas Day.

**Please check into the Club nets to stay in touch and find out what is going on in the Club.**

### 2021 - Tri-Town RAC's 90th Year

Board Meetings are held the second Monday of the Month, all members welcome. We are holding them via Zoom. If you have something you wish to bring before the Board, please contact Trish so she can send you an invitation for the meeting.

### Tri-Town 10 meter net

The Club wants to thank Jerry, K9PMV, of Blue Island, for reactivating this net. The net meets each Thursday at 8 PM on 28.490 MHz SSB. So far Jerry has had 5-7 check ins each net. There are general discussions and even QSYs to try other modes on 10 meters. Get on HF, check into the net!

### The 3.862 MHz Net Continues to Grow

Jim, KB9VR of Monee, started the Saturday morning SSB net on 3.862 MHz and the number of check ins to the net have continued to grow. The last few nets have been very busy with eighteen to twenty-four check ins. Jim and others act as net control and there is a friendly competition to see who gets more check ins. Of late there has been a check in of note, Bob Heil, K9EID of Fairview Heights, IL and Heil Sound.

### Illinois QSO party

The Illinois QSO party is held on Sunday October 18, 2020, the third full weekend in October (local times) Details at: <http://www.w9awe.org/ILQP%20FAQ.html>

**Facebook: <https://www.facebook.com/tritownrac>  
Check out the Club Website: [WWW.W9VT.ORG](http://WWW.W9VT.ORG)**

# Ham Radio on the Web

By Todd, KA9IUC

Covid 19 has brought a lot of changes to everything in our lives including Ham Radio. We can still get on the air and make QSOs. That is because there are a lot of other hams at home and propagation has been good at times. Most affected are club meetings, field day and hamfests. We just miss the one on one contact that these events provide.

To help overcome this problem, many organizations have presented and will present events to be virtual replacements on the web for what we are missing. The following is a review of some of the events in alphabetical order. Following that, there will be a recap of the weekly and monthly programs available to fill the need for ham radio. These are just some of the subject matter available on the web. When all else fails, there is always YouTube.

## Onetime events:

**ARRL Learning Network.** This is a series ten half hour presentations(for now) for ARRL members by non-ARRL staff on a variety of subjects followed by a Q&A session. Seven have been presented with three to go. Highlights topics include 6 meters, computer logging, HF wire antennas and FT4/FT8. Aired programs are available on line and info on upcoming programs can be found at [ARRL.org](http://ARRL.org).

**Contest University.** This event is normally held in connection with the Dayton Hamvention and there is fee to attend. This year it was free and all on the web. Ten topics were covered from low band receiving antennas, to youth contesting to grounding and bonding. Copies of the presenters slides are available at [contestuniversity.com](http://contestuniversity.com).

**DXE Virtual Hamfest.** This was put on by DXengineering. Seven seminar sessions were presented ranging from training for public service to satellites to the VP6R DXpedition to Pitcairn Island. Presenters slide shows are available at [dxengineering.com](http://dxengineering.com), click on Tech info & News.

**QSO Today Ham Expo.** This was put together by the QSO Today Pod Cast. This was a two day event and the platform was like a video ham radio game. The graphics and operating features were outstanding. There was the convention hall and displays, auditorium for presentations, and general meet and greet areas. There were six-five presentations and a lot of booths for manufactures, dealers, and organizations. All the proceedings will be available at [qsotodayhamexpo.com](http://qsotodayhamexpo.com) until September 9, 2020. If you miss it, they are planning another Ham Expo in March, 2021.

**Virtual SMC Fest 2020.** The Society of Midwest Contesters not being able to meet as a group for their annual Fest, went online via Zoom. It was a day filled with nine presentations dealing with subjects from antenna switching to dealing with static electricity to an ARRL Update. Program information will be available at [W9SMC.com](http://W9SMC.com).

# Ham Radio on the Web (cont'd)

By Todd, KA9IUC

## Weekly/Monthly Programs:

**Amateur Radio Newline Report** - Interviews, Tech, News, Satellite info, and atmospheric news.

**ARRL Audio News** - News, Satellite info, and Propagation.

**ARRL Eclectic** - Various subjects of interest to the ham community.

**ARRL On The Air** - Subject matter follows the subject matter in the publication of the same name.

**ARRL Publications** - Free to members are the League's four publications in digital format, QST, NCJ, QEX and On The Air.

