TORC newsletter

Seventh edition

Photo by Chris Seger

Photo by John Payton

references

Click on titles below to go there

*Clicking on **references** at the bottom of any page returns you to this area of the newsletter.*

CLUB OFFICERS

GROUPS.IO

ToRC website

Contest Calendar March, 2021

NEWS BITS

TIPS, TRICKS AND LINKS

QSO Today Virtual Ham Expo February 3, 2021 Update

A New Form of Space Weather: Earth Wind

HAM RADIO SIGNALS FROM MARS

FROM OUR MEMBERS

FDSERVER TO CABRILLO

PURPOSE

CLUB OFFICERS

President   (K7AZT Paul Seger)

Vice President   (W8TK TOM Kravek)

Secretary   (W7HD Ron Herring)

& Newsletter Editor

Treasurer   (AE9Q Dave Dostie)

 GROUPS.IO

Scott K7ADX has set up a groups.io board for TORC.

They click the address ToRC+subscribe@groups.io or copy and paste that address and send an email. They have to get an account – really simple. It only takes a minute.

Once they ask to join I will accept them and off we go.

Send members here: https://groups.io/g/ToRC

Once folks get in we can start communicating that way along with email, set up some topics where folks can interact, etc.

The ToRC website is up and running and can be viewed at

https://tortolita-rc.com.

It has the essentials on it for now. We can improve on it as things settle down.

When an email is sent to contact@tortolita-rc.com I receive it and forward it on to the appropriate person.

Comments and suggestions are welcome.

73
Frank N1UW

Contest Calendar March, 2021

by Tom Kravec W8TK

¿ **Que es Cabrillo** ? If you have ever wanted to submit a contest log to the sponsor, you have been told it must be in Cabrillo (ka-bree-yo) format. That format was created by Trey Garlough N5KO, a renowned contester, and is accepted as the standard for submitting contest logs by all contest sponsors. If you use N1MM Logger (and you should!), at the end of the contest go to FILE>Generate Cabrillo File. You will be prompted to make sure the file has the correct contest and exchange information. Then you will be given the option to edit the file. It's a simple text file and usually comes up on Notepad if you agree to edit. The first dozen lines give your call, name, address, power, class, etc. Make sure that's correct. Then SAVE the file and remember where you put it. You can either email it according to the contest rules or submit via web app if the contest allows. You can also submit the file to Logbook of the World as it stands. Details on Cabrillo:

http://www.arrl.org/files/file/Contest%20-%20General/Tutorials/Submitting%20An%20Electronic%20Contest%20Log.pdf

What is ADIF? This is a different format (Amateur Data Interchange Format) containing the same information as Cabrillo and a bit more. N1MM can also export your contest log in ADI format, but contest sponsors probably won't accept it. Logbook of the World will however. But ADI is useful for moving logs from one program to another. For instance, if you logged the contest with N1MM, you can move it to HRD, DXLabSuite, DX4WIN, and many others. You can also generate an ADI file from a paper and pencil log. A free program I find useful will help you work with ADI files: http://www.dxshell.com/adif-master.html

This month:

ARRL DX SSB: March 6,7 (48 hours). This is a big one and bands will be packed end to end. Don't attempt running (calling CQ) unless you have big antenas. With 100 watts and a wire, your best shot will be Sunday afternoon, by which time the big boys will be looking for fresh meat. Work only DX. Details: arrl.org/arrl-dx

South America 10 meter contest: March 13,14, SSB and CW, 10 meters only. If 10 meters is open to anywhere, it will be transequatorial propagation to South

America. Could be lively, could be a snore. Check RBN, PSK reporter, and DX Summit to see who's on.

Detaiils: **http://sa10m.com.ar/cqsa10m_rules.html**

North American Sprint, RTTY March 13,14, RTTY only. 4 hour contest with unusual rules that forbid sitting on a frequency and calling CQ. 80, 40, 20 meters only. Sprints are surprisingly popular despite the arcane rules. Check www.ncjweb.com/Sprint-Rules.pdf

Contest season is winding down but still lots happening: www.contestcalendar.com

73 de W8TK   Actually in Tortolita!

"There, now you can stop asking me what the password is!"

I was MOQP Arizona second place. Certificate arrived 2 weeks ago. My log shows 18 contacts. Maybe I botched a county or two.

Now I know who to beat next year. ;-)

73, Paul
K7AZT

Mailman just delivered to me a certificate for submitting the winning Arizona log in the Missouri QSO Party 2020. I checked my log and I made only 17 contacts, but apparently no other AZ station made more, so the certificate is mine. Some years ago I got a certificate from the Florida QSO Party in which I made only ONE contact! All you need to do is generate a Cabrillo file from your logging software and either email or upload it according to the sponsor's rules. Takes a minute or two, and if your goal is to wallpaper your shack with award, this is a good way to start.

73 de W8TK

2020 Missouri QSO Party

April 4-5, 2020

The Boeing Employees'
Amateur Radio Society – St. Louis

Presents this
Certificate of Accomplishment to:

TOM KRAVEC
W8TK

FIRST PLACE
ARIZONA

Dave Propper, K2DP

Dave Propper — K2DP, President
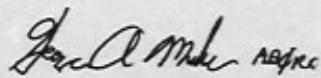
George Mackus — AB0RX, Contest Coordinator

NEWS BITS

On 2/7/21 1:20 PM, JP Tucson, AZ wrote:

Apparently due to a fire at a semiconductor factory, Yaesu will discontinue the FTdx3000 & FTdx5000 model radios; reason said to be due to lack of parts availability.

This same factory fire is also claimed to be the reason behind Kenwood ending production of the TH-D74A HT.
Source: https://youtu.be/1bRI7FeCjQw

QSO Today Virtual Ham Expo February 3, 2021 Update

QSO Expo Announces Integration of GroundBreaking Video Technology

The QSO Today Virtual Ham Radio Expo (https://www.qsotodayhamexpo.com) scheduled for March 13-14, 2021 is proud to announce that it is partnering with Airmeet, a groundbreaking conference technology company, to dramatically improve the virtual interaction and networking experience for all attendees.

By integrating Airmeet's technology into the Expo, attendees will take advantage of live round table video chat to interact with each other, with exhibitors, and speakers. This includes:

- The outside of each virtual speaker auditorium will now feature a virtual lounge with tables and chairs to facilitate live video "hallway meetups", similar to what is found at an in-person event. Attendees can now pull up a chair and meet face to face using live video chat for a real "eyeball QSO" with friends and new friends.
- Exhibitor booths will now incorporate virtual tables where small groups of booth visitors can virtually sit with exhibit staff to share product demos, answer questions, schmooze, and take orders - all done with live video chat technology.
- The Expo team will leverage Airmeet's technology to create virtual lounges throughout the Expo to enable high quality video networking and discussion. This includes tables on specific subject areas such as HOA Antennas and Software Defined Radio, so that amateur radio operators can discuss specific topics of interest with each other.

