



The Minuteman Repeater Association



# The Minuteman

Volume 30, Issue 3

January 2001

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## Ring in the new by Clark Conti, N1NVK

The new year has arrived, and many among us has resolved a resolution or two. I always make mine after careful reflection on the year past, and how I envision the future. As president of the MMRA I have also tried to reflect and look ahead on behalf of the club.

Our mission as I see it is the care and feeding of the repeaters for the betterment of the amateur community we serve. Is it enough to simply maintain the machines, or do we have a greater obligation to our members? Funding has been getting harder, and as has been pointed out to me, the autopatch that once attracted large membership is no longer needed by most.

The board and I have been looking for new ideas and welcome input from as many sources as we can find. There have been suggestions that we tie the system in closer with wonderful things like weather systems,

ARES, satellite repeaters, and other things, but the projects need more energy.

In order to grow, the club needs people to help some of these ideas along. In reality volunteers to do the legwork and research to make the functions FUNCTION. We also need help with the regular stuff, like answering the mail, and figuring out how to raise money, without draining the membership.

The old saying was that if you had a suggestion, you were stuck with making it happen, so you had best keep your mouth shut. While it is still true to an extent, we are looking to as many to help as possible so that the best suggestions don't go unstated and whither.

If you have an idea, speak up, and if somebody knows something about it, offer to pitch in. Many hands make light work, as they say, so please don't be shy.

## Crossroads by Kevin Paetzold, K1KWP

The MMRA is at a crossroads. Where do we want to go in the future? Decisions, Decisions, Decisions...

The upcoming year promises to bring changes to the MMRA and some of those changes we can already foresee. Our president, secretary, and treasurer have announced intentions to not run for re-election. Before I go any further I want to publicly thank Clark Conti (N1NVK), Bill Thorpe (W1NLR), and Ian MacLennan (AF1R) on behalf of the entire MMRA for all their hard work and dedication to the MMRA over the past years.

I have only been a member of the MMRA for about three years. However as long as I have been involved in the MMRA these individuals have been

holding these offices and doing much of the behind the scenes work to keep the MMRA functioning. I am very happy to report that Clark and Bill have agreed to continue to serve on the MMRA board in future.

The board acted at its December meeting to not wait until the general election to fill the treasurer office and appointed Bill Northup (N1QPR) treasurer. The MMRA has budget issues which we can not ignore (please see the treasurer report elsewhere in this issue).

Some kind of budget cutting and streamlining is probably inevitable looking at the current trends. Although we do not have a major crisis at this instant there are clearly alarm bells going off which if ignored will lead to a

major financial crisis. There are decisions which may need to be made in the upcoming year that all members should be interested in and which all members should participate in.

A recent example of this kind of decision was the elimination of the autopatch lines on the 2M repeaters. (Autopatch is still available via linking to the 449.925 repeater). This was an action which the board resisted for a long time (years). However given the cost of the lines and the actual usage of the lines it was a required decision. I understand that many members (including the officers and board members) were not happy about this decision.

(Continued on page 3)

# About the Minuteman Repeater Association

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

The MMRA meets on the 3rd Wednesday of September, November, January, March, and May. Meetings start at 7:30 PM in the Campion Center in Weston MA. Meetings are open to all interested parties. Talk-in is available on the Weston 2-meter repeater (146.82).

The Minuteman newsletter is mailed one week before each meeting. Members are encouraged to submit articles. Articles may be sent to the editor via email to [n1be@arrl.net](mailto:n1be@arrl.net). The deadline for articles is the last Friday of the month preceding the meeting.

Each Tuesday evening at 8PM the MMRA links all the repeaters for an open net. The topic is "Technical Information and Other Stuff". Feel free to join us.

Membership in the MMRA is open to all radio amateurs. Annual dues are \$25 per individual or \$35 per family. The membership year starts on Sept 1st and dues are prorated for a partial year. See our website for details.

Email to the club leadership should be sent to [mmra@mmra.org](mailto:mmra@mmra.org). The MMRA web site is: <http://www.mmra.org/~mmra>

An email distribution list for club members has been established on [www.egroups.com](http://www.egroups.com). The name of the group is "MMRA".

