

# AARC OVER

Keeping  
Austin  
Wireless...  
Since 1919



Now  
in our  
101st  
Year!

# AARC

Bulletin of the  
Austin Amateur Radio Club

ISSN 1067-0262

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## October, 2020

# Austin Amateur Radio Club Meeting will be held ONLINE!

Continuing adherence to social distancing mandates, the AARC meeting will be held online using the Zoom app. If you do not have Zoom, you may download the free application from the Zoom website for your desktop, laptop, or tablet. It can also be loaded on your smart phone from the iPhone or Android Stores.

<https://zoom.us/Download>

Zoom will allow the group to see the PowerPoint presentation online, as well as allowing the whole group to hear the speaker. While presentations are in progress **please mute your microphone** so the whole group will not hear background noise from your location. If you would like to ask a question, you can select "*Raise Your Hand*" from the application menu and the speaker will recognize you to take your app off mute. Then return to mute after you have finished.

The *Raise Your Hand* feature will also be used for any votes necessary during the meeting. After voting, please *Lower Your Hand*. You will also have the option to only see who is speaking or a view of all participants, with the speaker outlined in green.

We are looking forward to seeing and hearing from you during our regular meeting date and time. We also would like to express our appreciation to Clear Blue Sky Digital for allowing the club to use Zoom Pro at no charge to the club.

Kerby Spruiell, AARC President

## The Austin Amateur Radio Club

Monthly Meeting

Main Presentation Topic: ***A Beginner's Intro to WSPRnet (with live demo)***  
by K5MSK, Michael Skurka

**Solar Weather**, by W5IFQ, Lew Thompson

Time: **7 p.m. to 9 p.m.**, Central Time, **Tuesday, October 6, 2020**

**An email will be sent with meeting details as the date approaches.**  
Make sure your email address is up-to-date on the [austinhams.org](http://austinhams.org) site.

**Please do not post meeting info on social media or transmit via the radio.**  
**Unfortunately, QRM is likely and expected if the meeting is published publicly.**

***If you don't receive the meeting info,  
please contact an officer for the meeting link and password.***

Contact info is on the last page.

**Note 1:** You can join the audio portion by phone or using your computer's audio. If you need to speak, you will need a headset with microphone to prevent feedback. If you do not need to speak, you can simply use your computer speakers to listen.

**Note 2:** If you have not used the Zoom teleconferencing app before, you may want to visit the pages below for some hints and tips on participating in the meeting:

<https://www.wired.com/story/tips-for-using-zoom/>

<https://thewirecutter.com/blog/use-zoom-like-a-pro/>



# AMATEUR RADIO EXAM - TEST RESULTS

No exam results for ARRL VEC for the previous month.

Please visit [http://www.austinsummerfest.org/VEC/ARRL\\_1st\\_Sat\\_Exams.html](http://www.austinsummerfest.org/VEC/ARRL_1st_Sat_Exams.html) for details and list of scheduled exams.

NOTE: **All in-person exams are canceled until further notice** as the test site is not available due to Church coronavirus contagion concerns.

TNX ES 73 DE W5HS

Joe

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The South Austin W5YI VE exam for the previous month was canceled due to the closure of St. Edward's University in response to COVID-19.

**All in-person exams are canceled until further notice** as the test site is not available.

The amateur radio exam sessions normally start at 2 PM on scheduled test dates in Fleck Hall, room 118 on the campus of St. Edward's University. All sessions are walk-in and the exam fee is \$14 (cash or check).

For additional information regarding our amateur radio examination sessions, please contact Craig, AC5KW at (512) 474-6443 or by e-mail to [craigmb5 /at/ gmail.com](mailto:craigmb5@atgmail.com)

Please visit [AustinHams.org](http://AustinHams.org) for current information about ham radio exam sessions returning.



