County Hunter News

March 2021
Volume 17 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.

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CW County Hunter Nets run on 14.0565, 10.124.5, and 7056.5, with activity occasionally on 3556.5 KHz. Also, there is SSB activity now occasionally on 7188 KHz. The CW folks are now pioneering 17M operation on 18.0915. (21.0565, 24.9155, and 28.0565 when sunspots better). Look around 18136 or for occasional 17M SSB runs usually after the run on 20M SSB . (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 is sponsored by CQ Magazine. Rules and information are here:

http://countyhunter.com/cq.htm

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

N4CD Rumblings

1) Sunspots – We got sunspots! Then we didn't. Then they disappeared for weeks. What's up with the sun? Lots and lots of days without sunspots. Now lots of weeks without sunspots or just one or two in one group. Darn! Then we got a sunspot or two, but high solar winds which made the bands fairly poor day in and day out. Where do I get my refund on Solar Cycle 25? I'm not impressed so far!

2) Whoa – Winter Weather strikes with a vengeance!

The Polar Vortex spit out some nasty frigid weather for much of the country – down to the FL panhandle and all the way down through TX to Mexico. It brought in sub zero temps and 40-50 below wind chills, and 20-30 below temps in northern regions and you had weeks of real winter. Lots of snow this winter too in many states. Not so fun power failures in Texas and record lows and streaks below freezing.

3) Economist on Vaccinations

"Our cover this week argues that covid-19 is likely to become an endemic disease—and that governments need to start preparing for this right away. Vaccination is bringing huge benefits. Now that 147m doses have been administered, evidence is emerging that suggests vaccines cut cases of covid-19, greatly reduce death and hospital admissions

and lower transmission. Even so the virus is not about to be eradicated. The task of vaccinating the world is too huge, too many people reject jabs and the virus is evolving new strains all the time. For these reasons, governments need to work out when and how to switch from emergency measures to policies that are economically and socially sustainable indefinitely. The transition will be especially hard in places, such as China, that have bet everything on staying covid-free."

4) More QSO Parties!

Time to celebrate – we're into QSO Party season with some good ones coming up. Usually all the counties in OK are 'on the air'. The hardy folks in WI will once again hit the snow and ice covered roads for their QSO Party and who knows about ID? Will it defrost a bit by then? Word of warning for SSB types for the ARRL SSB DX contest weekend...frequencies will be hard to come by on 20M and later in the day on 40M especially 'back east'. Later in the month, the VA QSO Party – with it's pain in the neck serial numbers, takes place. (well, you can just send any number if you don't send in your log for a score – hi hi).

ARRL Field Day Rules 2021

ARRL to Extend Field Day Rule Waivers from 2020, Add Class D and E Power Limit

The COVID-19 pandemic-modified ARRL Field Day rules from 2020 will continue this June with the addition of a power limit imposed on Class D (Home Stations) and Class E (Home Stations-Emergency Power) participants. The news from the ARRL Board's Programs and Services Committee comes as many clubs and groups are starting preparations for Field Day in earnest. Field Day 2021 will take place June 26 - 27. "This early decision should alleviate any hesitancy that radio clubs and individual Field Day participants may have with their planning for the event," said ARRL Contest Program Manager Paul Bourque, N1SFE.

For Field Day 2021, Class D stations may work all other Field Day stations, including other Class D stations, for points. This year, however, Class D and Class E stations will be limited to 150 W PEP output.

For Field Day 2021, an aggregate club score will be published -- just as it was done last year. The aggregate score will be a sum of all individual entries that attributed their score to that of a specific club.

ARRL Field Day is one of the biggest events on the amateur radio calendar. Last summer, a record 10,213 entries were received.

"With the greater flexibility afforded by the rules waivers, individuals and groups will still be able to participate in Field Day, while still staying within any public health recommendations and/or requirements," Bourque said.

Source: ARRL Weekly Newsletter Friday 2/12/2021

On the Road with N4CD I

The first part of the month – the N4CD mobile didn't wander too far – but got out. On Jan 31, the car made it up to Eisenhower Birthplace Home in Dennison, TX – about an hour north for a change. A couple dozen Qs went in the log and some park-to-park contacts.

Next day to Spring Creek State Forest Preserve on the Sunday, then a repeat on Wednesday as well for the weekly CW-Test. That's good practice at 25-30 wpm but simple exchanges and I log only the call signs.

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Then it was time for a 2 day trip with overnight stay in Paris TX – (Lamar County) with a very important stop the next morning.

So I loaded up the car for an overnight trip – a rarity here these days – and hit the road up US-75 for two hours to Atoka County OK – and the turn off for State Highway 43 that heads to Clayton an hour to the northeast. 40 degrees F and home and dropped into the 30s in OK. Along the way, I found the north entrance to the Stringtown WMA. They sort of show it on the WMA map but tell you in the directions section to go to the south part/entrance. You can easily enter from the north but don't wander too far in on

this muddy dirt road. Just went far enough to be off the highway right of way. No easy parking lot right inside (and primitive camping area if you want to stop overnight) on this side but it was on the way with no detour. Might have been a parking lot further in but I didn't venture any further. Those with pickup trucks and 4 wheel drive are welcome to explore it! Been here before at this park. It's in both POTA and WWFF now.

Put out Stringtown WMA – KFF-5572 and K-8136 in Atoka County. Didn't plan to stick around – this was a 'quickie' activation and I had new ones to get to – so no bands other than 40m early in the AM.

An hour later up 43 headed northeast you reach Sardis State Fishing Lake. This was created by the Corps of Engineers. The State Fishing lake directions lead you to a COE boat ramp , camp sites, etc. Likely you can find a bunch of places around the lake to run it but I didn't see a specific 'state area' set aside anywhere. Had a good run with 40, 30, and 20m cw. Many dozen in the log for this 'ATNO'. Pushmataha County. There are a few other camp areas around the lake, too.

From the state site:

“There are three campgrounds located around the lake offering various facilities

including general hookups, restrooms, showering facilities, swim beach, and fishing docks. The lake also has facilities for group camping and picnic shelters equipped with tables, electricity, and large outdoor cooking grills.

Surface area – 14,360 acres, Volume - 274,333 acre-feet, Average Depth – 17ft, Max Depth 145 feet, Shoreline Length- 117 Miles

Species of Interest: Bass, Largemouth - Bass, Spotted - Bass, White - Catfish, Blue - Catfish, Channel - Crappie, White - Sunfish, Bluegill – Walleye”

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Not far away, and right off highway 271, you can easily get to Nanih Wayla State Fishing Lake. KFF-8129. Same County. There are signs 4 miles away to direct you there but not a sign at the parking lot. It does say 'fishing license, hunting license, or wildlife permit required for access' beyond this point so you know you're good – it's state land under OK Wildlife Department. Just renewed my OK 'peeper pass' – well, wildlife permit – so I was good to go. Not that expensive and I plan to run a bunch in OK as things get better. Had a good run there in a nice parking area for a boat ramp. Not many there with 40 deg temps, though! But one brave soul came and put in his boat in the small lake. Had a big bass boat – probably could zip around the whole lake in 3 minutes at 20 mph with the big outboard. Not sure if you're allowed anything other than 5 mph and trolling motor, or sitting out there hoping to find a hot spot for fish.

