

County Hunter News OnLine

March 2026
Volume 22 Issue 3

Welcome to the On-Line County Hunter News, a monthly publication for those interested in ham radio county hunting, with an orientation toward CW operation. We also cover some park chasing activities these days. Contributions of articles, stories, letters, and pictures to the editor are welcomed, and may be included in future issues at the editor's discretion.

The County Hunter News will provide you with interesting, thought provoking articles, articles of county hunting history, or about county hunters or events, ham radio or electronics history, general ham radio interest, and provide news of upcoming operating events.

We hope you will enjoy the County Hunter News. Feel free to forward, or provide links. Permission is given for copying or quoting in part or all provided credit is given to the CHNews and to the author of article.

CW County Hunter Frequencies are 14.0565, 10.124.5, and 7056.5, with activity occasionally on 3556.5 KHz. There is CW activity now occasionally on 7188, 14336., 18136, 21336, 28336 . The CW folks are now pioneering 17M operation on 18.0915. (21.0565, 24.9155, and 28.0565). Look around 18136 or for occasional 17M CW runs usually after the run on 20M CW . (21.336 and 28.336)

You can see live spots of county hunter activity at ch.W6RK.com

For information on county hunting, check out the following resources:

The USACA award was sponsored by CQ Magazine, which unfortunately has gone the way of the dinosaurs. However, like other CQ Awards, they are still available. CQ awards require confirmation of all claimed contacts.

Rules and information are here:

<http://countyhunter.com/cq.htm>

MARAC sponsors the US Counties Award which can be earned in increments of 500 counties. The rules for this award are at:

<http://marac.org/documents/usa-ca-rules.pdf>

This award requires log data only to earn.

For general information FAQ on County Hunting, check out:

<http://countyhunter.com/whatis.htm>

MARAC sponsors an award program for many other county hunting awards. You can find information on these awards and the rules at:

<http://marac.org/awards.pdf>

There is a lot more information at www.countyhunter.com . Please check it out.

Back issues of the County Hunter News are available at www.CHNewsonline.com

De N4CD, Bob Voss, Editor (email: telegraphy@verizon.net)

Notes from the Editor

1) Sunspots – Still have them by the hundreds. Band conditions continue to be good. Lots of contacts being made on 10m, although that tough for county hunting with the long 1500 mile type first skip. Not to many days of ruined propagation in Feb.

2) Weather – it's winter and Mother Nature unleashed lots of nasty winter weather. Very cold up north. Blizzards and ice storms. There was a winter QSO Party. Most of the activity was from 'home stations'. N4CD was frozen in in TX. Ice storm. I could not get the car out of garage to go mobile.

Mobile Activity in February

At the beginning of the month

There was a lot of cold, cold snowy weather in FEB. The east coast got clobbered by a Clipper that dumped feet of snow over large areas of the area. Up to 3 feet in some locations. Temps below zero and wind chills well below zero up 'north' didn't help either. Yet, some were out and things looking a lot better toward the end of the month.

Some parts of the country had 'ice storms' including TX that kept me at home for 4 days – my driveway on north side of house had up to foot of solid ice drifts that took days to soften and let me get car out of garage. Yuck. Other states had it worse – with many out of power and those in hard hit areas out of power for days with sub freezing temps.

For county hunters, there were usually up to half a dozen parks spotted daily(with county) on W6RK spots. Thanks to N4RKK. While you won't get your 'stars' and Bingo and MG, MP, MD, DD contacts, you can get the county, prefixes, modes, call combos, band counties from them. Also credit for Nth time. Most are 'portable' and don't count for 'mobile'.

N8HAM was active in FL on multiple days. Later, mid month, into AL, TN, OH, ...to home. The only mobile spotted up until the 20th!

W4SIG popped up in TN on the 22nd. Into SC, GA,winding up in TN after 6 days putting out counties.

That's it.....other than the state QSO Parties that had mobiles running and reported elsewhere. Quiet month.

Minnesota QSO Party

There are 87 counties in Minnesota. Looks like top scorers out of state had 57 as best score for counties worked. Temps were in the 20s there. Usual winter conditions.

K0PC Rover 698 CW QSO

My first try at a ROVER operation. Ended up operating 6 hours and driving 4 hours through 12 counties. Overall I was happy with the results, rates averaged over 110/hour with a peak hour of 161.

Thanks to everyone that worked me.
73, Pat K0PC

KE0TT Rover 298 CW QSO

10 watts to hamsticks while roving, 60 watts to wires back home in Olmsted Co. Enjoyed the activity, thanks for the fun! My apologies for many CW errors... I used a flexible flat surface in the car and set my key paddle on it. The paddle would rock back and forth slightly, just enough to drive me nuts, so learned to use a more rigid surface next time, like I used to. Next time. 73, Dan ke0tt

K0OP Rover 172 asb QSO

Operated as Rover: Norman and Polk counties.

W5TM fixed OK 186 CW Mults57

No comments

W9FZ mobile 308 SSB QSO

no comments

W0ZQ mobile 644 cw 183 SSB

I ran seven counties Rover style this year stopping to work 15 through 80m on phone and CW. Weather wise the morning started out cool, about 10 degrees (above zero) but warming to 25 or so during the day, very seasonal for Minnesota. There was not much

snow to deal with and the roads were dry and clear. I did end up losing nearly an hour of contest time dealing with a N1MM problem that turned out to be operator error (surprise!). I've used N1MM for a long time during many contests and apparently I'm still learning. Propagation wise the bands seemed to be fairly good for domestic contesting, but only two DX stations made it into my log. My next to last Q in the contest was with OM2VL on 80m, that was cool. I was also gifted with both the most amazing sunrise, and then to top it off sunset at the end of the contest. Thanks for your patience's with me on CW and for all the Qs. Weather permitting, I hope to see you from the WiQP in a few weeks. 73, Jon

KK6MC mobile 280 CW 76 SSB

Whenever I complain about the weather when I am roving, W0ZQ and W9ZF always tell me, "Try the MN QSO Party, the first weekend in February." So, this year I did. The cold was bearable, 11F and calm in the morning, rising to 25F and breezy in the afternoon. Bearable if not balmy.

I was surprised at how many Minnesota Counties I work-26. Usually it is only a handful. I spent a lot of time (too much?) on 40M, which contributed to this total. I only worked two Europeans; usually it is a handful.

Conditions were good, with 40M open all day, 20M good until the end, and 15M open enough to make the excursions up there productive. 15M still tends to be underutilized in QSO parties when it is open though.