## Repeater and Frequency Information

Location	MHz	PL	Call	Note
Marlboro	53.810	71.9/173.8	W1BRI	PTL
Marlboro	146.610	146.2	N1BHI	FTL
Quincy	146.670	146.2	W1BRI	PTL
Stoneham	146.715	146.2	N1NVL	PTL
Weston	146.820	146.2	KA1AL	PTL
Hopkinton	223.940	103.5	N1BHI	FTL
Quincy	224.400	103.5	N1KUG	FTL
Weston	224.700	none	N1HBR	FTL
Stoneham	446.725	88.5	N1NVK	NA
Marlboro	449.575	88.5	N1NVL	NA
Marlboro	449.925	88.5	N1HBR	Network Hub

Marlboro	144.390	none	N1QPR-2	APRS Digipeater
Marlboro	145.030	none	KA1OUI-3	Net/ROM Digipeater
?	145.630	146.2	W1BRI	Fox Box

**Notes:** FTL = Full Time Linked to the Hub.  
PTL = Part Time Linked (on demand).  
NA = linking is Not Available.

**PL:** There are two 6 meter receivers with different PL's. PL is required on 2 meters to prevent interference. The code **750** will temporarily disable the PL requirement.

**Using the Autopatch:** Only the hub has a telephone line.  
(1) Link to the hub if necessary.  
(2) Then bring up the patch.

**Control codes are sent to members upon receipt of dues.**

## MMRA Leaders

President	Clark Conti	N1NVK
Vice President	Kevin Paetzold	K1KWP
Secretary	Bill Thorpe	WA1NLR
Treasurer	Bill Northup	N1QPR
Clerk	Eddie Mulhern	N1NOM
Director	Al Kunian	KA1AL
Director	Brian Cerqua	W1BRI

Director	Wayne Foley	N1XXI
Director	Shelley Northup	N1VJE
Emergency Coordinator	Kevin Paetzold	K1KWP
Technical Director	Brian Cerqua	W1BRI
Newsletter Editor	Bob Evans	N1BE
VEC Liaison	Bill Wade	K1IJ
Webmaster	Andy Morrison	N1BHI

## Treasurer's Report (Jan 1, 2001) by Bill Northup, N1QPR

I wanted to share some of the details of the club's financial status. The fiscal year 2000/2001 starts in October so the data in the report is for the first quarter of the year. The tables below have the budgeted expenses that we expect for the year, what we have actually spent to date, and what our income has been to date. This year the budget only covers the essential expenses to keep the club going.

The largest expenses that we have are the newsletter, room rental for our meeting, phone and power at Slygo, maintenance on the repeaters, and insurance. We have been lucky this year and have only spent \$200 on repeater repairs for 146.67 and 146.82. We also have turned off most of the phone lines in an attempt to keep our expenses down. Even with all the budget trimming that the MMRA has done we still don't have enough income to cover expenses this year because our membership has dropped so much in the last few years. Under income below you will see that our income is almost \$1200 less than what we

need to keep the club running for the year. I have figured that we need another 50 memberships this year to meet the minimum expenses.

So the MMRA needs your help, and it needs it now. If you have friends who use the MMRA repeaters ask them to join the MMRA if they are not already members. Also talk about the MMRA financial issues on the repeaters so every one that is not a member will understand how important it is for them to join. If you hear people on the repeaters that you know are not members ask them to join.

We have a great repeater system, let's not lose it because of a lack of support.

