



# MARC Beacon

Volume 10, Issue 2

The Morongo Basin Amateur Radio Club Newsletter

FEBRUARY 2021

## President Message 20210101

Hello fellow HAM radio operators!  
14 February is Valentine's Day. I hope all of your hearts are filled with love.

15 February is President's Day. We have a new President of the United States (POTUS) and the 1st female Vice President of the United States! United we stand, divided we fall. America! us

February 26 is Judy's birthday (KK6NWX). I would like members to announce their yearly events like birthdays and anniversaries so that we can wish them well. And, if you have achieved a significant goal like an award or degree, then please announce it on the air so we can all celebrate your victory.

Please schedule time to check in on the 7 PM Tuesday net and if you can, please join us on the Cawfee Tawk net every morning at 10 AM.

Take care of yourself and enjoy each day. If you're not having fun, then you're doing something wrong.

This is WO4ROB, Rob from Joshua Tree.

Rob Cloutier  
WO4ROB  
Joshua tree  
Club President  
(760)401-6666  
[rob\\_cloutier@hotmail.com](mailto:rob_cloutier@hotmail.com)



### Linked Repeaters

#### **Yucca Valley, W6BA**

146.790 MHz (- shift = 146.190 MHz) 136.5 Hz PL/CTCSS

#### **Twentynine Palms, W6BA**

147.060 MHz (+ shift = 147.660 MHz) 136.5 Hz PL/CTCSS

#### **Landers, WB6CDF**

447.580 MHz (- shift = 442.580 MHz) 173.8 Hz PL/CTCSS

### Nets

Amateur Radio Emergency Service (ARES)  
Mon @ 1915  
Morongo Basin Amateur Radio Club (MARC)  
Tue @ 1900

### Social Media,

Club web page: <http://www.w6ba.net>

Facebook:

<https://www.facebook.com/MorongoBasinAmateurRadioClub>

### Club Meeting

**(Cancelled Until Further Notice)**

**Every 3rd Thursday of the month at 6 PM. At the church of the Nazarene in Yucca Valley at 56248 Buena Vista Dr**



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**TOM MEDLIN W5KUB WEEKLY WEBCAST 1HAM RELATED. TUESDAY NIGHTS AT 8PM**

<http://tmedlin.com/> OR <http://w5kub.com>



~~HAMNATION IS A WEEKLY HAM RADIO RELATED TV SHOW WITH FAMOUS HOSTS SOME OF YOU MAY KNOW LIKE, GORDON WEST, BOB HEIL AND OTHERS. WEDNESDAY NIGHTS AT 6PM~~

~~<https://twit.tv/shows/ham-nation>~~

~~[MOVING TO YOUTUBE SEE MARCH NEWSLETTER.](#)~~



The weather station on Paxton Hill at the W6BA repeater site is working great. It will show accurate wind speed and direction measurements for the top of the mountain .

<https://www.wunderground.com/personal-weather-station/dashboard?ID=KCAYUCCA57>

Glenn N6GIW

I also have A weather station by the high school in Yucca Valley N6GKB. Showing the temps and wind speeds in the center of Town.

[https://www.wunderground.com/dashboard/pws/KCAYUCCA35?cm\\_ven=localwx\\_pwsdash](https://www.wunderground.com/dashboard/pws/KCAYUCCA35?cm_ven=localwx_pwsdash)

Keith N6GKB



**We are having an informal DAILY net, that started Monday March 30<sup>th</sup>. Join us with your own cup!**

For right now it's called the "**CAWFEE TAWK**" net at 10:00 am till 11:00. It's just a way for any and all hams to check in, say good morning and see what everyone is up to. With all the things going on in this world we would just like to stay connected and be sure our local community of hams are ok. A little meet and greet with your coffee and donuts in the morning is a great start.

More like ice coffee now that it has warmed up!



**These Vehicle magnets are still available from Rob, WO4ROB.**

**They 12" long. I believe they are \$10 each. Contact him with your order.**



## ROB'S CORNER

### What is Tone/Code?

A sub-frequency or subaudible tone is added to the transmission frequency so that receivers will only respond to transmissions with the same frequency and tone.