# Amateur Radio News & Information

## New Solar Weather Website

DE W5IFQ (Lew)

<https://www.solarham.net/>

A whole new website with a much better display of solar weather. Kevin, the webmaster, has really put some thought into this site and now displays all you need to know for space weather forecasting except for Critical Frequency. That can still be found at: <https://www.region6armymars.org/resources/solarweather.php>

## Tracking Down Radio Frequency Noise Source, With Help From Mother Nature

Amateur radio operators and shortwave listeners have a common enemy: QRM, which is ham-speak for radio frequency interference caused by man-made sources. Indiscriminate, often broadband in nature, and annoying as hell, QRM spews forth from all kinds of sources, and can be difficult to locate and fix.

But Emilio Ruiz, an operator from Mexico, got a little help from Mother Nature recently in his quest to lower his noise floor. Having suffered from a really annoying blast of RFI across wide swaths of the radio spectrum for months, a summer thunderstorm delivered a blessing in disguise: a power outage. Hooking his rig up to a battery — all good operators are ready to switch to battery power at a moment's notice — he was greeted by blessed relief from all that noise. Whatever had caused the problem was obviously now offline. [...]

Read the complete article at <https://hackaday.com/2020/09/25/tracking-down-radio-frequency-noise-source-with-help-from-mother-nature/>

## M17 Aims To Replace Proprietary Ham Radio Protocols

While M17 might sound like a new kind of automatic rifle (as actually, it is), we were referring to an open source project to create a ham radio transceiver. Instead of paraphrasing the project's goals, we'll simply quote them:

*The goal here should be to kick the proprietary protocols off the airwaves, replace DMR, Fusion, D-Star, etc. To do that, it's not just good enough to be open, it has to be legitimately competitive.*

Like some other commercial protocols, M17 uses 4FSK along with error correction. The protocol allows for encryption, streaming, and the encoding of callsigns in messages. There are also provisions for framing IP packets to carry data. The protocol can handle voice and data in a point-to-point or broadcast topology. [...]

Read the complete article at <https://hackaday.com/2020/10/02/m17-aims-to-replace-proprietary-ham-radio-protocols/>

## Comparing Shortwave Antennas with RTL-SDR and Python

Measuring the performance of antennas in absolute terms that can involve a lot of expensive equipment and specialized facilities. For practical applications, especially when building antennas, comparing performance in relative terms is more practical. Using cheap RTL-SDR dongles and Python, Eric Urban was able to compare the performance of two shortwave/HF antennas, and documented the entire process. [...]

Read the complete article at <https://hackaday.com/2020/09/05/comparing-shortwave-antennas-with-rtl-sdr-and-python/>  
*[This looks like an interesting application of inexpensive RTL-SDR devices with free software to compare antenna performance. It's not exactly a super-easy method, but it appears to provide some interesting and helpful data. -Editor]*

## Listening To An iPhone With AM Radio

Electronic devices can be surprisingly leaky, often spraying out information for anyone close by to receive. Docter Cube has found another such leak, this time with the speakers in iPhones. While repairing an old AM radio and listening to a podcast on his iPhone, he discovered that the radio was receiving audio the from his iPhone when tuned to 950-970kHz.

Docter Cube states that he was able to receive the audio signal up to 20 feet away. A number of people responded to the tweet with video and test results from different phones. It appears that iPhones 7 to 10 are affected, and there is at least one report for a Motorola Android phone. [...]

Read the complete article at <https://hackaday.com/category/radio-hacks/>

*[Twenty feet away could still be a concern, even if it's within FCC Part 15 limits. Imagine your private conversations being overheard by neighbors. Be careful... Big Brother is listening! -Editor]*

(continued on page 4)

## Lockheed and Ball Aerospace Complete Testing of Multi-Band Phased Array Antenna for Space Force

Lockheed Martin and Ball Aerospace have announced the successful completion of a phased array transmit test for a Multi-Band, Multi-Mission (MBMM) antenna. The MBMM helps enable multiple satellites to simultaneously connect with a single-phased array antenna system using multiple frequencies. It increases throughput, while also shrinking the antenna's footprint. This marks a technology milestone for the United States Space Force's MBMM program and moves the team one step closer to a full end-to-end satellite communication demonstration later this summer. This transmit test follows a similar successful receive test, which occurred in February.