**Ham Nation** - Interviews, Tech, news, projects, Solar propagation information.

**QSO Today** - In depth interviews with hams.

## Where are TV Stations Really Transmitting?

This applies to those of us who receive TV signals over the air or terrestrial as it sometimes called today. For those on cable, this is just info. When the FCC limited the number of channels that could be used for broadcast TV, and moved existing stations to those channels, it kind of turned things upside down. Converter boxes had to be used or you ran out a bought a new TV that could handle the new channel arrangement. While your tuning dial still showed the original channel, the converted box/new TV tuned the new channel in the new scheme of things. For example, Channel 2, WBBM, is now on 12, Channel 5, WMAQ is on 29, Channel 7, WLS, is on 22, Channel 9, WGN is on 19, Channel 11, WTTW is on 25 and Channel 32, WFLD, is on 24. If you what to know were other Chicago TV station are really transmitting or want the same kind of information for other locations go to <https://www.fcc.gov/media/engineering/dtvmaps>.

Information for the article is courtesy of Denny's Antenna Sales, [www.dennysantennare.com](http://www.dennysantennare.com).

## When Is A Ham Not A Ham?

By Todd, KA9IUC

We all know what a ham radio operator is and does but why do some hams fall short of our idea of what a ham does. The main thing we all do is communicate. We use all different kinds of modes, transceivers and antennas to communicate with other hams around the world. One of the aspects of being a ham, I believe, is to confirm our communications or contacts.

I recently worked a new country. Checked QRZ.com to see how my new contact QSLed. Much to my dismay, it was indicated that he does not QSL by mail, eQSL or LoTW. I sent him a email, with all the contact info, to ask if his QRZ info was right. Nothing yet!

Well, back to more of me being a ham.



## What to Do When You Are Tired of Ham Radio

By Todd, KA9IUC

With all the time we have spent at home, I would guess that a lot of it has been spent on the air. Lots of other hams are also at home and propagation has improved. However, there comes a time when a person gets tired of one thing and looks for something else to do with his time. I turned to my other hobbies for variety and went to work improving my HO train layout. I still spend some time each day "playing" radio.

I have had my layout for many years and it was in need of attention. The first thing I did was clean it. A lot of dust and dirt accumulates over time and the rails oxidize. I finished installing the fascia board at the edge of the layout and painted it dark green. Buildings were next. A grain elevator, built from a kit, was added, an old manufacturing building was rehabbed into a B&B, and I became a business owner by rehabbing an old fruit stand into my own train shop and ham radio store. I added some nice features to my store with a 2M/70cm vertical and a Tri-Band beam on a 40' tower. What's next? Maybe I will spend some time train watching or fire buffing.



# International Space Station Repeater is on the Air!

By Todd, KA9IUC

Earlier this year some new ham radio equipment was shipped to the ISS. One of the items was a FM cross band retranslator IORS. It is now operational. The up-link is 145.990 MHz with a 67 Hz CTCSS tone. The down link is 437.800 MHz.

So how do you know where the ISS is at any given time? Try heavens-above.com. This is a very good web site and tells you where the ISS is even when it is in your area but not visible. Go to the web site and login. You must login to tell it where you are located. Once the login is complete, check the dot to have it show you all passes not just the ones that are visible. Radio waves can always see when we can't. Note that the times given in the chart are your local times not GMT times.

Now I just have to find out if my dual band mobile or hand held will work with these frequencies or if it will take two radios to make a contact.

## 2020 Illinois QSO Party

When was the last time you worked a QSO Party? Have you ever worked a QSO Party? Why not try the Illinois QSO Party. It is sponsored by The Western Illinois Amateur Club and will take place 1700Z, October 18 to 0100Z, October 19, 2020 GMT.

All of the info and rules about the party can be found at: [www.w9awe.org/ILQP.html](http://www.w9awe.org/ILQP.html)

If you also need to look for a logging program, try N3FJP's. It's low cost and the price is credited towards the purchase of their package deal if you want to get that in the future.

Entrants are encouraged to include the name of their local club on their entries so the club can compete in the Illinois Club Competition.

## Online Auction to Benefit Education Programs

Preview	begins	October	12
Bidding	opens	October	15
Bidding	ends	October	22

Don't miss the opportunity to get in on the fun and bid on a variety of items at the 15th Annual ARRL Auction to benefit ARRL education programming. For registration details and to access the growing list of auction items, visit [arrl.org/auction](http://arrl.org/auction). Early registration at the auction site opens on October 12 and is encouraged.