I think that the nice thing about QSO parties is the variety of rules. Minnesota counts CW and Phone QSOs the same, in retrospect I should have spent more time on 20M phone as the rates are higher. Minnesota also does not allow county line operations and only has a one mobile category. Neither are showstoppers for me, but I suspect that the fixed stations miss getting two multi at once.

All in all, a cool experience.

W0ADL Rover 8 cw 242 SSB

Operator(s): KØDJD WØADL

Rover. FT effort. Mostly SSB, but we hope to do more CW next year. We drove from Hennepin through Anoka using hamsticks 15/20) to Washington County and deployed

our Rover antennas (20 pota performer 40/80 cross dipole, inverted V). Then roved to Chisago and redeployed antennas. First time as rover. We had a great time and learned a lot. It was great to log familiar call signs.

Send comments and

K1RO fixed NH 103 CW 47

Arctic cold and snow, good weekend to stay inside and play radio. So many contests to dabble in this weekend... Thanks especially to the mobiles for braving the winter weather to make the QP a lot more interesting.

N0A mobile 1094 ssb QSO

Operator(s): AG9A N5OT

We won the lottery, converging on Minnesota to play radio and having great weather! Mark and Mark (AG9A from Illinois and N5OT from Oklahoma) met up in Mason City IA Friday night, then Saturday morning we headed north. We covered 19 counties in 10 hours, including getting stopped for doing 72 in a 60 very late in the day by Minnesota's finest. She let us off with a warning and then says, "I have to ask, what is with all the equipment?"

Clean living, I guess. The N5OT RadioCar did not disappoint, and was extra easy to set up on account of leaving the amplifier and most of the batteries at home! The rig was a Kenwood TS-480 100 watt version that could barely squirt out 80 watts. Still, we felt very loud. Must be the hitch-mounted K2UA Tarheel working its magic.

Super cool that N0HJZ was all voice and no code, and we operated all code and no voice. Too close to call! It's going to be one for the log checkers! That is a great game. Congrats

We planned to end in the southwest corner of the state, in Rock County. We managed to slide in perfectly at the end. Immediately we shot across to South Dakota and operated the NA Sprint for 2 hours (AG9A as AG9A), then into Iowa to operate the NA Sprint for the last two hours (AG9A as N5OT), then back to the hotel (Frank Lloyd Wright's Historic Park Inn Hotel) in Mason City. We were two tired pups. We finished breakfast Sunday at about 1:30pm and headed our separate ways.

Boy did we have good time. Thanks to everyone for a fantastic weekend!

73 - Mark and Mark, AG9A and N5OT

BC QSO Party

It helps to work our northern folks in their QSO Party. They get on for the US QSO Parties and give us multipliers.

Looks like there are dozens and dozens of multipliers to work.

N6TQ in CA made 62 contacts in 41 multipliers.

N4CD added a dozen to the park log in an hour while chasing PARK stations around the US. Loud on 15M!

Vermont QSO Party

This year in Vermont, it was cold. Zero degree type cold. Or colder. Snow on ground. There are 14 counties in Vermont. Likely most made it on the air as scores showed few contacts and very limited activity. Maybe more got on on 80m.

This year may have been a first for QSO Parties. **In this QSO Party you could use 30, 17 and 12 meters for digital QSOs per this rule:**

“In addition to the suggested frequencies listed below, FT8/FT4 contacts can also be made ONLY on the recognized FT8/FT4 frequencies of 10.136/10.140, 18.110/18.104 and 24.915/24.919 MHz upper side band. No other forms of activity are allowed on 30, 17 and 12 meters.”

I don't recall any other QSO Party that has allowed use of the WARC bands. Interesting – and I noted only a few digital contacts at all in the reported results. Grid squares were sent. Figuring out counties up to user (not required for scoring).

As far as I can tell, only 2 VT stations were active on digital and none listed WARC band use. Likely others were on – maybe some moved on request but chose not to list on 3830 scores page.

W1AW/1 was active in Vermont during the contest.

K1RO fixed NH 35 CW 22 ssb digi 14
CW Mults 10 Ph Mults 9 Dig Mults 4

30/17/12 meter digital contacts shown on the 6 meter line. Score includes 1.5 multiplier for low power, three WINVT mults, and extra points for W1AW/1 contacts. I probably screwed up some of the scoring details...

I am only a few miles from Vermont and usually the high bands are difficult. This year seemed easier with signals weak but workable. In some cases signals were much stronger on backscatter (beam toward the east).

K1IB mobile 278 cw

Rover operation stopping at four county line locations in the Connecticut River valley, including Essex, Caledonia, Orange, Windsor and Windham counties.

Started at 9:15 a.m. on the ESS/CAL line, in blowing snow and temperature minus 5 degrees F. The temperature warmed to about plus 5 during the day.

Made most QSOs on 20m but propagation 20 was good only to the eastern half of North America. 15m was the band for western NA, but found much less activity there. Worked only a few on 40m though I checked the band often during the day. Nobody seemed to be using it for the VQP.

Worked only one Vermont station--KE1VT in Addison County--on 20m. Apparently all other Vermont stations were on SSB or digital modes. I was 100% cw.

Rig: Yaesu FT-897, 100 watts. Antenna Hustler mobile whip.

K1EP remote at K2LE/1 125 CW QSO

I did a casual remote operation while in Florida. The internet connection at first wasn't good and had a lot of audio dropouts. I fixed it after a few Qs and it was a lot better. Sri for any problems when I first got on. Apparently the snow and ice took down the 80M

antenna, so I wasn't able to get on 80M. Activity seemed low and there were a lot of FOC on who didn't realize I wasn't FOC! I was probably should have QRS so they wouldn't have called me.

OM2VL fixed DX 12 CW 12 ssb CW Mults 8 Ph Mults 9

N8II fixed WV 23 cw 26 SSB CW Mults 9 Ph Mults 11

Score may be low, possible missed club mults. I tried to chase what was there at the start, considerably less SSB/CW activity then and the rest of the weekend, probably more FT. I even tried some CQ's on 75M phone, never heard a VT station. I had antenna issues, no rotatable yagi on 20 or 10. QSO's on 80/20M were made with 80M ladder line fed dipole. I don't think it made much difference in my score, I could hear VT ops better while looking for BC/MN. I watched for spots some Friday and Saturday, but busy with MNQP Saturday.

