Minuteman Repeater Association

The Minuteman

Volume 51 Number 3 January 2022

The Minuteman Repeater Association is a non-profit organization providing communications infrastructure and volunteers for community and emergency events.

Membership Meeting ~ Wednesday, 19 January 2022 ~ 7:00—9:30 pm

SKYWARN Training Rob Macedo, KD1CY

This is a Zoom Teleconference only. ***Note the time change!***

Members: log into your account on MMRA.ORG to obtain the login info.
Non-members: send an email to contact@mmra to request the login info.

This is a severe weather spotter training session, part of the National Weather Service (NWS) SKYWARN program.

Amateur Radio Operators comprise one third of all SKYWARN Spotters in the NWS Boston/Norton coverage area!

This is a two-hour thirty-minute training session which discusses the development of thunderstorms, the criteria for "severe" thunderstorms, as well as the cloud features associated with severe thunderstorms and tornados. Additional information will be presented about winter storms and proper snow measurement and reporting of coastal flooding, river, stream, and urban flooding and rainfall measurements. The session will also present the procedure for reporting weather information to the National Weather Service. Safety procedures for the various forms of summer severe weather (severe thunderstorms, tornadoes and lightning), winter storms, and flooding will also be covered in the training session.
[Continued on page 11]

MMRA Repeater Architecture and Programming the 7330 Controller

Wednesday, 26 January, 7 PM

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About the Minuteman Repeater Association

MMRA Control Operators Responsibilities

https://www.mmra.org/MMRACOPolicy-March2019.pdf

The Minuteman Repeater Association (MMRA) is dedicated to Amateur Radio and public service. The MMRA maintains a large system of repeaters in Eastern Massachusetts.

The MMRA meets each month from September to June. Meeting times, locations, and talk-in frequency vary and are announced in this newsletter and on weekly nets. Meetings are open to all interested parties. Guest speakers and programs of general interest occur in September, November, January, March, and May. The intervening meetings are also open to all members and are for general business.

The Minuteman newsletter is emailed one week before each general interest meeting. Members are encouraged to submit articles: send to the editor at newsletter@mmra.org. The deadline for articles is the last Friday of the month preceding the meeting.

Each Tuesday evening at 8PM the MMRA links most of the repeaters for an open net. The topic is "Technical Information and Other Stuff". Join us!

Membership in the MMRA is open to all radio amateurs. Annual dues are $25 per individual or $35 per family. See our website for details.

Contact information is listed on the top of the last page of this newsletter.

MMRA QRM Policy

MMRA members and all other operators are strongly encouraged to report repeater activity that does not abide by Part 97 rules or accepted amateur radio practice to the board of directors at contact@mmra.org or via other means.

The most effective way (and probably the only effective way) to deal with an individual causing QRM is to NOT engage that individual on the air. Please include the time and date of any incident.

Repeater and Frequency Information

Band	XMTR Location	Freq	PL	Call	Linking To: Hub 1	Hub 2
10m	Marlboro East	29.680	131.8	W1MRA	PTL	PTL
			Linked to 146.79: 9am-3pm every day			
6m	Marlboro East	53.810	71.9	W1BRI	PTL	PTL
	Remote receive Marlboro West: PL=100					
2m	Brookline	145.160	na	K1MRA	D-Star (REF050C)	
	Belmont	145.430	146.2	KC1CLA	PTL	FTL: DARI
	Mendon	146.610		K1KWP	FTL	PTL
	Quincy	146.670		W1BRI	PTL	PTL
	Nth Reading	146.715		KC1US	PTL	PTL
	Weston	146.790		N1BE	PTL	PTL
				Linked to 29.68: 9am-3pm every day		
	Boston	146.820		K1BOS	FTL	PTL
	Remote receive in Brookline Boston: PL = 127.3					
	Billerica	147.120	103.5	W1DC	unlinked	unlinked
	Marlborough	147.270	146.2	W1MRA	PTL	PTL
1¼m	Marlborough	223.940	103.5	W1MRA	PTL	PTL
	Quincy	224.400		N1KUG	PTL	PTL
	Weston	224.700		N1NOM	PTL	PTL
	Burlington	224.880		KC1US	PTL	PTL
70cm	Lowell	442.250	88.5	W1MRA	FTL	PTL: 446.775
	Weston *	442.700		N1DCH	Network Hub 2 (PTL to Hub 1)	
	Nth Reading *System Fusion*	446.775	88.5 Linked 71.9 Local	W1DYJ	FTL [88.5]	PTL [88.5]
	Marlborough	448.225	na	W1MRA	D-Star (REF050C)	
	Hopkinton *System Fusion*	449.575	88.5 Linked 71.9 Local	W1BRI	FTL [88.5]	PTL [88.5]
	Marlborough *	449.925	88.5	W1MRA	Network Hub 1	
33cm	Boston *	927.0625	D244	K1RJZ	PTL	PTL
	Marlborough * PL out = 131.8	927.700		W1MRA	PTL	PTL
Marlborough		144.390	none	W1MRA	APRS Digipeater	
???		145.630	146.2	W1MRA	Fox Box	
*Internet	HUB1– 449.925: IRLP node 4133 / Echolink node 4133 Connected to Echolink NEWENG2 conference (9127) for TIAOS net.					
	HUB2 – 442.700: IRLP node 4136 / Echolink node 4136 Connected to 220 Reflector 9124 on Tuesdays					
	927.0625: IRLP 4977		Normally linked to the NE900 Reflector, 9125. Linked to MMRA via "NEW-ENG2" node 9127 for the TIAOS net.			
	927.700: IRLP 4978					

Notes: FTL = Full Time Linked (or default state) PTL = Part Time Linked (on schedule or demand)
Note — a repeater can be linked to only one Hub at a time.

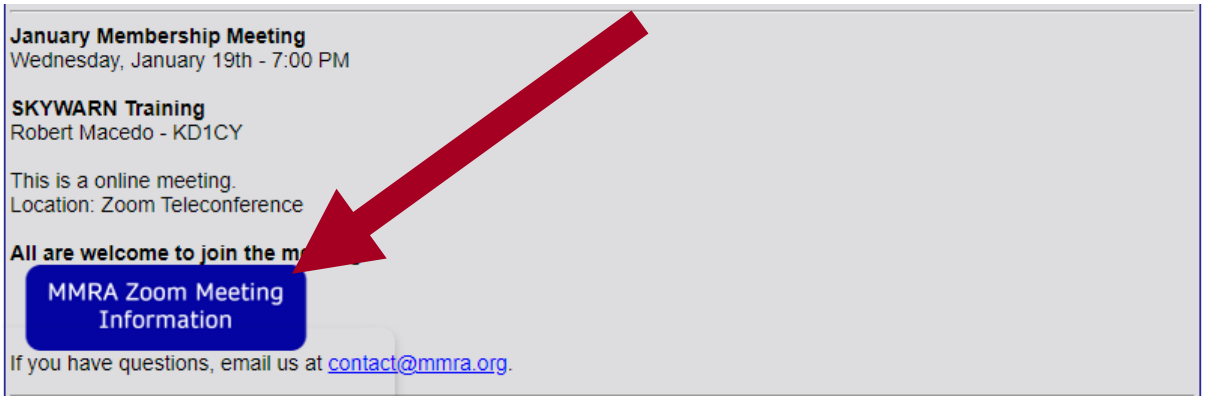
President's Corner ~ David Hornbaker, N1DCH

Happy New Year 2022!