- Attendees can now easily search for people they want to meet up with at the Expo using their call sign and then make a plan to meet at one of the lounges.

Said Eric Guth, 4Z1UG, QSO Today host, "we are committed to improving every Expo to ensure that our attendees continue to get a world-class user experience. Based on the extensive feedback we received at our last Expo, we recognized that we had to dramatically improve the way that attendees, exhibitors, and speakers interact and engage with each other. Airmeet provides us with the technology to take our Expo to the next level."

"Airmeet is thrilled to be chosen to partner with the QSO Today Virtual Ham Radio Expo. With Airmeet's technology the Expo will provide a virtual experience that feels much closer to a physical event. The Expo community can now come together and engage in a powerful way that fosters more meaningful and high quality conversations with each other" said Airmeet's Co-Founder Manoj Singh.

Early bird registration for the Expo can be found at https://www.qsotodayhamexpo.com

About the QSO Today Ham Radio Expo: The QSO Today Expo offers the opportunity to learn from many great speakers, meet with exhibitors to see the latest technology, and engage with fellow ham radio operators without leaving their home ham shack. And attendees save thousands of dollars since there are no travel, food, or lodging expenses!

About AIrmeet: Airmeet is the fastest growing platform for hosting a rich variety of virtual events. From Hackathons to ice-breakers, panel discussion to workshops, Airmeet's intuitive experience delivers on organisers' expectations for a wide range of events. Every event on Airmeet takes place in a virtual "ballroom" which is customized in appearance and seating arrangements to deliver a specific experience and highly relevant interactions among the participants.

Press contact:

Brad Grob

brad@qsotodayhamexpo.com

+1-213-577-0092

Ham-Com 2021 - Closed

Bill, AB5QZ President - Ham-Com, Inc.

It is with a heavy heart that I write this letter about the future of Ham-Com. After 41 years, Ham-Com (Texas) has decided to close its doors in lieu of the restrictions in place for COVID-19 and the rising costs of putting on a show. The decision was not made lightly, but the safety and wellness of our volunteers, vendors, clubs, presenters, and attendees is our paramount concern.

We sincerely thank each and every person for their support over the past years. This starts with clubs who have participated in offering forums, transmitter sessions, VE sessions, talk-ins, and many more things through the years.

Next, to the commercial and flea market vendors who have helped new hams get their first radio to established hams who are building the ultimate ham shack, we thank you for returning year over year. To the volunteer staff, functional directors, and access control, your dedication and hard work have contributed to the continued success of the show for 41 years. Finally, to our attendees. Without you, there is no show. Over 41 years, we have met a variety of people with one common passion, amateur radio. Ham-Com is proud to contribute to bringing people together to enjoy this passion. We will definitely miss this gathering of the broader community.

Our thoughts and best wishes to you and your families and "see you on-the-air".

https://sites.google.com/hamcom.org/ham-com

SB SPACE @ ARL $ARLS003

ARLS003 CAPE-3 CubeSat Launched

ZCZC AS03
QST de W1AW
Space Bulletin 003 ARLS003
From ARRL Headquarters
Newington, CT February 16, 2021
To all radio amateurs

SB SPACE ARL ARLS003
ARLS003 CAPE-3 CubeSat Launched

The University of Louisiana (UL) at Lafayette student-built CAPE-3 satellite was launched on January 17. A 1-U CubeSat, CAPE-3 includes a "digipeater and experimental UHF adaptive radio." An AX-25 telemetry downlink has been coordinated on 145.825 MHz and a 1k2 frequency-shift keying (FSK) downlink has been coordinated on 435.325 MHz, "which may burst to 100 kHz bandwidth," according to the IARU Amateur Satellite Coordination page.

CAPE-3 is the third cube satellite in the CAPE series. The primary educational mission is to allow grade-school classrooms to access the Smartphone CubeSat Classroom, and run interactive experiments through an experimental smartphone ground-station grid.

The secondary mission is to perform scientific experiments involving radiation detection and take pictures of Earth.

The solar-powered spacecraft, created by UL Lafayette's CAPE Satellite Team, was launched with nine other CubeSats as part of NASA's Educational Launch of Nanosatellites (ELaNa) program. A Virgin Orbit LauncherOne rocket attached beneath a wing of a customized Boeing 747 was dropped high above the Pacific Ocean. It climbed about 225 miles above Earth and then ejected the satellite.

Information on the ElaNa program can be found in PDF format at,
https://www.nasa.gov/sites/default/files/atoms/files/lsp_elana_20_fact_sheet.pdf
.
The CAPE satellites are named for the university's Cajun Advanced Picosatellite Experiment program, designed to prepare students for careers in science, technology, engineering, and mathematics (STEM) fields.
NNNN

WSJT-X 2.4.0 Introduces New Digital Protocol Q65

12/31/2020

WSJT-X version 2.4.0 has introduced a new digital protocol called Q65, which is designed for "minimal two-way QSOs over especially difficult propagation paths," the Quick Start Guide says.

https://physics.princeton.edu/pulsar/k1jt/Q65_Quick_Start.pdf

"On paths with Doppler spread more than a few hertz, the weak-signal performance of Q65 is the best among all WSJT-X modes. Q65 is particularly effective for tropospheric scatter, ionospheric scatter, and EME on VHF and higher bands, as well as other types of fast-fading signals."

The new protocol uses 65-tone frequency-shift keying and builds on the demonstrated weak-signal strengths of QRA64, introduced in 2016. User messages and sequencing are identical to those in FT4, FT8, FST4, and MSK144. Q65 employs a "unique tone" to sync time and frequency. "As with JT65, this 'sync tone' is readily visible on the waterfall spectral display," the Guide said. "Unlike JT65, synchronization and decoding are effective even when meteor pings or other short signal enhancements are present.

Transmit/receive sequence lengths of 15, 30, 60, 120, and 300 seconds are available. According to the Guide, "Q65 will enable stations with a modest Yagi and 100 W or more and to work one another on 6 meters at distances up to ~1600 kilometers at most times, in dead band conditions."