With over 200 items – from vintage books, to ARRL Lab-tested QST “Product Review” gear, to limited-edition ARRL products and popular mystery packs -- there's something for every level and interest. Let this be your year to bid and win something special for your shack!

## September 25th Meeting- via Zoom

"What have you been doing during COVID-19?"- come and share your stories-

Trish will email out the link for the meeting. You can do video or by phone!

Do you know how to Zoom- do you want to try it out- have you been Zooming (kids are great with it)

## It's Membership Time

Since March the world we live in has completely changed- but the Club is here and getting ready to ring in its 90th year in 2021!!

The Club has survived through many wars, storms, and turbulent times- let's remember that Amateur Radio keeps us linked in the world. So renew your membership and have some fun in 2021- celebrate with us.

Do you have ideas on how the Club can celebrate in 2021--- contest, share your favorite memories, Special Event Station, bring your mobile set up to the 2021 Picnic, ----- all ideas can be submitted to Trish at the\_ [jaggards@sbcglobal.net](mailto:jaggards@sbcglobal.net)

Remember we still have bills to pay- so make sure you pay your 2021 dues- come and celebrate with us.

## Board Meeting 9.14.2020

Meeting convened at 7:31 pm via Zoom- present were Jim, Brian, Bruce, John, Pete, Trish absent- Todd and Mac

Trish did a PowerPoint Agenda

Went over last of the 2020 meetings- discussion ensued and was agreed that we put out in the Oscillator that 9/25 meeting will be a zoom- with topic of what have you been doing during Covid- Trish to send to Brian and Brian will put in the tech side of Zoom- bandwidth, video, etc. Also, asking membership if anyone does know/or uses Zoom- see what is said.

Bunker- Trish and Rob, with agreement from the Board- will go in and take pics of the inside- making sure everything is fine. Per PW secretary- they are not checking out keys to anywhere within the Village- since Trish has a key she is allowed to go inside and check it out- will send pics to the board once that is done.

Picnic- thanks to John - Picnic is on for 9/18/21--- let's pray for great weather

Round Robin/Other topics:

Brian- Oscillator is being finished up

Brian brought up membership- Trish to send blurb to him for Oscillator

Re: Elections- we will discuss this more at the October Board Meeting

Adjourned at 8:10 pm



# FCC Proposes to Institute Amateur Radio Application Fees

Amateur radio licensees would pay a \$50 fee for each amateur radio license application if the FCC adopts rules it proposed last week. Included in the FCC's fee proposal are applications for new licenses, renewal and upgrades to existing licenses, and vanity call sign requests. Excluded are applications for administrative updates, such as changes of address, and annual regulatory fees.

The FCC proposal is contained in a *Notice of Proposed Rulemaking (NPRM)* in MD Docket 20-270, which was adopted to implement portions of the "Repack Airwaves Yielding Better Access for Users of Modern Services Act" of 2018 -- the so-called "[Ray Baum's Act](#)."

The Act requires that the FCC switch from a Congressionally-mandated fee structure to a cost-based system of assessment. In its *NPRM*, the FCC proposed application fees for a broad range of services that use the FCC's Universal Licensing System (ULS), including the Amateur Radio Service that had been excluded by an earlier statute. The new statute excludes the Amateur Service from annual regulatory fees, but not from application fees.

"[A]pplications for personal licenses are mostly automated and do not have individualized staff costs for data input or review," the FCC said in its *NPRM*. "For these automated processes -- new/major modifications, renewal, and minor modifications -- we propose a nominal application fee of \$50 due to automating the processes, routine ULS maintenance, and limited instances where staff input is required."



The same \$50 fee would apply to all Amateur Service applications, including those for vanity call signs. "Although there is currently no fee for vanity call signs in the Amateur Radio Service, we find that such applications impose similar costs in aggregate on Commission resources as new applications and therefore propose a \$50 fee," the FCC said.

The FCC is not proposing to charge for administrative updates such as mailing address changes, and amateur radio will remain exempt from annual regulatory fees. "For administrative updates [and] modifications, which also are highly automated, we find that it is in the public interest to encourage licensees to update their [own] information without a charge," the FCC said.

The FCC also proposes to assess a \$50 fee for individuals who want a printed copy of their license. "The Commission has proposed to eliminate these services -- but to the extent the Commission does not do so, we propose a fee of \$50 to cover the costs of these services," the FCC said.