The prototype antenna, awarded by the Defense Innovation Unit in April 2019, features proven technologies at high maturity levels like Lockheed Martin's Horizon advanced satellite scheduler, Ball Aerospace's modular subarray and panel design, and Kratos RT Logic advanced digital signal processing. Additionally, the prototype uses a 'building block' approach that can easily scale as the number of satellites increases or as the communication needs evolve.

Read the complete article at <https://www.everythingrf.com/News/details/10817-lockheed-and-ball-aerospace-complete-testing-of-multi-band-phased-array-antenna-for-space-force>

and more at <https://spacenews.com/space-force-weighing-options-to-modernize-ground-antennas-for-military-satellites/>  
[Interesting! Can we get that for ham frequencies, please?! -Editor]

## Earth's Oxygen Could be Making the Moon Rust

It takes oxygen to make iron rust. So when scientists discovered hematite spread widely through lunar high latitudes, they were surprised. How did that happen? A new study suggests that oxygen from Earth could be playing a role in rusting the Moon. [...]

A new study suggests that the source of oxygen for lunar hematite is Earth's atmosphere. The paper is titled "Widespread hematite at high latitudes of the Moon." The lead author is Shuai Li, assistant researcher at the Hawai'i Institute of Geophysics and Planetology (HIGP) in the University of Hawai'i at M'noa School of Ocean and Earth Science and Technology (SOEST). The paper is published in the journal Science Advances.

*"Our hypothesis is that lunar hematite is formed through oxidation of lunar surface iron by the oxygen from the Earth's upper atmosphere that has been continuously blown to the lunar surface by solar wind when the Moon is in Earth's magnetotail during the past several billion years,"* Li said in a press release. [...]

Read the complete article at <https://www.universetoday.com/147683/earths-oxygen-could-be-making-the-moon-rust/>

## First Element of ARISS Next-Generation Radio System Installed and Operating on ISS

The initial element of the Amateur Radio on the International Space Station (ARISS) next-generation radio system has been installed onboard the ISS, and amateur radio operations using the new gear are now under way. The first element, dubbed the InterOperable Radio System (IORS), was installed in the ISS Columbus module. The IORS replaces the Ericsson radio system and packet module that were originally certified for spaceflight in mid-2000.

*"Finally! It's been a scramble the last few days with coordination over the weekend and yesterday with astronaut Chris Cassidy, KF5KDR,"* ARISS-US Delegate for ARRL Rosalie White, K1STO, said. *"But the new ARISS radio system is now installed, set up, and functioning. What a long road we've traveled over the past 5 years!"*

Initial operation of the new radio system is in FM cross-band repeater mode using an uplink of 145.99 MHz (CTCSS 67 Hz) and a downlink of 437.800 MHz. System activation was first observed at 01:02 UTC on September 2. Special operations will continue to be announced, ARISS said. [...]

Read the complete article at <http://www.arrl.org/news/first-element-of-ariss-next-generation-radio-system-installed-and-operating-on-iss>



# Just For Fun...



## Word Search

Can you find all the words listed below in this puzzle? The words are taken from articles, news, events, or *anywhere* in this newsletter. Can you find them in this newsletter?

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

ARISS  
ARIZONA  
BOO  
CONTESTING  
FORESTS

HALLOWEEN  
HEMATITE  
MOUNTAIN  
NOISE  
OXYGEN

PARKS  
PROTOCOLS  
PROTOTYPE  
SHORTWAVE  
SPECTRUM

## Action on the Airwaves

Looking for a way to “get out” during COVID-19 lockdown?

This is just a *sample* of the special events stations.