KI1P/R and K1IB/M deserve a lot of thanks/kudos for operating in sub-zero windy weather, sorry we didn't connect more. . Most other VT ops were loud on 20 most of the daytime. I worked W1AW/1 8 times, made 6 QSO's with KI1P/R.

The 20M yagi feedline is now fixed, near 50F Tuesday, yay!

Thanks for the QSO's and 73, Jeff

US 250 Year Celebration

ARRL Joins America250 as a Supporting Partner for the Nation's 250th Anniversary

ARRL announced today that it is a Supporting Partner of America250, joining the nationwide celebration of the 250th anniversary of our country in 2026.

America250 is the national, nonpartisan organization charged by Congress to lead the

commemoration of the signing of the Declaration of Independence, a milestone that marks America's Semiquincentennial. Through education, engagement, and service, America250 seeks to bring Americans together to reflect on the nation's history and renew commitment to the ideals that unite us.

As a Supporting Partner, ARRL will contribute to America250's mission by highlighting the historic and ongoing role of amateur radio in connecting people, supporting public service, and strengthening civic engagement across the United States. Since its founding in 1914, ARRL and its members have played a vital role in technical innovation, emergency communications, and volunteer service in communities.

"Amateur radio has been part of the American story since the earliest days of wireless communication," said ARRL President Rick Roderick, K5UR. "For more than a century, the Amateur Radio Service has advanced the nation's communications capabilities by fostering technical innovation, developing a pool of trained and skilled operators, strengthening emergency and public service communications, and promoting international goodwill. These enduring contributions reflect why amateur radio continues to serve the public interest as a uniquely resilient and volunteer-driven national resource."

"As we approach America's 250th anniversary, it's important to recognize the organizations and volunteers who have connected and served communities for generations," said Jen Condon, Executive Vice President of America250. "Amateur radio reflects the spirit of service, innovation, and civic engagement at the heart of our nation's story, and we're proud to welcome ARRL as a Supporting Partner in this historic commemoration."

ARRL is also strengthening STEM education by bringing amateur radio into American classrooms through hands-on, project-based curricula and teacher training. By connecting youth with real-world experiences, these programs bridge educational gaps, boost student achievement, and open pathways to higher education and careers in wireless communications and related technical fields.

As part of its alignment with the US Semiquincentennial, ARRL is advancing several major initiatives throughout the year:

2026 is the ARRL Year of the Club, highlighting the important contributions radio clubs make to their communities.

ARRL Year of the Club. As previously announced to members, the ARRL Board of Directors has designated 2026 as the Year of the Club, recognizing the essential role that local amateur radio clubs play in building community, mentoring new operators, and delivering public service at the grassroots level. This nationwide focus celebrates clubs as engines of civic engagement and local connection. Icom America is the Official Sponsor of the ARRL Year of the Club.

America250 Worked All States Operating Event. ARRL has already launched the America250 Worked All States (WAS) year-long event, calling on amateur radio operators worldwide to make contact with all 50 US states in honor of America's 250th anniversary. ARRL will produce an achievement award for radio amateurs who meet the challenge.

2026 ARRL Field Day is June 27 – 28. ARRL announces that the theme of 2026 ARRL Field Day will be "Amateur Radio: A National Resource." Field Day is an annual amateur radio activity organized since 1933, and the largest on-the-air operating event in North America. Field Day showcases amateur radio's readiness to provide resilient communications in times of need while engaging the public through hands-on demonstrations and community outreach.

ARRL's partnership with America250 reflects a shared commitment to honoring America's past while investing in the civic, technical, and volunteer spirit that will carry the nation forward.

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Source: ARRL Weekly Newsletter

Michigan Mini

The dates are official! The 2026 Michigan Mini will take place April 23-26 at the Spring Hill Suites in Midland, Michigan. Room rates are \$134 plus tax.

We will have the conference room for our use from 8AM-10PM each day. Call now to reserve your room. Hotel and Registration information can be found on our website at marac.org/events soon. Thank you for your patience as our software developers are

very busy!

Hosted by Dorie N8WTQ

See you there!

South/North Carolina QSO Party

Held Feb 28 – most reports not in at Press Time.....next month's issue.....

Same for NC QSO Party held March 1 – results next month.

County Hunting Article - QST

By Kerry W4SIG

MARAC has a rich 60 year old history. During which, many hams have dedicated time and effort to both chase the counties as well as to create and administer the many awards we provide, such as the USACA award.

Ron, KF7ZN, and I thought that it would be good for the amateur radio world to be aware of our club and the excitement of chasing our worked-all counties awards. We put together an article and submitted it to ARRL's QST magazine. We are proud to announce that it was published in the January 2026 issue! Please find attached a copy of that article. Hopefully it will not only educate others, but encourage them to join in on the chase

de N4CD

Nice two article in the Jan 2026 QST. Hope you subscribe and read QST. ARRL is the only organization representing ham radio and it's future.

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Here is article as appeared in QST

County Hunting and the New USA Counties Award

New USA Counties Award

Achieving the top-tier award has challenged hams for decades.

By Ron Wilcox, KF7ZN, and Kerry Long, W4SIG

While Ron Wilcox, KF7ZN, was tuning across the 20-meter band in 1986, he heard a ham operator with a large pileup. At first, Ron thought it might be a DX contact, but he soon discovered that it was a mobile station putting a county on the air for a group of county hunters. Soon after, Ron became a member of the Mobile Amateur Radio Awards Club (MARAC), one of America's oldest ham radio special interest groups.

Award History

Interest in collecting contacts with US counties began shortly after World War II — long before mobile operation became commonplace. In the 1950s, Clif Evans, K6BX, formed the County Hunters Club (CHC), in which members contacted as many different counties as possible (this was a significant challenge back then due to sparse mobile activity, so most contacts were with base stations). In 1961, Clif joined CQ magazine and, building on this interest, created the CQ Magazine United States of America Counties Award (USA-CA).

Because of the difficulty of contacting all 3,077 counties, the award was given to operators who contacted 500, and incremental gold stickers were given for every additional 500 contacted. There were only 26 applicants for the initial USA-CA 500, so the first awards were labeled "1A" to "1Z." As interest grew, the labeling system switched to only numbers, with the first USA-CA 1,000 given to John Laney, K4BAI, in

1962. It wasn't until November 19, 1965, that Cliff Corne, Jr., K9EAB (SK), received the first USA-CA for contacting every county in the US (known among county hunters as the "whole ball of wax"). What makes this event even more remarkable is that Cliff had polio and accomplished this milestone while confined to an iron lung.