FCC Reduces Proposed Application Fee

From the ARRL

FCC Reduces Proposed Amateur Radio Application Fee to $35

12/30/2020

The FCC has agreed with ARRL and other commenters that its proposed $50 fee for certain amateur radio applications was "too high to account for the minimal staff involvement in these applications." In a Report and Order (R&O), released on December 29, the FCC scaled back to $35 the fee for a new license application, a special temporary authority (STA) request, a rule waiver request, a license renewal application, and a vanity call sign application. All fees are per application.

There will be no fee for administrative updates, such as a change of mailing or email address.

This fall, ARRL filed comments in firm opposition to the FCC proposal to impose a $50 fee on amateur radio license and application fees and urged its members to follow suit.

As the FCC noted in its R&O, although some commenters supported the proposed $50 fee as reasonable and fair, "ARRL and many individual commenters argued that there was no cost-based justification for application fees in the Amateur Radio Service." The fee proposal was 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."

"After reviewing the record, including the extensive comments filed by amateur radio licensees and based on our revised analysis of the cost of processing mostly automated processes discussed in our methodology section, we adopt a $35 application fee, a lower application fee than the Commission proposed in the NPRM for personal licenses, in recognition of the fact that the application process is mostly automated," the FCC said in the R&O. "We adopt the proposal from the NPRM to assess no additional application fee for minor modifications or administrative updates, which also are highly automated."

The FCC said it received more than 197,000 personal license applications in 2019, which includes not only ham radio license applications but commercial radio operator licenses and General Mobile Radio Service (GMRS) licenses.

The FCC turned away the arguments of some commenters that the FCC should exempt amateur radio licensees. The FCC stated that it has no authority to create an exemption "where none presently exists."

The FCC also disagreed with those who argued that amateur radio licensees should be exempt from fees because of their public service contribution during emergencies and disasters.

"[W]e we are very much aware of these laudable and important services amateur radio licensees provide to the American public," the FCC said, but noted that specific exemptions provided under Section 8 of the so-called "Ray Baum's Act" requiring the FCC to assess the fees do not apply to

amateur radio personal licenses. "Emergency communications, for example, are voluntary and are not required by our rules," the FCC noted. "As we have noted previously, '[w]hile the value of the amateur service to the public as a voluntary noncommercial communications service, particularly with respect to providing emergency communications, is one of the underlying principles of the amateur service, the amateur service is not an emergency radio service.'"

The Act requires that the FCC switch from a Congressionally-mandated fee structure to a cost-based system of assessment. 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, which had been excluded previously. The 2018 statute excludes the Amateur Service from annual regulatory fees, but not from application fees.

"While the Ray Baum's Act amended Section 9 and retained the regulatory fee exemption for amateur radio station licensees, Congress did not include a comparable exemption among the amendments it made to Section 8 of the Act," the FCC R&O explained.

The effective date of the fee schedule has not been established, but it will be announced at least 30 days in advance.

The FCC has directed the Office of Managing Director, in consultation with relevant offices and bureaus, to draft a notice for publication in the Federal Register announcing when rule change(s) will become effective, "once the relevant databases, guides, and internal procedures have been updated."

https://docs.fcc.gov/public/attachments/FCC-20-184A1.pdf

TIPS, TRICKS AND LINKS

 How to Use the restic Backup Program on Linux
- Safeguard your precious files and irreplaceable photos with the restic backup program. It's fast, encrypted, and you can use it straight from the Linux command line. Here's how to set it up.

How to Process a File Line by Line in a Linux Bash Script
- It's pretty easy to read the contents of a Linux text file line by line in a shell script—as long as you deal with some subtle gotchas. Here's how to do it the safe way.

What Is End-to-End Encryption, and Why Does It Matter?

- End-to-end encryption (E2EE) ensures that your data is encrypted (kept secret) until it reaches an intended recipient. Whether you're talking about end-to-end encrypted messaging, email, file storage, or anything else, this ensures that no one in the middle can see your private data.

How to Automatically Resume Applications When Logging in on Windows 10

- Sometimes you're in the middle of a productive session in Windows 10, but you need to log out or restart your machine. Normally, you might need to start your session over again. But with a quick change in Settings, Windows can remember and re-open your non-legacy apps automatically when you log back in. Here's how to set it up.

https://www.howtogeek.com/162120/how-to-install-ubuntu-linux-on-your-chromebook-with-crouton/

- Chromebooks aren't "just a browser"—they're Linux laptops. You can easily install a full Linux desktop alongside Chrome OS and instantly switch between the two with a hotkey, no rebooting necessary.

- We've performed this process with the Samsung Series 3 Chromebook, the original Chromebook Pixel, and the ASUS Chromebook Flip, but the steps below should work on any Chromebook out there.

- *Update*: Google has added native support for Linux apps directly to Chrome OS, and this feature is available on many Chromebooks. You don't need Crouton to run Linux software anymore.

I've had a number of requests now about my DIY loops so have posted a series of three articles on my blog. I quickly adapted these from a series I published in QRP Quarterly so hope I haven't left anything essential out.
https://k4lxycw.wixsite.com/blog

73 Howard K4LXY

Re: KX3-KXPA100-SignaLink
From: Dave_G0WBX
Date: Mon, 01 Feb 2021 13:09:16 MST

Hi.

Computer generated CW is also possible with Fldigi (and no doubt other programs) just using the sound card with the radio in SSB mode. You don't "Need" yet more hardware!

The keying and envelope shaping is usually cleaner than most "hardware" keyed rigs. And you can go faster too, if that's what you need.

I don't know for sure, but I often get the impression that many people just don't understand and appreciate the relationship between the radio's "dial frequency", which side-band is in use, and the audio frequency the software is using.   (As evidenced by the FT8 mess on 60m in the UK, where most of that "slot" is outside our permitted frequency range!)

However, with Fldigi at least, you can have the "in-the-air" signal frequencies displayed at the top of the waterfall, irrespective of side-band or dial setting, showing the actual true signal frequency you are working on..

But each to their own.

73.

Dave G8KBV.

QSO Today Virtual Ham Expo February 3, 2021 Update

QSO Expo Announces Integration of GroundBreaking Video Technology

The QSO Today Virtual Ham Radio Expo (https://www.qsotodayhamexpo.com) scheduled for March 13-14, 2021 is proud to announce that it is partnering with Airmeet, a groundbreaking conference technology company, to dramatically improve the virtual interaction and networking experience for all attendees.