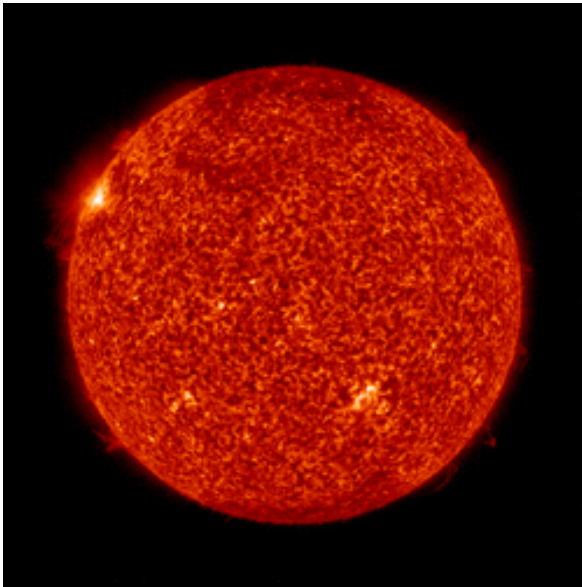
The FCC dropped assessment of fees for vanity call signs several years ago, but the Ray Baum's Act does not exempt filing fees in the Amateur Radio Service.

ARRL is reviewing the matter and intends to file comments in opposition.

Deadlines for comments and reply comments will be determined once the *NPRM* appears in the *Federal Register*. File comments by using the FCC's Electronic Comment Filing System ([ECFS](#)), posting to MD Docket No. 20-270. This docket is already open for accepting comments, even though deadlines have not yet been set.

# The K7RA Solar Update

Tad Cook, K7RA, Seattle, reports: An extended lull in solar activity persists. The smoothed sunspot minimum occurred last December, but the flurry of moderate sunspot activity in August has not continued.



When the autumnal equinox occurs at 1330 UTC on Tuesday, September 22, we should see a seasonal improvement in HF propagation around that date. This is because the northern and southern hemispheres are bathed in roughly equal solar radiation, enhancing north-south propagation.

Wednesday, September 9, was the 19th consecutive day with no sunspots, but [Spaceweather.com](http://Spaceweather.com) reported that a small sunspot with a Solar Cycle 25 magnetic signature may be forming in the sun's southeastern quadrant.

Average daily solar flux barely budged, moving from 69.6 to 69.7. Geomagnetic indicators were very quiet, with average daily planetary A index declining from 13.1 to 4.4.

As with last week's forecast, predicted solar flux is 70 on every day over the next 45 days, September 10 - Oct 24.

Predicted planetary A index is 5 on September 10 - 17; 8 on September 18 - 19; 5 on September 20 - 22; 8, 10, and 15 on September 23 - 25; 10, 25, 15, and 10 on September 26 - 29; 5 on September 30; 8 on October 1; 5 on October 2 - 14; 8 on October 15 - 16; 5 on October 17 - 19, and 8, 10, 15, 10 and 25 on October 20 - 24.

Frank Donovan, W3LPL, forwarded a [video](#) about big solar events of 3 years ago.

Sunspot numbers for September 3 - 9 were 0, 0, 0, 0, 0, 0, and 0, for a mean of 0. The 10.7-centimeter flux was 70, 69.7, 69.2, 69.5, 70.2, 69.9, and 69.7, with a mean of 69.7. Estimated planetary A indices were 4, 8, 6, 4, 4, 4, and 1, with a mean of 4.4. Middle latitude A index was 3, 9, 7, 5, 5, 4, and 1, with a mean of 4.9.

A comprehensive K7RA Solar Update is posted Fridays on the ARRL website. For more information concerning radio propagation, [visit](#) the ARRL Technical Information Service, [read](#) "What the Numbers Mean...", and [check out](#) K9LA's Propagation Page.

A propagation bulletin [archive](#) is available. For customizable propagation charts, visit the [VOACAP Online for Ham Radio](#) website. [Share](#) your reports and observations.

## Gil, A Collection of Classic Cartoons from QST

Want more Gil Cartoons? ARRL has relaunched a downloadable version of this classic reprint, presenting a portion of the best of Gil's cartoons and drawings. His characters and illustrations continue to bring joy to the amateur radio community. Get the digital download edition of Gil, A Collection of Classic Cartoons from QST for only \$10. **Download now** at [www.arrl.org/shop](http://www.arrl.org/shop).

