

As of press deadline, the April 14  
BIARC meeting is scheduled to  
be at 2 p.m. at the Keaau  
Community Center.

## *April 2018 Newsletter*

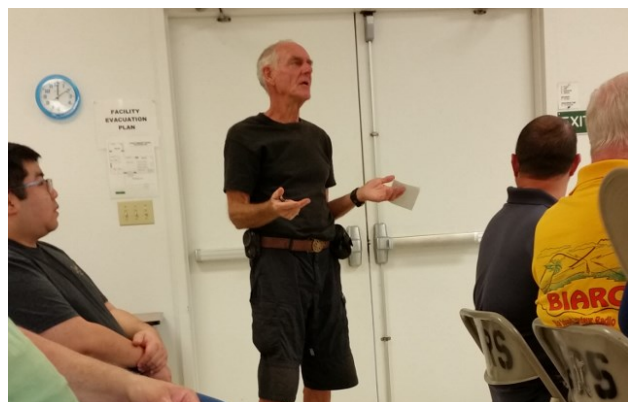
### Big Island Amateur Radio Club



### Students, teacher discuss antenna project, contacts at March meeting

The BIARC March meeting program was presented by John Bonewitz, KI7FUT, at left, a teacher at Keaau High, who – assisted by students -- shared a slide show of his physics classes

**Story, photos  
continue on next page**



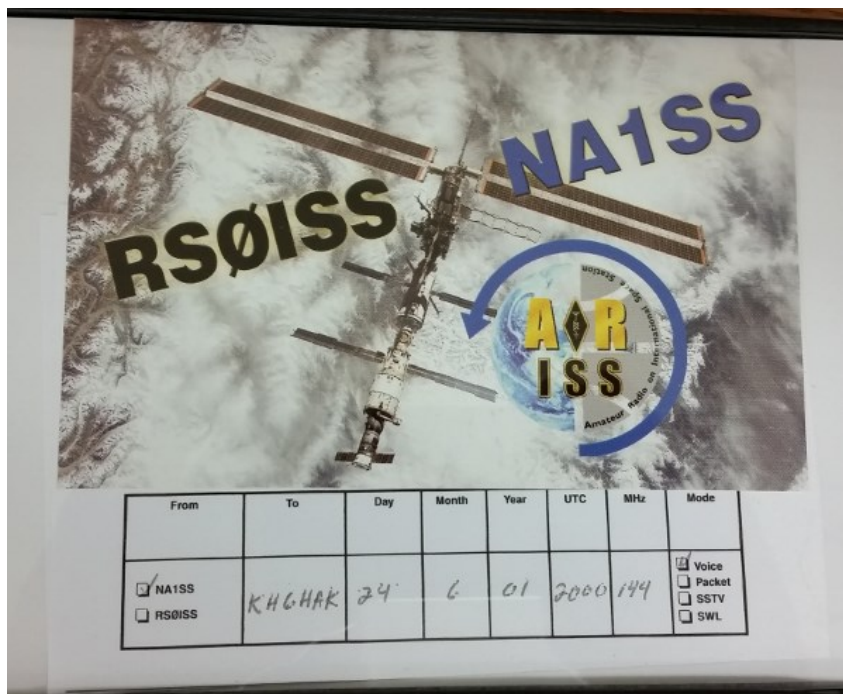
**Photos by  
Linda  
Quarberg,  
WH6LQ**







Hank Kaul, KH6HAK, above, and his QSL card from the International Space Station.



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trying to do satellite contacts. The students had built a pair of tape measure antennas as seen in QST. John said the antenna project seemed well received by the students. Among the highlights of the school activity was a contact over AO-91 with a ham on the mainland, John Papay K8YSE/7.

Papay followed up with an

email message to the Keau students: "I don't know of any other HI resident that has made a contact with the mainland on AO-91.

"N7AGF is visiting Hilo right now and has been active on AO-91 and the linear birds and has worked us but WH6XM and NH6Y have not made an AO-91 qso with mainland that I know of. So the fact that you did it with no experience and a homemade tape measure antenna is quite the achievement!"

The students are Albert Fidel Zuniga, Weston Gorospe and Oliver Padamada, juniors and seniors in John's physics class. (Two of the students are pictured, below, at the meeting.)

Hank Kaul, KH6HAK, above, brought an Arrow antenna to show the group.

He shared a QSL card from the International Space Station, and told us the story behind this very special QSL card.



# March BIARC meeting minutes

The meeting was called to order Saturday, March 10, by President Pascal Nelson, AC7N, at 1400.

Pascal stated that he was changing the meeting format slightly in order to reduce overall meeting time. Introductions were made only of new members and attendees and of those who had not been to BIARC meetings for a long period of time.

New members and guests, and people who had been away for a long period of time introduced themselves.

Treasurer's Report (End of month – January 2018):

Bank: \$ 2007.04 – up from \$1867.04 as reported in February.

Additional funds are being received today from new and renewing members.

## Announcements:

Doug, KH7DQ: A testing session has been scheduled for Thursday evening, March 22 at the Aupuni Center starting at 1830.

Bob, AH6J: The Kea'au Community Center has a new County Manager and the club's ability to depend upon a free meeting space at the Community Center might be in jeopardy. Such reservations are held until about a week out in order to allow more opportunities for paying customers to gain access to the meeting rooms. This means it may be necessary to seek an alternate meeting location at the last minute. The community church used in February could be such an emergency location.

Pascal, AC7N: We must begin preparing for Field Day. We have two directions that we can take:

1. We can partner with PERC like last year.
2. We can go it alone, although it is likely we will need to find a new location.

Gary, WH6EPS, noted that PERC will move to a nearby golf course this year.

Pascal, AC7N: Everyone is invited to HPP Radio Day from 0900 to 1600 April 28 at the Hawaiian Paradise Park community center at 17th and Makuu.