By integrating Airmeet's technology into the Expo, attendees will take advantage of live round table video chat to interact with each other, with exhibitors, and speakers. This includes:

- The outside of each virtual speaker auditorium will now feature a virtual lounge with tables and chairs to facilitate live video "hallway meetups", similar to what is found at an in-person event. Attendees can now pull up a chair and meet face to face using live video chat for a real "eyeball QSO" with friends and new friends.
- Exhibitor booths will now incorporate virtual tables where small groups of booth visitors can virtually sit with exhibit staff to share product demos, answer questions, schmooze, and take orders - all done with live video chat technology.
- The Expo team will leverage Airmeet's technology to create virtual lounges throughout the Expo to enable high quality video networking and discussion. This includes tables on specific subject areas such as HOA Antennas and Software Defined Radio, so that amateur radio operators can discuss specific topics of interest with each other.
- Attendees can now easily search for people they want to meet up with at the Expo using their call sign and then make a plan to meet at one of the lounges.

Said Eric Guth, 4Z1UG, QSO Today host, "we are committed to improving every Expo to ensure that our attendees continue to get a world-class user experience. Based on the extensive feedback we received at our last Expo, we recognized that we had to dramatically improve the way that attendees, exhibitors, and speakers interact and engage with each other. Airmeet provides us with the technology to take our Expo to the next level."

"Airmeet is thrilled to be chosen to partner with the QSO Today Virtual Ham Radio Expo. With Airmeet's technology the Expo will provide a virtual experience that feels much closer to a physical event. The Expo community can now come together and engage in a powerful way that

fosters more meaningful and high quality conversations with each other" said Airmeet's Co-Founder Manoj Singh.

Early bird registration for the Expo can be found at https://www.qsotodayhamexpo.com

About the QSO Today Ham Radio Expo: The QSO Today Expo offers the opportunity to learn from many great speakers, meet with exhibitors to see the latest technology, and engage with fellow ham radio operators without leaving their home ham shack. And attendees save thousands of dollars since there are no travel, food, or lodging expenses!

About AIrmeet: Airmeet is the fastest growing platform for hosting a rich variety of virtual events. From Hackathons to ice-breakers, panel discussion to workshops, Airmeet's intuitive experience delivers on organisers' expectations for a wide range of events. Every event on Airmeet takes place in a virtual "ballroom" which is customized in appearance and seating arrangements to deliver a specific experience and highly relevant interactions among the participants.

Press contact: Brad Grob   brad@qsotodayhamexpo.com   +1-213-577-0092

----- Forwarded Message -----

From: Keith Schlottman KR7RK <keithschlottman@gmail.com>

To: "torc@groups.io" <torc@groups.io>

Sent: Friday, February 12, 2021, 08:01:20 PM MST

Subject: [ToRc] Pluto Special Event

The Northern Arizona DX Association (NADXA) is doing a 10-year special event to celebrate the discovery of the planet Pluto.

That's right, it's a TEN YEAR event! Work W7P each year as they count down to the 100th anniversary of Clyde Tombaugh's important discovery of the ninth planet right here in Arizona at the Lowell Observatory in Flagstaff.

W7P for 2020 will be active from Feb 13 - Feb 21, 2021 this year. There is an operator calling CQ on 7.270 right now, as well as 7.285, and also 7.074 FT8. (At about 0300 UTC on Friday evening local).

I'll be using W7P on a SOTA activation from a nearby summit at some point over the next few days (Mars Hill isn't high enough to qualify as a SOTA summit). Some operators will be working from Lowell Observatory, others from their homes, and Clyde's nephew Doug, N3PDT will be operating as W7A/0. There will be multiple operators on pretty much all amateur bands so you should be able to work somebody during the event.

More info at https://www.nadxa.com/w7p_pluto_2030.html

GL es CU,
Keith KR7RK

https://spaceweatherarchive.com/2021/02/12/a-new-form...

Spaceweather.com

A New Form of Space Weather: Earth Wind

FEBRUARY 12, 2021   DR.TONY PHILLIPS

Feb. 12, 2021: The sun is windy. Every day, 24/7, a breeze of electrified gas blows away from the sun faster than a million mph. Solar wind sparks beautiful auroras around the poles of Earth, sculpts the tails of comets, and scours the surface of the Moon.

Would you believe, Earth is windy, too? Our own planet produces a breeze of electrified gas. It's like the solar wind, only different, and it may have important implications for space weather on the Moon.
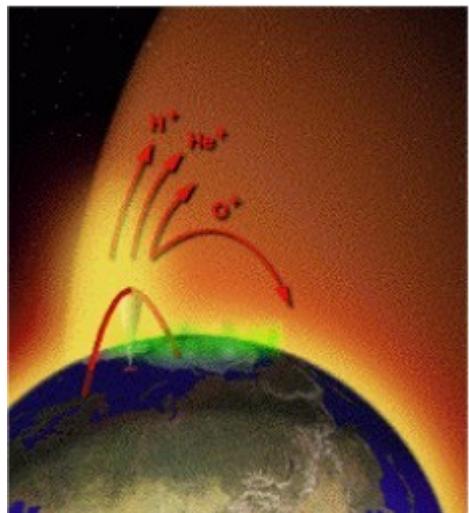
(https://en.wikipedia.org/wiki/Polar_wind)

"Earth wind" comes from the axes of our planet. Every day, 24/7, fountains of gas shoot into space from the poles. The leakage is tiny compared to Earth's total atmosphere, but it is enough to fill the magnetosphere with a riot of rapidly blowing charged particles. Ingredients include ionized hydrogen, helium, oxygen and nitrogen.

Once a month, the Moon gets hit by a blast of Earth wind. It happens around the time of the full Moon when Earth's magnetic tail points like a shotgun toward the lunar disk.

For 3 to 5 days, lunar terrain is bombarded by H , He , O , N2 and other particles.

One effect of Earth wind, just discovered, is to create water. According to a new study published in the January 2021 edition of the Astrophysical Journal Letters, Earth wind can actually make H_2O on the lunar surface.