Check out more [activities on the air!](#)

**NOTE: Due to COVID-19 and shelter-in-place orders around the country, some events may be canceled, postponed, or modified without notice. Check the respective links for current info.**

### 09/14/2020 | Texas DX Society 50th Anniversary

Sep 14-Oct 13, 0000Z-2359Z, K5DX/50, Houston, TX.

Texas DX Society. 14.074 14.040 7.074 7.040. QSL. K5DX/50, 5303 S Mason Rd Apt 212, Katy, TX 77450. Celebration of 50 years of Contesting and DX by our members. We plan to operate on 160-10 meters, 40 KHz above lower band edge for CW, on standard FT4 & FT8 frequencies, and 40 KHz above the lower edge of the General class phone band for SSB. We will operate on the VHF/UHF bands if there is propagation.

<https://k5dx-50.tdxs.net/>

### 10/04/2020 | Nation Fire Prevention Week Special Event

**Oct 4-Oct 10**, 0001Z-2359Z, N3F, Dickson City, PA. KB3WLE.

14.250 7.245. Certificate & QSL. KD2CUO, c/o Siemens Fire Safety USA, 8 Fernwood Road, Florham Park, NJ 07932.

<http://hamfire.com/>

### 10/10/2020 | Arizona QSO Party

Oct 10-Oct 11, 1500Z-0500Z, W7A, Tucson, AZ. Radio Society of Tucson. 14.248 14.048 7.189 3.848. Certificate. Bill, Clark, 222 N Suntan Dr, Vail, AZ 85641. <https://www.azqsoparty.org/>

### 10/10/2020 | Third Annual Get Your Parks ON!

Oct 10-Oct 18, 0000Z-2359Z, Various, Various. World Wide Flora and Fauna. 14.244 14.044 10.124 7.044. Certificate. N9MM, 4245 Holstein Dr., Cleveland, TX 77328. In celebration of Earth Science Week. The event is open to Amateur Radio operators around the world and is sponsored by the U.S. affiliate of World Wide Flora and Fauna.

During this International and on-the-air celebration hams throughout the world can participate in one of two ways. First, hams can be Activators who will set up and operate their radio stations in geological and nature centers, be they places like National or State Parks, National Monuments, protected nature habitats, or National or State Forests. Or they can be Hunters that will operate from their home stations, search out the Activators, and make over-the-air radio contacts. Get Your Park ON! will start October 10 at 0000 UTC and run through October 18 at 2359 UTC. Operators from around the world are encouraged to participate in this year’s International event. Adjunct to the Get Your Park ON! on the air activities, Earth Science Week 2020 <http://www.wvff.us/>

(continued at right)

### 10/31/2020 | A Night On Bald Mountain

Oct 31-Nov 1, 2100Z-0500Z, WA4TRS, Fairview, NC. The Road Show Amateur Radio Club Inc.. 7.250. Certificate & QSL. The Road Show ARC, 57 Echo Lake Drive, Fairview, NC 28730. Join Us, for a Night in The Cemetery on Top of Bald Mountain, don't worry there are accommodation available for YOU! Just Check the Website

<https://roadshowarc.org/>

### 10/31/2020 | Boo to You !

Oct 31-Nov 1, 0000Z-0559Z, KC5BOO, Cleburne, TX. KC5BOO. 14.240. QSL. Judy Cox, 3701 Park Rd. 21, Cleburne, TX 76033. [kc5boo@yahoo.com](mailto:kc5boo@yahoo.com)

### 10/31/2020 | Halloween from Transylvania (LA)

Oct 31, 1400Z-2230Z, K5ZRO, Transylvania, LA. Vicksburg Amateur Radio Club. 7.270 SSB 14.270 SSB. Certificate. Malcolm Keown, 64 Lake Circle, Vicksburg, MS 39180. [Info@vicksburgarc.club](mailto:Info@vicksburgarc.club) or <http://www.vicksburgarc.club/>



## AARC Monthly Meeting Info

Tuesday, October 6, 2020 / 7:00pm to 9:00pm

Location: ONLINE - Email invite  
See Page 2 for more info

### Meeting Topic

*A Beginner's Intro to WSPRnet (with live demo)*  
By Michael Skurka, K5MSK

*Solar Wx Summary*, by Lew, W5IFQ

## Upcoming Amateur Exams: 2020

ARRL VE - Please visit  
[http://www.austinsummerfest.org/VEC/ARRL\\_1st\\_Sat\\_Exams.html](http://www.austinsummerfest.org/VEC/ARRL_1st_Sat_Exams.html)  
for details and list of scheduled exams.