Barbara, NH7FY, reminded members about the weekly Friday noon lunch events at Nani Mau Gardens.

Pascal, AC7N, asked for people interested in being on the Program Committee with John,

KH6DLK. He also asked people who are interested in presenting to contact John, Leslie, or himself. Remember what keeps us together as hams and club members (QRP, Linears, Rag Chewing, ARES, Repeaters, and more) and include all of these topics in our programs.

Pascal, AC7N, announced that there will be a BIARC Board meeting on Saturday, March 24 at noon at Canton Gardens restaurant in Keaau. This meeting is open to all members.

## Discussion:

There was a general discussion about creating lists for various interest groups and providing these lists to "Elmers" at BIARC meetings who could then follow up with interested members concerning various topics in Amateur Radio.

Leslie, K0BAD, noted that proper use of the "subject line" in emails sent to the BIARC listserve would allow users to sort messages into such interest groups and the responses on the listserve could be much more immediate than compiling and sending lists to "experts" during the monthly business meetings.

## Reports:

Repeater Coordinator: Gary noted that the Kulani repeater (146.16/76 tone 100 Hz) has been the focus of the Repeater Committee during January and February.

Mounts are being constructed to mount the new antenna at the Kulani repeater site. The club is attempting to get an official location assignment on the tower to better insure that other users of the tower do not relocate the antenna as has happened in the past.

Members asked for an updated listing of repeater, locations, RF frequencies, tone frequencies, etc. Gary assured them that such a list would be generated. He also reminded members that much of the information is on the repeater coordinator's webpage of A6RH.

Gary also noted that the repeater in Naalehu that had been removed from the local police station is being re-installed at the nearby public works

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## MINUTES: From previous page

building.

BIARC Website: Pascal, AC7N, stated that the website will remain at domain BIARC.net and that prior to the April BIARC meeting he will have the new website that he has created active at that domain. He will also fully document the website, the domain responsibilities, etc. in order that a transfer of responsibility can be done easily in the future.

Rick Frazier, AH7H, - a former BIARC member - will keep the domain active and provide the server services as a donation to the club.

Upon reception of the nameserver identities, Leslie, K0BAD, will link the BIARC listserve to the

domain. This will allow the club to set up a second administrative listserve.

There being no further business, Pascal adjourned the meeting at 1442.

Program: Following a brief break for pupus, a program was presented by John Bonewitz, KI7FUT. John is a teacher at Kea'au High School. He described how he is using amateur radio to capture the imaginations of his students, and to begin teaching them science and engineering, from the electronics of radio to the use of satellites.

The session wrapped up at 1534.

Respectfully Submitted,

**Leslie D. Hittner, Secretary**

## Pascal's Thoughts

Well, it's already April.

The coming of spring doesn't have as drastic effect in the weather and temperature here in Hawaii as it does in more northerly climes, but it does make a psychological impact. The days are a little longer, and the 40 meter Hawaii afternoon net is getting better NVIS propagation than during the dark, short days of winter.

It does make a difference, even here. I have been noticing, not for the first time, how restless many hams can be when it comes to the contents of their shacks - especially thinking about replacing or updating to new transceivers, adding a new amplifier, or putting up new antennas.

There's a lot of that going on right now. Maybe it's just spring fever. It seems to me that there are lots of new things showing up at our operating positions. I just received the board and parts for my new India-made QRP transceiver, the **uBITX**. I hope to have it up and running soon. I'll tell you more about it when it's on the air. There are some more of those soon to be on the air around the Islands, too.

We had one event of note since the last regular meeting. For the first time in quite a while we had a meeting of the BIARC Board. We had a good meeting talking about the present condition and future direction of the club. We'll be meeting more often from now on, and we will report to the BIARC community at the regular meetings.

At the April BIARC meeting, we will be hearing from Tommy KH6TA from Naalehu about his work with Yaesu on configuring his new DR-2X repeater with IMRS. There are lots of new things happening in the realm of VHF/UHF digital, and Tommy will stoke your interest in some of these exciting new possibilities.

For the April meeting we are planning to be at the Keaau Community Center, as usual. If there is a change, it will be put on the BIARC ListServe and there will be a notice on the door at the Community Center on the day of the meeting.

Keep up the good work and let's share the fun with others when we get together.

Aloha,  
**Pascal AC7N**

## All invited to BIARC luncheon Fridays at Nani Mau Gardens

The BIARC luncheon is held every Friday at Nani Mau Gardens on Makalika Street off of Railroad Avenue, or Route 11. Members arrive anywhere from 11 a.m. to 11:15 a.m.

It is a buffet luncheon at a cost of \$15, paid in the gift shop.

This cost includes walking in the garden also.

We have one table in use at the present time, but can always add another if attendance increases. Hope to see some of you there.

73,  
**Barbara Darling,  
NH7FY**



# Ready, set, go: to HPP Radio Day on April 28

Everyone is invited to HPP Radio Day from 9 a.m. to 4 p.m. April 28 at the Hawaiian Paradise Park community center at 17th and Makuu.

"We want to let everyone know that the event is open to all hams, especially the newest ham operators," said coordinator Mike Stratton, KH6PAC.

"Our plan is to have several different radios set up," said Mike. There will be lots of activities and demonstrations.

"All are welcome to attend, set up your equipment and help to promote the hobby," says

Mike Stratton, KH6PAC. "Bring your go kit."

Among the participants thus far: the HPP Community Emergency Response Team (CERT), the HPP Emergency Radio Team, folks from ARES, the Amateur Radio Emergency Service, and the Puna Emergency Radio Club, and various others.

"K0BAD has stated he will do a digital radio setup, KH6SF will do packet, WH6LU will do DX," said Mike. "We will also have a 2-meter set up, and are hoping to have someone doing CW and HF."