"Hydrogen ions in Earth wind combine with oxygen in Moon rocks and soil to make hydroxyl (OH) and water (H_2O)," explains one of the lead authors, Quanqi Shi of Shandong University and the Chinese Academy of Sciences. "This came as a surprise."
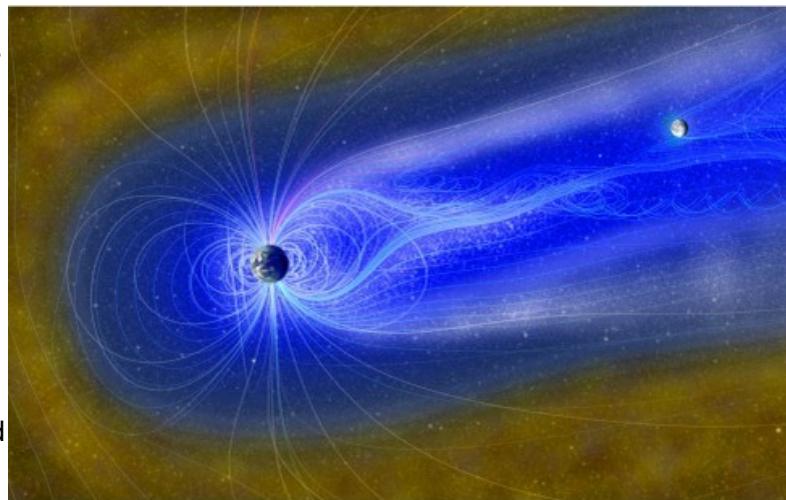
Above: An artist's concept of Earth wind (blue)

Researchers have long known that hydrogen from space raining down on the Moon can create a temporary form of surface water. Solar wind does it all the time. However, this kind of water was expected to dry up once a month when the Moon enters Earth's magnetic tail. Terrestrial magnetism deflects solar wind, turning the faucet to the OFF position.

But that's not what happened.

The researchers looked at data from NASA's Moon Mineralogy Mapper (M3) onboard India's Chandrayaan-1 spacecraft, which was orbiting the Moon in 2009 when the Moon made multiple passes through Earth's magnetic tail. "We found that lunar surface water does not disappear as expected during the magnetosphere shielding period," says Shi. "Earth wind must be bridging the gap."

Infrared Reflectance

Blue   = water absorption strength
Red   = Hydroxyl absorption

Chandrayaan-1 Moon Mineralogy Mapper
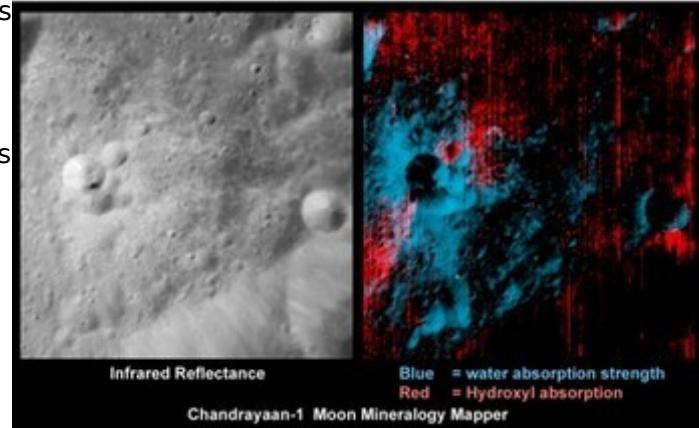
    Sample Chandrayaan-1 observations of lunar surface water

[more (https://www.nasa.gov/topics/moonmars/features/clark4.html)]

In fact, when it comes to producing water, Earth wind has some big advantages over solar wind. When the full Moon is inside Earth's magnetic tail, it is surrounded by Earth wind and feels its impact from every direction. The lunar nearside, lunar farside, and lunar poles are all peppered with Earth wind particles. In this sense, Earth wind can potentially make water anywhere–unlike the solar wind which rains down only on the lunar dayside.

Another potential advantage of Earth wind: It is oxygen rich. "Oxygen is another key element of water," points out Shi. "Whether these oxygen ions can contribute to the formation of lunar water is a very intriguing question for future study."

Want to learn more? Read the original research here:

"Earth Wind as a Possible Exogenous Source of Lunar

Surface Hydration (https://iopscience.iop.org/article   /10.3847/2041-8213/abd559)"

HAM RADIO SIGNALS FROM MARS: Ham radio operators are doing something that until recently only big Deep Space Networks could do. "We're monitoring spacecraft around Mars," says Scott Tilley of Roberts Creek, British Columbia, who listened to China's Tianwen-1 probe go into orbit on **Feb. 10th**. The signal, which Tilley picked up in his own backyard, was "loud and audible."
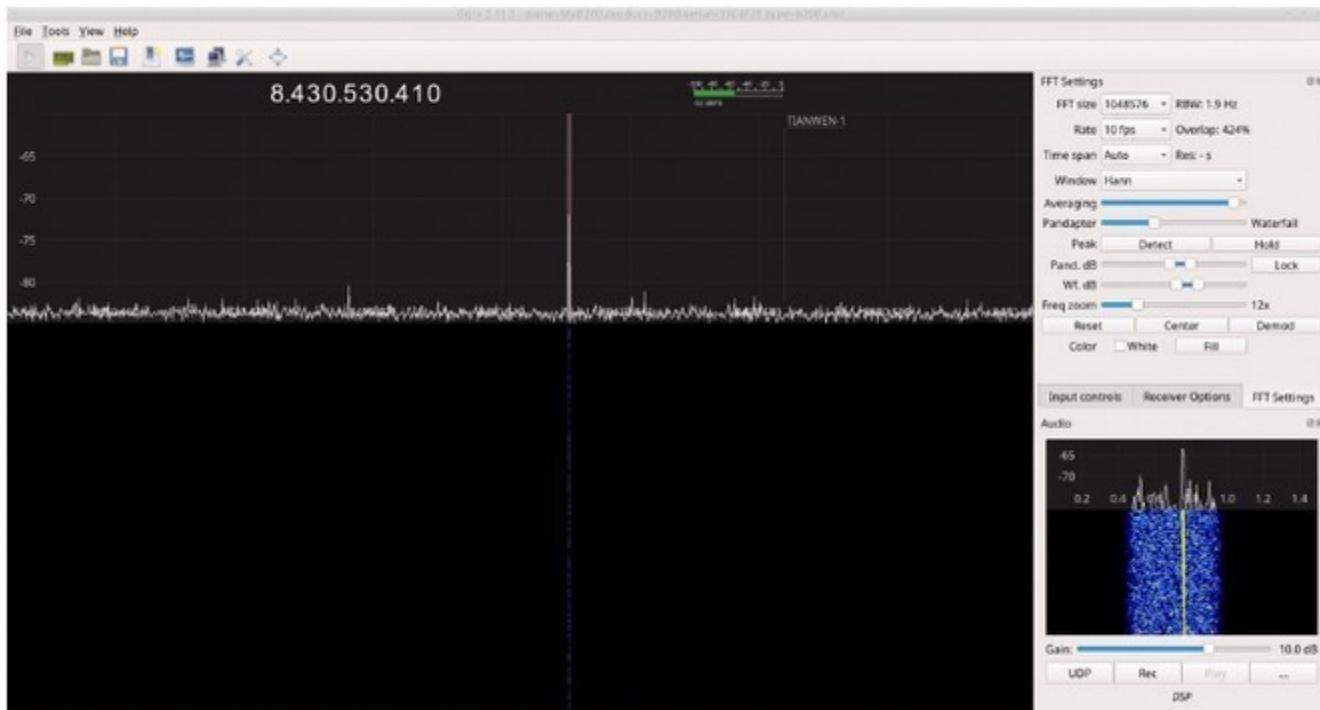
The signal Tilley received from Tianwen-1 is dominated by a strong X-band carrier wave with weaker side bands containing the spacecraft's state vector (position and velocity). Finding this narrow spike of information among all the possible frequencies of deep space communication was no easy task.