**All exams CANCELED until further notice**

For more info, contact:

Joe Makeever, W5HS (512-345-0800)

W5YI VEC - **All exams CANCELED until further notice**

2 p.m. In Room 118, Fleck Hall,  
St. Edwards University. \$14 fee.

For more info, contact:

Craig, AC5KW [at] ARRL.net

## 2020 - Calendar of Events

~~Oct 2-3~~ – Belton Ham Expo (Fall)

**Canceled due to COVID-19 threat.** <http://www.tarc.org/hamexpo>

Oct 3 – Deep South ARC Hamfest

**Canceled due to COVID-19 threat.** <http://k4dsr.com/>

Oct 10 – Deep East Texas Amateur Radio Club tailgate sale

Per Terry W5PCJ: Grace Baptist church in Lufkin Texas, same location as last year. Tailgating starts at 8am. Sellers are asked to pay \$5 for a donation to the church for the use of the space.

<http://detarc.net/>

Oct 17 – South Texas Hamfest & Electronics Expo

**Canceled due to COVID-19 threat.**

"TEXAS FASTEST GROWING HAMFEST"

San Patricio County Fairgrounds - Event Center

Located at 219 W. 5th Street, Sinton, Texas.

Doors open to the Public 8:00AM - 3:00PM

Talk-In Frequency- 147.08(+), 107.2 PL

<https://squareup.com/store/south-texas-hamfest>

southtexashamfest@gmail.com or call 361-947-5665

<http://southtexashamfest.org/> for details

Oct 14 – Oct 24 F.A.R.T.S. Tailgate Swapfest

Tailgate only - no tables provided. No fees.

Coffee/water provided, but no food.

05:00-13:00 2645 Kallus Road, La Grange, TX 78945

A new one by James NA5RC

James: *"I'm tired of no swapfests and so I'm hosting a tailgate on Oct 24th at my place(in La Grange)."*

Talk in 147.38 or 145.40 or 147.01 (all Tone 114.8)

James NA5RC na5rc@na5rc.net

~~Oct 23-24~~ – 73rd Annual Texoma Hamarama

**(postponed until 2021)**

For latest updates on Texoma Hamarama, send your email address to: [texomahamarama@gmail.com](mailto:texomahamarama@gmail.com)

<http://www.hamarama.org/>

Decker Lake Challenge has been officially **canceled due to COVID-19 threat**

### 2021 EVENTS

Feb ?? 2021 – (will update when the date is set) 30th Annual

Lou Withrow Austin/South Central Texas SkyWarn

9 am to 4 pm - BASIC & ADVANCED TRAINING

(by NWS Austin/San Antonio)

ACC Eastview Campus, Building 8500

3400 Webberville Road, Austin, TX 78702

Hosted by Troy Kimmel KE5BCK

<http://www.la.utexas.edu/users/kimmel/skywarn.html>

Any questions- [tkimmel@austin.utexas.edu](mailto:tkimmel@austin.utexas.edu)

Mar 5-6 2021 – Greater Houston Hamfest (Rosenberg)

Hosting the ARRL Texas State Convention

2021 Greater Houston HamFest will be our 20th year

Fort Bend County Fairgrounds, 4200 Highway 36, Rosenberg TX-

Friday, March 05, 2021 12 pm to 8 pm - Vendor Setup Only

Saturday, March 06, 2021 Setup - 6AM - 8AM

Main event - 8AM - 2PM

Talk In 146.94 / Tone 167.9

<http://www.houstonhamfest.org/>

HamFest Hotline 401-584-GHHF (4443)

713-502-5896 and/or 713-569-8799

Mar 13-14 2021 – QSO Today's Virtual Ham Expo!!