Robert Macedo - KD1CY will be giving NWS SKYWARN training on **January 19th at 7:00 PM via Zoom**. If you are interested in weather or public service, I highly recommend this training.

This membership meeting will be Zoom only. There are several factors going into this decision: Rob KD1CY was only available via Zoom, the length of the meeting, Winter Weather, and the current COVID-19 surge. Please note: the meeting **start time 7:00 PM** this is due to the length of the SKYWARN training.

The information needed to join the meeting is in the announcement on the first page of this newsletter. There is also a link that will take you directly to the meeting in the meeting announcement on the MMRA web page (www.mmra.org) ***(note: you must be logged to see the link).***



MMRA Elections: Elections of the MMRA officers and board members will occur during the May Membership Meeting. Currently, the MMRA is missing one officer (see article on next page). We would like to have a full slate of officers next year. **The long-term viability of the organization depends on members serving in these important officer roles.**

VE Exams: The January VE Session will be held at City Church Marlborough, 72 Jefferson St, Marlborough, Saturday January 22nd at 9:00 AM. For more information Contact Ron – WO1E at ve@mmra.org or wo1e@mmra.org

Membership renewal: All MMRA memberships expired in August. Please check your profile and if your membership expired in 2021, please renew. Renewals may be done on the website, or you can mail your renewal to Minuteman Repeater Association, PO Box 669, Stow, MA 01775-0669. Please allow 7 days for us to process your renewal. Please allow 14 days for renewals that are mailed. While you're on the website (https://www.mmra.org) checking your expiration date, please verify your email address. We have had several email bounces recently.

Tuesday Nights: Join us Tuesday nights at 8:00 PM for our weekly Technical Information and Other Stuff (TIaOS) net. There will be a lively discussion on all sorts of HAM issues, including equipment, antennas, software, repeaters, and other stuff. The main purpose is to test our ability to link up the repeaters in case of an emergency or, to support some event like a marathon. You can also join via EchoLink, if your radio is a little under the weather. See below for more information.

You can find out more information about how and when the repeaters are linked on the website (https://www.mmra.org/repeaters/repeater_linking.html).

Please remember to keep your profile up to date, especially if your email changes. Note that if your callsign changes, send email to contact@mmra.org and we will update your callsign in the database.

Best wishes to all for a happy and a sunspot filled New Year! *73 — Dave – N1DCH*

The MMRA needs a Clerk!

And other election related stuff ~ Larry Banks, W1DYJ

You may have noticed that the minutes of our MMRA meetings have recently been submitted by your newsletter editor — me. Why? Because one of our five corporate offices is vacant, that of ***Clerk***. Why do we need one? First, our bylaws require it. Second, having your newsletter editor generate the minutes gives too much power to one person — the power of the pen. Third, having a ninth set of eyes and brain on the Executive Board is important to the functioning of the club. (The Executive Board consists of the President, V.P., Treasurer, Secretary, ***Clerk***, and the four directors, all elected by the membership.)

What does the Clerk do? *From the bylaws*:

> **Clerk: To serve as a director of the Corporation; to maintain accurate records of all meetings of the Board; to record and preserve all minutes of the meetings of the membership; to cause to be filed with the Secretary of State and other proper authorities all documents required thereby and in conformity with the statutes of the Commonwealth.**

What does this actually mean. Dissected by clause: 1) as director you will be discussing and voting on all business before the board; 2) & 3) maintaining, recording, and preserving records really means attending meetings, taking notes, writing up draft minutes, sending them out to the board for approval, and working with the newsletter editor (again, me) to have them published (they are preserved on our web site); and 4) once a year the Clerk uploads the results of our election to the state and lists the officers and their addresses.

Are You Qualified?

If you are interested in the workings of a club like ours, have some flair for writing, want to learn more about our repeater system, wish to get to know the club members more, and have the time to attend meetings, ***you are qualified!*** The benefits of this job are like any voluntary position: more knowledge, fun, camaraderie, and a sense of giving back to ham radio and public service.

What does it pay?

As it is an *elected* position, you receive twice as much as the *appointed* newsletter editor: 2 x $0 = $0

What is the election process?

The ***Clerk*** is elected by the membership at the annual meeting in May. You may nominate yourself, but this must be done by 15 April. To do this, you must inform the Secretary, Jason—W1HFP, although letting our President, Dave—N1DCH, know as well is probably a good thing to do.

Solicitation!

Think about this! If you are interested, feel free to ask anyone on the Executive Board for more information. I will also be happy to answer any questions you might have.

The long-term viability of the organization depends on members serving in these important officer roles.

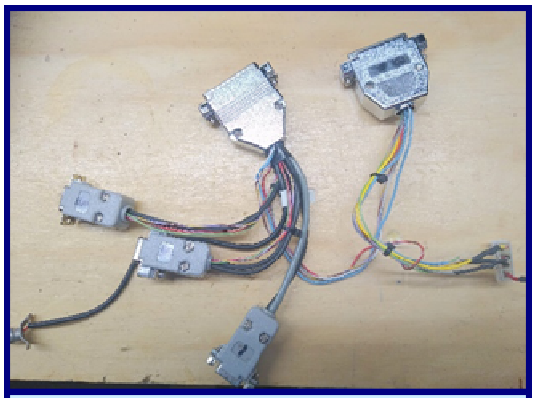
73 — Larry — W1DYJ
MMRA Newsletter Editor and Board of Directors member

Repeater Report ~ Bob DeMatia, K1IW

The club voted last fall to purchase five SCOM 7330 controllers and three MX800 repeaters to upgrade existing equipment. Those arrived in November.

Five of the six new controllers before deployment

I am happy to report that all the 7330's and all but one of the MX800s have been deployed. Replacing the controller is no small undertaking. Probably the biggest issue is the cabling between the controller and repeater. The SCOM 7K has two 25-pin connectors. One is for all three radios while the other is for certain i/o connectors to turn relays and such on and off. The 7330 retains the I/O connector, albeit with a different pin out, and has three 9-pin connectors - a separate one for each radio.



A 7330-to-7K adapter cable

Most sites do not offer nice work bench areas to build cables and many are not even temperature controlled, so you do not want to be soldering and building cables on site. In some cases when the repeater was originally built, we anticipated a later conversion to 7330s. At these sites, we had an adapter with three 9-pins at one end and two 25-pin types at the other. This way, the radio cable was "7330 ready".

However, not all sites had this, so I had to dig through documentation. In the case of Marlborough east, the radio cable was almost 7330-ready, but had deviated from the plan because of the repeater having two receivers. At our Prudential location, there were 9-pin connectors, but they were wired for an Arcom controller, so the wiring in the connector had to be changed.

The Lowell 442.25 repeater with new 7330 controller.