Popped up on 20M SSB for a change but the bands not great – the solar flux is back to low 70s, no sunspots, and a solar storm in process! Same County. (By Tuesday the Solar Flux had dropped to the 60s – and only 40m showed 'good' on the propagation banner.).

From the web:

The Lake has an excess of vegetation that can make fishing the lake a challenge. Recent herbicide application has been effective in reducing vegetation around jetties and other areas of the lake. Triploid grass carp stocked in 2011 will assist in controlling vegetation.

Recreational Facilities: 2 boat ramps, fishing jetties and primitive camping.

Lake Nanih Waiya was constructed by the Oklahoma Department of Wildlife Conservation in 1958.

Primary Uses: Angling and general recreation

Surface area..... 131 ac.
Average depth..... 8.1 ft.
Shoreline development.....0
Maximum depth ..... 25 ft.
Shoreline length ..... 3 mi.

Notable Characteristics of Lake or Fishery: Nutrient loading and water chemistry has promoted excessive aquatic vegetation. Nanih Waiya has a wide variety of fish species including grass pickerel and bowfin."

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Had a decent run then moved on.

Two more new ones today. Passed by at least 4 other parks – you've got Pushmataha WMA, Honobia WMA, Clayton State Park right in a row – but no time – right off highway 271 headed south. Had to get to the next – **Ozzie Cobb State Fishing Lake – same county. K-8131.** 30-40 minutes to get there with no detours.

from the web:

“The habitat around the lake consists of cattails, rush, lilies, and water willow. A large portion of the north and northeast part of the lake is very shallow. The lake has four marked fish attractors made up of brush piles. Staff refurbished these attractors in 2011. The fishing jetty was completed in 2011. Also in 2011, staff began applying aquatic herbicide to reduce excessive vegetation. In addition to continuing vegetation control, staff will focus on improving roads, parking areas and overall bank access. Access roads that did not lead to the water have closed due to littering/dumping.

Recreational Facilities: Primitive camping and primitive boat ramp.

Primary Uses: Angling and general recreation.

Lake History: Lake Ozzie Cobb was constructed by the Oklahoma Department of Wildlife Conservation in 1958.

Surface area..... 116 ac.
Volume ..... 833 ac.ft
Average depth..... 7.2 ft.
Shoreline development..... 1.9
Maximum depth ..... 22 ft.
Shoreline length ..... 3.8 mi.

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Last two are fairly small lakes but they are parks, so a visit is in order. Have a decent run and head to the next. It will the be last for the day.

Whitegrass Flats WMA – K-8141. These are small enough parks to not qualify for WWFF – which likes 3,000 acre and up parks these days. So it's POTA only. NG5E was here before me.

From the web:

Whitegrass Flats WMA covers 391 acres and is located in McCurtain County, Oklahoma. Habitat consists of a 90 acre moist soil unit divided into three compartments. The area is mostly old farm fields with some areas replanted to hardwoods. The variety of trees include six species of oak as well as ash, hickory, pine,

river birch, willow, as well as sand plum, holly, sumac, and a great variety of grasses and legumes. Soil types vary from deep sand to sandy loam. The average annual precipitation for the area is 53 inches.

Game Species of Interest:

Quail: Bobwhite quail are present in very low numbers.
Bear: Present on the area.
Turkey: Eastern turkeys are present in very low numbers.
Deer: Whitetail deer are present in low numbers but are highly sought after.
Rabbit: Both cottontails and swamp rabbits may be found with cottontails being more common.
Furbearers: Coyote, bobcat, beaver, mink, and raccoon are available.
Dove: Dove are present in low numbers during the annual migrations.
Waterfowl: Ducks may be present in low numbers on the open water.
River Otter: Present on the area.

Nongame Species of Interest:

Bald Eagle: Eagles winter at Pine Creek Lake and travel the Little River Basin.
American Alligator: Seldom seen but are known to be in the area. No hunting allowed.

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Dirt road/muddy in – just pull in the road far enough to be off the right of way of the highway.....then later back out. Not going down that road any further than needed!

Make a quick run with a couple dozen then skedaddle to get to Paris TX for the night. Getting tired out. 90 minutes to the motel and dinner.

Headed to the Baymont Inn in Paris – $55 - good COVID procedures usually at Wyndham Group Motels (Super 8, Days Inn, LaQuinta, etc). Spied a Mexican restaurant on the way there and it didn't look busy. Headed there for dinner – six cars in the lot – good. Able to be 10-15 feet away from anyone. Enjoyed dinner than hunkered down for the night. Not warm outside! Never got above 40 all day and cloudy, gray skies. No breakfast provided at the motel due to COVID. I'd eat out.

Next morning I was up early. 40F and light drizzle. Solar flux 73, A=21, sunspots zero. Not great! Solar storm underway!

Headed to Denny's a few miles away and enjoyed their Slim Fit Slam breakfast. Very good and low calorie, too! (scrambled egg whites with spinach and grape tomatoes, English muffin, large bowl of fruit). Two cups coffee.

At 10am, headed on over to the Walgreens Pharmacy there – to get my second COVID shot – Moderna. Naturally had made reservation ahead on web, and it allowed me to schedule 4 weeks after exactly. (that's the normal interval for Moderna – it's 3 weeks for Pfizer). Success after a bit of a wait. The folks there were answering call after call about 'can I get a COVID shot there?". Only way, the very only way, is to do it on line after you register at the Walgreens site, then hunt for a day with an open appointment. I lucked out the first time. Second time went fine as the system allowed access separately for second shots and they took priority. Arm sore after shot for 2 days. No after effects after first shot.

I was two hours from home – but could stop by the local historic site there in Paris – the Sam Bell Maxey House – K-6600 for a quickie run. Only 10 needed but 20 went in log quickly then I left. I was here 4 weeks ago and before that. Not new. It's closed on Mondays so the best day to run it – as it has a small parking lot. With not great conditions, I was not going to push it. Quick run.

I zipped on toward home with a stop at the Sam Rayburn House Historic Site in Bonham – a two mile detour off the route. K-6601. Put 30 in log quickly. Don't stick around – it's a very noisy site. On Mondays, you can only park in one area as it, too, is closed on Mondays with most of parking lot blocked off. It's noisy anywhere in the lot! Been there a couple times – including last trip to Paris.

Headed home arriving 2:30 pm or so. Didn't know if there would be any 'side effects' – some have a day of fatigue after a shot – so wasn't about to be on the road and have any problems. Second shot is 3 times stronger.

Now to let those anti-bodies cook for two weeks to get the immunity up to 95%. Then I can consider 2 and 3 day trips!

Thanks for riding along.