PL - Private Line

CTCSS - Continuous Tone Coded Squelch System (67-254Hz)

49 Subaudible Tones in Hz: (**Bold** work on the node)

67.0, 69.3, 71.9, 74.4, 77.0, 79.7, 82.5, 85.4, 88.5, 91.5, 94.8, 97.4, **100.0**, 103.5, 107.2, 110.9, 114.8, 118.8, 123.0, 127.3, 131.8, 136.5, 141.3, 146.2, 151.4, 156.7, 159.8, 162.2, 165.5, 167.9, 171.3, 173.8, 177.3, 179.9, 186.2, 189.9, 192.8, 196.6, 199.5, 203.5, 206.5, 210.7, 218.1, 225.7, 229.1, 233.6, 241.8, 250.3, 254.1

DCS - Digitally Coded Squelch

104 Tones:

023, 025, 026, 031, 032, 036, 043, 047, 051, 053, 054, 065, 071, 072, 073, 074, 114, 115, 116, 122, 125, 131, 132, 134, 143, 145, 152, 155, 156, 162, 165, 172, 174, 205, 212, 223, 225, 226, 243, 244, 245, 246, 251, 252, 255, 261, 263, 265, 266, 271, 274, 306, 311, 315, 325, 331, 332, 343, 346, 351, 356, 364, 265, 371, 411, 412, 413, 423, 431, 432, 445, 446, 452, 454, 455, 462, 464, 465, 466, 503, 506, 516, 523, 626, 532, 546, 565, 606, 612, 624, 627, 631, 632, 654, 662, 664, 703, 712, 723, 731, 732, 734, 743, 754

By Rob WO4ROB

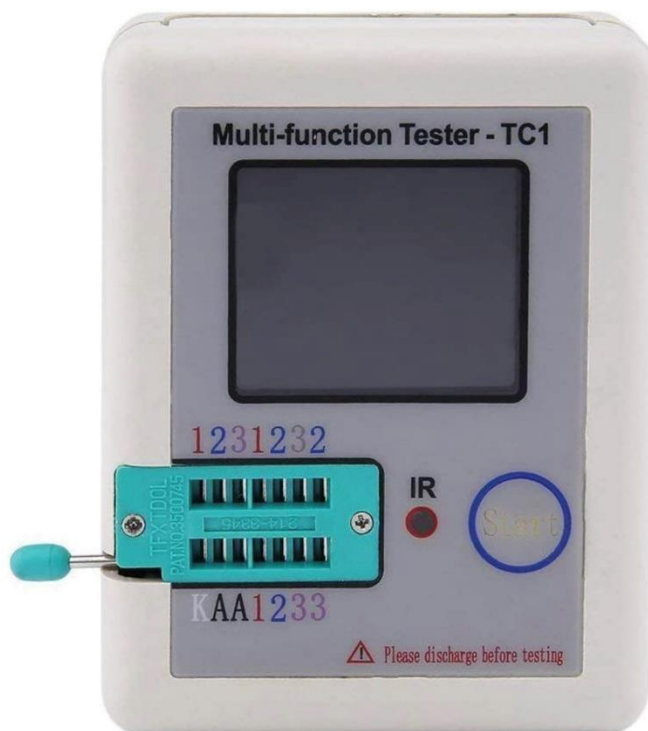
**OUR MONTHLY CLUB MEETING WILL NOW BE HELD ON THE REGULAR THIRD THURSDAY OF THE MONTH VIA A ZOOM ONLINE MEETING AT 6:PM CONTACT GLENN N6GIW OR ROGER KF6BIG TO BE PUT ON THE EMAIL LIST.**

### Multi-Function Tester

If you are into electronics, then you must own this \$21 tester. It's a 3.46" x 2.76" x 1.10" tool that

automatically detects transistors, capacitors, resistors, diodes, inductors, and LEDs. The KAA slots are used for testing Zener diodes. It even has an infrared (IR) receiver so you can view the code for each button on your remote control. It automatically shuts down and has an internal rechargeable 3.7 volt lithium battery.

The package includes 3 hook test leads and a USB charging cable. It can be purchased at Amazon or any other location that sells electronic test equipment. I primarily use it to test old capacitors, resistors, and transistors that I remove from old circuit boards before I use them in my projects. You could purchase a cheaper tester for about \$15 that works off a 9 volt battery like I initially did, but I highly recommend spending about \$6 more for this version. You will not be disappointed.