Repeater Report ~ Bob DeMatia, K1IW ~ cont'd

The Weston 224.70 repeater before (left) and after (right)

The Burlington 224.88 repeater with new MX800 and 7330 controller

With all this done, what is next? We still have to install the third MX800 at 223.94 in Marlborough. The Billerica 147.12 repeater will be upgraded in April, and the new Quincy 146.67 repeater is on order - so all work is not done.

The new Billerica repeater, fully operational, awaiting installation.

17 November 2021 Membership Meeting

Marlborough Central Fire Station + ZOOM Teleconference

President Dave, N1DCH, called the meeting to order at 7:33 local.

Agenda

Introductions

In the room:

N1DCH, Dave, President; **W1HFP**, Jason, Secretary and tonight's speaker; KV1J, Eric, Host
K1IW, Bob, Technical Officer & President Emeritus, **KC1OXG**, Bob, Member; KA1MOM, Bill, Member
W1DYJ, Larry, Net Manager & Newsletter Editor; Plus one ham whose call I did not record...

Via ZOOM

K1KWP, Kevin, Treasurer; **KC1JOS**, Tom, Member; **WA1MDD**, John, Vice-President
K8ZBE, Steve, Social Media Coordinator; **K1BTZ**, Jon, Net Controller

Insurance Issue

We need to send MMRA's insurance certificate to Eric, per Marlborough's requirements
(Kevin, K1KWP, did so after the meeting.)

Repeater Update

Marlborough 900 is now running. A second 7K controller has been replaced with a 7330.
Complete 7330 Status:

MRE - installed 11/8
BRK (remote receiver) - planned early December
BOS - 2022
MRX - installed 11/16
BBY - 2022

BCA (Billerica) - build this winter, install in spring

Quincy repeaters are off

"BOB, K1IW": I've lost track of the issues we've had with Quincy (QCY) this year. It is a long trip, and it is down again with the stuck-transmitter problem (same problem we had in August). The current plan is to pull the Mastr II on Friday and install the DR1X temporary repeater.

We need a more permanent solution. There are two options:

A new Kenwood system with Henry Power Amp - $2800
A used Quantar system (Quantar has sufficient power, so no amp is required) - $1100 - $1600. The quantar price is variable, depending on what's on eBay at the time.

K1IW's recommendation is to go with Option 1.

QCY is a difficult location to access, so reliability is key. The Quantar is a good system, but it will probably be 10-20 years old and with an unknown history.
We've had the UHF version of the Kenwood installed in Marlborough since March 2018 and haven't had a single issue with it.
Fix Mastr II currently in QCY and keep it as a spare for Marlborough, Weston , or Mendon.

Subsequent to this meeting, a membership vote was sent out via email for Bob's recommendation, Option 1.

Next VE Session: 9:00 am November 20th, Marlborough Central Fire Station

Contact Ron (WO1E@mmra.org) for more information
Please tell your friends, who are interested in taking tests, that they must have photo IDs and FRNs.
Note: Social Security numbers are no longer accepted by the FCC. Everyone must have an FRN
Next scheduled session: 18 December

17 November 2021 Membership Meeting—cont'd

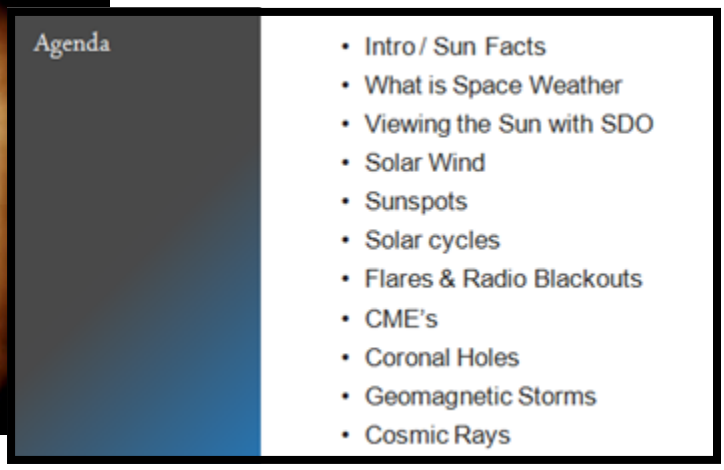
Upcoming Meetings – Third Wednesday of the month

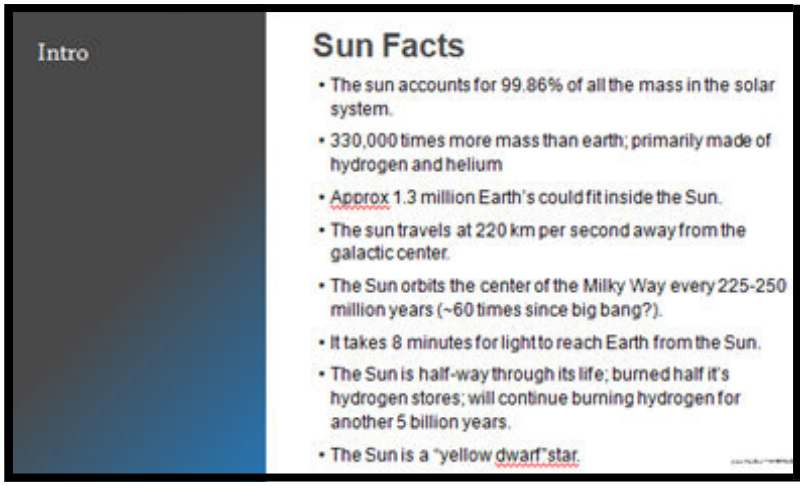
December – Business Meeting – New England Sci-Tech & Zoom
January – **Robert Macedo – KD1CY – SKYWARN Training** – New England Sci-Tech & Zoom
February – Business Meeting – New England Sci-Tech & Zoom Teleconference
March – **Tim Duffy – K3LR – Grounding and Bonding** – New England Sci-Tech & Zoom
April – Business Meeting – New England Sci-Tech & Zoom Teleconference
May – **Philip Erickson, Ph.D. – W1PJE – Amateur Radio's Emerging Role in Investigating Space Weather Within near-Earth space** – Marlborough Central Fire Station & Zoom

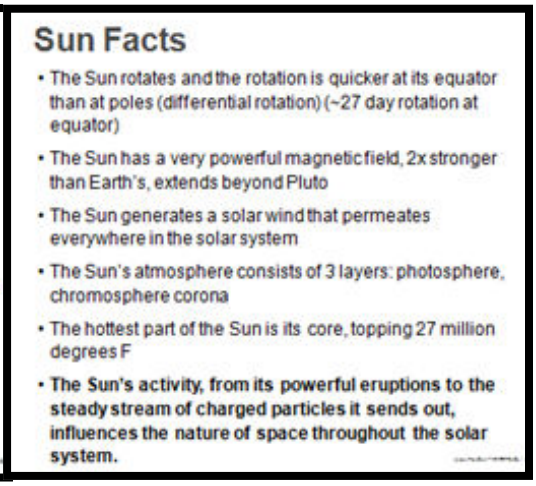
The Main Event:
Jason Peardon – W1HFP

An Amateur's Guide to Space Weather

These are just a few of Jason's slides. They have been edited for space reasons.