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Postscript.....well, the next day, I awoke with one of the after effect symptoms of the vaccine. Ouch – both hips hurt with joint pain. Felt like I was 100 years old with severe arthritis. Slowed me down for a day – but managed to do 5 loads of laundry but sat

round most of day watching TV and reading. Gone the next day. So....you might plan on doing nothing the day after the second shot. Some get a bit under the weather after the first shot. But DEFINITELY worth getting the vaccine.

One of park activators was 'under the weather ' for a day after the first Pfizer shot. Then quickly back to normal. Friend Pat in MD had a couple hours of 'fatigue' after first shot. Quickly back to normal. Some get it, some have zero after effects.

The good news is that many county hunters now have reported getting one or two of the COVID shots in mid February and hopefully many more by the end of the month as most are 'vulnerable' seniors over 65.

Takes two weeks for the anti-bodies to generate to full capacity – so many county hunters might venture out a bit – but follow all the COVID precautions. If you're paranoid but venture out, you can make breakfast in your motel room – and bring your wipes and clean the place first if you want. If you're really paranoid, you can buy a "C" UV sterilizer lamp, put it in the room for an hour (without you in it!) and let it zap the bugs first....then wipe down the surfaces – and TV remote . Easy to make oatmeal in the microwave oven – and most rooms have coffee makers. The riskiest thing is eating out in restaurants. Some rural areas you won't see many masks. Convenience stores in rural spots are often 100% mask free! Bring your lunch stuff along! (fruit, fig bars, etc). From my limited travel – AVOID convenience stores totally. (well, some female travelers might need to use the restrooms.....)..... parks are a toss up – some have modern facilities – especially at the entrance gate....others outhouses. Or rest-rooms closed for the winter due to no water (frozen).

MI Mini Canceled for 2021

With the COVID pandemic still going on, Ed, K8ZZ, out of caution, has canceled the MI Mini in Traverse City MI. Many typically travel days to get there – and not many county hunters are venturing out on long trips these days. It might be through March or April before all the 'senior' county hunters snag both COVID shots, and even then you've got to do the COVID avoidance procedures to stay safe. The vaccines are not totally preventative and mild or moderate cases. Those under 65, who knows when? Hopefully in April or May for them.

It's on for 2022.

Sunspots and Planet Jupiter

A scientific paper has linked Jupiter with solar cycles. The paper, published in Solar Physics, predicts that the Solar Cycle 25 maximum will take place in 2026 and reach an amplitude similar to that of Solar Cycle 24. "This article deals with the prediction of the upcoming solar activity cycle, Solar Cycle 25. We propose that astronomical ephemeris, specifically taken from the catalogs of aphelia of the four Jovian planets, could be drivers of variations in solar activity, represented by the series of sunspot numbers (SSN) from 1749 to 2020," the abstract reads. "We conclude with a prediction of Solar Cycle 25 that can be compared to a dozen predictions by other authors: The maximum would occur in 2026.2 (± 1 year) and reach an amplitude of 97.6 (± 7.8), similar to that of Solar Cycle 24."

Source: ARRL Weekly Newsletter 2/12/2021

State QSO Party Challenge 2020

Greetings Fellow SQPers,

The state QSO party season ended in October

We easily topped a million (1,360,540) QSOs that were reported to 3830Scores.Adding in the untallied QSOs that were not reported to 3830, I am sure there were over two million QSOs in the 46 QSO parties combined.

Nearly half of them (1,040) qualified for the SQP Challenge with a minimum of two

contacts in at least two QSO parties.

.OM2VL participated in all 46 QSO parties. DL3DXX was in 45 QSO parties

The average of all entrants is 115 QSOs per contest.

An amazing total of 32operators had“perfect attendance,”working all 46SQPs. •There are two metrics that can be used to determine which state QSO parties were the most popular–number of entries and the total number of QSOs. Measured either way, the same “Big Four SQPs”were the California, Florida, 7th Call Area and the New England QSO Parties. The top 10 in each category are listed below:

State	Entries	Rank	State	Tot Qs
California	640	1	California	203,611
Florida	570	2	Florida	135,196
7th Call Area	521	3	7th Call Area	134,000
New England	442	4	New England	102,495
Kansas	367	5	Kansas	66,662
Pennsylvania	333	6	Pennsylvania	60,768
Georgia	329	7	Ohio	48,989
Ohio	327	8	Washington	47,092
New York	311	9	New York	46,913
Washington	309	10	Georgia	42,876

Congratulations to all who participated.

73,Stan Zawrotny, K4SBZState QSO Party Challenge Administrator

source: http://stateqsoparty.com/wp-content/uploads/2020/12/2020-12-Report.pdf

Minnesota QSO Party

There are 87 counties in MN – and most were on the air for the MN QP. One reported score on 3830 scores had 77 counties worked so at least that many were active at some point with a mobile or fixed station.

From the 3830 scores

N0HJZ mobile 126 cw 1203 ssb

A big THANK YOU to everyone who followed me around on my trip! The temps were -20f at the start but the bands were HOT!

My next trip may be for the ND QSO Party. Stay tuned!

K0PC mobile 1140 cw

It was below zero in MN but the bands were hot in the mobile. Thanks to everyone that rode along with me all day.
73, Pat KØPC

K0BBC mobile 347 SSB QSO

Operated in 15 Southwest Minnesota Counties

W9FZ mobile 259 ssb

no comments

W0ZQ rover 812 cw 11 ssb

What does Gore Tex, Thinsulate, Sorel, and hamsticks have in common? The Minnesota QSO Party! This years running was cold, averaging around -5F, with a fairly strong wind from the NW during the morning hours. By the afternoon the wind had dropped

some and the Sun was out, so not too bad. Super cooled hamsticks seemed to generate great activity this year. I don't think propagation on 20m was that good, but 40m held strong all day as did 80m both early and late. The "normal" DX stations were not their usual strength lending more thought to less than good condx's. I'll get my log into LOTW in a day or two for those looking for counties, otherwise I'm good in QRZ. Thanks for all the Q's, hope you had as much fun as I did.

73, Jon

N0UR rover - 728 cw 2 ssb

no comments

KE0TT rover - 356 cw

50 watts to a 66' inverted vee up 21' at apex, fed with 300 ohm TV line and an old Matchbox tuner. Brrrrrr - setups and teardowns were cold and refreshing this year.... Lots of activity on the bands, with sizeable pileups! Enjoyed the op times. First and last hour of the contest had QSO rates of 88 and 91 per hour, always a good time. First setup in Nicollet county was a challenge, with wind chills, and just the wind alone. I use a 50# deck umbrella stand as a pole base, but wind blew the pole over before the first Q. So back outside, set it up again, and quick drive one wheel of the SUV up on the stand to hold it in place. First few contacts after that were rough, so thanks for your patience. Should have waited for my fingers to warm up! After that, drove up on the stand right away at each stop. I skipped Steele county, as all my favorite places were either not plowed, or had a windrow of snow from snowplows in the way. Kept driving to Dodge County. Thanks for the fun! C U next time,

73, Dan ke0tt

K9NW fixed high power 185 cw 198 ssb

Hadn't planned on investing quite this much time but what better to do when the temp outside is hovering just above zero.