"It was a treasure hunt," Tilley says. "Normally a mission like this would have its frequency published by the ITU (International Telecommunications Union). China did make a posting, but it was too vague for precise tuning. After Tianwen-1 was launched, observers scanned through 50MHz of spectrum and found the signal. Amateurs have tracked the mission ever since with great accuracy thanks to the decoded state vector from the probe itself."

So far, Tilley has picked up signals from China's Tianwen-1 spacecraft, NASA's Mars Reconnaissance Orbiter, and the United Arab Emirates' Hope probe--all orbiting Mars approximately 200 million kilometers away. How is such extreme DX'ing possible?

antenna," says Tilley, who uses a 60 cm dish, pictured above. "But the real key," he says, "is the advent of [Software Defined Radios](#) (SDRs), which have become the norm for hams in the past decade or so."

In a Software Defined Radio, computers digitally perform the signal mixing and amplification functions of circuits that used to be analog; software has replaced hardware. SDRs are cheap, sensitive, and they give hams the kind of exquisite control over frequency required to tune into distant spacecraft.

"Amateurs began listening to deep space probes in the late 1990s and early 2000s," says Tilley. "This sparked an awareness that it was possible. The combination of improving technology and growing awareness has resulted in more and more interplanetary detections."

https://spaceweather.com/

FROM OUR MEMBERS

Winter FD at KT7RC

W7RMM, K7AZT, W8TK, the masked operators, gathered at W8TK for WFD on 1/30. We set up outdoors on the patio and used battery power. Antenna was an end-fed halfwave and we used our Spiderbeam 40 ft fiberglass pole but that left about 25 ft of antenna hanging. So we acquired a 40 inch diameter weather balloon and a large tank of helium to take the end of the antenna straight up. It worked like a charm but for only 10 minutes. We weren't able to seal the nozzle on the balloon adequately and as the helium leaked out, the balloon descended. See photo attached. You might have to scroll down to see W8TK and W7RMM on the patio and balloon up 60 ft. It was fun while it lasted and we'll do it again once we figure out hot to seal the end of the balloon. Anyhoo, we used another pole to suspend the end of the antenna up about 25 ft off the ground.

Results:

We operated about 3 hours, made 151 QSO on 20m CW, and 4 QSO on 20m SSB. We earned 1500 bonus points for setting up outside and another 1500 for battery power. We got only 2 multipliers for 1 band (20m) and 2 modes. Contest rules are really bizarre, giving much more credit for bonuses than for making contacts. In addition, multipliers accrue for making contacts on as many band/modes as possible rather than for working different sections. Our score was 13,224 points, but that could have multiplied 10 times had we worked more band/modes.   With such strange incentives, I can see why WFD is less popular than ARRL FD. Scoring rules just leave me scratching my head and I'm a hard-core contester.   ARRL rules make more sense.

73 de W8TK

New Ham looking for equipment advice and recommendations for SOTA operation. Currently have VHF/UHF HT but would like to operate HF while camping this summer. Is QRP the way to go? Any support would be appreciated. Looking for equipment recommendations.
Thanks
Jim Canto
--
KJ7KNW

I can heartily recommend the Elecraft KX3. It is small, light and battery-operated (about 3-4 hours battery life) or DC 12V. A small LiFePo4 battery of about 10A/H will give all-day operation up to 15W output on all modes for 160-6M. I use mine for daily operation on JS8 on 30M at 5-10W using a 28' vertical and a LiFePo4 battery.   The KX3 will also copy CW on-screen with fair success. If you only need 5W, the IC-705 is good for all bands and all modes thru 70cm, although it doesn't have an internal antenna tuner. A solar panel is recommended for charging the battery using the West Mountain Radio Epic Powergate, which will keep the battery charged from either a solar panel (with its built-in regulator) and/or power supply. A 25W solar panel will work okay for light duty, but at least a 60W panel is recommended for heavier use.

QRP levels are good for SOTA operation, as long as you can put up a good antenna, or compromise using the light-weight Elecraft AX1 antenna with a counterpoise wire.

If you need more power, the FT-891 will give you 160-6M at 100W in a compact size, but is heavier. The IC-7300 is a great rig for 160-6M also and provides for up to 100W, but is also heavier and larger than a KX3. The IC-7100 will give you up to 100W or less on all bands thru 70cm.

Ron W7HD

Jim, I agree with both Bob's and Ron's comments.   I have used many different portable rigs and antennas over the years including xcvrs made by Elecraft, LNR, Yaesu, M0MKA, and CommRadio. Antennas have included homemade 26g EFHW and dipoles, as well as, commercial random length and half wave antennas made by Packtenna and Chameleon; magnetic loops made by Alex Loop, W4OP and LNR, and PreciseRF; and verticals made by Buddipole, SuperAntenna, and Chameleon.   As Bob said, each had its advantages and disadvantages depending on the intended usage- SOTA, camping, hotel room, cabin, back porch or patio, etc. In recent years, my portable operations have not involved hiking, but have included various trips involving airplanes and cars to various parts of the US as well as Europe, Australia, and New Zealand. In general, I found my Elecraft KX3 and, more recently, my KX2 to be my preferred travel rig. The KX2 is half the size of the KX3 and has most of the KX3 features except that it only covers 80-10 meters. Where possible, I prefer using a wire antenna but when not possible, e.g., hotel room, I use either a magnetic loop or a collapsible vertical antenna. My favorites are: KX2, Packtenna Random Wire Antenna 9:1 UNUN Balun and 26g wire cut 28ft for 40-10 meters and with an attachable additional 28 ft for 80 meters. When deploying a wire antenna is not possible, I prefer using an Alex Loop or PreciseRF magnetic loop; the Alex Loop is more compact and lighter but not as efficient as the PreciseRf loop. Both of these loop antennas store in a portfolio bag that has enough room for the KX2 and Packtenna antenna making for an easy carry-on for flying. I never had a problem doing this on all my domestic and overseas flights and customs inspections. However, I have not flown since February of last year (2020) so I don't know what the current situation is like!   I hope this info is helpful. If you have any questions about specific radios or antennas, please let me know. 73, Bob W7BV

Welcome to the hobby!