# Ham Radio Wireless Camera Detects Washington Wildfire

Nigel Vander Houwen, K7NVH, reported on September 8 that some [HamWAN](#) users in the Puget Sound region of Washington, who were viewing the network's camera feeds, spotted a large brush fire.



"They reported it to the DNR [Department of Natural Resources], which thanked them for the first report they'd gotten on the fire, and they've sent a team to try and keep it small and under control," Vander Houwen said. "It's estimated currently at around 50 acres, southeast of Enumclaw, along Highway 410." The fire was not said to be threatening any homes. State Route 410 was reported closed between Enumclaw and Greenwater, and drivers

heading to Mount Rainier National Park were advised to take another route.

HamWAN is a nonprofit organization developing best practices for high-speed amateur radio data networks. It runs the Puget Sound Data Ring. So far, HamWAN networks have been used for such applications as low-latency repeater linking (including DMR), real-time video feeds, APRS internet gateways (I-gates), providing redundant internet access to emergency operations centers, and more.

**A frame from video via a HamWAN camera of an air tanker dropping water on the fire.**  
<https://www.youtube.com/watch?v=MJ1X4VvRFWY>



Amateur radio licensees in the HamWAN service area can connect directly to the network with a modest investment in equipment and no recurring costs. The HamWAN Puget Sound Data Ring has cells deployed at numerous wide-coverage sites, interconnected with 5 GHz radios. The HamWAN technical team has been installing remotely controllable cameras at HamWAN link sites, and one of these was used for the wildfire report.

**Facebook: <https://www.facebook.com/tritownrac>**  
**Check out the Club Website: [WWW.W9VT.ORG](http://WWW.W9VT.ORG)**

# Air Force Research Laboratory Tracks Sporadic E

Researchers at the Air Force Research Laboratory ([AFRL](#)) in New Mexico have discovered a new way to track and characterize sporadic E, which occurs when large structures of dense plasma form naturally in the upper atmosphere. These plasma structures, which occur at mid-latitude locations around the world, can affect radio wave propagation in both positive and negative ways. VHF enthusiasts frequently take advantage of sporadic-E propagation (or E-skip) to work stations outside of their local area.

"Previous methods to observe these structures were insufficient for identifying and tracking these structures over large regions," said Ken Obenberger, a research physicist at AFRL. "It would be advantageous to actively identify where these structures are, where they are going, and how dense they are. And we thought we could find a better way."

The new method, developed by Obenberger and collaborators at AFRL and the University of New Mexico, leverages unintentional RF emissions from power lines. Using the broadband radio noise, they can map and track dense sporadic-E structures.

"Since power lines are widespread, we can observe sporadic E over a very large region surrounding our observatory, the Long Wavelength Array (LWA), an asset of our collaborators at the University of New Mexico," Obenberger said. "This technique could be used anywhere in the world where there is an electrical grid and an instrument similar to the LWA, and we are lucky because there are not many."

Climatology of sporadic E can provide a probability that it will occur, but the actual presence of sporadic E can only be determined through trial-and-error observations. Chris Fallen, KL3WX, one of Obenberger's collaborators at AFRL, said, "Ken's technique basically provides weather radar for sporadic E, only using radio noise from power lines as the radar transmitter."

Having accurate "now-casting" of sporadic E could prove critical during disaster situations, where hams may play a key role in supporting communication of vital information. Read [more](#). -- Thanks to Joanne Perkins, Air Force Research Laboratory

## 4U1UN has been active and ready to make contacts on 60 meters (5357 kHz).

Some 400 contacts in about 30 DXCC entities were made on FT8 on 5 MHz earlier this week. Pending unforeseen events, such as equipment failure or difficulties accessing the station, activity on 60 meters will continue, said Adrian Ciuperca, KO8SCA. 4U1UN is running about 35 W on 60 meters on FT8. 4U1UN may also operate CW on 5373 kHz. Activity could start around 2300 UTC. QSL via HB9BOU. -- Thanks to [The Daily DX](#)



**The Long Wavelength Array at Sevilleta National Wildlife Refuge is capable of imaging the entire sky at once, allowing AFRL scientists to track and characterize sporadic E. The facility consists of 256 dual-polarization dipoles. [Ken Obenberger, photo]**

