



# RADIO AMATEUR NEWS & VIEWS

The Official Journal of the Radio Amateurs of Northern Vermont

May • 2014

An ARRL Special Service Club

Vol. 24 • No. 5

## NEXT MEETING: MAY 13

### Small Beams – Theory and Practice

Cathy James N5WVR will give an overview of some simple-to-build small beams and the tradeoffs of each. The talk will be a mixture of theory and her experiences building, tuning, and using Moxon beams for 20 meters and 6 meters.

## VERMONT CITY MARATHON

Mitch W1SJ

The Vermont City Marathon is Sunday, May 25<sup>th</sup>. The setup and organization is similar to last year. We currently have all but a few jobs filled. I am looking to bring some new ham operators into the group and would like to hear from you if you haven't done this operation before. New ham operators typically set up at aid stations along the course and are the communications between aid station volunteers and the operations center. The Vermont City Marathon is the largest ham radio public service event in Vermont. If you have any interest in emergency communications, you want to be in Burlington on race day, May 25<sup>th</sup>!

So if you are inclined to help 8000+ people run through the streets of Burlington for no apparent reason except to get a medal and bragging rights (just like a ham radio contest), we need your help. And we have free T-shirts for the ham volunteers! But kidding aside, we need 40 radio communicators for this operation, and recruiting has been tough the

last several years. We extensively train new operators, so don't let inexperience get in the way.

The Marathon will be held Sunday, May 25<sup>th</sup>. Most of the jobs start at 7AM. The earliest jobs end at 10:30, while others run until 2:00.

Go to:

<http://www.hamclass.net/vcmnr.htm> and fill out the form. Please don't send emails or phone messages - these get lost!

Please hurry, because we need to finalize the communications team right away!



W1AW/1 at the W1SJ Station: KB1IVE on 17M RTTY and W1SJ on 15M SSB

## THE FIRST VERMONT W1AW/1 OPERATION

Mitch W1SJ

W1AW/1 Vermont – March 26 – April 1 UTC. What's the big deal of this operation? It WAS a big deal – it was the largest operation that any of us has ever been in, or ever will be (unless any of us get invited to a rare DXpedition).

The raw results: The 16 stations comprising W1AW/1 Vermont logged 36,084 QSO's. That's some 300 QSO's per hour for the week (we didn't operate in the wee hours overnight). Two weeks ago, W1AW/1 operated from superstation K1TTT in Massachusetts with some of the best operators in the Northeast and logged just over 37,000 QSO's. Our ragtag group managed to stay with some up the best in the business!

Early on, there was concern whether we could put up much of a showing at all. True, the operation was anchored by Brian K1LI and me and we are both veterans of pileups and DXpeditions. Other Vermont contesters were not available or had limited time to operate. We eventually fielded a very small crew of operators with a little contest experience, but not much in the way of full blown pileups. I was nervous that we could pull this off!

(Continue on Page 4)

## My First SOTA Activation

Scott W1ZU

What is a SOTA Activation, you ask? Summits on the Air (SOTA) is an award scheme for radio amateurs and shortwave listeners that encourages portable operation in mountainous areas. SOTA has been carefully designed to make participation possible for everyone - this is not just for mountaineers! There are awards for activators (those who ascend to the summits) and chasers (who either operate from home, a local hilltop or are even Activators on other summits). The SOTA program originated in Europe, (conceived by John Linford, G3WGV), and began around March of 2002. Details of the program are at the official SOTA website - [www.sota.org.uk](http://www.sota.org.uk) - and a list of summits that can be activated can be found at the SOTA Mapping Project site - <http://sotamaps.wsstvc.org> . The Green Mountains of Vermont have over 250 summits that are eligible for activation! Mount Philo (W1/GM-149) happens to be one of them.