Next in the series of fine on-line conventions

First one was August 2020

<https://www.qsotodayhamexpo.com/>

May 1-2 2021 – MS-150 Bike Ride

Sign-up information will be available on

<http://texasms150hams.org/>

More info & events listed in the [SwapNet Newsletter!](#)

Visit <http://austinhams.org/swapnet>

## Upcoming Meetings...

Oct	Nov	Frequency	Austin Meetings/Happenings	Time	Address
6	3	1st Tuesday	AARC Meeting @ ONLINE	7:00pm	ONLINE - See page 2
27	24	4th Tuesday	Travis County ARES @ ON-AIR	7:00pm	ONLINE - See groups.io for info
20	17	3rd Tuesday	CTDXCC @ Baby Acapulco	6:30pm	9505-B Stonelake Blvd

\* Note: Meetings may occasionally change date or location due to holidays or other events. Check here or their respective websites for updates.

If your club is listed here and has incorrect time or dates, please let us know!

Email: editor [at] austinhams.org

Please include complete details of what needs to be updated.

**DUE TO COVID-19 (coronavirus), in-person meetings are CANCELED.**  
Some are being held online/on-air. Check with their respective leaders for info.

## Periodic Events - In the Area and On-the-Air

Sun	7:00 p.m.	Travis Co. ARES net	147.360 MHz - (131.8)
Sun	1900-Wed 2359	Travis Co. ARES WinLink Wednesday	145.730 MHz
Sun	8:00 p.m.	Williamson Co. ARES net	146.640 MHz - (162.2)
Sun	9:00 p.m.	AARC SwapNet	146.940 MHz - (107.2)
Mon	7:30 p.m.	STX ARES Net	3.873 MHz
Tue	7:30 p.m.	Hays ARES net	147.100 MHz +
Tue	8:00 p.m.	Bastrop ARES Net	443.750 MHz + (114.8)
Wed	10:00 a.m.	Ham Social Brunch, Jim's	146.940 MHz - (107.2)
Thu	9:00 p.m.	2m SSB Net	144.250 MHz (USB)
Thu	11:00 a.m.	Lunch, Pokey Joe's 183&Great Hills	444.100 MHz+
Thu	11:45 a.m.	Lunch, Whataburger, <b>ONLINE</b>	146.940 - (107.2)
		Contact Gene at <b>wa5ac</b> [[at]] arrl.net for instructions to receive invitation to meetings	
Fri	8:00 p.m.	6m SSB Net	50.230 (texasvhf.org/)
Sat	7:00-8:30 a.m.	Breakfast @ Waterloo Ice House	444.100 MHz +
Sat	9:00 a.m.	Chapter 67 QCWA QSO Net.	3.920 MHz LSB
Sat	7:00 p.m.	AARC Elmer Net	146.940 MHz - (107.2)
Daily	6:30 p.m.	Central Texas Traffic Net	147.140 MHz+



I continually run out of material and am interested in articles for publishing in this newsletter. Personal experiences are fantastic! Have you worked or played with a new technology? Or maybe you're one of the more experienced operators in our community. What changes have you seen in amateur radio throughout the years?

You don't have to be a Pulitzer Prize winner to submit an article. I'll take anything, but would love to get articles that are at least two pages in length (single-spaced). Photos are great, too! Please remember, any submissions need to be free of copyrights. Creative Commons are okay, but I will need references to be able to publish them with attribution.