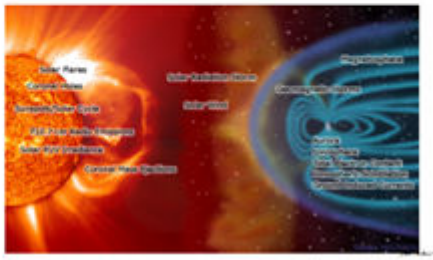


17 November 2021 Membership Meeting—cont'd

Intro

What is Space Weather?

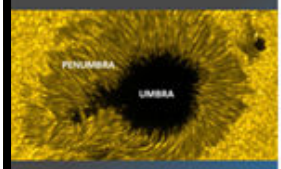
- Space Weather is a branch of physics, primarily heliophysics that is concerned with the time varying conditions within the Solar System, including the solar wind, emphasizing the space surrounding Earth, including conditions is magnetosphere, ionosphere, thermosphere, and exosphere.



Solar Wind

- Perhaps the most consequential input to space weather because it is ever-present.
- The solar wind is a constant stream of mostly ionized Hydrogen (& some Helium) particles released from the upper atmosphere of the Sun (the corona). This plasma mostly consists of electrons, protons, and alpha particles.
- Trace amounts of Carbon, Nitrogen, Oxygen, Neon, Magnesium, Silver, Sulfur, Iron
- Variable speed and temp but as much as 900 km/s and 1 million degrees C
- The solar wind escapes the Sun's gravity, and these particles travel everywhere in our solar system.
- Ultimately, it is the solar wind that is responsible for the aurora that we see during a geomagnetic storm.

Sunspots



Sunspots

- Earliest record of sunspots from 800BC in China
- Temporary areas on the sun with concentrated magnetic field flux caused by disturbances in the Sun's magnetic field
- Appear as darker areas on the surface of the sun because they are cooler areas; sun spots are as bright as the full moon.
- **Two parts:** sunspots have a lighter outer section called the penumbra; a darker central region named the umbra.
- Powerful magnetic fields in the vicinity of sunspots produce "active regions" which frequently spawn flares and coronal mass ejections.
- Sunspots form over a period of days to weeks and can last months before dissipating.

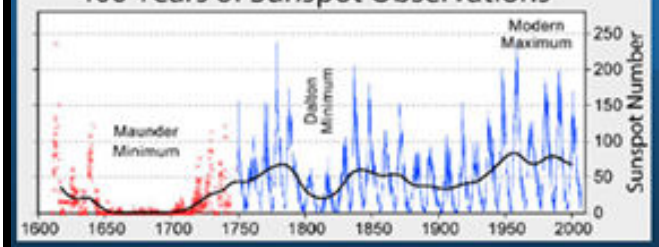
Solar Wind

- ACE Satellite monitors the solar wind. 2016, GOES-R satellite was launched
- The solar wind varies in density, temperature and speed over time.
- Different regions of the Sun product different speeds and densities of solar wind.
- Coronal holes produce a solar wind of higher speed.
- CME's effectively become part of solar wind.
- Because the Sun rotates over 27 days, the solar wind becomes a complex spiral of high and low speed/density.
- High speed winds bring geomagnetic storms; auroras
- Slow speed winds bring calm/neutral space weather.
- When the solar wind arrives at Earth, it encounters Earth's magnetic field where particles are able to enter our atmosphere around the magnetic north and south poles

Sunspots

- Sunspot numbers (count) are tracked because sunspots are associated with solar activity and can be used to predict outbursts of solar storms.
- Usually occur in pairs with opposite magnetic polarity
- Size: Between 10miles and 100,000 miles in diameter
- Sunspots occur on an 11yr cycle; in large amounts during solar maximum
- If there are any during solar minimum they are usually at the poles.

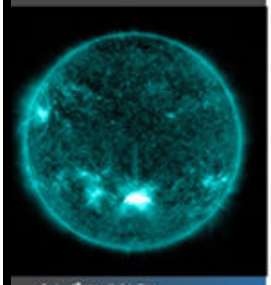
400 Years of Sunspot Observations



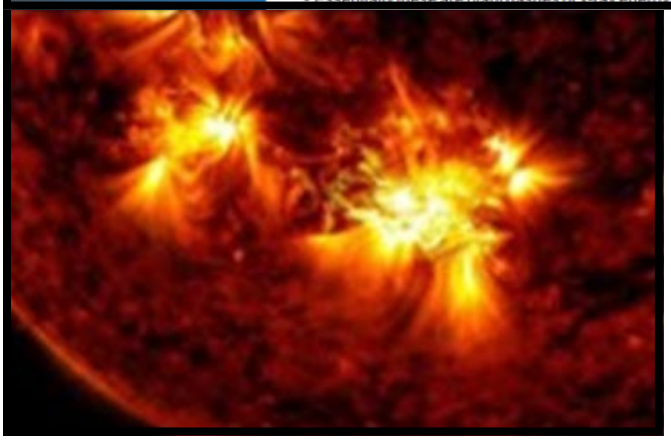
- We are in solar cycle 25; next solar maximum will be ~ late 2024 or early 2025
- Cycle 25 is predicted to look very similar to 24 (small)
- The last solar minimum (between Solar Cycle 24 and 25), the period when the sun was at its least active, happened in December 2019

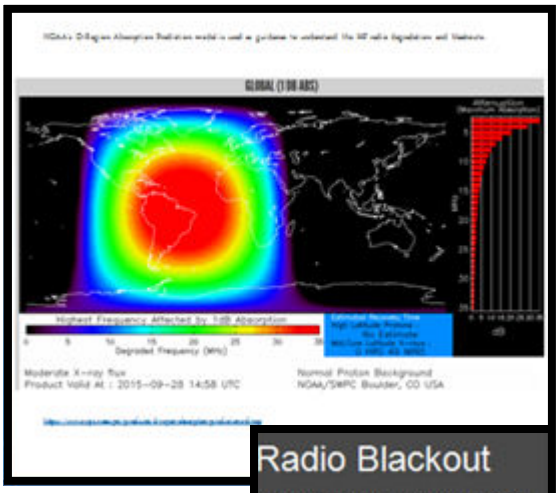
17 November 2021 Membership Meeting—cont'd

Solar Flares



- A solar flare is a tremendous explosion on the Sun that happens when energy stored in twisted magnetic fields (usually above sunspots) is suddenly released.
- It is burst of radiation across the electromagnetic spectrum, including from radio waves to x-rays and gamma rays (all wavelengths).
- Solar Flares arrive at earth within 8 minutes and cause a "radio black" for the region of earth where it is ~12 noon due to significant ionosphere excitement which causes absorption and attenuation.
- Flares occur in active regions often around sunspots where intense magnetic fields penetrate the photosphere. The release occurs when the plasma and charged particles, controlled by magnetic loops interacting and shifting around, change directions and are accelerated to the speed of light, we get a flare.
- Flares and CME's can occur at the same time but not always
- Essentially these are giant flashes of x-ray energy