Thanks to the FB fleet of mobiles braving the MN weather to provide some solid entertainment for the rest of us: **K0BBC, K0LD, K0PC, KE0TL, KE0TT, N0EO, N0HJZ, N0UR, W0ZQ (and maybe a couple others.)**

Missed DOU, JAC, LIN, LYO, MUR, PIP, YEL. I think K0BBC was in most of these but, unfortunately, I only heard him one time. 20 was tough with only far NW MN being moderately reliable to NE Indiana. 40 was solid all day, and 80 was good at the beginning and end, though I did find a couple QSOs there in between.

Tnx QSOs!

73, Mike K9NW

N8II - fixed WV 102 cw 84 ssb 65 counties worked

20 was excellent but under utilized by fixed CW and CW mobile ops; thanks to Pat, K0PC/M for a large number of 20M Q's. 40 was an endless battle to break CW mobile pile ups about 70% of the QP; as the band improved in the late afternoon activity must have shifted to 80. From here 80M was only open well the last 15-20 minutes. I heard more out of state ops CQ'ing MN on 75M than MN ops near the closing bell.

With a little more effort (less chasing VT and BC), I could have won LP, but it does not bother me. MNQP and KSQP have similar rules, but are polar opposites no only in season, but in the approach of in state stations to maximize in state and regional Q's/mults vs. KS working higher bands/more distant stations.

Thanks for the Q's, Jeff

K2DFC - fixed NNJ - 100 cw 74 ssb 77 counties

First time event for me. Had a great time. Lots of activity. Nice to see so many Counties on the the air. Especially like the one day contest.

A Perfect Solar Storm

A new study in the research journal Space Weather considers what might happen if a worst-case coronal mass ejection (CME) hit Earth — a “perfect solar storm,” if you will.

In 2014, Bruce Tsurutani of Jet Propulsion Laboratory (JPL) and Gurbax Lakhina of the Indian Institute of Geomagnetism introduced the "perfect CME." It could create a magnetic storm with intensity up to the saturation limit, a value greater than the Carrington Event of 1859, the researchers said. Many other spaceweather effects would not be limited by saturation effects, however. The interplanetary shock would arrive at Earth within about 12 hours, the shock impingement onto the magnetosphere would create a sudden impulse of around 234 nanoteslas (nT), and the magnetic pulse duration in the magnetosphere would be about 22 seconds. Orbiting satellites would be exposed to "extreme levels of flare and interplanetary CME (ICME) shock-accelerated particle radiation," they said. The event would follow an initial CME that would "clear the path in front of it, allowing the storm cloud to hit Earth with maximum force."

The Solar and Heliospheric Observatory (SOHO) has observed CMEs leaving the sun at speeds of up to 3,000 kilometers per second, and many instances of one CME clearing the way for another have been recorded.

The CME's 12-hour travel time would allow little margin for preparation. The CME would hit Earth's magnetosphere at 45 times the local speed of sound, and the resulting geomagnetic storm could be as much as twice as strong as the Carrington Event. Power grids, GPS, and other services could experience significant outages.

More recent research led by physicist Dan Welling of the University of Texas at Arlington took a fresh look at Tsurutani and Lakhina's "perfect CME," and given improvements in spaceweather modeling, he was able to reach new conclusions.

Welling's team found that geomagnetic disturbances in response to a perfect CME could be 10 times stronger than Tsurutani and Lakhina had calculated, especially at latitudes above 45 to 50 °. "[Our results] exceed values observed during many past extreme events, including the March 1989 storm that brought down the Hydro-Québec power grid in eastern Canada, the May 1921 railroad storm, and the Carrington Event itself," Welling summarized.

A key result of the new study is how the CME would distort and compress Earth's magnetosphere. The strike would push the magnetopause down until it's only 2 Earth-radii above Earth's surface. Satellites in Earth orbit would suddenly find themselves exposed to a hail of energetic, and potentially damaging, charged particles.

Other research has indicated that phenomena such as the Carrington Event may not be as rare as once thought. A much weaker magnetic storm brought down the Canadian Hydro-Québec system in 1989.

Scientists believe a perfect CME will happen someday. As Welling et al conclude, “Further exploring and preparing for such extreme activity is important to mitigate spaceweather-related catastrophes.”

In July 2012, NASA and European spacecraft watched an extreme solar storm erupt from the sun and narrowly miss Earth. “If it had hit, we would still be picking up the pieces,” said Daniel Baker of the University of Colorado at a NOAA Space Weather Workshop 2 years later. “It might have been stronger than the Carrington Event itself.”

A “Perfect Coronal Mass Ejection” Could Be a Nightmare (arrl.org)

Vermont QSO Party

All the counties were on on CW mode – and at least 9 of the 14 on SSB. As usual, most of the action was on 40m, but some sporadic E brought out contacts on 15 and a few on 10M.

From the 3830 contest reflector:

K1MVT - 326 cw 2144 ssb (W1SJ op)

What a blowout! The virus kept other operators away from the station, so I became a multiple personalities/operators on the 3 modes! The virus, along with the State QSO Party put even more people on the air and we racked up QSO's left and right. While the DX openings were short, we managed to run up a good number of multipliers in Europe. However, sending my 6 digit grid square for the Eurasia contest was a drag.

In the afternoon, 20 meter was the gift that keeps on giving, as waves and waves QSO's came in. And just when 20 meters was about to run out of gas on Sunday, a big Sporadic E opening popped in and all hell broke loose on 15 meters and then 20 meters with short skip. I hardly touched 10 or 6 meters - too busy elsewhere. Wow!
And when things got too slow, I kicked on FT8 and had dinner and relaxed!

I'm seeing monster scores throughout Vermont and outside of Vermont. It was a real horse race this year. Thanks for the participation and the fun!

NS1DX - 339 cw 1356 ssb

Despite poor band conditions, was surprised by Sporadic-E on 15 and 10.
Thanks for all the Qs and to Andy, K2LE for the use of the station.

73,

Gerry W1VE and Ed K1EP.

N1FS mobile 161 cw 8 ssb 92 digital
Operator(s): K1VYS KE1VT N1TRK

NX3A - fixed - VA - 39 cw 35 ssb 14 cw mults - 11 phone mults

WN4APF - fixed - SC - 33 cw 30 ssb 13 cw mults 9 phone mults

I couldn't wait to get back on the QPs this weekend... Conditions weren't so great from here to MN or BC, so I decided to focus on one of the three and I chose the VTQP. My plan was to work as many VT stations as possible before the BCQP and MNQP started... and I made 16 Qs before Saturday morning. Saturday conditions were too good, but Sunday was pretty cool. On Sunday afternoon, we had openings on 15m and 10m, so I followed many stations who were moving from 20m to 15 to 10m until the end of the contest. It was similar to a reverse NAQP strategy. Special thanks to the two mobiles, N1FS and K1IB AND the RANV for putting a very exciting VTQP! 73s Dave WN4AFP

Canadian BC QSO Party

While not a state and not having 'counties' , the BC (British Columbia) QSO party allowed you to check ou the radio and work a few stations in BC Canada. At least a dozen strong stations were on giving out contacts. If I'm near the radio, I try to work a bunch of them – as many of them jump in on state QSO parties to give the mobiles contacts.