The sun was finally starting to show itself in mid April and on a trip back to the Burlington area from Middlebury, I thought it would be a fine time to try out a SOTA activation. The rules state you must walk to the summit (not a problem, as Mt Philo State Park was closed and the road was gated) and you must carry all of your gear to the operating location. I took along my KX3, an End Fed antenna with a 9:1 matchbox, and a 30 foot portable mast. As a new CW operator having just graduated from Level 1 CW Academy ([www.cwops.org/cwacademy.html](http://www.cwops.org/cwacademy.html)) and wanting to work on my CW skills, I decided to leave the mic at home and only take the CW paddles. The walk to the top was pleasant and many people were out with dogs and small children in tow. If you have never been to Mt. Philo, it is an excellent location for portable radio operation, although the top can get a little busy in the summer. The summit is accessible by car and relatively flat with lots of views, picnic tables, and trees (for antenna support, of course!)

I set the KX3 to 5W and put up the End Fed antenna by attaching the mast to the fence at the edge of the summit and running up the wire. With the coax attached to the matchbox, I was able to set up on a picnic table with a view over the Champlain valley looking into NY and the Adirondacks. Having never done a SOTA activation before, I was not sure what to expect, but I knew it was possible to spot yourself when you are on a summit. There is an excellent spotting site on the web that is devoted to SOTA spots - [www.sotawatch.org](http://www.sotawatch.org) - and, there are several smartphone application that tap into this site. After I found a clear frequency on 20M, I used the SOTA Goat application for iOS to spot my location and frequency. Then I began calling CQ SOTA. BOOM! About 60 seconds into the CQ I had a mini-pile up. Not something a

W1AW/1 CW op would be impressed with, but I sure was! I worked 7 stations in fairly rapid succession before things were quiet. I QRYed to 17M and started the process again. Another mini-pileup and 7 stations later things were quiet. In order to work some closer stations, I moved to 40M and worked 4 stations there. After about an hour and a half on the radio, it was time to pack up and head down the mountain.

During my 18 QSOs, I worked as far as OR and AZ in the states, with many in between, and even had some DX QSOs, including Switzerland, Spain, England, and Quebec. One enjoyable thing about SOTA, is that the chasers do most of the heavy lifting with good antennas. While I had many good RST signal reports, I did receive a number of 339 reports.

All in all it was an outstanding experience. I would highly recommend it to anyone interested in a little outdoor activity and portable radio operations. There is a wealth of information available online and the SOTA community is very active. Larry Day (KB1ZEB) is actively working to create a Lake Champlain SOTA Challenge this summer and I would encourage any interested party to contact him or myself. Even if you are not interested in climbing to the top of summits, chasing activators can be a very rewarding experience.

### CONTACTS

Bob **KB1FRW**, President 434-2517  
mcamp@gmav.net

Jim **KE1AZ**, VP/Treasurer  
jhefferon@smcvt.edu

Kathi **K1WAL**, Sec'y 985-8535  
k1wal@arrl.net

#### EDITORS

Kathi K1WAL 985-8535  
k1wal@arrl.net

Adam KB1LHB  
vtlamore@gmail.com

*Newsletter submissions to k1wal@arrl.net or  
vtlamore@gmail.com*

---

US Mail: PO Box 9392  
South Burlington, VT 05407

Web: [www.RANV.org](http://www.RANV.org)

Reflector:  
[groups.yahoo.com/group/RANV](http://groups.yahoo.com/group/RANV)

Meetings: 2<sup>nd</sup> Tuesday • 7:00 PM  
113 Patchen Road, South Burlington  
The O'Brien Civic Center

Repeater: 145.150, PL 100; WB1QR

---

New Hams, Mentoring:  
[RANVMentor@gmail.com](mailto:RANVMentor@gmail.com)

## Secretary's Minutes

Kathi K1WAL

Our meeting began with Congratulations to Eric KB1VNA and David KC1APK for earning their Amateur Extra ticket!!

Carl AB1DD is scheduling operators for the Museum Ships weekend on the Steamship Ticonderoga at the Shelburne Museum on June 2 and 3. First dibs go to those who have operated in the past. Be sure to contact Carl as soon as possible if you are interested!