In 1971, Kevin Gill, ZL1KG, received USA-CA #52 and became the first international ham to receive the award.

Interest in the award and mobile activity continued to mount, and in 1969, a group of avid county hunters met in person to discuss organizing a county-hunting club. The following year, a convention was held in Mountain Home, Arkansas, and MARAC was formed.

Bill Nash, W0OWY (SK), published a handbook and a logbook with the outline of each state's counties to be colored in once they were contacted.

Although the original USA-CA continued under the sponsorship of CQ magazine, MARAC created (and continues to offer) many additional county-hunting awards for those chasing and giving out counties, including those who contact all the counties multiple times — special recognition is given for using various modes and bands, and for operating as teams.

New Award

Those who've been active on the HF bands chasing DX for years, or more recently, participating in Parks on the Air®(POTA), and are looking for a new goal should consider chasing counties; it offers opportunities for awards, for which active hams may already have qualifying contacts.

Achieving the top-tier countyhunting goal — making contacts with all US counties — has challenged amateurs for decades. Because many counties have only a few (if any) licensed operators, this feat is really only possible with HF mobile and portable activity. In fact, almost 60 years after the original all-counties award was created, only about 1,200 hams worldwide have finished the task.

In early 2025, MARAC formed a committee to investigate how it could expand and extend the long tradition of sponsoring county-hunting participation and awards.

After hearing from the committee and general membership, MARAC leadership decided to create its own award for making contacts with all US counties; at the 2024

MARAC National Convention, the Board of Directors added a new US counties award to recognize the achievements of hams who contact America's counties for the first time.

Like other MARAC county-hunting awards, the MARAC first-time award does not require confirmation of contacts. The MARAC Board of Directors noted that rising postage costs and other factors have discouraged participation in awards that require an operator to obtain QSL cards or other written confirmations, and none of the other county-hunting awards sponsored by MARAC require that contacts be confirmed in writing or through electronic programs. MARAC now offers the USA-CA starting at the 500-county level and at increments of additional 500 counties, all the way up to the ultimate achievement of working all 3,077. Special endorsements are available for individual bands and modes. Ham operators who are active on the HF bands and have participated in state QSO parties or POTA undoubtedly have many counties already logged. Also, some logging programs have a way to create a log of contacted counties.

(Picture of New Award – not included here...)

Opportunities for Mobile Operators

Counties are activated by mobile operators across the US, usually on one of the calling frequencies (such as 14.336 or 14.0565) listed on MARAC's website. There's also a dedicated spotting web page ([https:// ch.w6rk.com](https://ch.w6rk.com)) for county activations. An increasing number of POTA activators spot their activation on this site to further increase POTA participation by attracting county hunters. Other POTA activators run additional counties between their park locations to get more contacts, and many MARAC awards allow credit for these additional "activations." Two websites that offer more information are www.countyhunter.com and www.countyhunterweb.org (which has a forum for discussion, as well as listings for planned county-hunting mobile trips). Currently, 18 hams have activated all US counties while mobile.

More Information

Complete details and requirements for the MARAC USA-CA, as well as a complete list of all other awards that MARAC offers, are available at www.marac.org. MARAC members receive the club's monthly newsletter, get special rates for award certificates, and can access Logger II, software specifically designed to track MARAC awards. In addition to logging contacts, Logger II has tools for spotting county activations, keeping track of progress toward each award, receiving audio and email alerts, and importing

ADIF files from other logging programs.

Join in on the fun, get the certificate to hang on your wall, and be active on the air!

MARAC Annual Convention

News....News... News.....Read all About it!

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Welcome to Utah where we will be having the MARAC National Convention!!!! Ogden, Utah to be exact.

Here is a preliminary outline of the convention. I hope to have everything finalized by the end of February with bios, presentation summaries, websites, etc.. There may be some changes as I work through everything. The convention will be the weekend of September Friday 18th and Saturday 19th, 2026.

Friday:

Breakfast- everyone on their own.

Presentation 9:30-10:30 by Don K3IMC

Presentation 11:00-12:00 by Ron KF7ZN. A Visit to the Sun and the Ionosphere

Lunch 12:30-1:30

Field Trip to Hill Air Museum 2:00-4:00PM They have guided tours. Hill Aerospace Museum is a military aviation museum located at Hill Air Force Base, one of our nation's biggest and best aviation museums.

Dinner 6:00 pm

Slide show with slides of members and their activities during the year.

Along with dinner we will have a historical club present that has some very interesting presentations on history of the West.

Saturday:

Breakfast everyone on their own

Presentation 9:30 to 10:30 Bob Carter WR7Q History of CW and how to improve your skills

Presentation 11-12:00 Jed Petrovich AD7KG Mobile and Portable antennas

Lunch 12:30 to 1:30

MARAC Board meeting 1:30-2:30

Harvest Moon Celebration In the afternoon people can attend the Harvest Moon celebration- Live music, fall-themed photo stations, and sometimes rock climbing and axe throwing., etc.

Dinner 6:30 pm, speaker from Rio Grande Railroad club on History of Railroads in the West

Prizes!

Honoring the Titanic Sinking

Honoring the Titanic

Amateur radio operators worldwide will have an opportunity to honor the passengers and radio crew of the RMS Titanic that sank in the early hours of April 15, 1912.

A Spanish special event station, EG1912T, will be on the air from 0000 UTC on April 10, the date on which the Titanic set sail from Southampton, England, until 2359 on April 15, the date on which it sank after hitting an iceberg. The call sign is unique for this event. EG identifies Spain, 1912 signifies the year the ship sank, and T stands for Titanic.

“Radio station managers and telegraph operators Jack Phillips, Harold Bride, and Harold

Cottam, who played a leading role in the telegraphic communications during the rescue, will also be honored,” said Carlos Reboreda, EA1PJ, president of the Vigo-Val Miñor Amateur Radio Union, which is sponsoring the 2026 special event operation.

All amateur radio operators are invited to participate. Bands used will be HF, VHF, UHF, and SHF (amateur radio satellite). All modes will be available with special emphasis on telegraphy. All stations that contact EG1921T using CW will receive a special QSL card. All other stations making contact on any frequency or mode can receive a confirmation via eQSL and LoTW.

Source: ARRL Weekly Newsletter

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de N4CD

Way back when, all communications were by spark gap transmissions. The Titanic was equipped with the best Marconi equipment of the era. The Marconi company did not sell radio equipment, but leased it to the various ship lines and ships sailing the oceans. There were essentially no commercial use of 'wireless' for domestic traffic. That all went via the hundreds of thousands of telegraph lines and systems, including under the seas.