10-10 Winter Contest

What a difference a few sunspots and some sporadic E openings can do. In the ARRL 10M contest in December – thousands upon thousands of contacts were made on 10M. Hundred plus reports on the 3830 Scores Site.

In this contest, the highest score reported 24 QSOs but only six stations filed reports! While certainly not as popular – that's an amazing difference. I checked 10M that weekend and heard zip. No beacons, no activity. Zero sunspots that weekend and Solar Flux in low 70s.

A Report From Texas

Now think back a few years. Maybe your grandparents lived on a farm or small town nearly a hundred years ago. He only source of heat was maybe a wood fire – if there was nearby wood – or a wood stove to cook on which heated most of the time. For water, out on the plains, they probably had a windmill filling up a water tank and maybe, just maybe some running water inside. Might have to bust up the ice on that tank every now and then.

If they had some spare cash in the late 1920s or 1930s, they could afford a 'farm radio' and a Wincharger – which was a popular windmill style generator at typically 32 volts. You'd have some 32v batteries (or a string of 6v ones) and could run a light or two out in the barn to feed the cows at 6am in the morning and at night with a few dim bulbs. At night, maybe you'd spend an hour or two listening to the radio. Maybe with one 10w bulb, or maybe just a kerosene lantern for a bit. Most went to bed not long after sunset and rose at sunrise. Others had gas driven generators to recharge batteries or used the tractor battery at night to listen to the radio.

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“In the mid-1930s, most radio manufacturers made AC radios and “farm radios.” The battery-operated farm radios, running on DC, were designed for a rural market that hadn’t yet been touched by municipal power systems. From the cabinet front, you

wouldn’t know the difference between a farm radio and an AC model in town. But while the AC model plugged into a wall outlet, the farm radio clipped onto batteries.

These 6-, 12-, and 32-volt batteries weren’t like the neat little things that we pop out of blister packs today. They were heavy jars or hard rubber containers filled with sulfuric acid (oil of vitriol) that were kept in the basement. A heavy wire, passing through a hole in the living room floor, connected the battery and the radio. The battery was often kept in the basement because the lady of the house objected to the smell, and to the burnt holes in the carpet resulting from leaks, which were frequent.

Batteries had to be recharged, but they weighed too much to be taken somewhere to have that done. Most people bought a gas-powered generator for that purpose, but some used windmill power plants. The Zenith Radio Company made a popular windmill system called the “Zenith Wincharger with ‘FrePower from the Air.’”

Source: https://www.farmcollector.com/equipment/farm-radios

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some additional info on farm radios:

Prior to the Rural Electrification Act of 1936, part of Roosevelt's New Deal programs to spur recovery from the Great Depression, only ten percent of rural America had electricity, compared with 90 percent of urban populations at the time.

If you've been following my series of articles, you already know that the earliest of radios were powered by batteries. In the mid 1930s, newer tube technology and more efficient batteries allowed for portable, relatively light weight battery radios. So why didn't rural Americans simply buy and operate battery powered radios? The truth is that some did. For most though, the budget of the rural American, mostly farmers or agricultural workers, could not afford the relatively expensive and short-lived batteries. Those batteries might be available only by mail order or from a dealer miles or even days away.

Beginning with the market crash of 1929, and the depression that followed, the price of radios declined. Edwin Armstrong's heterodyne circuit and advances in tube technology helped drive prices down even further. By the mid 1930s, radio prices were within range of many rural residents, but without utility electricity, powering them economically was still a problem, and the P.R. Mallory Company solved it. At the time, P.R. Mallory was a manufacturer of capacitors, batteries, and other radio components, and yes, the same

company that we recognize today from their Duracell line of alkaline batteries.

In 1933 the Mallory Company introduced the electromechanical vibrator, a device which uses a contact driven electromagnet to excite a fast moving pendulum that oscillates at the familiar 60 Hz (cycles per second) that you probably recognize as our AC line voltage frequency. Attached to the pendulum are two more contacts used to create an alternating square wave of AC power that can be stepped up by a transformer, from 6 or 12 volts to any desired voltage needed by a radio receiver. The oscillating pendulum would give the device a soft, steady vibration that could be felt when touched, hence the name.

Radios of the day were already equipped with transformers used to step up 120 volts to the typical 250 volts needed by tube radio circuits, and at the same time step 120 volts down to the 6 volts typically used by the tube filaments. All that manufacturers had to do was outfit an existing model radio with a vibrator and replace the transformer with one that would step up 6 or 12 volts to 250 volts. The tube filaments could be powered directly from the 6 or 12 volt battery source. The line cord was replaced with a cable that looked like one end of a set of car jumper cables, and now you had a radio that could be powered when clipped to a single 6 or 12 volt battery. As such, collectors refer to this type of radio as a "single battery" farm radio. So how did this solve the economics problem of operating a radio from batteries? I did after all mention that radio batteries were expensive. The high voltage batteries previously used were expensive and short lived, but now these were eliminated by the vibrator power supply. Almost every farm had a tractor, a truck, or both. These vehicles used a 6 or 12 volt battery to start the vehicle. It was then charged by the vehicle's generator, just as in a modern car.

The farmer could now take his tractor battery in at night, and clip the radio to it. His family could enjoy several hours of reception, leaving enough power to start the tractor or truck in the morning. The battery would then be recharged while the vehicle was used for the daily farming operations, and be ready to go again the next night. The really neat thing about farm radios was the fact that most major manufacturers offered several of their models as farm sets. This meant that the consumer could purchase a small table radio, a medium mantle radio in a cathedral or tombstone style cabinet, or a full size floor console, without sacrificing the features that each style of radio offered.

The Zenith Radio Corporation, in an idea way ahead of its time, actually offered a mini wind charger to help keep the 6 volt battery charged and ready for use. No need to borrow the battery from the tractor.

Zenith, as the advertisement claims, is generally attributed to introducing the single

battery farm radio. Following the closing of the Atwater Kent factory in 1936, they became the largest manufacturer of mid- to high-end radios in the U.S., leaving them in a good position to develop and market new products. Other major manufacturers, such as RCA and Philco, would quickly follow.

The single battery farm radio was not a system without some hardship. The batteries were somewhat heavy, and they could emit a sulfurous smell when in use. I'm sure occasionally a radio was left on overnight resulting in a dead battery in the morning, but back then most tractors and farm trucks had some means of manual starting which would get things going again. The farm radio did bring rural America into the radio age, bringing all of its advantages to rural life. The farm radio would, however, be a relatively short lived phenomenon. As the rural electrification project took hold, teams of linemen and electricians swept the country, installing power poles and wiring farms and houses. By the end of WWII, there was little need for the battery powered farm radio. Its technology, though, radios that could operate from a single 6 or 12 volt power source, would live on in the form of the car radio until the early 1960s, when tubes were replaced by transistors in car radios."