Set-up is at 8 a.m., with tear-down around 4 p.m. For more details, email Mike at [jeffan@hotmail.com](mailto:jeffan@hotmail.com).

## Don't forget to sign up for the QTH.NET Email Listserve

The Big Island Amateur Radio Club continues to build and streamline its email listserve.

"The main advantage of using such a listserve is that you do not have to individually maintain a list of club-member email addresses in order to enter into important conversations related to club operations," explains coordinator Les Hittner.

"The listserve can be set up to maintain two independent lists; a general one and an administrative one. The advantages follow:

- Members do not have to maintain their own list of BIARC email addresses.
- Messages sent via the listserve can be archived. This is particularly important for the administrative listserve where club business might be discussed.
- The listserve provides a secure means of sending club email.
- Listserve emails are easily identified by their unique Subject Line headings.
- Access to the Listserve can be placed on the club's website.

Additional information can be found at:  
<http://mailman.qth.net/>

In order to become a member of the BIARC Listserve, simply send me an email:

***lhittner@hbc.com***

and let me know that you want to be placed on the listserve. I will enroll you and then send you an information email about its use.

Mahalo,

***Leslie Hittner, K0BAD***

## ***Ham looking for old satellite TV ground mount***

**Anyone have an old satellite dish on a ground mount in their yard they want to remove?**

**One BIARC member is looking to use the ground mount for testing antennas.**

**He can come with a truck and take it away.**

**Contact Lopaka Lee on the BIARC listserve at [BIARC@mailman.qth.net](mailto:BIARC@mailman.qth.net).**

**And, listserve coordinator Les Hittner, K0BAD, reports that we now have 27 members on the BIARC listserve.**

**"I think this represents about half of the total club membership. Let's encourage the rest to join," says Les.**

**This list hosted by <http://www.qsl.net>.**

**Home: <http://mailman.qth.net/mailman/listinfo/biarc>**

**Help: <http://mailman.qth.net/mmfaq.htm>**

**Post: <mailto:BIARC@mailman.qth.net>**

**Please help support this email list:**

**<http://www.qsl.net/donate.html>**

## ***Join new EmComm list***

For anyone interested in Hawaii County EmComm discussion, please join the other 25 members on this new list dedicated to emergency radio on the Big Island.

To sign up: [Hicoares+subscribe@groups.io](mailto:Hicoares+subscribe@groups.io)

## New series of Technician License prep classes continues around island

### Free Tech Classes

Free classes to prep students for the Amateur Radio Technician's License are underway in Kona at the West Hawaii Civic Center, with VE testing for all licensing levels set for April 26.

Here are upcoming sessions:

Ocean View – HOVE Community Center

May 3, 2018  
May 10, 2018  
May 17, 2018  
May 24, 2018  
May 31, 2018  
June 7, 2018 (Exam)

Keaau – Keaau Community Center

November 1, 2018  
November 8, 2018  
November 15, 2018  
November 29, 2018  
December 6, 2018  
December 13, 2018 (Exam)

**Contact Doug Wilson (KH7DQ) at [douscelle@aol.com](mailto:douscelle@aol.com) or Ph. 985-9362**

**Note: Test fee of \$15 (in exact cash) due at time of each exam.**

**~~ Free  
classified ads ~~**

**To submit a ham-related ad, please email it to [lcritchlow@mac.com](mailto:lcritchlow@mac.com) by the 20th of the month for publication in the following month's newsletter. Mahalo.**

## More than 30,000 new ham licensees and 7,000 amateur radio exam sessions in 2017

For the fourth year in a row, more than 30,000 new licensees joined the Amateur Radio ranks, and ARRL Volunteer Examiner Coordinators (VEC) conducted more than 7,000 Amateur Radio exam sessions, serving some 35,350 candidates for a new or upgraded license. At the end of December 2017, the US Amateur Radio population stood at 748,136.

At nearly 378,000, Technician licensees represented the largest segment, with General (174,206), Amateur Extra (145,034), Advanced (41,938), and Novice (9,056) trailing. Licensee numbers showed continued growth across all classes except Advanced and Novice, which the FCC no longer issues.

"I'm hopeful that the number of new licensees will be more than 30,000 at the end of this year," ARRL VEC Manager Maria Somma, AB1FM, said. "I would love to see this trend continue!"

Despite the optimistic influx of 32,196 newcomers last year, the net growth of 5,349 -- about 0.72% over December 2016 -- reflects some 27,000 expired or cancelled licenses in the FCC database over the past year. In making the case for changes to the entry-level license, the ARRL Board's Entry-Level License Committee referred to "the large number of Baby Boomers (roughly born 1945 - 65) [who] will soon be aging off the licensee rolls." The committee predicted the likelihood of "a significant decline in the number of hams, unless we take steps to reverse it."

### ~~ 2018 BIARC Leadership ~~

BIARC 2018 Leadership:	Barbara Darling,
President Pascal Nelson,	<a href="mailto:nh7fy@yahoo.com">nh7fy@yahoo.com</a> ;
<a href="mailto:ac7n@arrl.net">ac7n@arrl.net</a> ;	Kim Fendt,
Vice President Peggy	<a href="mailto:wh6kim@gmail.com">wh6kim@gmail.com</a> ;
Gentle,	Bill Hanson,
<a href="mailto:radiopeg@gmail.com">radiopeg@gmail.com</a> ;	<a href="mailto:whanson@co.hawaii.hi.us">whanson@co.hawaii.hi.us</a> ;
Secretary Les Hittner,	John Bush,
<a href="mailto:lhittner@hbc.com">lhittner@hbc.com</a> ;	<a href="mailto:amsjbush@gmail.com">amsjbush@gmail.com</a> ,
Treasurer Paul Ducasse,	and Bob Schneider,
<a href="mailto:ducasse@hawaii.rr.com">ducasse@hawaii.rr.com</a> ;	<a href="mailto:ah6j@arrl.org">ah6j@arrl.org</a> .
Directors: Gary Schwiter,	Program Committee co-
<a href="mailto:wh6eps@gmx.com">wh6eps@gmx.com</a> ;	chairs are John Bush and
Cory Allen,	Les Hittner.
<a href="mailto:KN6ZU@yahoo.com">KN6ZU@yahoo.com</a> ;	



## Hospital ship crew members get amateur radio training at sea and aloha in Hawaii

On Feb. 21, US Army civilian contractor Tim Millea, AJ7UU, and MARS Volunteer Doug Smith, W7KF, embarked on the hospital ship USNS Mercy from San Diego to Hawaii to begin its deployment for "Pacific Partnership 2018" (PP18), a humanitarian assistance exercise that will include several Pacific stops.