Income:	Budget	Actual	Difference
Dues	4250.00	3054.00	(1,196.00)
Misc.	0.00	0.00	0.00
<b>Total</b>	<b>4250.00</b>	<b>3054.00</b>	<b>(1,196.00)</b>

Administration:	Budget	Actual	Balance
Newsletter	1125.00	691.61	433.39
Meetings	750.00	0.00	750.00
Pres. Acct.	0.00	0.00	0.00
Sec. Acct.	0.00	0.00	0.00
Treas. Acct.	10.00	9.10	0.90
Cookout	0.00	0.00	0.00
Insurance	915.00	0.00	915.00
P.O. Box Fee	0.00	0.00	0.00
Voicemail/Pager	0.00	0.00	0.00
Misc	0.00	0.00	0.00
<b>Total</b>	<b>2800.00</b>	<b>700.71</b>	<b>2,099.29</b>

Expenses:	Budget	Actual	Difference
Administration	2800.00	700.71	2,099.29
W1BRI 53.810	0.00	0.00	0.00
N1BHI 146.61	100.00	55.00	45.00
W1BRI 146.67	200.00	155.00	45.00
N1NVL 146.715	100.00	55.00	45.00
KA1AL 146.82	200.00	155.00	45.00
N1BHI 223.94	0.00	0.00	0.00
N1KUG 224.40	0.00	0.00	0.00
N1HBR 224.70	0.00	0.00	0.00
N1NVK 446.725	0.00	0.00	0.00
N1NVL 449.575	0.00	0.00	0.00
N1HBR 449.925	750.00	355.00	395.00
KA1OUI 145.03	0.00	0.00	0.00
N1QPR-2 144.39	0.00	0.00	0.00
R&D/Contingency	0.00	200.00	(200.00)
Test Equipment	0.00	0.00	0.00
Field Day	0.00	0.00	0.00
<b>Total</b>	<b>4150.00</b>	<b>1675.71</b>	<b>2,474.29</b>

## Crossroads

(Continued from page 1)

Not all decisions and actions that were taken in 2000 involved finances. Some decisions are purely technical or policy in nature. Early in 2000 the PL requirement was enabled on the 2M repeaters.

Both the autopatch line and PL decisions should not have been a surprise to any members. These changes were discussed at general membership meetings and board meetings for as long as I have been in the MMRA. Nonetheless

these changes seemed to catch many members by surprise. In the upcoming year other decisions of this magnitude will probably need to be made. Will you be attending either the general meetings or the board meetings in order to be informed and to participate in these decisions? Will you be attending the general election meeting in May in order to vote on the new slate of officers? Have you considered stepping up your involvement in the MMRA in order to assist with and participate in determining the future

of the organization?

What kinds of future could the MMRA have (I am not endorsing any of these but I am attempting to relate the types of things that are being discussed):

- Continuing with the repeater system as is and curtailing or cutting back on other activities such as the general membership meetings and newsletters?
- Moving forward on making it possible to link other repeater systems to the MMRA system in support of activities

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## 2 Liter Repeater by Clark Conti, N1NVK

After last November's SET drill, where an imagined earthquake destroyed all antenna towers, I started thinking about repeater back-ups. The idea was to build something portable that could be easily deployed at an existing repeater site, or anywhere a tall structure still stands. It must have a built in battery able to sustain operation for as long as possible. It would be super if it had a battery charger built in, and very important, it must be able to withstand the elements. Here's what I came up with...

Radio Shack used to sell a simplex (or PARROT) repeater gadget which they called a 19-345. They discontinued the little bugger, so the price came down to \$29.97 - now almost worth the price. What it is, is a digital recorder chip with a PIC controller that hears the audio from a HT earphone jack and records it. When you finish talking, it keys up the radio and plays it back. It is a "repeater" in the truest sense. It doesn't require multiplexers, or anything large like that to allow the transmitter and receiver to share an antenna. It doesn't have a talking clock/ID timer or a phone patch, but it will act as a repeater in a pinch.

I connected the controller to my trusty Radio Shack HTX-202, and started looking for a waterproof container that would hold the pair. A Rubbermaid 2 liter pitcher jumped out of the pantry at me and pleaded for the job. There was even room for a fairly

large battery. I made this sort of foam insert thing to hold everything together (who knows, the foam may even help in an earthquake). The antenna is a simple 5/8 wave unit that I had in the house. I stuffed it all inside and sealed the antenna hole with RTV. The wiring harness allows the unit to run on the internal battery, or external power. A standard barrel connector for a lighter plug or 12V wall adapter was glued into the pop open pour spout.