Source: https://www.wshu.org/post/farm-radio#stream/0

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note de N4CD- farm radios came in 6, 12 and 32v versions. If you go to an Antique Wireless auction or flea market, you might run across one. Probably even a few at Dayton each year!

If you owned a car in the 1940s and 1950s, your car radio probably used a vibrator to get the HV. Later a few years of radios had solid state 'vibrators' before car radios went all solid state. Same for the receive side of many ham radio receivers!

There were a few car radios made with 12V B+ using 'space charge tubes' – but getting any appreciable audio was difficult and took a lot of current.

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"Way back in the late 1950s, engineers at Tung-Sol decided to do away with vibrator power supplies in car radios. Vibrators were plug-in modules roughly the size and shape of octal tubes, which created an interrupted DC current using a solenoid coil and reed-style contacts. The interrupted DC current allowed a step-up transformer to accept a 12V input and produce the 180V output required by conventional vacuum tubes. Vibrators

were noisy (both at audio and at RF) and because of arcing across their contacts had a finite life and had to be replaced periodically. The transistors of the time weren't as good (nor as cheap) as they needed to be, especially at RF. So instead of using late 50's not-quite-ready-for-prime-time transistors, Tung-Sol created a line of tubes that could work with a car-battery plate voltage of 12V, which by 1958 had become ubiquitous in new American cars.

These tubes worked on something called the "space charge" principle, which basically used the first grid after the cathode to accelerate electrons toward the weakly-charged plate, which was now working at 12V instead of 180V. Between 1958 and 1962 Tung-Sol, GE, RCA and other manufacturers released quite a few different types, all in 7- and 9-pin miniature packages. Virtually all of these tubes were designed for RF work up to reasonable HF frequencies. Note that there are no true power amplifiers in the lineup. Getting a tube to output significant power with 12V on the plate is almost impossible. Nonetheless, if you're content with headphones or QRP operation, the space-charge 12K5 driver tube can source as much as 35 milliwatts at either audio or RF."

https://www.junkbox.com/electronics/lowvoltagetubes.shtml

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Fast forward to 2021. N4CD is hunkered down by the gas log fireplace with the power out. . Others around, by the millions, are lucky if they even have a fireplace and wood to burn in them as the power goes out as the temps plummet to two below zero in the DFW Metroplex and 8 to 10 below temps in all directions. Up in OK City, it sets an all time record low of ten below zero. 18 inches of snow there, too.

Here, we just tie the second coldest temp in history at two below going back over 130 years. I'm listening to the battery powered AM radio by firelight as I try to keep a bit warm (gas logs don't put out much heat – more for show than heat). I've got my 50 year old thermal underwear (fortunately didn't throw them away) and 3 layers of clothes. There's been one hour of power in the past 12 hours, then back to 12 hours of no power again, one hour of power. The house drops down to 50 degrees inside. Hmmm..... Am I really living in 2021?

Just before this hit full force, cold temps and freezing rain wiped out a mile of 3 lane full traffic on an elevated section of I-20 coming into downtown Ft Worth. 135+ cars and two dozen trucks found themselves in a giant smashup that killed six people, totaled all the vehicles, and sent 85 people to hospitals. I-635W going north through Ft Worth had another 55 car smash up but no one died. The freezing rain virtually stopped traffic,

then we had 3-5 inches of snow on top of it. That was the start of the 'super polar vertex spill off'.

Then it got a lot worse.
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15 million 'customers' and likely 20 million Texans (who live more than one in a house -what the power company counts as one of their customers) had next to no power. It's out for over two days here with just an hour twice a day, and finally we get two hours on, two hours off for the last day. Then it stays on, but over a million 'customers' and likely 3 million people stay off and slowly get connected over the next five days. By the fifth day, there are still hundreds of thousands of customers, likely many local delivery problem folks being resolved slowly, slowly coming back on line.

Despite 'assurances' from ERCOT – the TX power grid operator – that the power plants had been 'sufficiently' winterized – just 5 days before the crunch – well, they weren't.

Gas wellheads, where gas provides about half the winter power – froze up. Compressor stations had been converted to grid electricity so the pipeline companies could brag they were 'going green' and reducing their emissions. Of course, in reality, they just transferred them to someone else(hi hi). Before they used some of the natural gas in the pipelines to run NG generators at the compressor stations to run the motors that operated the compressors. Well, the gas pressure in the pipeline, without those stations operating, fell to low low levels. If you remember your thermodynamics and physics, at lower pressures, you have less gas flow – just like water. So.....even those wells full flowing – found pipelines with seriously reduced ability to transport the gas to the gas generating power plants. Duh! And some of those gas generating systems wouldn't come on with the low pressure. Even worse, the state prioritized home heating over power generation. Probably well more than 50% of TX homes are heated by NG. Same for hot water. So gas generation plants didn't get all the gas they needed.

So.....that, with a raft of power plant problems from frozen gauges and valves – to one nuke plant out of the 4 we have shutting down – due to likely frozen metering – to gas flow problems, to coal plants that are seldom used at 100% (or at all most of the year) having problems – it didn't take much. Throw in a few power plants had to seek emergency waivers of restrictions on their output of SO2, mercury, and other toxic stuff restricted by the feds to low caps. That delayed others from going to full output.

Suddenly there was a 30% shortfall in power generation compared to power demand. We came within minutes of a total grid meltdown as last minute decisions were made to

start rolling blackouts Monday night – which turned out not to be 15 to 45 minutes off every few hours , but 12 off, one on, IF you were lucky. Millions went to total off for two days. (Others in small grids with hospitals or medical facilities stayed on 24/7. One side of the street could be lit up, the other side dark. Having to keep those 20% of total customers on meant even more outages for the 80%.).

The temp dropped below zero. Wind 35 mph and wind chill 20 below. In the following 200 hours, we had exactly two hours above freezing in Dallas with a rousing 33F for those two hours. Highs in the teens for five days, lows in the single digits.

OK was even worse with record snows and all time lows in OK City. Power out there. Rolling blackouts. Would we have been spared being connected to the Eastern/Midwest grids? Let's see...AR – rolling blackouts. OK – rolling blackouts. IA and NE – rolling blackouts. Nope! They didn't have enough power, couldn't 'borrow' enough power from elsewhere in their grids, no less 'lend' TX at levels for more than they all combined produced together if everything was running at 100%. Big nope! Useless idea, plus of course, no one had power lines to transfer 35,000 megawatts of power to TX.

Pipes stared freezing up everywhere. Houses here aren't well designed for sub zero temps or days with no heating within the home. As they thawed a bit, massive leaks of water everywhere. Two story houses were worse off – often with pipes in the exterior walls. Normal high this time of year is 60F with normal lows in 30s, and just a few days at most down to freezing in a row at night. If the power stays on, few have problems with freezing pipes. Folks 'drip' their faucets.....