Their mission during the first leg of the voyage was to conduct Technician and General Amateur Radio classes for more than a dozen military and civilian personnel crewing the Military Sealift Command hospital ship, and to provide training in military HF communication procedures. They provided two or three classes a day for the crew following work shifts. Classroom training was interspersed with on-air activities. The Mercy is utilizing the Weak Signal Propagation Reporting tool under K6MRC.

On March 3, the Mercy docked in Hawaii, where a group of local Volunteer Examiners headed by ARRL Pacific Section Manager Joe Speroni, AH0A, administered Technician and General licensing exams to the students.

"The ARRL VE Team in Honolulu was fantastic to work with," Smith told ARRL. "Due to spotty internet connectivity while at sea and strict base access and security issues in port, the VEs in Hawaii had to exhibit extraordinary patience and



**USNS Mercy. [Katarzyna Kobijak photo]**

persistence to administer the exams aboard Mercy." Smith singled out ARRL VEC Manager Maria Somma, AB1FM, for her kokua.

More than 18 sailors and civilians assigned to the USNS Mercy passed their exams, administered in Pearl Harbor.

Among those upgrading was Capt. David Bretz, WH6FIR, PP18 mission commander. "I am very excited to host the trainers on Mercy," he said. "We will be researching the effectiveness of using amateur

radio aboard the Mercy for the duration of PP18. Amateur radio operators have played a huge role throughout history assisting in humanitarian and disaster relief efforts. I am looking forward to gathering research on how this older technology can still be relevant in current humanitarian and disaster relief missions, such as PP18." (PP18 is on Facebook) -- **Thanks to Doug Smith, W7KF, and Robert Mims, WA1OEZ, Region 1 US Army MARS director**



**The USNS Mercy candidates sit for their exams in Hawaii.**



# ARRL seeks EC-001 mentors

Since the beginning of the Amateur Radio Emergency Communications training program, ARRL has relied on the work of mentors to help guide those interested in volunteering to serve their communities. Our mentors represent the best in Amateur Radio public service communications training, and make a substantial difference in how students approach service to their communities and amateur radio. The mentors bring the written text of a course to life for these amateurs, many of whom they will never meet face to face.

Our current pool of mentors is low, and ARRL has an immediate need for new mentors who are willing to start as soon as they're approved. Mentors are more than teachers. They are the guides that new radio amateurs, and those new to public service communications, rely on to show them all the possibilities for Amateur Radio to benefit the public and the partners we work with.

ARRL Emergency Communications training courses cover a wide range of material on the use of radio communications technologies, communications techniques, and emergency management skills necessary when helping served agencies deal with and overcome disasters.

Mentors for the EC-001 Introduction to Amateur Radio Emergency Communications course must be active radio amateurs, General class or higher, who are 18 or older and ARRL members. Applicants should have successfully completed ARRL EC-001, have experience in public service communications and ARES activities, and have the recommendation of their ARRL Section Manager.

Appointment as an ARRL Field Instructor or as a mentor for ARRL's Public Service Communications training program is for a term of 3 years. This is a renewable appointment based on satisfactory performance as an active instructor/mentor and satisfaction of all current qualifications and requirements. For more information on applying to be a mentor, contact ARRL Emergency Preparedness Assistant Ken Bailey, K1FUG, (860) 594-0227.



***Grid square FN51 is mostly water.***

## History-related events will operate from rare grid in Cape Cod National Seashore

It is mere coincidence that the Titanic disaster in 1912 -- one of the worst maritime disasters in history -- and the birth of Guglielmo Marconi in 1874 -- the developer of the wireless gear equipping the ill-fated ship -- both occurred in April.

Marconi Wireless Company radio operators aboard the Titanic transmitted the distress signal after the gigantic vessel struck an iceberg in the North Atlantic on its maiden voyage.

Co-located Amateur Radio special events in April will commemorate both events, which will take place from FN51, a rare grid square that's mostly water. ARRL International Grid Chase 2018 (IGC) enthusiasts take note! Both events will be held at the Nauset Coast Guard Station in Eastham, Massachusetts.

The Titanic/Marconi Memorial Radio Association of Cape Cod operation will use W1MGY, in recognition of the Titanic's MGY call sign. Operation will begin on Saturday, April 12, at 9 AM ET and continue until April 15 at 1:27 AM ET (0527 UTC) -- the time when the Virginian heard Titanic's last radio message 106 years ago. The Titanic disaster claimed some 1,500 lives. W1MGY trustee Barry Hutchinson, KB1TLR, said plans call for coverage on all bands, mostly within the General-class subbands, on CW and SSB.

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**"Kona" is in charge at Alaska's super-power High-Frequency Active Auroral Research Program (HAARP) transmitters in Gakona.**



## ***HAARP resumes ionospheric research***

Alaska's super-power High-Frequency Active Auroral Research Program (HAARP) transmitters in Gakona, Alaska, have fired up again for the spring research campaign April 6-14. University of Alaska Fairbanks (UAF) Space Physics Group researcher and HAARP Chief Scientist Chris Fallen, KL3WX, told ARRL that more than 40 hours of "externally funded" experiments are in the queue.