With the technology of the day, radios used 'long wave' – typically below 600 KHz. Marconi favored 500-600 and 250 meter frequencies. Antennas were huge – in the case of the Titanic – from one end of the ship to the other with the center on a high mast.

Range during the day was 250 miles or so and up to 2000 miles and night.

The Titanic had one of the most powerful ship board transmitters – a 5 KW rotary spark. The main reason for the radio equipment was to sell wireless messages to those who could afford them. They were VERY expensive, the equivalent of hundreds of dollars per 10 word message in 2026 dollars. However, with dozens of millionaires on board, there were always messages waiting to be sent. For a good part of the trip, the ship during daylight hours was out of range of land stations. At night, messages could be sent most of the way but there was still a gap in the middle until night late arrived.

One of the main reasons why the Titanic didn't get and pass on 'ice warnings' was that the 5 KW transmitter had broken down – and it took much of the day getting it repaired. When back in service later in the evening there was a large backlog of messages to be

sent. When a nearby ship tried to pass a 'routine' ice warning messages about an ice field south of where it was supposed to be – the Titanic operator told that breaking station to 'standby'. Well, that other operator was on the California – about 10 miles away – and while the Titanic sent message after message for hours, the operator on the other nearby ship turned off the radio and went to sleep. At that time, there was no requirement to monitor the radio for emergency traffic.

There are several good movies about the sinking of the Titanic beside the recent blockbuster movie.

Major Titanic Films

Titanic (1997): Directed by James Cameron, this film focuses on a fictional romance between Jack and Rose.

A Night to Remember (1958): Regarded for its high historical accuracy and based on the book by Walter Lord.

Titanic (1953): A classic drama focused on personal relationships aboard the ship.

S.O.S. Titanic (1979): A TV movie chronicling the disaster.

Titanic (1996 Miniseries): A two-part TV film starring Catherine Zeta-Jones.

Other Notable Films and Documentaries

Raise the Titanic (1980): A thriller based on the Clive Cussler novel.

The Unsinkable Molly Brown (1964): Musical featuring a Titanic survivor.

Ghosts of the Abyss (2003): Documentary by James Cameron.

Saving the Titanic (2012): Focuses on the engineers.

In Nacht und Eis (1912): A German silent film released shortly after the sinking.

Titanic (2012 Miniseries): A four-part series.

Titanic: Blood and Steel (2012): A drama about the construction of the ship.

1. SAVED FROM THE TITANIC (1912)

3. ATLANTIC (1929)3. ATLANTIC (1929) - Play - on YouTube

4. TITANIC (1943) -Nazi version - propaganda film - in German with subtitles on YouTube

The first films appeared within months of the sinking! This was before 'talkies'. You usually had an organ providing 'dramatic music' or rarely an orchestra. You can watch one of the first films here with English

[In Night and Ice \("In Nacht und Eis" 1912\) - Remastered English version of Titanic film - YouTube](#)

This is the first surviving 'movie' of the sinking of the Titanic!

The sinking of the Titanic caused massive changes in the regulation of the wireless spectrum. Within years, amateur stations were banished to the then useless frequencies below 200 meters. That's 1.5 MHz and above. With the technology of the day – crystal detectors, electrolytic detectors, and the Marconi Magnetic Detector (Maggie), equipment worked only for 'long waves'. Performance dropped off quickly and was near useless above 2 MHz or so. Spark gap transmitters also became less efficient and more finicky. Your frequency was basically tied to your antenna system for long wave.

It would be another 10 years before vacuum tubes were developed and deployed during and after WW1. Then until the late 1930s when 'crystal control' kept signals from drifting all over the place.

Also, at that time, the international wireless regulators then required all ships to monitor 24/7 the emergency channel...which was set to be 500 KHz every 15 minutes. There was a one minute mandatory break every 15 minutes for monitoring. Ships with a certain number of passengers had to have wireless equipment and wireless operators.

If you want to play around with 'long waves', hams now have two bands down in that part of the spectrum – although very limited in power. You've got 2200 and 630M band – although the first one requires coordination with the utility commission as those frequencies are used by power lines for control purposes. You can only run 1 watt input and the entire antenna system – feedline and antenna cannot exceed 50 feet. There are beacon stations there. The 630M is less stringent but not too popular yet.

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Meanwhile, changes to the 60M are now in effect as of Feb 13. There is a 15 KHz wide band – great for CW and digital – but with reduced power limits. You can run 100W ERP on the 4 other channels, but in that 15 KHz only with ERP of 9.15w.

Band 5351.5-5366.5

With a typical mobile setup – a 'short whip' – either a hamstick or mast with resonator on top, at this frequency, you probably are looking at less than 25% efficiency. If you are using a mag mount, maybe 12% efficiency. In either case, reducing power to 50W will easily put you under the limit. Same with a screwdriver antenna.

Do we need to pick a county hunter CW frequency? SSB frequency? Who will be the first to work 500 counties on 60M? Maybe someone already has? Or work all counties on 60M? That would be an interesting event. Likely it will run up the scores on band-counties. Most new rigs will do 60M – you won't find it on the menu but have to enter frequencies into memory.

This is still a shared band, so you need to monitor use by government agencies and standby when they are 'using' the frequency.

CQ Moon.....CQ Mars.....

It's interesting to watch what is seen all over the internet, YouTube, magazines, etc, about the dream of moon bases, colonies on Mars, etc. Most of it hype. Let's take a quick look at the reality of getting to those 'deams'.

For over 200 years, science fiction has had thousands of books, articles, videos, etc about space colonization. Interesting reading. Heinlein as my favorite growing up with great stories about zipping around planets, asteroid mining, space ships. Quite a bit of 'far out' but interesting reading.

It wasn't until the Cold War with Russia that the idea of actually going to the moon became a reality. After Sputnik was launched - the space race started. Russia was first with a satellite. First with orbiting space ship with animal on board. First with manned orbits. The US was paralyzed – and behind. Massive amounts of money flowed billions and billions (at current pieces) to get a satellite in orbit and start Project Mercury – the first manned mission. That was followed by Project Gemini – two man capsule. Every 2 months, a new flight. That lead to Apollo program. A three manned system capable of launching to the moon for moon landings. It took tens of thousands of workers at hundreds of facilities to design and build the Saturn V rocket system.

Lots of new technologies had to be invented. After more than half a dozen missions, finally, the US landed 2 men on the moon. We planted a flag there. The US had 'won' the race to the moon.