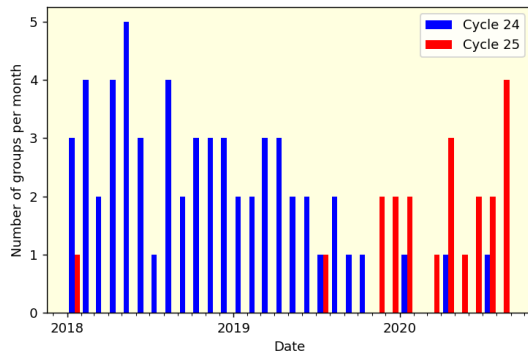
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# Solar Minimum Most Likely Occurred in December 2019

Sunspot Index and Long-Term Solar Observations ([SILSO](#)) in Belgium said this month that the minimum between Solar Cycles 24 and 25 "most probably" took place last December. SILSO, a part of the Royal Observatory of Belgium and formerly known as SIDC, cited as evidence the January 2020 increase in the [13-month smoothed sunspot number](#) -- the first upswing since the Cycle 24 maximum in April 2014.

"[F]or now, this latest smoothed value in January 2020 is the very first point indicating a rise of the activity. So, the date of the minimum still needs a full confirmation over the coming months," SILSO [said](#) on its website. "For now, preliminary smoothed values, limited to less than 13 months, hint at increasing values over coming months. If the rising trend indeed continues, this [December 2019] date will become fully definitive."



switched to groups of the new cycle in November 2019," SILSO said.

SILSO said that in terms of the number of active regions, the minimum between Cycle 24 and Cycle 25 falls in October 2019. "This is close to December 2019," SILSO said. It attributes the difference to three factors: The sunspot number also takes into account the total number of spots, and the size of the emerging active regions.

The time of the minimum depends on the respective trends of the declining phase of the past cycle, and of the rising phase of the new cycle, over the 12 months surrounding the minimum.

The date of the minimum has a significant uncertainty range. Near minimum, activity hardly varies and is close to minimum for a few months. "The date of the minimum is thus always less sharply defined than the date of the maximum of the cycles, which are more sharply peaked," SILSO explained.

SILSO noted "a steady stream" of small, active regions since last December, but that activity stagnated at a constant low level. "However, since July -- and even more in the course of August 2020 -- the activity seems to truly take off, with at least one sunspot group visible on almost all days. Such a level of activity had not been reached since early 2019."

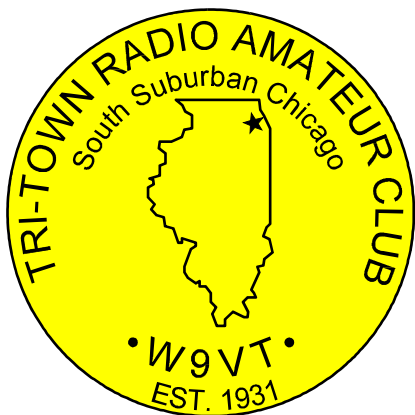
"This late-breaking upward trend is now expected to accelerate over the coming months," SILSO predicted. "So be prepared for a more eruptive and interesting sun!"

**General meeting 4 th Friday of the Month 7:30 PM**  
**Facebook: <https://www.facebook.com/tritownrac>**  
**Check out the Club Website: [WWW.W9VT.ORG](http://WWW.W9VT.ORG)**

**All Face to Face Club Meetings  
& Village Facilities (The Bunker) are Closed!**

**Tri-Town Radio Amateur Club Inc.**  
**PO Box 1296**  
**Homewood, IL 60430-0296**

**September 2020**



## **Tri-Town Radio Amateur Club Membership Application 2020**

Name \_\_\_\_\_ Call \_\_\_\_\_

Address \_\_\_\_\_ License Class \_\_\_\_\_ ARRL Member Y / N

City, State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

Email Address: \_\_\_\_\_

_____ Regular Membership	\$	25.00
_____ SWL Membership	\$	25.00
_____ Extra Family Membership	\$	6.00

\$ \_\_\_\_\_ Total Paid by Club Member

For Example: Regular Member, with Family (25+6) = \$ 31.00

### **Membership Renewals for are Due!**

**General meeting 4 th Friday of the Month 7:30 PM**

**Facebook: <https://www.facebook.com/tritownrac>**

**Check out the Club Website: [WWW.W9VT.ORG](http://WWW.W9VT.ORG)**

**All Face to Face Club Meetings  
& Village Facilities (The Bunker) are Still Closed!**