"Scientists from US universities and government labs will explore the physics of scintillations, magnetic field-aligned plasma irregularities, artificial and natural atmospheric airglow, stimulated electromagnetic emissions, plasma waves, and radio-enhanced ionization," Fallen said. "The HAARP transmitter is still at 80% net power, but by summer we expect to have the final 'column' of transmitters restored, bringing the array back to 100%."



For his part, Fallen said he still has some time remaining on his National Science Foundation (NSF) grant to study artificial airglow, but added that this is "a tough time of year in a tough year of the solar cycle" for such experiments. "It will not be dark enough in Gakona to observe artificial airglow emissions until 10 PM at the beginning of the campaign and 10:30 PM at the end of the campaign, due to the rapidly lengthening days in the Land of Midnight Sun."

Fallen said that due to weakening solar activity, the critical frequency of the ionosphere's F2 layer (foF2) is relatively low during the day, peaking

## **TITANIC/MARCONI: from previous page**

Two stations are planned.

Marconi's wireless station in Wellfleet on Cape Cod -- now on the National Register of Historic Places -- played a role in the rescue of 740 survivors from the Titanic. Marconi's wireless operator onboard the rescue ship Carpathia contacted the Titanic that fateful night to inform the wireless operator that the Cape Cod station was transmitting messages to the ill-fated ship. The Titanic operator promptly replied, "Come at once. We have struck a berg," initiating the rescue of survivors.

The Saturday, April 21, International Marconi Day (IMD) operation by the Marconi Cape Cod Radio Club will use the call sign KM1CC, which recognizes the former WCC shore station on Cape Cod. Operation will be on CW, SSB and digital modes.

KM1CC will be among many stations participating in IMD activities on April 21. The 24-hour event is typically held on the Saturday closest to Marconi's birth date. During IMD, Amateur Radio enthusiasts around the world will attempt to make contact with various historic Marconi sites using communication techniques similar to those that Marconi used. Registered stations must operate from a site with some connection to Marconi.

Stations may register for International Marconi Day 2018 via e-mail. The list of stations already signed up for the 2018 IMD, along with their operating sites, is posted on the Cornish Radio Amateur Club website.

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## Why ARRL recommends greater HF privileges for Techs

ARRL has asked the FCC to expand HF privileges for the entry-level Technician license to include limited phone privileges on 75, 40, and 15 meters, plus RTTY and digital mode privileges on 80, 40, and 15 meters, where Technicians already have CW privileges. ARRL believes the additional digital privileges will attract younger people to amateur radio.

The proposed additional HF phone privileges are 3.900 to 4.000 MHz, 7.225 to 7.300 MHz, and 21.350 to 21.450 MHz. Technicians already have HF privileges on parts of 10 meters.

Some in the amateur radio community have questioned the need for expanded Technician privileges or to express other perspectives. ARRL has responded to point out some of the key advantages of its petition, which recognizes the tremendous technological advances and changes in Amateur Radio. Some key points:

A thorough review of operating privileges available to the entry-level license has not taken place since the late 1970s, when the Novice-class license -- the entry-level license at that time, and no longer issued -- was modified to allow Novices access to a limited portion of 10 meters. This included the first HF phone privileges for Novices.

The 2-year process that led to the development of ARRL's petition includes significant input from the Amateur Radio community. The two surveys that the ARRL board's Entry-Level License (ELL) Committee conducted on this issue drew more than 8,000 responses from ARRL members.

The 378,000 Technician licensees comprise more than half of the US Amateur Radio population, yet the Technician-class license no longer serves its original purpose from 18 years ago. Many Technicians do not participate actively, pursue on-air and public service opportunities, renew their licenses, or upgrade. An uncomfortably large attrition rate exists among Technician licensees. Technician licenses are not upgrading, because they don't find their operating privileges interesting enough to keep them in the hobby.

The proposed addition of 275 kilohertz of HF phone privileges, spread across 80, 40, and 15 meters, would allow Technicians the opportunity to develop and

## SUPER-POWER HF AURORAL RESEARCH: from previous page

at a little more than 4 MHz above Gakona in the late afternoon, and falling rapidly in the evening, limiting the time available for experiments.

Fallen may continue his past practice of "bundling" amplitude modulated content of interest to hams in the airglow experiments. His previous airglow experiments were accompanied by tones and music to illustrate the Luxembourg effect and slow-scan television (SSTV) images in Scottie 1 format.

Fallen plans to tweet selected transmitter frequencies and other information throughout the campaign from his personal Twitter page. HAARP's official Twitter page will share photos and other information of general interest, "such as what the HAARP dog is up to," Fallen said.

Operation of the HAARP research facility was transferred from the US Air Force to UAF in 2015.

## Chinese lunar-orbit amateur radio payload could launch this spring

China's twin-launch Chang'e 4 mission to the far side of the moon will place a pair of microsatellites in lunar orbit this spring "to test low-frequency radio astronomy and space-based interferometry."

Unofficially called DSLWP-A1 and DSLWP-A2 (DSLWP = Discovering the Sky at Longest Wavelengths Pathfinder), they represent the first phase of the Chang'e 4 mission, which involves placing a relay satellite in a halo orbit to facilitate communication with the Chang'e 4 lander and rover, which will be sent to the far side of the moon in December. Because the moon's far side never faces Earth, the satellite is needed to serve as an Earth-moon relay. The Chang'e 4 mission will be the first-ever attempt at a soft-landing on the far side of the moon.

The two spacecraft also will carry amateur radio and educational payloads, but not a transponder. Developed by students at the Harbin Institute of Technology, the amateur radio payload on DSLWP-A1 will provide a telecommand uplink and a telemetry and digital image downlink. Radio amateurs will be able to transmit commands that allow them to send commands to take and download an image.