For the next drill, whenever this may be, look for this to come on line sometime after the repeaters go out. For those who enjoy an occasional fox-hunt, don't be sur-

*The idea was to build something portable that could be easily deployed at an existing repeater site.*

prised if you someday hear a repeat of the fox's message-remember, the SECOND voice you hear is the phony.



NOTE - When I picked this controller up I was told that there were at least a dozen still in Worcester county, if anyone is interested, or you can go to any Radio Shack armed with the part number - (19-345) and they can tell you if there are any for sale in your area.





# Fox Hunting News by Michael Ford, WZ0C

The MMRA holds foxhunts every Saturday morning beginning at 10 AM on the 146.61- repeater. The fox transmits for 30 seconds every 5 minutes on the input of the repeater, and then coordination usually takes place on the repeater between the fox transmissions. All are welcome to join, and the group usually visits a local restaurant for brunch after the last hunter has arrived at the fox's location.

The following are accounts of the past few hunts.

**Dec 30:** Mike, WZ0C hid in the back of the Compaq parking lot in Bedford, near the Hartwell Rd. entrance to Hanscom AFB. Little did he know, Bob, N1BE was able to spy him from another parking lot behind him and was then first in after about 75 minutes.

Initial bearings: Birch Hill (by N1BE): 80 deg; W1JDO: 345 deg.

Fox Location: 42,27.762N 71,16.027W

**Dec 16:** Bob, N1BE hid atop Cat Rock Hill in Weston. He wasn't able to make the repeater from his mobile rig in the parking lot below so he hoofed to the top of a ski slope and used a water tower there to bounce his signal around. Given the low temperature of the day, the hunters teased about the idea of leaving Bob to hide while they found coffee. Mike, WZ0C was first in

by finding Bob's parked truck in about 65 minutes.

Initial bearings: K1KMN: 45 deg; WA1NLR: 90 deg; W1JDO: 345 deg

Fox Location: 42,23.4N 71,17.0W

**Dec 9:** Mike, WZ0C hid in Waltham in a parking lot behind some buildings just north of Rt. 117, west of Rt. 128, and southeast of Bear Hill. The morning started out cold with some snow on the ground, but the sun came out and melted most of the snow, hiding Mike's tracks into the parking lot. Bob, N1BE had a good bearing and found Mike in just over an hour.

Initial bearings: Birch Hill (by N1BE): 100; K1KMN: 65 deg; WA1NLR: 90 deg; W1JDO: 345 deg; N1QPR: 115 deg

Fox Location: 42,22.673N 71,16.020W

**Dec 2:** Eddie, N1NOM hid just off of Old Bay Rd. in Bolton, north of Wattaquodock Hill Rd. Mike, WZ0C knew he was close when he had full attenuation in so he used his new Fox-Finder (from KD1LE) to get a bearing and came in first at about 45 minutes.

Initial bearings: W1DYJ: 260 deg; W1JDO: 300 deg; WA1NLR: 25 deg

Fox Location: 42,25.900N 71,37.562W

**Nov 25:** Bill, N1QPR and Shelly, N1VJE hid off of Central St. in Acton.

Bill parked his truck behind a large pile of leaves at the very back of a cemetery. Given the proximity of the spot to their house, most of the hunters checked Bill and Shelly's house first. Eddie, N1NOM diligently followed his bearings and was first in after just over an hour.

Initial bearings: W1DYJ: 275 deg; W1JDO: 300 deg; N1BE: 60 deg

Fox Location: 42,27.907N 71,28.527W

**Nov 18:** Mike, WZ0C hid in Boylston at the end of Scar Hill Rd. near the Wachusett Reservoir. Between the rain that day making the trees wet and the large hills between Mike and the repeater all causing signal reflections, he was able to keep the hunters at bay for over two hours. Bill, N1QPR and Shelly, N1VJE found Mike first.