Lots of commercial buildings where the heat was turned off.....or down – have flooded areas - sprinkler systems burst. Water feed pipes gone. A real nightmare, and of course, that triggers the next crisis as water pressure drops – from leaking pipes, broken water mains under streets(465 water main breaks in Ft Worth alone), and people 'dripping faucets' to keep them from freezing. So now ten million people in TX are under mandatory 'boil water' orders due to low pressure, or no power at the water stations to add the chemicals. Most will be back soon.

Add on to that mess.....food stores threw out megatons of spoiled produce and meats. Trucks aren't getting through on the iced up roads. There's not much to buy at the food store and bottled water doesn't exist here any longer. No meat – the meat processing plants shut down.

And – there's no gas for the cars and trucks. The big TX refinery shut down – to 'save

energy' –or simply no gas available - and production of gas/diesel stopped. Add few trucks are getting through at 20 mph on the interstates – and all the local stations have no gas.

What a mess. Next week it goes back to normal with highs of 60s. The snow is melting and likely gone in 2 days. My pool has 2 inches of ice. The pump/filter froze up when the power went out at 3am at 2 below and 35 mph winds. I figured the power would be back soon – not to panic. A few hours later it wasn't and the equipment was frozen up solid. Normally it runs on 'low' with the freeze guard to keep things running OK despite 2 below. Nope....solid ice. So far the house seems to escaped any other problems. Stay tuned. One story house here and I worried about not having pipes in exterior walls other than the outside faucets (which have little insulating hats on them) when it was constructed – and didn't other than some very short runs.

Luckily I stocked up on food – and put the 'frozen food' outside in the 10 deg temps to keep it frozen. When power came on for that hour, it was quick, quick, make breakfast or dinner! Which turned out to be good since it went back off after one hour exactly for the 3rd day. Finally stayed on most of the time the fourth day.

Maybe when I was 10 or 15 years old, sleeping in a sleeping bag in a tent at 50F was an 'adventure'. Heck, I remember some nights camping at 32F in Glacier National park in June in the tent. Once out in northern CA or OR, on July 4, they were trying to remove 6 feet of snow from the campground we were going to stop at - so we headed lower and found a good spot – no snow!

At age 74, it's the wrong kind of adventure to be having. But it could be worse. Some saw indoor temps at 40 and 35 in less well insulated dwellings. Some senior facilities had no power, heat, electricity or water. Some folks didn't get power for over 48 hours even for an hour. So...can't complain too much.....but..... ….I can complain..... hi hi. This is 2021 and the electric grid shouldn't be crashing.

In some places in TX it was worse – with 1 to 2 inches of ice – bringing down Hexbeams and Quads, wire antennas, etc....and likely thousands and thousands of trees. Some other states also saw the icing events.

Mobile Activity in February

Mobile activity this month was sparse. Winter storms, not great propagation/lack of sunspots, record low temps with 30-50 below wind chills, lots of snow in the midwest, 18 inches in OKLA, ice storms, and naturally COVID concerns kept many off the road. No events to head to either as they all had been canceled.

At the beginning of the month, Ed, K8ZZ, headed from AZ back to KS.

There was the MN QP with a fair amount of mobile activity as noted above and some mobiles out in the VT QP.

N4CD took a short trip to OK.

Ron, KB6UF headed to GA and spent many days putting out dozens of counties there.

Later, he headed to MS for a day trip.

Toward the end of the month, Kraig, KA2LHO was running counties in FL – across the panhandle and back to home.

Winter weather will continue into March but we have some QP's coming up. Spring will arrive sooner or later in the 'south' and hopefully band conditions will get a lot better soon.

Probably 100-200 parks around the country were run during February from AK to FL to ME and CT, TX, AZ, NM, HI and even up north in OH, PA, MD, IN, IL, MN, and many other states. Sometimes you have to go hunting for things to work.

Natural Gas Problems

Natural gas wellhead freeze-offs — a phenomena where low temperatures crystallize the water produced along with natural gas, forcing blockages at the wellhead — happen when outside temperatures drop below freezing in producing fields. The consequences range from minor inconvenience to major reductions in natural gas production and power outages affecting millions of customers. From a scale of 1 to 10, you could say Texas's trouble has been turned up to 11 in terms of gas supply and power failure.

What exactly causes production freeze-offs? We first elaborated on this back in 2012 in

our Cold As Ice blog, but here's the Cliffs Notes. The production stream from a gas well contains raw gas mixed with various amounts of water and oil condensates that have to be promptly separated before the gas can be placed in a gathering-system pipeline and sent to a processing plant. Since the advent of the Shale Revolution, two trends have increased the magnitude of freeze-offs. The first is that over the course of the last decade, production has increasingly focused on plays that feature wet gas containing higher quantities (measured as gallons per Mcf, or GPM) of natural gas liquids. The higher the liquids content of natural gas, the higher the risk of hydrates forming and causing freeze-offs. Moreover, as drilling activity has shifted toward targeting oil and NGLs in the Permian and SCOOP/STACK, the gas streams in those regions are particularly "wet" and susceptible to freeze-offs when temperatures do get below freezing for extended periods of time.

The second freeze-off risk factor is because hydraulic fracturing involves pumping thousands of gallons of water into the well — a proportion of which remains underground and rises to the surface with production (see Tales of the Tight Sand Laterals). The presence of that water increases the likelihood of freeze-offs in cold weather. For these reasons, freeze-offs are more typical in deep offshore wells and wells in northerly production regions and are a headache for oilier/wetter product streams.

Further, hydrates — the ice formed in the presence of low temperatures, high pressures, water and condensates — proliferate in well chokes, pipelines, and valves. The molecules encapsulate each other in a diamond shape and lock up, making them much harder to melt or dissolve than everyday ice-from-water. No question, this is the stuff of production and pipeline operators' worst nightmares and it's become reality across the Permian and Midcon basins in recent days. These southern production regions are ill-prepared for what's unfolding. Deep offshore and northern production regions regularly experience lower temperatures during winter and are equipped to combat hydrates using a number of techniques, including bleeding methanol into the product stream. That's not something the Lower Midcontinent and Texas producers typically have had to deal with, at least not to the extent required by a freeze of this magnitude.

There are several points at which freeze-offs are common and can block the gas flow, including: right at the wellhead pipe-and-valve "Christmas tree," in the inlet scrubber or separator that splits out the gas, water and condensate streams, and again just as the gas exits the separator and flows into the gathering system. There are processes to keep the wellhead operational, including the removal of water and condensates that accumulate in limited onsite storage breakdown. But these systems can automatically shut down production flows if those storage tanks don't drain and fill to capacity. Similarly, freeze-offs can worsen if operators aren't able to replenish the chemicals that prevent

condensation in the gathering systems.