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## **HF FOR TECHS: from previous page**

expand their understanding of HF propagation. In addition, this proposed change would allow Technician licensees to participate in public service-oriented, emergency, and Section traffic nets on 75 meters, from 3900 to 4000 kHz, where primary state/Section-wide public service activities often take place.

Additional operating privileges for Technicians will not limit their incentive to upgrade. ARRL points out that Technicians now have access to 850 kilohertz of spectrum in four HF bands. ARRL proposes an additional 275 kilohertz on three of those bands, so the total under this proposal is 1,125 kilohertz on four bands -- 80, 40, 15, and 10 meters.

Compare that to current General-class HF privileges: 3150 kilohertz across nine HF bands -- 160, 80, 40, 30, 20, 17, 15, 12, and 10 meters. In addition, Generals have access to the five 60-meter channels and to the two newest bands, 2200 and 630 meters. The incentive to upgrade from Technician to General is a tripling of the available HF spectrum; upgrading to General allows access to eight additional bands, including the prime daytime bands of 20 and 17 meters. Also, Technicians upgrading to General or higher are permitted the maximum amateur power level of 1500 W PEP.

## **2018 ARRL International Grid Chase update**

Our second month of the 2018 ARRL International Grid Chase (IGC) is now in the books. Big numbers continue on the bands, with overall reporting up by more than 5% from January. While WARC and VHF+ band activity dipped a bit, activity was up on the other HF bands. As evidenced by how many amateurs participated in February, per the leader board, the month saw 22,121 participants (logbook accounts = station locations). March is off and running with more than 14,600 logbook accounts -- through March 12 at 1200 UTC. Months start out strong because the leaderboard resets, allowing repeat contacts.

In February, we reported that low sunspots and

low winter E-skip and F2 motivated lower band participation. As spring takes hold, E-skip will bring up the MUF for upper HF (and VHF) bands, and tropospheric openings will fuel VHF-to-microwave openings as well.

Activity in late February and early March also benefitted from the ARRL International DX Contest CW and phone weekends.

ARRL's social media feeds have been humming with lots of IGC chatter. A couple group activities that caught our attention included posts by Bob Lindsay, W8MRL, who is tracking the IGC activities of Ohio hams, and by Paul Gacek, W6PNG, and the TI/WJ1B team who mounted a DXpedition to Costa Rica (EK70) for the couple of weeks around the time of the ARRL DX Phone weekend. In addition to Gacek, the team included Buddipole CEO/Owner Chris Drummond, W6HFP; ARRL Dakota Division Director Matt Holden, K0BBC, and retired ARRL COO Harold Kramer, WJ1B.

Complete Grid Chase information is on the ARRL website. Also visit the IGC 2018 Facebook page.

ARRL 2018 International Grid Chase gear now is available from the ARRL Store. You can buy IGC t-shirts, coffee mugs, pins, and stickers, as well as an IGC North America map, grid square map, and grid square atlas. -- **Thanks to ARRL Contest Branch Manager Bart Jahnke, W9JJ**

## **Fox and hounds hit bands for field test**

The "Fox" and the "Hounds" were on the bands March 6, as the WSJT-X development group conducted a field test of the still-beta FT8 DXpedition Mode. A second beta version of WSJT-X version 1.9.0, which includes the DXpedition-mode-capable version of FT8 -- was released recently. Version 1.9.0-rc2 was made available to allow further field testing of the FT8 DXpedition mode, which is designed to permit DXpeditions to make FT8 contacts at very high rates.

Developer Joe Taylor -- the "T" in FT8 -- has released a few highlights drawn from his observations during the public test. The "Fox" is the DXpedition station, while "Hounds" comprise the pileup. According to the FT8 DXpedition Mode User Guide, contacts between the DXpedition station and callers can be completed in as little as one transmission apiece by the calling station. DXpedition stations can transmit up to five signals simultaneously.



## Valerie Hotzfeld, NV9L, is 2018 Hamvention "Amateur of the Year"



Valerie Hotzfeld, NV9L, of Crescent City, Illinois, is the 2018 Hamvention® "Amateur of the Year." The Hamvention Awards Committee -- chaired by Michael Kalter, W8CI, and Frank Beafore, WS8B -- this week announced its 2018 award recipients for Club of the Year, Technical Achievement, and Special Achievement.

"I am extremely honored to even be nominated for Amateur of the Year, let alone to win this award," Hotzfeld told ARRL.

"I would like to thank the Hamvention Awards Committee. Their decision must have been a tough one, as I am certain the other nominees have done an outstanding job representing this hobby too. I would also like to thank those who mentored me throughout my different learning phases of this hobby.

"Not only has Amateur Radio been a life-changing experience for me, there are so many helpful hams in this hobby that it just feels natural to give back."

First licensed in 2006, Hotzfeld has been very active in local Amateur Radio clubs and in ARES. Once she "discovered" HF, she became obsessed with DXing and contesting. In the past few years, she has enjoyed inviting new hams to her station to DX or contest.

She has been the pilot or lead pilot for four major DXpeditions.

Hotzfeld also is a co-host of the Ham Nation webcast and has created how-to videos on YouTube for the ham radio community.

In 2017, Hotzfeld became engaged in public service, first traveling to Texas in the wake of Hurricane Harvey to help rescue small animals. She subsequently was deployed to Puerto Rico with the American Red Cross for 3 weeks as part of an Amateur Radio volunteer contingent, facilitating critical communications after Hurricane Maria.

**Valerie Hotzfeld, NV9L. [Don Kerouac, K9NR, photo]**

## "Club of the Year" is public service star

The Portage County Amateur Radio Service (PCARS) of Ravenna, Ohio, is Hamvention's 2018 Club of the Year. PCARS was established in November 2005, and it is an ARRL-Affiliated Special Service Club. PCARS members average more than 40 hours of club activities each month, including special interest groups, license training, contesting run from the club site (K8BF), and club social events.