**RadFxSat-2 Satellite Signals Detected, AMSAT Engineering Continues to Assess Status**





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[AMSAT](#) reports that it's continuing to assess the status of the [RadFxCat-2 / Fox-1E](#) amateur radio CubeSat after a ham in Nevada reported hearing his CW signal weakly via the spacecraft's transponder on January 27. AMSAT Engineering and Operations was able to confirm the reports from Brad Schumacher, W5SAT, and determined that RadFxCat-2 is partially functioning, although signals are extremely weak.

"We also appreciate those who joined in determining whether they could detect their own or other signals in recent passes today," AMSAT said in a January 28 bulletin. "Please do not attempt to transmit through the transponder until further notice. This is very important to the next steps we are taking now."

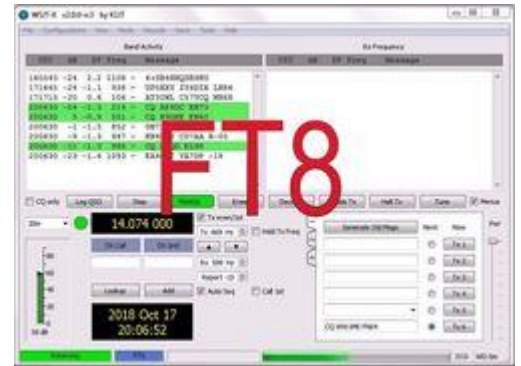


AMSAT Vice President - Engineering Jerry Buxton, N0JY, said on January 29 that the beacon still has not been heard, and AMSAT has enlisted the aid of some "big gun" stations. "We have asked everybody to listen," he said. The beacon transmits 1200 bps BPSK telemetry on 435.750 MHz, ± Doppler, upper sideband (USB). Use [FoxTelem](#) to capture any telemetry, and set [FoxTelem](#) to "Upload to Server" so that AMSAT will receive the telemetry data. [Recordings](#) are welcome, with a detailed description.

AMSAT stressed that keeping the RadFxCat-2 / Fox-1E transponder clear "is essential to putting all power and attention to the beacon telemetry."

## FT8 and the Other *WSJT-X* Digital Modes are "Tools," K1JT Says

According to *WSJT-X* software co-developer Joe Taylor, K1JT, the very popular FT8 and the other digital modes in the software suite "are tools, freely available to hams who want to use them. They are very good at some things, not so good at others." Nonetheless, FT8 -- and, by extension, its contest-mode variation, FT4 -- especially have become game-changers on the HF bands, although, as Taylor has explained, FT8 "was explicitly designed" for making contacts during weak, multi-hop, sporadic-E openings on 6 meters.



"It's extremely good at that," he added, and noted that transcontinental and intercontinental DX on 6 meters has greatly benefited from the use of FT8 over the past several years. Developed in 2017, FT8 is named after its developers -- Taylor, and Steven Franke, K9AN. The numeral designates the mode's eight-frequency shift-keying format.

Taylor said that while the development team knew that FT8 would be very useful for weak-signal DXing on HF as well as on 6 meters, it did not foresee that it would have the sort of impact it's had on HF operating.

Taylor agreed that FT8 is "a mature mode," with the protocol's details published in *QEX*. "Details of message structure, in particular, will not change in a way that is not backward compatible," he said.



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Although some FT8 fans may feel the mode is running out of room on some bands, Taylor said that as far as he and his fellow *WSJT-X* developers are concerned, the 3 kHz slices of spectrum suggested for FT8 use are just that -- suggestions.



"There is no reason why additional slices should not be used when over-occupancy requires it," he told

ARRL. "We don't attempt to dictate such usage patterns; band planning is best done by committees created for that purpose."

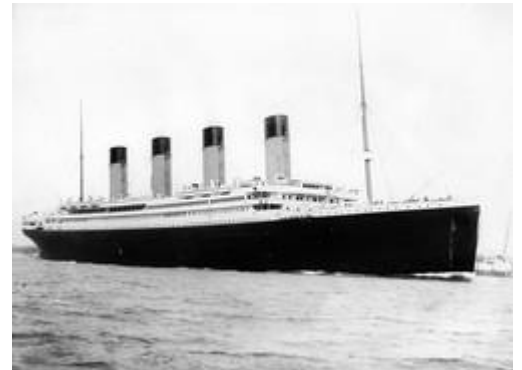
Many radio amateurs are taking advantage of the FT8 and FT4 modes all the time. FT8 watering holes are sometimes the only places to find signals on bands that otherwise might be considered dead.