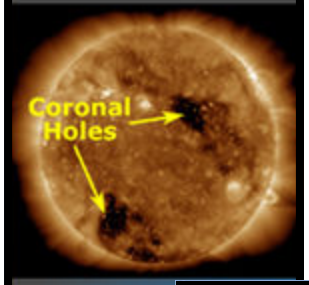




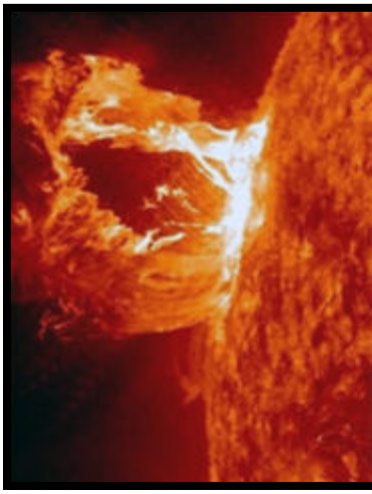
Radio Blackout

- Radio Blackouts mostly impact 3-30 MHz and are caused by bursts of X-Ray and extreme UV radiation emitted from solar flares
- Essentially, the Sun is generating huge amounts of broadband RF noise.
- The emissions ionize the sun-facing side of Earth which increases the amount of loss as radio waves pass through this region
- Radio Blackouts are the most common space weather event on Earth – 2,000 times every solar cycle (22 years)
- Little warning: arrive at the S-of-L in 8min
- Last minutes to hours depending on the flare

Coronal Holes



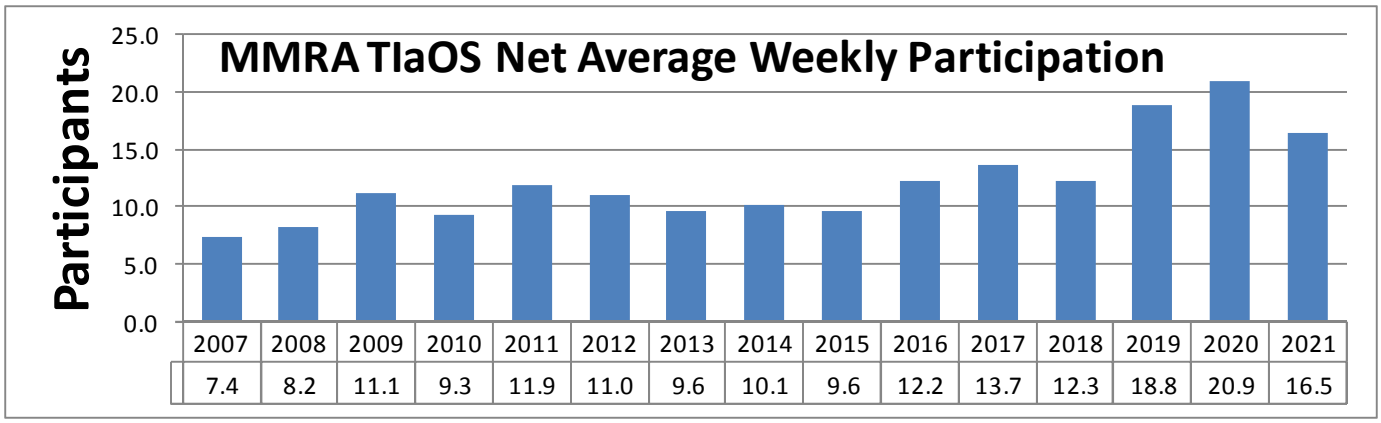
- First discovered in the 1960's
- Present on disk in both solar minimum and maximum; but more common during min
- Coronal holes are areas of the Sun's atmosphere that appear dark in X-ray and UV images. The electrified gas in these areas is cooler and less dense than other parts of the corona.
- A result of coronal magnetic fields; can last several rotations of the Sun
- Coronal holes allow the solar wind to push out more – usually 2x the solar wind average
- During solar minimum, coronal holes are the primary space weather generators and are often located at the poles
- During solar maximum, coronal holes can appear anywhere on the Sun
- Coronal holes have potential for escalated geomagnetic activity and possible storming – "coronal hole stream"



Coronal Mass Ejection

- CME's are large expulsions of plasma clouds and magnetic field from the Sun's corona
- Can eject billions of tons of coronal material
- Fast CME's can reach earth in as little as 15-18hrs; slower ones can take several days
- Like flares, CME's are born when the twisted magnetic field structures (flux ropes/loops) contained in the Sun's corona become too stressed and realign into a less tense configuration – a process called magnetic reconnection.
- Most often this is from a sunspot group active region, but not always. Plasma filaments and prominences often too lift off the surface of the Sun with no flare.
- CME's are measured in terms of their size, speed, density and direction.
- Not all CME's are earth-facing.
- Large flares usually have CME's

Annual TIaOS Net Report ~ Larry Banks, W1DYJ, Net Manager



2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
7.4	8.2	11.1	9.3	11.9	11.0	9.6	10.1	9.6	12.2	13.7	12.3	18.8	20.9	16.5

Weekly participation was down a bit from the last two years. The one-year free membership the MMRA now offers to new hams has made a difference. Many new hams checked in this year and hopefully will continue to participate. I would like to thank our net controls:
KB1OQA, Tom Turner; KC1CLA, Ed Curley; K1KWP, Kevin Paetzold, and K1BTZ, Jonathan Traum

SKYWARN Training Rob Macedo, KD1CY — cont'd

Rob Macedo (Amateur Radio Call-Sign: KD1CY) was born and raised in Saratoga Springs, NY and moved to New Bedford, MA for college in 1991, where he went to UMASS-Dartmouth and graduated with an Electrical Engineering degree. He works at Dell Technologies where he has been for over 24 years. Rob is a senior principle hardware engineer and former Director of System Integration in the Drive Storage Media Engineering (DSME) department where he previously managed a global team of engineers working on disk drive and Solid State Drive evaluation in Dell-EMC products and now is a technical lead in this area working with the same global team of system integration engineers. Rob has always had a very strong interest in technology, meteorology, emergency management, emergency and public service event communications. Rob has been the Amateur Radio Emergency Services (ARES) SKYWARN Coordinator for NWS Boston/Norton (previously Taunton) for 23 years and is the Eastern Massachusetts ARES Section Emergency Coordinator. When he is not at work or doing Amateur Radio public service, emergency communications and weather spotting volunteer work, Rob enjoys movies, shows, time with family and friends, as well as sporting events.

MMRA Repeater Architecture and Programming the 7330 Controller
Bob DeMattia, K1IW

Beginning his month, Bob DeMattia, K1IW will be hosting a series of technical presentations that go over the details of the MMRA repeaters and their internal workings. All of these presentations will be Zoom only, and are restricted to club members who have registered in advance. These will be detailed technical discussions. The first one will begin at 7PM on Wednesday January 26 and will cover general repeater architecture and how it is controlled by the SCOM 7330 controller. We will be delving into the actual programming of the 7330 - what it is and how it is done.
Please contact k1iw@mmra.org to preregister.