"Our members cover a wide range of interests that allow us to support public safety organizations, student outreach programs, and activities focused on growing our hobby," the club told the Hamvention Awards Committee. "We love to share our experiences and have a requirement that our events be filled with a lot of fun. Members have joined PCARS because of all the activities and fun we have."

The club donated more than \$6,000 in time and money to the community last year. It has created its own contests and events, including the annual Freeze Your Acorns Off in February and Ohio State Parks on the Air, which was used as a model for ARRL's year-long National Parks on the Air event in 2016.

PCARS sponsors several "Build Days" each year, with projects including home-built transceivers, antennas, and digital equipment to allow members to expand their horizons into new areas of Amateur Radio. A monthly "Get on the Air Day" lets members and non-members use club site equipment to learn about HF and new operating modes. "It is all about building our hobby, helping our community, building our skills, and, most of all, having fun," PCARS said.

## ARRL repurposes AM broadcast transmitter for ham radio use

Thanks to a joint effort by ARRL and the Vintage Radio and Communications Museum of Connecticut (VRCMCT), a classic Gates BC-1T AM broadcast transmitter will enjoy a second life on the Amateur Radio bands for occasional use under W1AW or under the ARRL Headquarters Operators Club call sign, W1INF.

Spearheaded by broadcast engineer Dan Thomas, NC1J, VRCMCT volunteers restored the 1 kW

**Continued on next page**

### From previous page

transmitter to operating condition, after obtaining it from the National Capital Radio and Television Museum in Bowie, Maryland. The VRCMCT will retain ownership of the transmitter, while the League houses and maintains it on loan. The transmitter will be located in the ARRL Lab, and Assistant Lab Manager Bob Allison, WB1GCM, said the transmitter could be on the air as W1AW during such operating events as the AM Rally and the Heavy Metal Rally.

ARRL turned to AM guru and veteran broadcast engineer Tim "Timtron" Smith, WA1HLR, of Skowhegan, Maine, to handle shifting the BC-1T from 1,340 kHz to the ham bands. Timtron not only has been an AM mainstay on 75 and 40 meters over the years, he's engineered all manner of AM, FM, and HF broadcast transmitters in his extensive career. This combination of familiarity and experience made him a logical choice to handle the conversion to amateur use of the Gates BC-1T.

Various stipulations added a level of complexity to the endeavor. First, the transmitter had to be modified as little as possible, retaining original components. The 833 final amplifier tubes (left), better suited for broadcast-band use, would be retained as would the inductance-heavy tuning circuits. Another requirement -- this one set by Smith -- ambitiously called for the transmitter to function on 75 as well as on 160 meters.

Each RF stage was converted, starting with the Colpitts oscillator -- which offered two octal tube sockets to hold broadcast crystals, and a selector switch. More complicated was changing out feedback and loading capacitors in the oscillator stage, along



### W1AW

with the buffer tank circuit. The driver tank circuit was next. Removing one-half of the windings on the multiple tank, changing some connections, shortening long leads on RF bypass capacitors, and modifying the neutralization circuit were necessary.

The output tuning circuit proved to be the easiest to convert; parallel capacitors that enabled broadcast-band operation were rewired in series to resonate on the amateur bands. A spare inductor, not required for higher frequencies, was repurposed in place as a DC safety shunt. The modulator just needed only minor changes. All was documented.

Initial tests at 250 W on February 22 demonstrated the success of the modifications and marked completion of the first phase of a new lease on life for the BC-1T as ARRL's flagship AM amateur band transmitter. "It took many volunteers and their resources to make this project come together," said Allison, who calls the BC-1T "The Ambassador."

"It's an ambassador for the AM mode, reaching out a friendly hand to radio amateurs old and new," he said.

The project began in ARRL Lab on February 18 with the presentation to "Timtron" of an official ARRL Lab coat. As if stepping from the pages of a 1960s ARRL Handbook, he looked the part and was ready to begin the operation. -- **Thanks to Clark Burgard, N1BCG, and Bob Allison, WB1GCM**



# Ten Ten International

You have to make contacts to get results!



*Irene Kubica, NH7PE, is an avid participant in 10-meter activity and encourages hams at all levels to join in the fun.*

## Upcoming events

### Winter Phone QSO Party

Sat Apr 28, 2018 00:00 -

Sun Apr 29, 2018 23:59

### Spring Digital QSO Party

Sat May 05, 2018 00:00 -

Sun May 06, 2018 23:59

### Spring CW QSO Party

Sat May 05, 2018 00:00 -

Sun May 06, 2018 23:59

### Spring CW QSO Party

Sat Jun 02, 2018 00:00 -

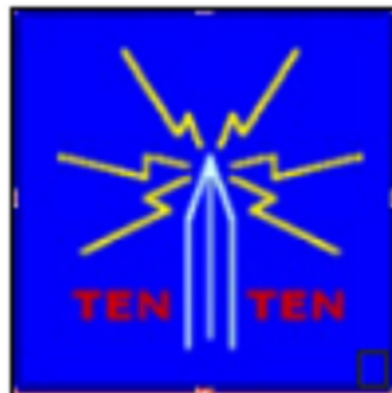
Sun Jun 03, 2018 23:59

### Open Season QSO Party

## The 10-10 Connection

with NH7PE,

**10-10 Aloha Chapter**



### ***Have a hankering for rag-chewing?***

Check into the daily (except Sunday) SSB nets at 8 a.m. HST on 28.380 and 28.800MHz. They are called from Illinois, California, Arizona, Florida, North Carolina and Michigan. Try them out.

Remember: You have to make contacts to get results!