The *WSJT* Development Group this week announced the general availability release of *WSJT-X* Version 2.3.0. It includes a new Q65 mode but does not involve any changes to the FT8 protocol. A summary of new features can be found in the *WSJT-X* 2.3 [User Guide](#). The [Release Notes](#) offer additional information, including a list of important program changes since the *WSJT-X* 2.2. Upgrading from earlier versions of *WSJT-X* should be seamless. [Installation packages](#) for Windows, Linux, and Macintosh are available.

## Plans to Retrieve *Titanic* Wireless Equipment Put on Indefinite Hold

RMS Titanic, Inc., (RMST) the company that owns salvage rights to the *Titanic* shipwreck, has indefinitely put off its plans to retrieve the vessel's radio equipment for exhibit. The company cited the coronavirus pandemic for the delay, according to a January 29 court filing. The Atlanta-based

company said its plans have faced "increasing difficulty associated with international travel and logistics, and the associated health risks to



the expedition team." RMST's primary source of revenue comes from its exhibits of its vast collection of *Titanic* relics, which have been closed or seen only limited attendance due to virus-related restrictions.

RMST -- a subsidiary of Premier Exhibitions and the "salvor-in-possession" of the *Titanic* wreck site -- said its planned expedition to recover the ship's wireless station equipment remains a top priority, however, and will "take place as soon as reasonably practicable." The Marconi-equipped station transmitted the distress calls after the *Titanic* (on its maiden voyage) struck an iceberg some 370 miles off the coast of Newfoundland in 1912 and began sinking. The transmissions, heard by some nearby vessels, have been credited with helping rescue some 700 passengers in lifeboats deployed from the *Titanic*, but about 1,500 passengers were lost.

RMST has been in an ongoing legal battle with the US government over whether the recovery operation would be legal. In May 2020, a US federal judge in Virginia gave permission to retrieve the wireless gear, ruling that the company would be permitted "minimally to cut into the wreck" to access the radio room.

RMST has said the radio room may be reachable via an already-open skylight. But, the National Oceanic and Atmospheric Administration (NOAA) has contended that the retrieval expedition is still prohibited under US



law and under an international agreement between the US and the UK.

The wreck, some 2 1/2 miles beneath the surface, remained undiscovered until 1985.



## Article: Ham Radio Forms a Planet-Sized Space Weather Sensor Network

02/10/2021

The [article](#) “Ham Radio Forms a Planet-Sized Space Weather Sensor Network,” appeared on February 9 in *Eos, Earth & Space Science News* — an American Geophysical Union (AGU) publication. It sprang from a project by the Ham Radio Science Citizen Investigation (**HamSCI**), founded by Nathaniel Frissell, W2NAF, of the University of Scranton, one of the paper’s authors. The others are David Kazdan, AD8Y, and Kristina Collins, both of Case Western Reserve University (W8EDU). The article says that with their experience dealing with ionosphere-influenced propagation, amateur radio operators have an empirical knowledge of space weather and offer a ready-made volunteer science community. The article covers the method and research being used to monitor the effects of solar activity on Earth’s atmosphere, telecommunications, and electrical utilities — and the valuable data being crowdsourced from amateur radio signals.

“To fully understand variability on small spatial scales and short timescales, the scientific community will require vastly larger and denser sensing networks that collect data on continental and global scales,” the article asserts. “With open-source instrumentation cheaper and more plentiful than ever before, the time

is ripe for amateur scientists to take distributed measurements of the ionosphere — and the amateur radio community is up for the challenge.”

“The reach of these crowdsourced systems, and the support of the amateur community, offers tremendous opportunities for scientific measurements,” the article notes.

The research acknowledges a handful of HamSCI collaborators — from organizations and universities — and is supported by National Science Foundation grants. HamSCI’s Personal Space Weather Station initiative aims to develop a network of specially equipped amateur stations that will allow amateurs to collect useful data for space science researchers. As the article explains, ham radio operators and researchers, through HamSCI, are designing hardware for a distributed network of personal space weather stations.



## A “Perfect Coronal Mass Ejection” Could Be a Nightmare

02/10/2021

[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.