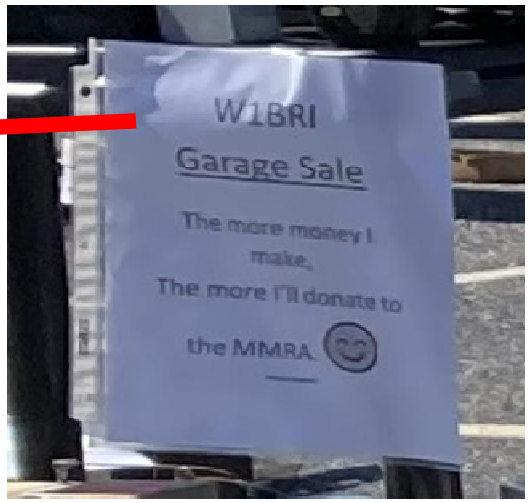
Treasurer's Report ~ Kevin Paetzold, K1KWP

The MMRA receives a significant amount of donations each year. On behalf of the club I would like to acknowledge and thank people below who donated since my list in the May newsletter:

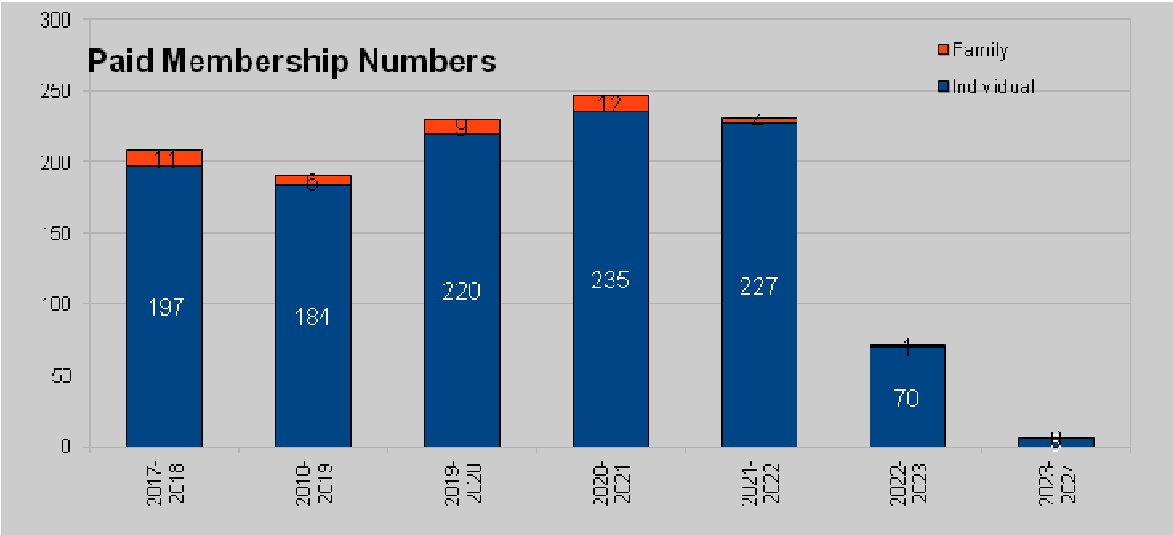
AE1EI, K1IJ, K5TEC, KC1MJB, KC1MML, KC1NBN, KC1POQ, KC1X, KD1TF, N1DCH, N1HBR, W1BFM, W1BRI, W1HAI, W1HFP, W1MVP, WA1DX, and WM1T.

Hopefully I did not leave anyone off (and if I did I am sorry):

As part of preparing to move, W1BRI sold items from his "collection" at the convention in September and donated proceeds from those sales to the MMRA.



Dues collected so far for this membership year are $6130. This is a $165 decrease from the previous year. 227 members have paid dues so far this membership year.



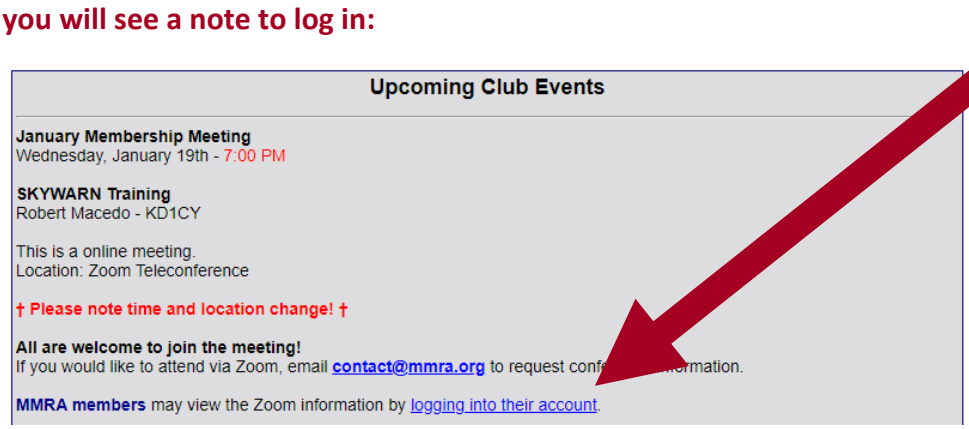
Detailed financial information is occasionally presented at business meetings. These meetings generally occur in the months which do not have general membership meetings. They are announced on the www.mmra.org website. All members are invited and encouraged to attend these meetings. Of course much more than the finances are discussed at these meetings including repeater status, repeater decisions, planning, etc.

Joining a ZOOM meeting ~ David Hornbaker, N1DCH

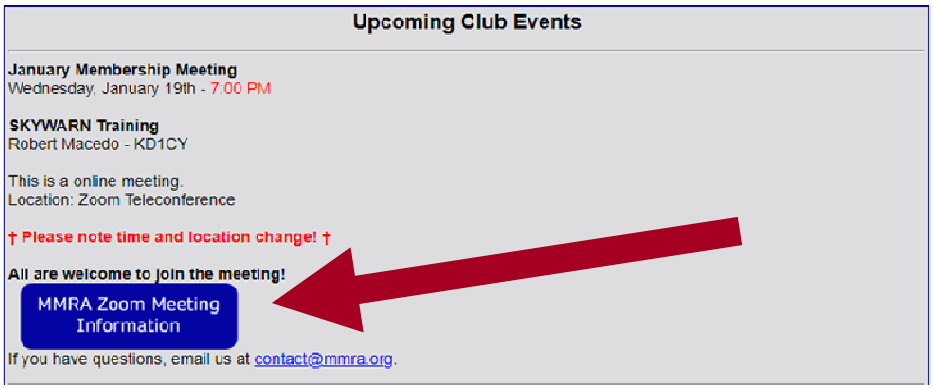
Many members have reported that they are having problems joining MMRA Zoom meetings. Here are some steps to ensure that you can join the meeting.

Install the latest Zoom client from https://zoom.us/download#client_4meeting. This link works for Windows, MacOS, and Linux. The Zoom client is also in the Apple Store https://itunes.apple.com/us/app/id546505307 and the Google Play Store https://play.google.com/store/apps/details?id=us.zoom.videomeetings. Be sure to install the proper one as there are both 32 and 64 bit versions.