The Vermont City Marathon is coming up quickly! Mitch W1SJ is still looking for volunteers. The day before the VCM is the Essex Day Parade and radio volunteers are needed for that as well.

We talked about the recent W1AW/1 – more on that can be found in this issue of

### **NEWS&VIEWS**

Kathi K1WAL offered to bring snacks to the next meeting.

Presentation: Microcontrollers for Radio Amateurs by Rich W1ELL

Rich started his presentation by recognizing his grandfather, Edward L. Leyh, who was influential to Rich's interest in amateur radio and in all things technical. He showed a page from the 1914 Wireless Blue Book published by Hugo Gernsback that listed his grandfather's name with the callsign of 8BP. Rich has the last three letters in his callsign as the initials of this remarkable man.

Rich began the talk on microcontrollers by stating: Microcontrollers = CPU + Memory + Peripherals. He discussed programming and the differences between an Assembler, Compiler, and Interpreter as well as the virtues of higher level programming languages vs. assembly. Many tools are available for programming – Microchip has a free assembler, C compiler, and Integrated Development Environment (IDE) and Mikroelektronika has a compiler, IDE, and a simulator.

He described several different projects he has done using different chips. With the 8-pin PICAXE he built a Radiation Detector with a plum tomato as the ionization chamber and catfood can that was a shield for a J-fet impedance converter. He plans to use this to detect gamma rays from nearby lightning strikes.

Using a 16-pin PIC16F1509 he made a fireplace simulation. This is displayed on a monitor in a fireplace where the landlord does not allow 'real' fires.

Rich also made a soil temperature and moisture meter for his garden. It uses thermistors to measure temperature at different soil depths and calculates the moisture content by measuring the dielectric constant of soil at 20MHz. Dry soil has a dielectric constant of 4, while saturated has a dielectric constant of 80. A third-order polynomial expression is used to convert from the dielectric constant to soil moisture. Results are displayed on a 4 line LCD display.

Rich also explained the best uses for microcomputer modules such as Arduino and CHIPKIT and microcomputer modules which ran an operating system such as the Raspberry Pi, Beaglebone, and Cubie 2.

As Rich has shown there are many resources available at very affordable prices (the best being free) to design, build and experiment with just about anything one's imagination can dream up!



Scott W1ZU running PSK-31 on 20M during W1AW/1

## ESSEX MEMORIAL PARADE

Mitch W1SJ

The Essex Memorial Parade is Saturday, May 24th. This is on Memorial Day weekend, one day before the Marathon. We provide communications support for this event and require 10 operators. Volunteers get together at 7:30 with the jobs lasting until 10:30 until noon. If you have been there before, you know the drill. If you are new, this is fun event which doesn't require any serious preparation. To sign up, drop me an E-mail at w1sj@arrl.net.

## FIELD DAY IS COMING

Mitch W1SJ

Field Day will take place Friday-Sunday, June 28-29<sup>th</sup>. This is only 7 weeks away. Plan your work and family schedule now so that you can join us for this event. Don't screw up the date, like many did last year – it is June 28-29<sup>th</sup>!

Last year, we again missed taking the crown in the 2A category as our arch-rivals from Arkansas ran up a record score. Anyone who contests knows that it isn't a level playing field and the field was definitely tilted toward Arkansas in a major way. But, we don't cry and go home – we strive to get better! We will continue to perfect the multi-op - single transmitter methods we tried out last year. We had some bouts of slopping scheduling which will be fixed for this year. And, we still need to erect towers, put up tents and make the site go and then put it all away when it's over. The infrastructure will be pretty much the same.

In the next few weeks, you be asked to fill out the Field Day survey so we can determine who will be around at what times. Please set up your schedule and let us know quickly so plans can move forward.