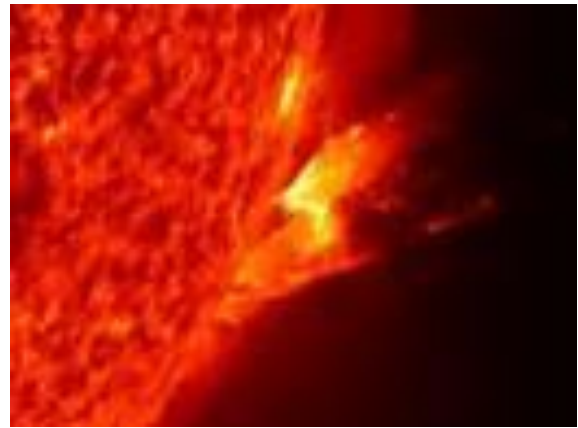
More recent [research](#) led by physicist Dan Welling of the University of Texas at Arlington took a fresh look at Tsurutani and Lakhina’s “perfect CME,” and given improvements in spaceweather modeling, he was able to reach new conclusions.

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.”



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

02/10/2021

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



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stations, for points. This year, however, Class D and Class E stations will be limited to 150 W PEP output.

- 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.

The preferred method of submitting entries after Field Day is via the web applet. The ARRL Field Day rules include instructions on how to submit entries, which must be submitted or postmarked by Tuesday, July 27, 2021.

The [ARRL Field Day](#) web page contains for complete rules and entry forms, as well as any updated information as it becomes available. Join the ARRL Field Day [Facebook page](#).

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## ARRL to FCC: Additional Volunteer Examiner Coordinators Not Needed

02/10/2021

ARRL has told the FCC that no additional Volunteer Examiner Coordinators (VEC) are needed to oversee the administration of amateur radio exams by Volunteer Examiners (VEs). Examination opportunities have continued to be widely available throughout the US — except for a couple of months during the onset of the COVID-19 pandemic — and adding VECs to the 14 now in place would “have no effect” on the number of available exams, ARRL said.

ARRL’s [comments](#) on February 4 were in response to a January 5 FCC [Public Notice](#) in WT Docket 21-2 seeking input on possible expansion of the VEC pool. “In response to the Commission’s *Notice*, ARRL reviewed the amateur examination numbers for the past 5 years, including the COVID-19 pandemic period,” ARRL said in its comments. “We found that even though 10 of the 12 months for calendar year

2020 were times of severe disruption throughout the nation, including for FCC and ARRL headquarters staff, amateur examination opportunities and numbers were strong.”

Multiple web-based exam opportunities are available across the US, even on short notice, and in-person examinations are available in many areas where local regulation and special safety requirements allow.

“It has never been easier,” ARRL asserted, noting that exam sessions often are available within 2 days but rarely more than 7, if taking advantage of a remote, web-based exam opportunity.

“Instead of increasing the number of VECs, we would encourage volunteers to become accredited as VEs and to volunteer to help the current VECs wherever possible,” ARRL said. “Many of the VECs would welcome help.” ARRL said VEs, not VECs, are responsible for administering amateur radio exams.

ARRL VEC — the nation’s largest — has 30,000 accredited VEs, with 11,000 of them regularly participating in exam activities on a weekly or monthly basis.

The number of new and upgraded licenses has been in line with earlier years, “with noticeable increases in the 4 months following the lockdown that occurred in many areas in the early spring,” ARRL pointed out. New FCC licenses issued in January 2021 numbered 2,838, compared with 2,058 for a year earlier. Upgrades were also up significantly — 920 in January 2021 to 554 for the same month last year.

“The 14 separate and independent FCC-approved VECs readily accredit additional VEs whenever and wherever needed,” ARRL concluded. “Increasing the number of individual VECs would have no discernible benefit.”

Instead, ARRL said, increasing the number of VECs would expand the complexity of VEC coordination and management, increase demand on FCC resources to interface with additional organizations, and raise the potential for abuse and fraud

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## FEBRUARY 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
STAY HEALTHY STAY IN TOUCH	ARES Net 7:15 pm	MARC Net 7:00 pm NCS FRED	KAFEE TAWK 10AM DAILY CLUB REPEATER			
7	8	9	10	11	12	13
	ARES Net 7:15 pm	MARC Net 7:00 pm NCS KEITH		ARES Meeting 6:00 pm		
14	15	16	17	18	19	20
	ARES Net 7:15 pm	MARC Net 7:00 pm NCS JESSE		ZOOM CLUB MEETING CONTACT GlennN6GIW		
21	22	23	24	25	26	27
	ARES Net 7:15 pm	MARC Net 7:00 pm NCS ROB				
28						