***Be sure to check  
www.ten-ten.org for  
details***

### **Ten-Ten International QSO Parties**

For those who join in the Ten-Ten QSO Parties, remember: You can assign your score to the Aloha Chapter. Logs must be postmarked no later than 15 days after the respective QSO Party.

To see what's open on 10 meters, listen to the beacons from 28.175-28.300 so you will know where DX is coming from.

The Ten-Ten International News has reprinted several antenna articles by L.B. Cebik (SK), W4RNL #41159.

Ten-Ten International pins are available for purchase at \$2 each. See [www.ten-ten.org](http://www.ten-ten.org) for details.

CW news: FISTS Get Your Feet Wet Activity Day! Every third Sunday from 0001 to 2400 UTC on 80 and 40 meters (3.558-7.110 MHz): exchange name, QTH, FIST #, RST.



# US Amateur Radio Bands

**US AMATEUR POWER LIMITS — FCC §97.319** An amateur station must use the minimum transmitter power necessary to carry out the desired communication. (b) No station may transmit with a transmitter power exceeding 1500 W PEP.



**ARRL** The national association for  
AMATEUR RADIO

## KEY

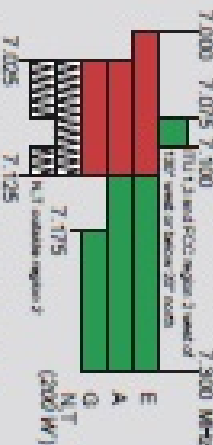
**Mode:**  
CW operation is permitted throughout all amateur bands.  
SSB is authorized above 150.1 MHz, except for 144.1-144.1 and 219-220 MHz. These frequencies are authorized above 50 MHz, except for 219-220 MHz.

- █ = RTTY and data
- █ = phone and image
- █ = CW only
- █ = SSB phone
- █ = USB phone, CW, RTTY, and data
- █ = Fixed digital message forwarding systems only

**E = Amateur Extra**  
A = Advanced  
G = General  
T = Technician  
N = Novice

See [arrl.org](http://arrl.org) for detailed band plans.

### 40 Meters (7 MHz)

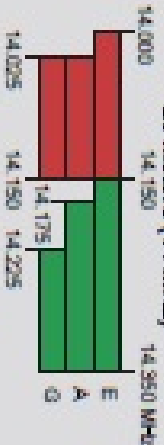


See Sections 97.305(c), 97.307(h)(1) and 97.307(i). These exceptions do not apply to stations in the continental US.

### 30 Meters (10.1 MHz)



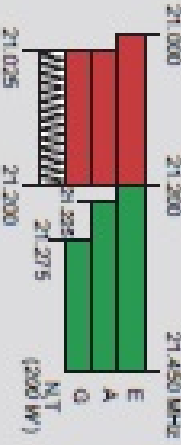
### 20 Meters (14 MHz)



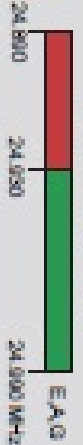
### 17 Meters (18 MHz)



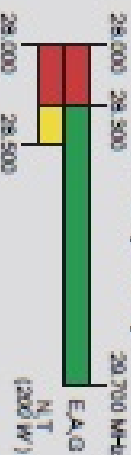
### 15 Meters (21 MHz)



### 12 Meters (24 MHz)



### 10 Meters (28 MHz)



### 6 Meters (50 MHz)



### 2 Meters (144 MHz)



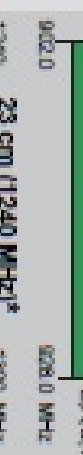
### 1.25 Meters (222 MHz)



### 70 cm (420 MHz)\*



### 33 cm (902 MHz)\*



### 23 cm (1240 MHz)\*



All licenses except Novice are authorized all modes on the following frequencies:

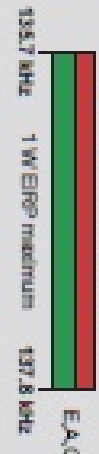
2300-2350 MHz	10.0-10.5 GHz	122.25-123.0 GHz
2350-2400 MHz	24.0-24.25 GHz	134-141 GHz
2400-2500 MHz	47.0-47.3 GHz	241-250 GHz
2500-2525 MHz	70.0-71.0 GHz	All above 275 GHz

\* No pulse emissions

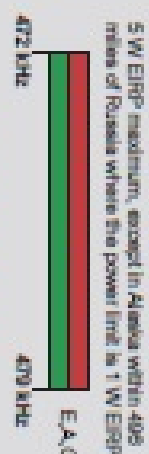
## Revised ham bands

Amateur stations to operate on either 2,200 or 630 meters must first register with the Utilities Technology Council and file a registration or right-of-use agreement with the Federal Communications Commission. You need only register once for each band.

### 2,200 Meters (135 kHz)



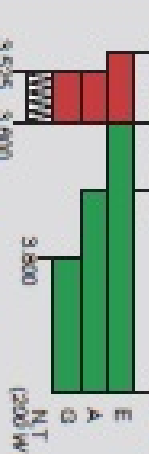
### 630 Meters (472 kHz)



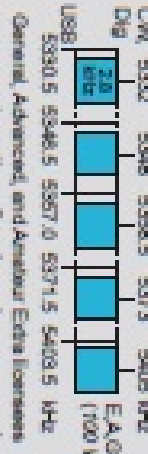
### 160 Meters (1.8 MHz)



### 80 Meters (3.5 MHz)



### 60 Meters (5.3 MHz)



General, Advanced, and Amateur Extra licenses may operate on these five channels on a secondary basis with a maximum effective radiated power (ERP) of 100 W PEP relative to a half-wave dipole. Permitted operating modes include upper sideband voice (USB), CW, RTTY, PSK31 and other digital modes such as PACTOR III. Only one signal at a time is permitted on any channel.

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