## THE FIRST VERMONT W1AW/1 OPERATION

(continued from Page 1)

Unlike other W1AW/p operations up this point, I set the operation up as a customer service organization. It was clear that our sole mission was to hand out W1AW/1 contacts. We weren't going for score; we weren't collecting QSL cards; we were just handing out QSO's and making the masses happy. So, along those lines, I set up a public website and had it linked to the ARRL Web. The site had our schedule, suggestions for working us, pictures of the operators and finally a way to contact me – the coordinator. I was told that I was crazy to do this – it would increase the pileups and generate a ton of E-mail. I don't know if the pileups were larger (I enjoy that anyway), but a good deal of E-mail was received and answered and I made people happy. Mission accomplished. Yes, this took an hour or so of my time each day, but I felt it was an important aspect of the job. It really did make me feel good that folks who were crying for contacts on particular modes and bands did indeed eventually find their way into the log after I told them how to check the schedule.

So how bad were the pileups? In my world, there are only good pileups! I get a real thrill when hundreds of people are lining up to work ME. And, I will do my damndest to get them all in the log as fast as possible. But, it was totally insane the first night. The pileup sounded like a chainsaw on full throttle. After 10 seconds after each call, I was finally able to pick up a piece of a call sign and get everyone to stop calling and go back to them. I didn't work split frequency that first night since I didn't need to – I was strong enough so everyone heard me despite the pileup. And I thoroughly enjoyed it! At times, I would just listen to pileup and admire it. I have a video of this craziness which I'll post one of these days.

But then, there was the next day, and the day after that, etc. The key to a long operation is to settle into a routine for the long run and not dwell on how you will be able to withstand it for so long. By the second day, I found that working split did speed things up, so I tried that for a couple of days on certain bands.

Thursday early evening I was on 15 meters and heard a few stations from

Japan breaking the pileup of U.S. and European stations. They are super operators there – they were breaking the pileup with S2 signals by calling at the right moment. Since I don't work many stations in Japan, I told everyone to stand by and asked for Asia & Pacific only. I wasn't prepared for what happened next – a full blown pileup of JA stations! I've heard about these pileups from West Coast operators who deal with this all the time. From the Northeast with a small antenna we can only hope to work a handful. And here it was – a JA pileup (with a few from Korean and Mongolia tossed in). I remembered how the West Coast ops work the JA runs and switched to Japanese for the occasion:  
“JA7AA 59 dozo (*if you please*)...  
Arigatou (*thank you*)... W1AW/1”

After about an hour and 250 QSO's of this craziness, a W5 jumps in and asks me if I will ever work stateside! And then I realized that I had the entire rest of the world on standby and they did politely standby. I was really impressed. I assured the stateside station that I would return to working everyone and if he hung around, I would definitely work him.

Over the week of operating, I never heard an out of control pileup, never was told to get off the frequency, never got jammed and never heard a discouraging word. Trust me – I deal with these things all the time during contests and to have a clean bill for an entire week certainly raised my impressions of hams worldwide.

When I chose our week to be W1AW, I had no idea that I picked a weekend with a major contest – the CQ Worldwide WPX (prefix) Contest. So, starting Friday night, some of us had dual roles – give out the W1AW contacts and also give out WPX contacts which involve sending a serial number. The CW guys had it easy as this was only a phone contest. And many of our operators ducked out to the WARC bands of 12 and 17 meters where there is no contesting. But I, along with a few others, toughed it out on very crowded bands. And everyone was still very happy to work us – I know because I put close to 3000 QSO's in the log over a 48 hour period!

We finally got to Tuesday, the last day in a long week of operating. I knew that we were deficient in the number of RTTY contacts we had made, a point which the

RTTY guys drove home via E-mail and on the Cluster. When I saw a DX Cluster spot which said, “Is RTTY legal in VT?” I knew something had to be done. I got Bob KB1WXM to come back over and operate the second station at my QTH on RTTY. Bob had only learned how to do RTTY just before the operation. Then Steve KB1IVE came over and Bob taught him how to do it. We managed to keep the second station going on RTTY most of the afternoon, and put a bunch of people in the log who really needed that mode.