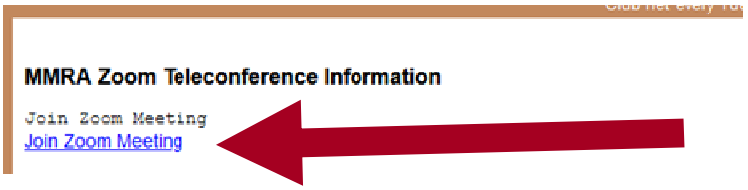
Get the meeting information from the MMRA web site. **You must be logged into the web site**. If you have issues logging into the MMRA web site please email contact@mmra.org. **If you are not logged in, you will see a note to log in:**



Once you login, you will see a clickable link to the meeting:



This link will open a page that has the meeting information:



The Join Zoom Meeting link on the website will open a zoom webpage for the meeting, then (on most OS/Browers) automatically open the meeting in the zoom client.

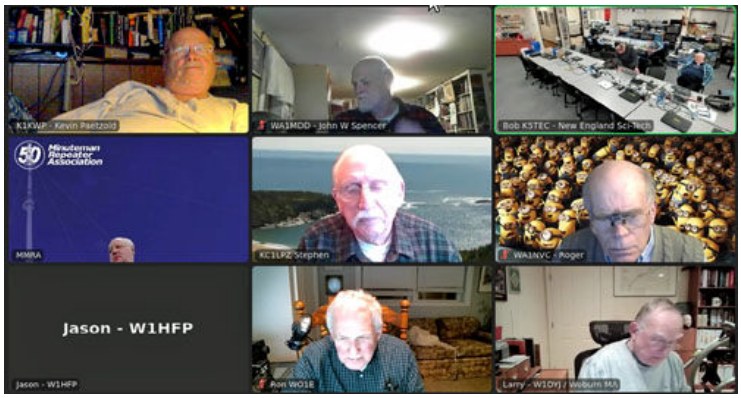
73 — Dave — N1DCH

15 December 2021 Business Meeting — Minutes

Brought to order by President **Dave, N1DCH**, at 7:35 pm at New England SciTech

Present: Dave, N1DCH; Bob, K1IW

Via ZOOM: Roger, WA1NVC; Steven, KC1LPZ; Jason, W1HFP; John, WA1MDD; Larry, W1DYJ, Ron, WO1E; Kevin, K1KWP



Agenda

After introductions, **Dave, N1DCH**, expressed thanks to **K5TEC** and **New England SciTech** for once again hosting our business meeting.

Treasurer's Report – Kevin, K1KWP

Kevin gave an extensive report, with many graphs
Much of this will be published in the newsletter
Some Highlights:

- Current fund balance is $30579.97, including $634.05 in segregated VEC funds
- The majority of our projected fiscal year income of $7389 is from dues of $6005
- The major parts of our projected expenses of $9934 are:
  - ⇒ System maintenance and improvements: $5986
  - ⇒ Electricity: $1198
  - ⇒ HamXposition: $1326
  - ⇒ Web, Internet, ZOOM, etc.: $958
- We currently have 226 paid memberships

Repeater Status – Bob, K1IW

Bob, K1IW – our Technical Officer – put many miles on his Mustang this past month!

Completed Repairs

Expired Internet CA certificates replaced at ten sites

- Marlborough West, Belmont done remotely
- Burlington, Hopkinton, Lowell, Marlborough East, Mendon, North Reading, Quincy and Weston required visits (8 visits)

7330 Controller installs:

- Marlborough East (1 visit)
- Marlborough West 900 (1 visit)
- Lowell (2 visits) including fixing audio issue
- Brookline (2 visits) including improved grounding

Quincy: MastrII removed, DR1X installed (1 visit) [see below]

Open Issues with solutions

Burlington '88: Transmitter cut-outs (likely overheating)

- Will test new MX800s under similar conditions before installing
- Improved cooling system to be added
- Projected schedule: Late December

15 December 2021 Business Meeting — Minutes cont'd

Marlborough East '81: Erratic output power, low audio (2 unrelated issues)

- Bryan, W1BRI, to look at

Weston has three issues (projected schedule – Late December):

- Bad R-Pi power supply causing internet drops
- Replace 224.70 with new MX800
- Attempt repair of Mastr II final on 146.79 (probably the common interconnect problem).

Belmont

- Link out intermittent, to be monitored
- Bad R-Pi power supply causing internet drops (late December)

Open Issues -no plans to fix

Belmont '43: Poor RX sensitivity

- Likely an antenna issue
- No practical solution other than finding a new site

North Reading '715: No TX PL: Minor, not worth site visit

Upcoming projects

- Replace 7K with 7330 at Prudential (hopefully late December)
- Replace 7K with 7330 at One Financial Center (hopefully late December)
- Replace Marlborough West 223.94 with MX800 (if site remains accessible: January)
  - ⇒ Audio on 927.700 also needs improvement (Roger, WA1NVC)
- Billerica: Install entire new system & antennas (Spring)
- Marlborough East Grounds Keeping (Spring)
  - ⇒ Trees are infringing on the antennas
  - ⇒ Needs board action to approve tree trimming

Quincy Upgrade

Background:

- Starting in August the Quincy 2m transmitter was intermittently transmitting continuously; an AC power cycle would fix it.
- This commenced a discussion about replacing this aging and hard to repair system. Estimated cost to replace was about $2800.
- In November it was stuck on permanently; it was shut down.
- Temporary Fix: Bob, K1IW, substituted our backup DR1X repeater in mid-November.

Membership Vote

- Given the lack of time for an initial BoD vote, and after discussion by those members of the BoD at the November membership meeting, a decision was made to go directly to an email vote by the membership.
- The motion to approve purchase of a replacement repeater for Quincy 146.67 was approved by the membership 102 YEA, 0 NAY.

BoD vote

- Our bylaws require that the membership vote on any expenditure greater than $500.
- It is customary that the BoD votes on any expenditure greater than $500 as a recommendation before the membership vote, but not required in the bylaws.

15 December 2021 Business Meeting — Minutes cont'd

- In this instance, the BoD did not vote beforehand. In order to be on record:
  - ⇒ **MOTION** (Dave, N1DCH): To purchase a Kenwood /Henry system for Quincy at a cost not to exceed $2800
  - ⇒ **SECOND** by John, WA1MDD
  - ⇒ **Passed**: 7-0

VE Laptops

We could use six or seven laptops for the VE sessions. Any WIN10 laptop would work, and if they were identical for maintenance reasons, it would be good. A newsletter blurb will be published, and a few participants on the ZOOM call volunteered to "look around."

Meeting Attendance and ZOOM URL Accessibility

- There is a concern that we are not seeing many members at our meetings.
- Some of this may be a PR issue and additional email reminders were suggested
- There was also a general consensus that the ZOOM login information for meetings could be made more obvious on the MMRA web site. Bob, Roger, and Larry agreed to consult with each other to make this happen. (Bob improved this the next day.)