Initial bearings: W1JDO: 300 deg; W1DYJ: 257 deg; WA1NLR: 275 deg; N1ZCB: 250 deg; K1KMN: 300 deg

Fox Location: 42,21.454N 71,44.650W

**Editor's Note:** The MMRA also has an automatic "FoxBox" that is hidden most weekends. Recently N1NVK has been hiding the box in a different spot each week. Announcements of hiding the FoxBox are sent to the MMRA mailing list on Egroups.com.

## Crossroads

(Continued from page 3)

such as ARES? A goal might be one system that would enable all amateurs in Eastern Mass access via an HT.

- Designing and adding a first class satellite station to the MMRA system in order to provide very high quality access to AO-40 (a.k.a. Phase 3D). A goal might be to allow HT access to AO-40 to all users in range of the MMRA system.
- Pursuing government grants to make the system more resilient and more robust. This could include things like better lightning protection and

backup power at additional sites.

- Geographic expansion of the MMRA to South, North, and West.
- Selling off some of the MMRA assets (e.g. repeaters with low usage/ low membership) in order to decrease cost and generate cash.

I would rather not be quoting Bill Gates but in the words of Microsoft: "Where do you want to go today?" The upcoming year will be a year of change in the MMRA. Change may not always be fun or enjoyable while it is happening but it is my experience that change is almost always for the good. Will you be participating in the changes in the MMRA? Will you be

voicing your ideas and thoughts to the leadership? Will you be willing to assist in keeping the MMRA and its repeater system functioning and healthy?

I would be very happy to discuss any of the above with any members at any time. I am available via the MMRA@MMRA.ORG mail list. Also K1KWP@ARRL.NET. I monitor the 146.610, 449.925, and 53.81 repeaters during commute times during weekdays. I am almost always present for the Tuesday 8PM nets (do you ever check in?).

Are you willing to be part of the leadership? Will you help recruit more members? The MMRA needs you!

**Minuteman Repeater Association, Inc.**  
**P.O. Box 1127**  
**Berlin MA 01503**

**A Non-Profit Communications Organization Serving the Public in Time of Emergency.**

**—Application for Membership—**

☐ New or ☐ Renewal

☐ Individual Membership (Dues: \$25 per year) or ☐ Family Membership (Dues: \$35 per year)  
 or ☐ Novice Membership (1st year Dues: \$10)

I hereby apply for membership in the MINUTEMAN REPEATER ASSOCIATION, INC. I agree to abide by the rules and regulations of the Association as stated in the bylaws., and understand that acceptance of this application entitles me to all rights and privileges of membership as provided under the bylaws.

Name: \_\_\_\_\_ Callsign: \_\_\_\_\_ Class of License: \_\_\_\_\_

Address: \_\_\_\_\_

Town, State, Zip: \_\_\_\_\_

Email Address: \_\_\_\_\_

Member of the ARRL? \_\_\_\_\_ Other Clubs? \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Bands and Modes you operate. Please check all that apply:**

	Fixed	Mobile	Portable	FM	DTMF	CW	RTTY	PSK31	APRS	Packet	SSB
HF											
VHF											
UHF											
Satellite											

**I can and am willing to assist/serve the Association and/or help maintain the Repeaters in the following ways:**

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Antennas                 | <input type="checkbox"/> Meeting Setup                | <input type="checkbox"/> Speaking at a meeting |
| <input type="checkbox"/> Association Officer      | <input type="checkbox"/> Net Control                  | <input type="checkbox"/> Special Projects      |
| <input type="checkbox"/> Board of Directors       | <input type="checkbox"/> Newsletter                   | <input type="checkbox"/> Technical Library     |
| <input type="checkbox"/> Education                | <input type="checkbox"/> Public Service               | <input type="checkbox"/> Web Site              |
| <input type="checkbox"/> Emergency Communications | <input type="checkbox"/> Publicity                    | <b>Other—Please specify:</b>                   |
| <input type="checkbox"/> Equipment Construction   | <input type="checkbox"/> Radio Shelters               | _____  |
| <input type="checkbox"/> Equipment Transportation | <input type="checkbox"/> Refreshments                 | _____  |
| <input type="checkbox"/> Grant Writing            | <input type="checkbox"/> Repeater Control Operator    | _____  |
| <input type="checkbox"/> Legal Aid                | <input type="checkbox"/> Repeater Technical Committee | _____  |
| <input type="checkbox"/> Medical Aid              | <input type="checkbox"/> Social Events                | _____  |