Now, we look at Russia.....which had led in every event up until the moon landing. Why didn't they get to the moon before us? Turns of it all came down to the failed N rocket program. This was derived from a booster for ICBMs. However, there were major problems – and after 4 launch failures, the program was scrapped in 1972. The US had won. There was no reason for Russia to go to the moon any longer.

It's been 55 years since we last set foot on the moon? Why? There was no economic reason or political motive left to go. We had 'won'. We had been there a half dozen times in various locations. There was no incentive to go. The program had been VERY EXPENSIVE, consuming vast resources. Money was needed elsewhere in the budget. We had explored, brought back a ton of moon rocks and samples. There was no economic reason to be there. No gold mines, rare earths, etc. Plus it wasn't very people friendly. Each mission lasted 3 days on the moon – then quick escape. Total time away from Earth about 8 days. We learned a lot about the 'moon environment'.

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So now it is 2026. China is making lots of noise about manned missions to the moon. China has been sending missions to the moon for exploration – including the dark side of the moon. You'll recall the moon only shows us one part of itself – the same pary. It doesn't rotate. It is gravitationally locked to the Earth.

The US has been on a shoe string budget to 'go back to the moon'. The political theater of once again walking on the moon, and setting up a 'moon base' are front row.....but very low budget. Enter Artemis. - so ar, over 93 billion spent to get us back to the moon. Park of the program is to set up a 'transit station' in moon orbit – as a way station to get to Mars and beyond. Why set up a transit station rather than just using Earth orbit?

It takes a lot of energy (rocket fuel) to escape the Earth's gravity. You can launch to Earth orbit – that takes a lot fuel. Now if you want to escape the rest of Earth's gravity – you need even more fuel to get away from Earth's gravity. Millions of pounds of fuel. The Saturn V rocket to get Apollo the moon weighed 6.5 million pounds at launch. 5.5 million pounds of it was fuel needed to get to the moon (and back).. After launch, the booster rockets, first state, and second stage fell away.

The command module weighed 12,000 pounds. The lunar lander system weighed 36,000 lb. The ascent stage weighed in at over 10,000 lbs. Not a lot of weight for a cost of 5.5 MILLION pounds of fuel to get it to the moon and back. Each moon mission cost BILLIONS and billions of dollars.

So now, on a shoe string budget, we are once again 'going to the moon'.....but in a low, low budget. So where are it at?

Not good....the latest attempt to launch the heavy booster – SLS heavy booster system – is plagued with problems. Helium leaks.....probably a redesign of that system needed. Program delayed another year. That rocket needed to lift the massive weight (in fuel) to get 50,000 lbs headed to the moon and back.

Part of the program is that operating on a shoe string budget.....you fail to retain talent. Who wants to work for NASA with when/ever launches occur? Back in the 1960s, manned launches happened every two months. Year after year. Tens of thousands employed. Talent retained. Know how retained. Now? Delay after delay. NASA has big problem with personnel qualified for space work. At the same time, SpaceX is launching an average of two satellites a day! Day after day. Rocket after rocket. They're not the only ones either.

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So what's the idea behind a moon transit station? Well, it's simply gravity. If you launch a large rocket from Earth orbit, it takes a LOT of fuel to continue to escape Earth's gravity. Unlike going to the moon, where you get about 2/rds the way and find the rest of the way is easier due to the moon gravity attracting you – when you head to Mars 33 million miles away, you don't reach that point for 4 months....requiring continuously fighting Earth's gravity for days and days of travel. You've got to reach and maintain higher speed. More fuel. Plus, of course, a mission to MARS won't weigh 50,000 lbs delivered to moon orbit/landing. It will take 100 times a much tons of equipment. You just don't spend a few days traveling to Mars, land and spend a few days roving about, and hop your ascent stage and head back to Earth.

It's easier to escape the moon's gravity which is 1/6th that of Earth. The dream is you somehow manage to mine fuels on the moon.....or from asteroids....and use that to launch rockets to MARS. Great idea....Year 2500?

Plus, if you have a moon orbiting station.....it's easier to get to the moon – for whatever what reason. Yeah....there appears to be water on the poles of the moon –

frozen.....which, in some dreams, could be used to make rocket fuels. It's H₂O.....and from that, you can derive hydrogen and oxygen, which make good rocket fuel. Plus provide oxygen for breathing for a moon base and moon orbit station. All it would take would be a square mile of solar panels, or a decent size nuclear reactor facility. Megawatts.....and LOTS of water.

Now, the other problem of the moon's poles is that the average temperature in the shaded part of the moon can be 263 to 410 degrees below zero in shaded areas. Some of the oldest temperatures in the solar system. Exactly what on Earth can operate under those conditions? Steel fractures. Try insulating a building to that temp. Oh, and it isn't the best place for solar panels....

Even the middle of the planet isn't the best place for solar panels. You have 14 days of sun.....and 14 days of dark.....no sun. Zero. Full moon....great.....new moon...no solar power. Half the month. How you going to keep a moon base supplied? 100 tons of batteries that will cost billions to ship there? Good luck on that. Right....nuclear power plant.....and it better always work or you're dead in 2 days. Probably a second spare nuke. Each weighing how many tons?

Well, if you can imagine how many trips – how many tens of billions of dollars, to build a moon base....plus of course, monthly supplies of food, spare parts, medicine, etc.

from the web:

The cost to launch cargo to the moon varies drastically based on the provider, ranging from roughly \$10,000 to over \$100,000 per pound (\$22,000–\$220,000+ per kg) for commercial lunar landers. Future SpaceX Starship missions aim to lower this to approximately \$45,000 per pound (\$100,000 per metric ton) for surface cargo. “

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Let's take a look at some experiments. Biosphere II, It was a 3 acre scientific experiment in AZ – a self contained system to show that people could live in a self sustaining compound – for years and years – growing their own food – generating oxygen from green plants. There were various environments – from tropical rain forests to wheat fields, deserts to fruit farms . It was designed to mimic a space colony – totally isolated and self contained. Generate all the food needed. It was to last two years. It didn't. Even on Earth.....with abundant sun....nice atmosphere – few storms....it was a failure. Despite having everything crated and growing day one – when folks showed up.....didn't even last two years.

Things started going wrong. The rain forest produced too much moisture which wound up affecting other environments. Soil microbes didn't cooperate. Oxygen levels started at 20% and dropped to 14% - the equivalent of living at 15,000 feet AMSL. Carbon dioxide levels increased. There was starvation – humans don't really enjoy a veggie diet of spinach leaves. After less than 18 months, it was declared a failure. And that was for a half dozen people. And a million pounds of 'habitat'.