For giggles, I tallied up the number of QSO's and hours I ran up and totaled up something like 10,000 QSO's in 92 hours. With 24 hours I took off for work and family and 10 hours of dealing with administrivia, that didn't leave time for much else!

We had a team of 19 operators located at 16 sites throughout Vermont. Brian K1LI was my counterpart on CW and he ran up nearly the same number of operating hours. Joe K1VMT was on both modes and also ran up some fearsome numbers. Other RANV members included Paul AA1SU, Zach K1ZK, Bob KB1FRW, Ron KK1L and Bob W4YFJ in addition to W1SJ operators Mitch W1SJ, Steve KB1IVE, Bob KB1WXM, and Scott W1ZU. Outside the club, AA1PR, K1KU, K2LE, KB5VP, N1BCL, N1GB, W1FP and W1ICW all chipped in to the effort. Thank you all for a super job and we look forward for some of this same group to be back for the second Vermont operation in August.

### Operator Comments: W1AW/1 – PURE GENIUS Bob W4YFJ

First of all, it was pure genius to come up with an event for all hams to participate in to get on the air. It was certainly a big bang to have a pileup and work 3-4 stations per minute for a spell. That was the first time that I was on the business end of pile ups since when I lived in Virginia and I used to go to Delaware and operate on the weekends. The event was well organized and the scheduling system was outstanding and easy to use and I hope that it can be used again in August. I need to learn how to spot myself for any future events.

It is too bad that we could not clone W1SJ - we would easily have 40,000 contacts.

## More W1AW/1 Operator Comments

### TAKE A TRIP AND NEVER LEAVE THE FARM: A DXPEDITION FROM YOUR OWN SHACK

Brian K1LI

Ever imagined yourself scaling a wall of signals from some exotic QTH, but thoughts of braving weather, bugs, travel sickness and expense hold you back? Now you can turn your imagination into reality! The title of this write-up, lyrics from a 1970s pop song, pretty well sums up my experience as a Vermont W1AW/1 CW operator in the ARRL Centennial QSO Party.

From a small, rural state with few dyed-in-the-wool CW operators, Vermont's gritty topography resembles nothing so much as a lousy pair of corduroy pants that make radiation beyond our borders a serious challenge. Combining those factors with a singular call sign attracting worldwide attention generated activity that prompted this post to the DX Summit web cluster:

N6KZ 7034.5 W1AW/1 ARRL Cent-VT like FT5 pileup! 0415 28 March Too right, Jim!

Now, this wasn't my first rodeo. I'm accustomed to making up to 2000 CW contacts or 5000 phone contacts during a two-day DX contest. But here we're talking more than 3000 CW contacts in a little over 22 hours of operating over the first three days of the event. That's a running rate of almost 140 CW contacts per hour - a complete QSO every 26 seconds - on average. The peak QSO count for a single hour was 158!

To those who ask whether pileup courtesy is dead, I could cite examples of numerous hams standing by to give a particular DX region an opportunity to work us in a small propagation window, and my QRT signoff was always met with anonymous "73s", "dit-dits" and "TUs". I encountered very few examples of "constant caller syndrome" and I want to thank all who called for helping me to work my way through the pileups in good order.

So let me sound the call to action: when W1AW/p comes to your state, embrace the opportunity to walk a mile in the

shoes of a DXpedition! Not only will you be a better operator afterwards, but you'll have a better appreciation for the challenges DX operators face and the satisfaction they enjoy.

---

### W1AW/1: ONE OF THE BIG THRILLS

Bob W1FP

Recently I got one of the big thrills of my radio life, operating as station W1AW at my own home.

As a 12-year old back in 1960 I would listen to strong Morse code signals sent by W1AW in Newington, Connecticut at the headquarters of the American Radio Relay League (ARRL). This station was known worldwide and used the call of Hiram Percy Maxim, the ARRL founder.

But who would ever dream that one day, I would be sending that call from my own home? Well, last month that happened!

As one of a small group of operators representing Vermont in the 100<sup>th</sup> year anniversary of the ARRL, the W1AW radio station was at my home (and at about a dozen others in the state) inviting stations from across the world to call us and make a contact to celebrate that anniversary.