**Other family members:**

Name: \_\_\_\_\_ Callsign: \_\_\_\_\_ Class of License: \_\_\_\_\_

Name: \_\_\_\_\_ Callsign: \_\_\_\_\_ Class of License: \_\_\_\_\_

Name: \_\_\_\_\_ Callsign: \_\_\_\_\_ Class of License: \_\_\_\_\_

Name: \_\_\_\_\_ Callsign: \_\_\_\_\_ Class of License: \_\_\_\_\_

## New England Public Service List by Ralph Swick, KD1SM

Listing public events at which Amateur Radio communications is providing a public service and for which additional volunteers from the Amateur Community are needed and welcome. Please contact the person listed to identify how you may serve and what equipment you may need to bring. **Every event listed is looking for communications volunteers.**

Date	Location	Event	Contact	Tel/Email
Apr 16	Hopkinton MA to Boston	Boston Marathon (course)	Bob WA1IDA	508-650-9440 wa1ida@arrrl.net

This list is published periodically as demand warrants by Stan KD1LE and Ralph KD1SM. Our usual distribution is via packet to NEBBS, via Internet mail to the arrrl-nediv-list and ema-arrrl distribution lists, and on the World Wide Web (see URL below). If other mailing list owners wish us to distribute via their lists we will be happy to oblige. Permission is herewith granted to republish this list in its entirety provided credit is given to the authors and the URL below is included. Send comments, corrections, and updates to: (via packet) KD1SM@K1UGM.#EMA.MA.USA, (via Internet) KD1SM@ARRL.NET.

We make an attempt to confirm entries with the coordinator unless the information is from another published source. We very much appreciate the assistance we have been receiving from our 'scouts'; everyone is welcome to send us postings.

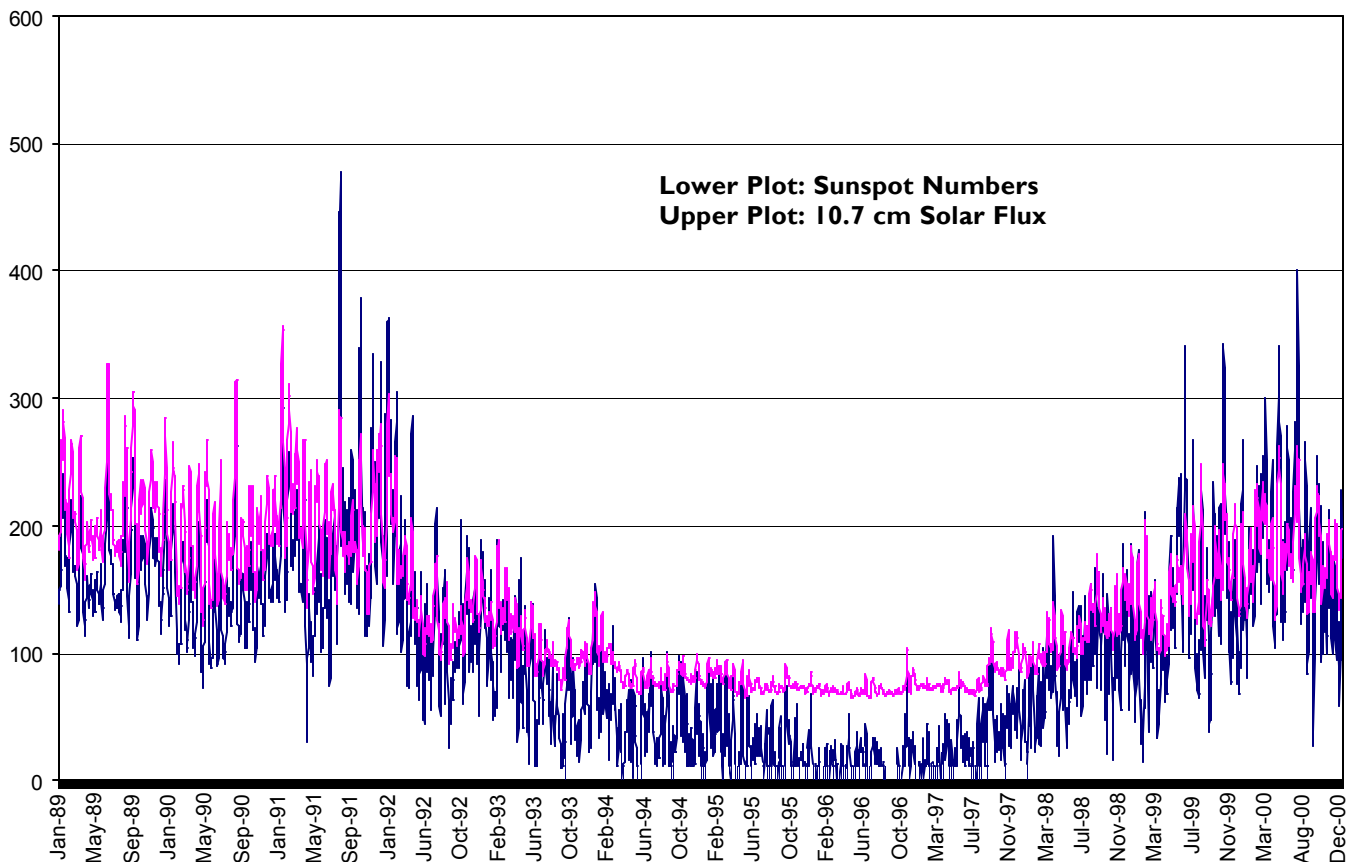
World Wide Web users: the most recent copy of this list is maintained as <http://purl.org/hamradio/publicservice/nediv>.