Thanks & 73 DE K5MSK, Editor

### IMAGE CREDITS

Page: Over The WWWaves - Image: Radio Wave background image © Can Stock Photo Inc. / Italianestro

Page: Just For Fun- Image: Fun Zone, © Can Stock Photo / iqoncept



# Minutes of the Regular Membership Meeting of September 1, 2020

## The Austin Amateur Radio Club (AARC)

This is the Club's ~~7th~~ sixth General Meeting on Zoom.  
Mark Jenkins, W5MPJ, Treasurer, hosts the Zoom meetings  
Kerby Spruiell, KG5DLD, President, started the meeting at 7 pm with a slide presentation  
AARC officers were introduced.  
There were 54 people in attendance.

### New Members:

KI5HHD - Jim Horton  
K4LEX - Alex Bautista – 2020 Jim Greenwood Scholarship Winner  
KB8BFM - Charles Hawes

### Visitors:

Larry Crabtree

### Visitors with no calls yet:

Elizabeth & Tarron Evertson  
Lenny Lumberg  
Tyler Hand

### New Call Signs:

Alex Bautista – K4LEX

### Ham of the Month for September

Jeff Schmidt

### Old Business:

#### Treasurer Report by Mark Jenkins:

Three new paid members in August.  
Approximately \$10,500 in bank accounts.  
We use the dues to keep the Austin repeaters going and repaired.

#### Media Committee:

Looking for a new Webmaster and *AARCOVER* editor.  
Several people have volunteered for new Media Committee.

### Special Interest Groups:

#### ARES – Michael Marks

ARES was not needed during Hurricane Laura

#### Technical Committee

No report

### New Business:

Use your free time during the pandemic to join various nets. See website for net list

### Solar Weather – Lewis Thompson, W5IFQ

Very good program tonight. See the slide presentation on the [AustinHams.org](http://AustinHams.org) web site.  
(Click *Technical* on the top menu to see the list of presentations. -Editor)

### Program – Michael Marks, KG5RXG – ARES Overview

Excellent overview program tonight. Please find the slide show on [AustinHams.org](http://AustinHams.org)  
(Click *Technical* on the top menu to see the list of presentations. -Editor)



The Austin Amateur Radio Club, Inc. (AARC) has annual membership dues of \$20.00 per person or \$30.00 per family.

### **CLUB REPEATERS**

AARC maintains the following repeaters:

Frequency (MHz)	PL Tone (Hz)	Use / Notes
146.780 (-)	-	2m D-STAR repeater [W5KA C]
146.880 (-)	107.2	Analog/Digital Fusion (Yaesu)
146.940 (-)	107.2	Most popular, TCARES WxNet, SwapNet
224.800	-	-
440.650 (+5)	-	70cm D-STAR repeater [W5KA B]
444.100	-	-
444.200	107.2	-
1293.100 (-20)	-	23cm D-STAR repeater [W5KA A]
1248.200	-	23cm D-STAR DD (data, simplex/Reversible) [W5KA A]

Persons using the repeaters are encouraged to join the club to help support these valuable resources.

Note: **No** AARC repeater has **auto-patch** capability any longer.

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**The Austin Amateur Radio Club offers annual scholarships to licensees living in Travis, Williamson, Bastrop, Hays, Blanco, Caldwell, and Burnet counties.** Please see <http://austinhams.org/scholarships> for more information.

### **OFFICERS**

President	Kerby Spruiell	KG5DLD	president [at] austinhams.org
Vice President	Lew Thompson	W5IFQ	vice-president [at] austinhams.org
Treasurer	Mark Jenkins	W5MPJ	treasurer [at] austinhams.org
Secretary	Joan Cox	KD4SRD	secretary [at] austinhams.org

### **Other Contacts**

Technical (Repeater Contact)	Roy Walker	WA5YZD	wa5yzd [at] arrl.net
ARRL Travis Co. Emer. Coord.	Michael Marks	KG5RXG	kg5rxg [at] arrl.net
TCARES PIO	Jimmy Earl	WB5MET	pio [at] austinhams.org
Editor (AARCOVER, website)	Michael Skurka	K5MSK	editor [at] austinhams.org

\* Replace [at] with @ in email addresses.

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