If you are inclined to build something yourself, here's a simple vertical antenna that I use for SOTA:

http://www.ng7a.com/Articles/Entries/2019/2/15_Entry_1.html

If not, there are many commercially available …. the "My Antennas" end fed antenna that W8TK has used on HF outings is an excellent choice and will cover from 40M and up.

I really like the sotabeams fiberglass pole that Quinton NU7Y recommended to me:

https://www.sotabeams.co.uk/compact-light-weight-10-m-32-ft-mast/

Although any fiberglass pole will do, the nice thing about the sota beams pole is that when collapsed, it will fit in a carry-on bag.

Any of the magnetic loops, such as the Alex Loop, are really nice, and as Bob AF9W can attest, they are good at nulling out local noise sources. The downside is that many are limited in the max transmit power and are narrowband. I do not recommend using those when starting out because they take a little bit of finesse and experience to operate properly and must be re-tuned when changing the frequency even a few kHz.. Vertical and dipoles are much more forgiving and will work over a wider range.

73 and good luck!!

George NG7A

P.S. Any antenna is better than no antenna :)

Since ToRC is a club focused on HF ham radio, I would like to recommend a book I just found. Title is "How To Get On HF The Easy Way" by Craig Buck, K4IA. The book covers every aspect of putting together and operating a HF station. I wish I had such a guide decades ago when I was starting out. Now you can have a HF Elmer at your elbow all the time.

Disclaimer: I have never met the author and I have no pecuniary interest in his work, but I have read the book and can't find a thing in it with which I disagree. And I can be pretty disagreeable.

Check https://www.easywayhambooks.com/how-to-get-on-hf

I bought the Kindle version on Amazon for $4.49. Paperback version is $17.95.

73 de W8TK
Tom Kravec

The current ARRL's Portable Antenna Classics soft cover book includes my design of a portable field dipole on Pg. 25.

Ron W7HD

Here's a simple but very important lesson.

Today's new battery technologies have incredible power, and destructive capabilities; therefore, we cannot scoff at the potential for danger - and WE MUST RESPECT that fact & protect against accidental shorts with proper circuit protection!

Otherwise - very, VERY BAD things can happen! Such as this...

https://www.facebook.com/jehugarciapublic/videos/988683248005221/?sfnsn=mo&d=n&vh=e

OUCH! Now remember, steel melts at over 2200 degrees. Needless to say, but I'll say it anyway, this would be very bad if you touch it, or it touches you, or your house, or occurs in some remote outing location. We do not need injuries, or home or wild fires!

That said & shown, you need:

- A) over-current protection; i.e. fuses, circuit breakers, etc. Located near the battery. Don't forget spare fuses! NO! You cannot use a .22 caliber bullet in place of a blown fuse!!! (See below!) Now that's a bad day!

- B) a clear operating area, free from combustibles, etc.

- C) a well ventilated area & enclosures

- D) insulated wiring & connections, to prevent shorts from things like... oh, wrenches!!!

- Read that battery terminal covers, etc.

- E) properly sized wiring to prevent overheating. Also properly rated switches, relays & other components.
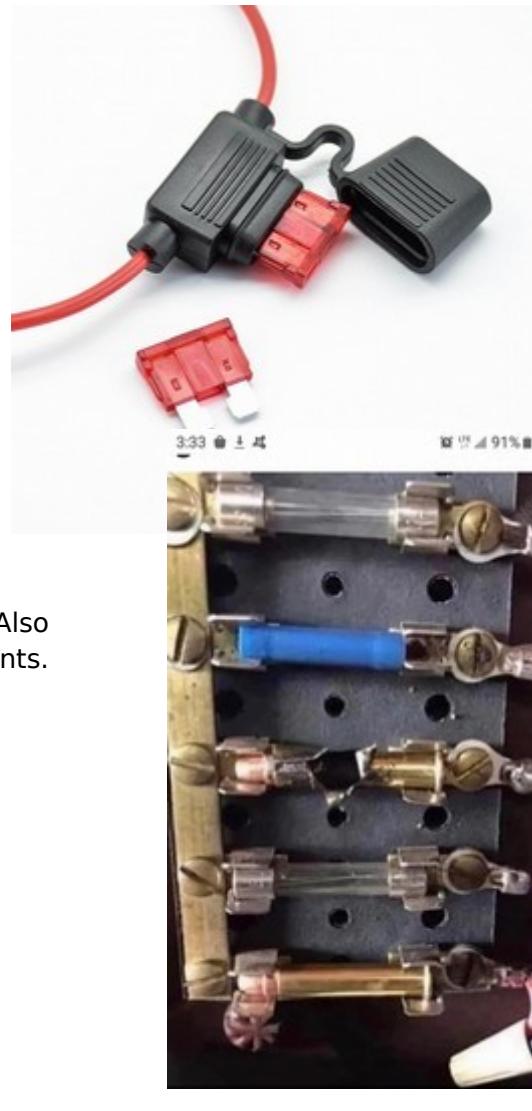
Please - think ahead & be safe!

73 - John - N7GHZ

FDSERVER TO CABRILLO

Having used FLDIGI/FDSERVER for WFD, I needed a way to convert the output from the log file to cabrillo.   So I wrote this 'C' program to do it under Linux. Save it as fd2cabrillo.c. To compile it, use 'cc fd2cabrillo.c -o fd2cabrillo'.