## Sunspots

This sunspot and solar flux data was supplied by Frank Morrison, KB1FZ.

Bill Northup, N1QPR, used Excel to massage the raw data for 12 years into these graphs.

Has the solar cycle peaked yet?



THE MINUTEMAN REPEATER ASSOCIATION

**MMRA**  
**P.O. Box 1127**  
**Berlin MA 01503**

Email: [mmra@mmra.org](mailto:mmra@mmra.org)



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WE'RE ON THE WEB!  
[WWW.MMRA.ORG/~MMRA](http://WWW.MMRA.ORG/~MMRA)

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## Next Meeting— Wednesday January 17, 2001

### KZ1G: The Development of the Personal Computer

At the January 17th MMRA meeting, Jon Titus, KZ1G, will present a talk, "The Development of the Personal Computer." Jon will describe developments in the computer hobby in the early 70s and put them in personal and historical perspective. His talk will cover some of the early microprocessors, too. He'll look at the architecture

of one of the computers he built in 1974, the Mark-8, based on Intel's first 8-bit microprocessor. In addition to talking about some of the early hobby computers, Jon will bring some of computers and artifacts from his collection of early hardware.

Jon is credited by Robert N. Noyce, vice chairman of Intel (now deceased)

as the designer of the first personal computer, the Mark-8. Radio-Electronics magazine featured the Mark-8 in a cover story Jon wrote for the magazine's July 1974 issue. The original Mark-8 has a permanent home in the Smithsonian's National Museum of American History "Information Age" exhibit.

## Repeater Report by Bryan Cerqua, W1BRI

There are only two items of note.

- The phone lines to 146.61 and 146.715 have been terminated.
- I added a 10 second backward correction to the 7K controller used for 146.715 to compensate for its fast clock. So far it seems to work. I'm thinking of adding this to any other 7k that has a fast clock.



### MMRA VE Sessions

3rd Saturday of each Month  
9 AM at the Marlboro Public Library  
**Contact: Bill Wade, K1IJ**  
781-891-9079 Evenings 6 to 10 PM,  
Weekends 8 AM to 10 PM.  
**Accredited by the ARRL VEC**