The response from the world was almost overwhelming, with perhaps 50, 100, or even more stations calling all at once. The cacophony of signals sounded like a wall of signals bombarding my receiver and brain all at once.

What a blast!! For me it indicated the tremendous energy in the worldwide ham radio community anxious to make a contact with W1AW in Vermont.

After the week, the role of W1AW moved from our Vermont group, headed up by Mitch Stern, W1SJ, to other states.

But the thrill of having a "wall" of signals calling my tiny station in Vermont will not be forgotten.

---

### W1AW/1 – WOW! THAT WAS FUN

Zack K1ZK

Wow that was fun! Remember how nervous you were when you made your very first QSO, just after receiving your ham ticket? Remember how much fun it turned out to be? Well, at least for me, going on the air as W1AW/1 was almost like that. I was nervous because I had heard the crazy pileups for the other

W1AW/p stations, and I wasn't sure I would be able to hack it. But it turned out to be so much fun, I soon forgot all that and was having a blast cranking out the QSO's on 17m and 30m.

I missed the opening night of the W1AW/1 operations because I was in orchestra rehearsal until late, and I had work the next day. That was probably for the best, anyway: I figured I'd let the most experienced ops handle the absolute insanity of the first few hours on the air.

Well, when my turn came to go QRV on 17m SSB on Wednesday night, it didn't take long for the pileup to become fierce.

I had to start operating split within the first few minutes of calling CQ. (It took me a little extra time to actually start working split--because this time I was the "DX," and the split was backwards; I had to transmit DOWN and listen UP.)

I was especially nervous about my debut on CW. I signed up for a two-hour block of 30m CW on Thursday night, and I was wringing my hands all day Thursday wondering what I had gotten myself into.

I had been in plenty of CW pileups before, but never as the "DX." I had no idea what to expect. I preprogrammed my radio with two exchanges: "599 VT" and "TU W1AW/1 UP." I plugged in my 30m 1/4 wave vertical radiator, ratcheted my CW keyer speed up to 30 wpm, and at 8pm local time started calling CQ. The pileup materialized almost instantly. I started calling split, and was off to the races. The frequencies above my TX frequency turned into an absolute WALL of noise. I've never heard anything like it.

But I notched down my filters, turned off the AGC, and slowly spun the VFO knob as I worked to pick out call signs (or even partial call signs). I got faster and being able to do that, and after a while fell into a pretty good rhythm.

Over the weekend, I had a great time with Joe K1VMT, as we both presided over the 17m band, alternating between SSB and CW. On Monday night I was back on 30m CW and the pileup was still huge. All told, my log indicates that, over the course of about 20 hours on the air for the week, I worked just shy of 2,000 QSO's. I had a fantastic time, and it was a pleasure to hand out centennial Vermont QSO's, and honor to operate using the most famous call sign in amateur radio.

Happy 100th birthday, ARRL!



## NEWS & VIEWS

### INSIDE

- Next Meeting
- 1<sup>st</sup> VT W1AW/1 Operation
- Comments from W1AW/1 Ops
- My 1<sup>st</sup> SOTA Activation
- Vermont City Marathon
- Essex Memorial Day Parade
- Field Day
- Sec Minutes

### Upcoming, Notices, & Misc

- Vermont City Marathon
- Essex Day Parade
- Museum Ships Weekend on the Ticonderoga
- Steering Wheel: 3<sup>rd</sup> Tues 6:30; Ninety-Nine Restaurant, Taft Corners, Williston
- VE Exams every 2<sup>nd</sup> Friday; Red Cross Building 29 Mansfield Ave, Burlington
- Dues due? Pay online at [www.ranv.org/ranvpay.html](http://www.ranv.org/ranvpay.html)

### NEXT MEETING

TUESDAY • May 13 • 7:00 PM  
O'Brien Civic Center • Patchen Rd  
South Burlington, VT

**Small Beams – Theory and Practice**