Upcoming meetings

January Membership Meeting – Rob Macedo – KD1CY
SKYWARN Training
New England Sci-Tech, Natick & Zoom Teleconference
(*Editor's note: this was changed to a ZOOM only meeting.)*

February Business Meeting
New England Sci-Tech, Natick & Zoom Teleconference

March Membership Meeting –Tim Duffy – K3LR
Grounding and Bonding
New England Sci-Tech, Natick & Zoom Teleconference

April Business Meeting
New England Sci-Tech, Natick & Zoom Teleconference

May Membership & Annual Meeting –Phil Erickson – W1PJE
Amateur Radio's Emerging Role in Investigating Space Weather Within Near-Earth Space
Marlborough Central Fire Station & Zoom Teleconference

Newsletter

Deadline: Friday, 31 December
Email W1DYJ@mmra.org or newsletter@mmra.org

Meeting adjourned at 9:14.

Submitted by Larry Banks, W1DYJ

Upcoming MMRA Meetings

Note: Meeting locations and times are subject to change.
Consult the MMRA website for the most up-to-date information.
ZOOM Teleconference login info is available
once you log into your account on MMRA.ORG
Non-members: if you wish to attend, email contact@mmra.org.

Wednesday, 19 January ~ Membership Meeting ~ 7:00
SKYWARN Training ~ Robert Macedo, KD1CY
Zoom Teleconference

Wednesday, 16 February – Business Meeting ~ 7:30
New England Sci-Tech, Natick + Zoom Teleconference

Wednesday, 16 March~ Membership Meeting ~ 7:30
Grounding and Bonding ~ K3LR
New England Sci-Tech, Natick + Zoom Teleconference

Wednesday, 20 April – Business Meeting ~ 7:30
New England Sci-Tech, Natick + Zoom Teleconference

Wednesday, 18 May ~ Annual Membership/Elections Meeting ~ 7:30
Amateur Radio's Emerging Role in Investigating Space Weather Within near-Earth space — Phil Erickson – W1PJE
Location TBD + Zoom Teleconference

Don't Forget! Join Us.

Every Tuesday @ 8 PM
Technical, Informational and Other Stuff Net

The MMRA's repeaters are linked Tuesday nights for the TIOS Net. Keep up with what's happening in the MMRA and ask your ham related questions.

Net Control Operators:

Week 1	W1DYJ	Larry Banks
Week 2	KB1OQA	Tom Turner
Week 3	KC1CLA	Ed Curley
Week 4	K1KWP	Kevin Paetzold
Week 5	K1BTZ	Jonathan Traum

To connect using Echolink / IRLP during the Net:

- Echolink Conference *NEW-ENG2*
- IRLP node 4133

NOTE: we need another NC to be available as a substitute. If you are interested, email W1DYJ@mmra.org

MMRA Leaders

Executive Board — Officers

President	Dave Hornbaker	N1DCH
Vice President	John Spencer	WA1MDD
Secretary	Jason Peardon	W1HFP
Treasurer	Kevin Paetzold	K1KWP
Clerk	OPEN	————

Executive Board — Directors

Director »2023	Bob DeMattia	K1IW
Director »2023	Roger Coulson	WA1NVC
Director »2022	Rob Evans	N1BE
Director »2022	James Lee	N1DDK

Technical Officer

Technical Officer	Bob DeMattia	K1IW

President Emeritus

Bob DeMattia K1IW

Technical Officer Emeritus

Bryan Cerqua W1BRI

Repeater Trustees

* Belmont 145.43	Ed Curley	KC1CLA
* Billerica 147.12	Mike Rioux	W1USN
* Boston 146.82	John Mullaney	K1BOS
* Boston 927.0625	Rick Zach	K1RJZ
* Brookline 145.16	Joyce DeMattia	K1IWW
* Brookline Rcv 146.82	Bob Phinney	K5TEC
* Burlington 224.88	Bruce Pigott	KC1US
* Hopkinton 449.575	Bryan Cerqua	W1BRI
* Marlborough 53.81	Bryan Cerqua	W1BRI
* Marlborough: 29.68, 144.39, 147.27, 223.94, 448.225, 449.925, 927.70 Lowell 442.25 all as W1MRA	Bill Northup	N1QPR
* Mendon 146.61	Kevin Paetzold	K1KWP
* N. Reading 146.715	Bruce Pigott	KC1US
* N. Reading 446.775	Larry Banks	W1DYJ
* Quincy 224.40	Bill Dunn	N1KUG
* Quincy 146.67	Bryan Cerqua	W1BRI
* Weston 146.79	Rob Evans	N1BE
* Weston 224.70	Eddie Mulhern	N1NOM
* Weston 442.70	Dave Hornbaker	N1DCH

Additional, non-Voting

* Newsletter Editor	Larry Banks	W1DYJ
* Emerg. Coord.	Kevin Paetzold	K1KWP
* Pub. Serv. Coord.	Bruce Pigott	KC1US
* VEC Liaison	Ron Rothman	WO1E
* Net Manager	Larry Banks	W1DYJ
* Web Page Editor	Bob DeMattia	K1IW
* Social Media Coordinator	Steve Umans	K8ZBE

* Appointed

Contacting the MMRA

Members: mmra@groups.io
Note: This may take some time.
You must be approved by the moderator.
Officers: contact@mmra.org
Control Ops: control-ops@mmra.org

http://www.mmra.org/

@mmraham

https://www.facebook.com/mmraham

MMRA VE SESSIONS

Check out https://www.mmra.org/exam.html or email *ve@mmra.org*

Ask your friends to become a member **Just let them know that it is not fully automated. Although they can log into the MMRA website immediately, they need to be manually processed. This could take up to week.**

If you haven't updated your MMRA profile in a while, now is the time!
Go to < MMRA.ORG > and log in to do so.

Previous issues of the MMRA Newsletter are available at: www.mmra.org > Newsletter Archive (on the left)

Heavy Hitters Traffic Net

This net is active on our repeaters Sunday through Friday evenings from 10—11 PM.

In both cases, the repeaters that are active are:

2m: Mendon (61), Boston (82), North Reading (715), Quincy (67) and Marlborough (27)
220: Quincy (224.40), Marlborough (223.94)
440: Marlborough (449.925), North Reading (446.775), Hopkinton (449.575)

Get connected on the MMRA Repeater System ~ Dave Hornbaker N1DCH

What is the best way to get connected on the MMRA repeater system? Try announcing yourself! Just say your call sign followed by "listening". If you want, you can include the last 3 digits of the repeater frequency. For example, "N1DCH listening" or maybe "N1DCH listening on 925", you may very well get a response. Try to connect by announcing yourself several times.

Most of the time, Marlborough Hub1 (449.495) is linked to the following repeaters, Boston (146.820), North Reading (446.775), Mendon (146.610), Lowell (442.250), and Hopkinton (449.575). Remember that when the repeaters are linked, you need to wait two or three seconds after you key up and before you speak. This is especially important on the TIaOS net on Tuesday when most of the repeaters are linked.

You can also link (and delink) the repeaters yourself. See the information you received when you became a member, or check the User Control Codes once you log into the MMRA web.

Try one of the non-linked repeaters too. There are Hams monitoring them as well. For more information on the repeater network and how it is linked at various times, check out https://mmra.org/repeaters/repeater_linking.html.