So how is this going to work on the moon// Moon 'soil' is sterile. Mo microbes for plant roots..... or on MARS for space colonies? It doesn't even work on Earth!

No one is planning Biosphere III to show it actually can work – here on Earth – no less on the moon or Mars.....

Some dream of 50,000 colonists on MARS. An outpost in case the asteroid hits Earth and wipes out life here. Well, good luck on that. There is no air on Mars – well, 1% of Earth's...and it's 99% carbon dioxide. So it's all indoor growing. Likely underground since the radiation will likely sterilize everything in direct sunlight. With artificial light. With oxygen from 'somewhere and fertilizer from somewhere'.

Biosphere II with all its high tech technology produced 83% of the diet required for the 8 people there. Yeah...they eventually starved on their veggie diet of fruit, nuts, greens.

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Now we take a quick look at the ISS.....International Space Station – been in orbit for 20 years....Grows....zero percent of needed food. Requires six tons of supplies a month – food – oxygen – spare parts – CO2 scrubbers – filters – water!

While the ISS reclaims 85% of it's water.....it still needs water every month to make up the difference. There are hundreds of pounds of food.....per person....and a continuous supply of critical spare parts. It's getting 'leaky'...and there aren't many years left in its life. Why is this important?

Think of a manned mission to Mars. It's not a 8 day affair like Apollo. The first issue is....that it's a THREE YEAR mission. Yep.....3 years to get there and back. Why is that?

The first problem is that Mars is 33 million miles away. Mars and the Earth only align every 26 months – the rest of the time, the distance can be over 100 million miles. So you have to launch at the right time. Next, it's a 5 to 8 month trip – to get there. Typically 6 months. Let's use that. So we launch.

How much space do we have on our vehicle cabin for the 3 or 4 crew? Not much.....space is a problem.....Are we going to be growing food? Noe....not enough area.....so we have to bring....;3 years worth of food along. Hmmm...that's a lot of weight, right? How many tons? Oh....and water. We can recycle 85 percent. So we need to bring how many tons of water along? 3 liters per day per person needed. So we need a half liter a day per person day – or 2 liters a day for a crew of 4. Only 3 lbs.....for the next 3 years....3000 lbs.....if you don't spill anything or spring leak.

Oh....and we need oxygen.....how many tanks? Lots.....and lots.....

Some dream of finding frozen water there.....and with lots of energy creating oxygen and hydrogen for fuel..... Great dream....

Yeah, they actually had an experiment in one of the Mars landers. Take in the CO₂ from the 'air' – and generate oxygen and hydrogen. MOXY was the name. Created a few molecules.....not even enough to keep a 4 leaf clover alive for 3 hours.....no less a human. Scale it up? Yeah, build that 100 KW redundant nuclear power plant – after you get there.....and bring along tons of equipment. Redundant.

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So magically, Musk has used his heavy lifters....which as of today have yet to work.....half dozen failures – to launch the Mars mission. It will take 10 other trips to haul the fuel up to Earth orbit – to fuel to Mars mission ship.....transferring hundreds of tons of liquid oxygen and liquid hydrogen to the Mars ship. Good luck on that. Both of them have to be kept at several hundred degrees below zero.....and despite the best practices, a few percent a month evaporate. So do it quickly. If you manage to transfer the fuel – not yet done in orbit – you're off to Mars on your fully laden 100 ton ship. Blast away. Six months to Mars.

Meanwhile, your bones deteriorate at 1-3% a month in micro gravity. You're eyes flatten and vision is impaired on your journey. You are bombarded by radiation....cosmic rays – solar particles. Hope there's not a CME.....you don't have the Earth's magnetic field to protect you. Otherwise, you get a full dose. Genetic damage.

Luckily all the Apollo missions happened during quiet sunspot cycles. No problems. Lucked out.

For 3 years? Good luck on that.

You might get to Mars with cognitive issues. Push the wrong button - oops....

So you get there.....Hopefully several other missions have already arrived with robots a habitat....Let's see..the Musk mission uses the space ship to land upright.....tons and tons of ship and supplies.....hope it doesn't fall over.....Maybe already half a dozen missions have arrived with supplies, a habitat....and you're mission number six – the first manned mission. So you arrive there 'safely'.

Your bones have weakened along with your muscles, despite two hours a day exercise. Folks returning from a year long ISS mission can barely stand....and many suffer permanent eye vision loss for life...and lower muscle mass. That in Earth orbit.

So....you arrive happily. Now to get to work. You survived the radiation storms. Only the equivalent of 30 chest xrays. Now to get to work.

Your shelter needs to be shielded. So you use your robots to pile 2 feet of Mars soil, known as regolith, over your shelter for radiation shielding. You set up your solar panels....hundreds of square feet. Don't get as much sun as on Earth....40% as you're further from the sun. Oh, and get your nuclear reactor going.

Seems that on Mars....you can get dust storms. Block the sun for days – or weeks and every 3 years or sofor up to two months. Don't count on sun. Well, days on Mars are about 25 hours....about the same. The sun comes up...sun comes down....but you're hidden away under tons of radiation shielding. Enjoying your food shipped from Earth.

So you want to wander outside....well, middle of the day. Great....70F on the surface of the planet. Your feet are warm. Your head is 50 below zero. Better get inside before dark....the temps go to 100 to 170F below zero quickly. Hope your habitat has a good heater. And your equipment works well at those temps – including your power systems.... keep in mind steel turn brittle at those temps. Gaskets that seal your habitat? Better be good. Hoses? Cooling system for your nuke?

There aren't tons of folks clamoring to live in rural AK.....despite millions of acres of land there. There aren't large 'colonies' in Antarctica...just a few scientific outposts manned year round at tremendous cost. Rubber dies. Steel breaks...and that's at 40 below - not 140 below.

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Why don't we have rovers on the moon for months at a time? Good question – well....it seems that the moon with it's two weeks of sun and two weeks of dark isn't very rover friendly At the equator, it gets to 200F below zero during the dark periods. 410F below zero in shaded areas at the poles. The amount of energy the rover can store isn't enough to sustain it at those temps. So all the moon rovers go dead after 2 weeks. Gone.

Now your moon base? Lots of luck there.

Mars is more rover friendly but also VERY cold at night. Nights only last 12 hours. Not two weeks. But a month long dust storm will kill the rovers....as has occurred. Will your Mars base survive a 2 month dust storm? Total blackout?