You can bet that maintenance crews are in overdrive right now, working 24/7 to keep valves operating where possible, both at the wellhead and between gathering systems and downstream pipelines, assuming road conditions allow access and assuming downstream pipelines are still able to move the volumes (more on the transportation roadblocks in a bit). However, these sub-freezing temperatures make it very difficult to keep separators and heater treaters hot enough to separate water from gas and crude and then stabilize the crude streams to meet Reid vapor pressure (RVP) limits. Even just keeping the heater treaters lit is a challenge in conditions this cold. Heater treaters burn gas from the lease, but if you can't get the gas separated from the water and oil, the gas stream won't stay lit. We can imagine that water tanks are no fun to keep flowing either in these frigid conditions.

In the oil- and liquids-driven basins, as gas output freezes off, so do crude and NGL volumes. (Yesterday, Occidental Petroleum, the second-largest oil producer in the Permian, became the first to officially declare force majeure, telling customers that freezing weather conditions caused transportation disruptions, according to a Bloomberg news report.) And, once volumes are affected, it can take days and a stretch of consistently warmer weather to remove hydrates with methanol, hot fluids, and pigs in the field, especially when all equipment and resources are stretched thin across several states and crews are working in dangerous conditions.

So how long can we expect production losses to persist? Well, there's really not a good historical precedent here — it's never gotten quite this cold in the Lower Midcontinent and Texas regions, and even when it has gotten anywhere close, there wasn't as much gas being produced as there is now. But if we go back to another cold wave in recent history — during the winter of 2017-18 — we can get some context (Figure 2). During that period, population-weighted temperatures fell below 40 degrees Fahrenheit on Christmas Day (meaning that some areas experienced much colder temperatures) and continued lower with the national average temperatures dropping below freezing on December 31, 2017, and bottoming out around 28.5 degrees on January 1, 2018 (blue line). It wasn't until January 3 that the population-weighted national average rose above the freezing point (purple line). All told, overall average U.S. temperatures remained below 40 degrees for 14 days, and it wasn't until January 11, 2018, that they returned to 50 degrees, just briefly. That was followed by another, five-day sub-40-degree period in mid-January 2018. That Arctic outbreak affected much of the Eastern and Central U.S. including parts of Texas. Lower-48 production (navy-blue area in Figure 2) fell from around 80 Bcf/d to about 72 Bcf/d over a period of about six days and remained there for a few days before climbing as temperatures rose back above the freezing point.

About half the offline volumes returned within days. But it took another two weeks or so of sustained higher temperatures for volumes to reach 80 Bcf/d again.

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On the Trail of Regens

Nothing new in the 'regen' department this month despite active web searching, but a 'super regen' article showed up in the monthly ARCI Bulletin (Antique Wireless Club of Illinois) that brought this radio to mind.

You're probably well familiar with the Class D 27 MHz Citizens Band – created in 1956 or so – first by swiping the amateur 11 meter band – and then letting US citizens use it with low power 5 watt max channelized radios. But there was a Citizens Band before at UHF. As far as I know, there was only one radio ever made for that Class B Citizens Band at 465 MHz.

1956 Vocaline Model JRC-400 CB Transceiver

Sixty years ago, the familiar Class D Citizens Band at 27 MHz was still a couple of years away. Class B Citizens Band on 465 MHz had been authorized for a number of years, but as the June 1956 issue of Popular Electronics pointed out, the service hadn't gained traction due to equipment requirements:

"Equipment for the Citizens band (radio -telephone) must meet specifications set forth

by the Federal Communications Commission. To pass these specifications, the equipment must be examined and approved by the FCC in its laboratories. Because of this cumbersome arrangement (although fully justified), the design of Citizens radio equipment has for a number of years taken a back seat. The ice has been broken by the Vocaline Model JRC-400 transceiver, which brings Citizens band communication facilities within the reach of everyone's pocket. After a manufacturer secures FCC approval, he may then produce identical units on an assembly line basis."

The magazine promised further reviews in upcoming issues, but included some observations about the Vocaline unit, which could operate on either 117 volts AC or 6 volts DC. The magazine's field test showed 100% reliable ranges of 1.5 miles in a metropolitan area or 3 miles in open areas. Out in the country, weak signals were fully readable up to six miles.

The same issue of the magazine carried this ad for the transceiver, showing its retail price of $69.75 for DC or 99L75 for the AC version. The antenna was available separately, and consisted of a quarter-wave ground plane which could be affixed to a vehicle's roof with large suction cups.

The set used three tubes. A 6AF4 served as super-regenerative detector and the oscillator for the transmitter – switched between the two functions. For audio on both transmit and receive, a 6AV6 and 6AS5 were used for a modulator tube, microphone pre-am and audio output tube – switched between functions . The DC power supply included a vibrator for DC operation, and included a selenium rectifier.

schematic here
http://www.cbtricks.com/radios/vocaline/jrc400_jrc425/graphics/vocaline_jrc400_jrc425_sams2.pdf

In more field trials, for most people without outside antennas, range was probably tenths of a mile in the city and a mile and a half mile or mile in suburbia. Needless to say, they didn't sell a lot of them.

That Class B Citizens Band turned into current GRMS allocations where you can put low power radios on specific channels. A lot of cheap Chinese stuff is flooding the market with radios for this for people who want to talk a mile or two, or with big fixed antennas – out to 10-15 miles.

Some Tech hams put GMRS channels as well as UHF channels into their handheld but

that is forbidden by GMRS rules that prohibit the GMRS operator to not be able to frequency program the radio, nor have a radio used on frequencies outside the GMRS allocation as well as within. Hasn't stopped a lot of people though from doing it.

Awards Issued

USA-PA "N" #25	Karl, K4YT 25 January 2021
Single Band 30M Level 1000 #2	Ron, N5MLP 16 January 2021.
Single Band 40M Level 1000 #6	Ron, N5MLP7 August 2008
Single Band 40M Level 2000 #2	Ron, N5MLP 10 January 2010

Events for County Hunters

Thanks to the ARRL Contest Corral for March 2021, the following information is included in the CH News:

Mar 6 0000z to 7 2359z (good weekend to avoid if you want to run SSB counties)
1.8-28 **ARRL International DX Contest, SSB Ph**
W/VE: RS, SP. DX: RS, power
www.arrl.org/arrl-dx

Mar 13 1400z to 14 2100 z
Oklahoma QSO Party CW Ph
RS(T), county or SPC
k5cm.com/okqp.htm

Mar 13 1900z to 14 1900z
Idaho QSO Party CW Ph
County or SPC
pocatelloarc.org/idahoqsoparty

Mar 14 1800z to 15 0100z
Wisconsin QSO Party CW Ph Dig
County or SPC
www.warac.org/wqp

Mar 20 1400z to 21 2359z
Virginia QSO Party CW Ph Dig
Serial, county or SPC
www.qsl.net/sterling

Source: http://www.arrl.org/files/file/Contest%20Corral/2021/March%202021%20Corral.pdf

That's it for this month....whew...what a month. Sure hope that March turns out a lot better! Stay safe. Get a vaccination – too many county hunters have died from it already and too many ham radio operators. See you next month.