// **fd2cabrillo.c**

// Working version

// 02-Feb-2021

// Ron Herring W7HD

// Reads output from fdserver (fldigi fdlogger)

// Writes cabrillo format for ARRL log file

#include <stdio.h>

#include <string.h>

char inpfil[80], outfil[80];

char buf[255];

char   MYCALL[80],MYCAT[80],MYSEC[80];

int sz=255;

int incnt;

int read_file(void)

{

    int i;

    FILE *fi,*fo;

    fi=fopen(inpfil,"rt");   // Open input file for reading

    if (!fi)

    {   fprintf(stderr,"Unable to read %s\n",inpfil);

        return(1);

    }

```
        incnt=0;

        fo=fopen(outfil,"wt");          // Open output file for writing

        while (NULL != fgets(buf,sz,fi))          // Read line from input file

        {         // This removes any commas and replaces them with spaces

            for (i=0; i<strlen(buf); i++)

            {

                if (buf[i]==',')

                {

                    buf[i]=' ';

                }

            }

            fprintf(stdout,"%s",buf);  // Send it to the screen

            fprintf(fo,"%s",buf);        // Send it to the output file

            incnt++;

        }

        fclose(fi);

        fflush(fo);

        fclose(fo);

        fprintf(stdout,"%d lines read from %s\n",incnt,inpfil);

        fprintf(stdout,"%d lines written to %s\n",incnt,outfil);

        return(0);

}


int  write_cabrillo(void)

{

        int i;
```

```
FILE *fi,*fo;

char DT[sz],TM[sz],BAND[sz],MODE[sz],CALL[sz];

char SEC[sz],CAT[sz];


sprintf(inpfil,"%s.nocomma",MYCALL);

sprintf(outfil,"%s.cab",MYCALL);

fi=fopen(inpfil,"rt");

if (!fi)

{    fprintf(stderr,"Unable to read %s\n",inpfil);

     return(1);

}

incnt=0;

fo=fopen(outfil,"wt");

while (NULL != fgets(buf,sz,fi))        // Read a line from the file

{         // Now break the line into named parts

     sscanf(buf,"%s %s %s %s %s %s %s ",DT,TM,BAND,MODE,CALL,SEC,CAT);

     // Send it to the output file in the correct order

     fprintf(fo,"QSO: %s %s %s %s %s %s %s %s %s %s\n",\

     BAND,MODE,DT,TM,MYCALL,MYCAT,MYSEC,CALL,CAT,SEC);

     // Now send it to the screen.

     fprintf(stdout,"QSO: %s %s %s %s %s %s %s %s %s %s \n",\

     BAND,MODE,DT,TM,MYCALL,MYCAT,MYSEC,CALL,CAT,SEC);

     incnt++;

}

fclose(fi);

fflush(fo);

fclose(fo);
```

```
        fprintf(stdout,"%4d lines written to %s\n",incnt,outfil);

}

int  main(int argc, char *argv[])

{

    if (argc>3)

    {

        sprintf(MYCALL,"%s",argv[1]);

        sprintf(inpfil,"%s.log",MYCALL);

        sprintf(MYCAT,"%s",argv[2]);

        sprintf(MYSEC,"%s",argv[3]);

        sprintf(outfil,"%s.nocomma",MYCALL);

    }

    else

    {

        fprintf(stdout,"FORMAT:   MYCALL MYCAT MYSEC \n");

        return(0);

    }

    read_file();

    write_cabrillo();

    return(0);

}
```

Now That I'm Older

My goal for 2020 was to lose 10 pounds. Only have 14 to go.

Ate salad for dinner. Mostly croutons and tomatoes. Really just one big round crouton covered with tomato sauce, and cheese. FINE, it was a pizza.... OK, I ate a pizza! Are you happy now?

How to prepare Tofu:

    a. Throw it in the trash

b. Grill some meat, chicken or fish

I just did a week's worth of cardio after walking into a spider web.

I don't mean to brag, but I finished my 14-day diet food supply in 3 hours and 20 minutes.

A recent study has found women who carry a little extra weight live longer than men who mention it.

Kids today don't know how easy they have it. When I was young, I had to walk 9 feet through shag carpet to change the TV channel.

Senility has been a smooth transition for me.

Remember back when we were kids and every time it was below zero outside they closed school? Yeah, Me neither.

I may not be that funny or athletic or good looking or smart or talented. I forgot where I was going with this.

I love approaching 80, I learn something new every day and forget 5 other things.

A thief broke into my house last night. He started searching for money so I got up and searched with him.

I think I'll just put an "Out of Order" sticker on my forehead and call it a day.

Just remember, once you're over the hill you begin to pick up speed.

Having plans sounds like a good idea until you have to put on clothes and leave the house.

It's weird being the same age as old people.

When I was a kid I wanted to be older...this is not what I expected.

Life is like a helicopter. I don't know how to operate a helicopter.

Chocolate is God's way of telling us he likes us a little bit chubby.

It's probably my age that tricks people into thinking I'm an adult.

Marriage Counselor: Your wife says you never buy her flowers. Is that true? Him: To be honest, I never knew she sold flowers.

Never sing in the shower! Singing leads to dancing, dancing leads to slipping, and slipping leads to paramedics seeing you naked.

So remember...Don't sing!

I see people about my age mountain climbing; I feel good getting my leg through my underwear without losing my balance.

If you can't think of a word say "I forgot the English word for it." That way people will think you're bilingual instead of an idiot.

I'm at a place in my life where errands are starting to count as going out.

I'm at that age where my mind still thinks I'm 29, my humor suggests I'm 12, while my body mostly keeps asking if I'm sure I'm not dead yet.

I don't always go the extra mile, but when I do it's because I missed my exit.

You don't realize how old you are until you sit on the floor and then try to get back up. Oh, and remember that heavier people who are lost survive longer than thin ones.

We all get heavier as we get older, because there's a lot more information in our heads. That's my story and I'm sticking to it.

From Portage County Amateur Radio Service, Inc. (PCARS)   The RADIOGRAM January 2021

PURPOSE

<table>
<tr><td align="center">**TORTOLITA RADIO CLUB**
TORC</td></tr>
<tr><td>A group of amateur radio operators aiming to just have fun</td></tr>
<tr><td>located south of the Tortolita mountains near Marana</td></tr>
<tr><td>Serving the greater northwest Tucson area and beyond.</td></tr>
<tr><td>

- No formalities
- No regular meetings - just occasional weekend outings
- Occasional newsletters will cover items of interest to the group
- **NO DUES**
- No repeaters
- Emphasis is on **having fun**
- **No bureaucracy**

</td></tr>
</table>

Newsletter editor: Ron Herring W7HD

Material in this newsletter is public domain and may be freely shared.

Credit may be given as follows: ***Courtesy of Tortolita Radio Club***

Of course, we are just starting out, so there is a lot yet to come. and articles are very much wanted. Please feel free to email me with **suggestions and articles** at **w7hd.torc@gmail.com** …

If you are contributing an article, please include a photo of yourself as an attachment. The members would really like to be able to recognize you if they see you out in public (should that ever happen).

The word *tortolita*   means little dove and is used here as a reference to the Tortolita Mountains north of Tucson, AZ USA.

The flag photo is courtesy of Ron Herring W7HD and was taken from my front porch.