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Now we should mention Moon dust and Mars dust..... both equally bad.

We know what the moon dust is....been there....experienced that. So what, just some dust, right? Just get the vacuum out. Nope.

Turns out moon dust is very nasty. Unlike earth dust, which resembles very small sand – rounded edges – moon dust is composed of shards of glass and rock. It is generated from billions of impacts...meteorites, large bodies....and has sharp edges. Worse,, it is electrically charged – clinging to everything.

During the Apollo missions, the space suits were shredded after just 8 hours of moon roving. Major damage to the fibers - especially at the joints where suits flexed. The embedded particles were like mini scalpels cutting through the suits. More hours outside would have been disastrous. A hole in a space suit, or loss of coolant – is fatal. Just 8 hours....outside.....

The moon rover used....was seriously degraded – radiator system clogged....steering failing . Just a few hours of use. Now somehow, we are going to assemble buildings, generate systems to create fuel and oxygen there.... in space suits that last 8 hours before total replacement.?

And if like the ISS, require TONS of supplies each month – at a cost of billions of dollars each supply mission.....\$40,000 per pound of supplies.....Adds up quickly,, doesn't it?

Oh, and we haven't mentioned the health issue. Seems that many of the Apollo folks suffered "breathing problems" after 3 days on moon. Moon dust gets into everything including the lander module. Tracked in. Breathed in....those sharp dust particles like shards of glass....

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Mars dust is the same. Microscopic.....sharp edges.....and electrically charged. Loves to cling to solar cells. Try to wipe it off, it scratches your helmet visor. Scratches your solar panels. Gets into your habitat. Clogs your door gaskets and cuts them apart day by day.

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But let's say you manage to survive your stay on Mars at 0.38% of Earth gravity. You get exercise. Your bones have deteriorated by 30%. Your heart has contracted by half. No need to push blood to head against Earth gravity. Same for leg bones and muscles. And skeletal muscles. You can't leave until the 26 month window...so you're there for over 2 years until planets align again. Somehow .you managed to create 100 tons of rocket fuel to provision your space ship for the trip back to Earth. You bid farewell, and luckily escape Mars gravity. Now it's six months back to your home planet. Six months of eating the last of your food supplies. Six months of more radiation.

You finally get to Earth orbit. A Musk SpaceX ship arrives to ferry you back to planet Earth. You arrive home.....and get out of the capsule and promptly collapse. You've broken both leg bones. While on the way to the hospital, you die from a heart attack.....your heart has atrophied....

will we be colonizing the moon? Not anytime soon. Short visits. Maybe moon orbiting station....if the public is willing to spend the 100s million bucks to keep it there.

Will we have colonies on Mars. Not in your kids lifetimes. Or their grand kids. If ever.

Outer space doesn't like humans. The moon is hostile. Mars the same. The year long trip to Mars round trip is very hostile. Space wants to kill you. With a lot of luck, you live on a planet with an active magnetic core producing radiation shielding. You're protected from cosmic rays and CMEs and proton events. You've got water, oxygen and abundant food. You have few predators out to eat you for daily lunch. As long as the killer asteroid doesn't arrive...Space won't likely kill you.

There is no economic or political reason to go to the moon again other than 'keep up with the Chinese'. Folks don't really care. We walked on the moon. Done that. Reason for going? Keep up the Chinese.....is that really going to sell to the average hard working American? Walking on Mars? Robots will do a better job.....and if they die, so what? They don't need oxygen. They don't need 'food'. All they need is energy and spare parts.

A manned mission to Mars will cost a TRILLION dollars to succeed. Musk won't live long enough to do it. The taxpayer isn't going to foot the bill.

Makes for great stories on the web.....in magazines.....but reality?

IMHO....any mission to Mars will be one way.....any astronaut will die there. There won't be a return. Not until something other than chemical rockets (the standard today) arrive....

Elon Musks dream is 50,000 colonists on Mars. That could be self sustaining. Doctors, scientists, manufacturing, food experts, hospitals. But then again, after 10,000 years of civilization, there are only 57,000 people living in Greenland – which is a whole lot more 'human friendly' than Mars. Most live in 3 or 4 burbs. One third live in the Capital of Nuuk. Ten thousand in the 2nd and 3rd largest 'city'. The rest in much smaller communities, many cut off for months a year due to ice. If you're an Eskimo relative, you fit in well to the many smaller settlements. Why? Hmm....the climate isn't exactly 'human friendly' although you have abundant air, water, and a way to get food. Not farming. Most food other than fish is imported. Nearly all 'supplies' are imported. It takes millions in subsidies from the Danish government to keep it going. Compared to Mars, it's easy to get supplies delivered. It's got airports. Seaports. Yet only 57,000 people live on the largest island on Earth. Digest that. Oh, and it doesn't get to minus 250 ever!

End of story. My 2c worth. It would be great to watch a mission to Mars.....but now it just makes interesting science fiction.....and dozens of YouTube videos...and lots of print articles.

Awards Issued

Polaris Award:

OM2VL attained level 250 and was awarded #481

Bingo Awards:

W9DC BINGO III 3077 #50

RoadRunner Award – Last Counties Given

KB6UF 2575 #2

NM1G #50

USACA Nth Time

JC3X All CW 6TH TIME 3077 #44

W8OP USACA 3RD TIME 3077 #266

USACA – Levels

IK2QEB USACA 500 #3901

AF5CC USACA 1000 #1990

AF5CC USACA 1500 #1631

IK2SGB USACA 500 #3902

Events for County Hunters

Mar 1 1500z ti Mar 2 0100z
3.5-28,50,144
North Carolina QSO Party CW Ph Dig
NC county or SPC
ncqsoparty.org

Mar 14 1500z to 15 2200z
3.5-28,50
Oklahoma QSO Party CW Ph Dig
RS(T), OK county or SPC
k5cm.com/okqp.htm

Mar 14 1600z to 16 0200z
1.8-28
Idaho QSO Party CW Ph Dig
ID county or SPC
www.idahoqsoparty.org

Mar 15 1800z to 16 0100z
No WARC
Wisconsin QSO Party CW Ph Dig
WI county or SPC
<http://www.warac.org/>

Mar 21 1400z to 22 2359z
No WARC
Virginia QSO Party CW Ph Dig
Serial, VA county or SPC
www.qsl.net/sterling

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Michigan Mini – April – see above

Dayton Hamvention – May

MARAC Convention – September = see above.....

