



RADIO AMATEUR NEWS & VIEWS

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An ARRL Special Service Club

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NEXT MEETING:

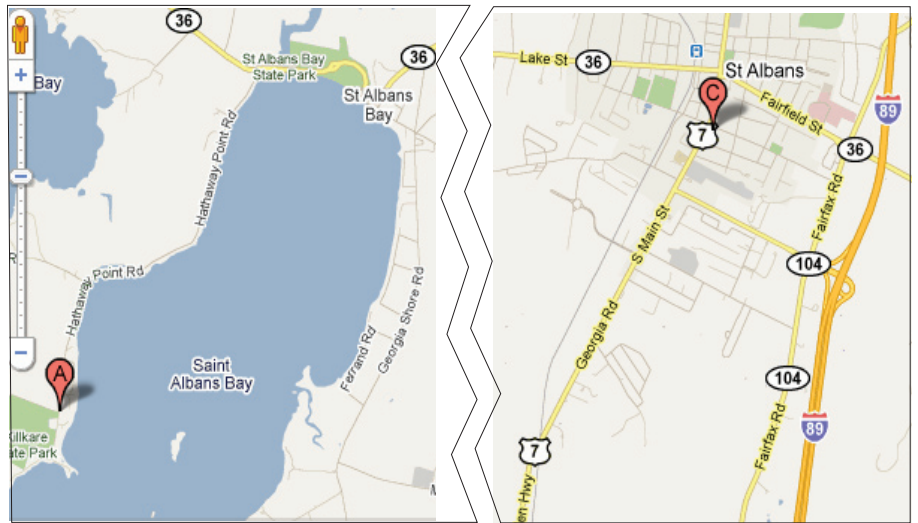
AUGUST 15, 2010—SUMMER PICNIC

EVERYONE PACK UP YOUR COOLERS AND PICNIC GEAR and head over to Kill Kare State Park on Sunday, August 15th for the RANV Summer Picnic. Activities will get underway at 11 AM and will run through the afternoon.

RANV will supply park admission, soft drinks, and charcoal. You bring the rest—family, friends, food, appropriate sporting goods and clothing, and any radio stuff you would like to play with. Leave pets at home since the park doesn't allow them, and it is too hot to leave a pet in the car. Please let Bob *KB1FRW* know how many are in your group so that we can make plans. Most of the activity will center around cooking, eating, and socializing.

Directions:

- I-89 North to **Exit 19**, St. Albans.
- Go past the light, down the access highway 1 mile to **Route 7**.
- **Turn right**, head 0.5 miles into downtown St. Albans.
- Look for Taylor Park (big green) on your right, then **Lake Street (Rte. 36)**
- **Left on Lake./Rte 36**
- Go **3 miles** to village of **St. Albans Bay**.
- Bayside Pavilion on your left, **Shell station on your right**.
- **Turn right**, and head north (Rte 36).
- Pass St. Albans Town Park. *Keep going!*
- **0.7 miles** from the turn, cross a **small bridge**, turn **left on Hathaway Point Road**.
*** Unfortunately, there is no sign for the Park at this junction, so you will have to pay attention.*
- Go **3 miles** to the entrance of the Park.
- GPS coordinates are: **N44 46.778 W73 11.035**.



If you get lost, holler!

FIELD DAY 2010

MITCH W1SJ

IT WAS ANOTHER SPECTACULAR FIELD DAY with plenty of contacts, points and participation. And the conditions were great too. But it almost didn't happen at all.

By the end of May, it was looking like Field Day wouldn't happen. Field Day requires a number of key ingredients. One of these ingredients is operators. We had very few available and it was getting more grim by the day. Throughout May I kept learning that our main operators were dropping out one by one. Doug *AB1T* was

going away that weekend. Chris *WT1L* would be away at work. Ed *NIUR* was going to do Field Day by himself. That left me on phone, Howie *K2MME* on CW and Paul *AA1SU* doing both modes. Three operators doing 48 hours of operating is hardly a recipe for success and is not fun. On GOTA, Carl had only one operator and was struggling to find more. And then it got worse. Bob *KB1FRW* found out he had to work Field Day weekend.

I can't say I started to panic, but it came near to that—I resorted to begging and bribery. I got on the Yankee Clipper

Continued page 2

RANV: JULY MEETING

SECRETARY'S REPORT

JEFF N1YD, SECRETARY

Field Day cont.

Business—

- We voted to spend some serious money! First, we voted to spend up to \$250 for the picnic. Then we voted to buy an AB-577 tower from Brian N1BQ. Finally, we voted to spend up to \$1000 for a steel enclosure, concrete pad, and other equipment related to relocating our repeater outside of its current commercial building. If we did not move, we would have to begin paying \$250 per month of rent.
- Jim will bring snacks to our September meeting.

Presentation: *Lightning, Part 2*

Rich Lang, W1ELL, gave an excellent presentation about lightning. He first described the results of current research on the best way to get struck. The factors include being male, playing golf on a Sunday in Florida, and ignoring thunder. You can expect about two lightning strikes per square kilometer per year.

Rich then showed some ultra high speed videos of lightning strikes. The videos show that a single lightning strike is actually several events, with a 30000 to 80000 amps of peak current, and sometimes a 400 amp “continuing current” that can last for more than a second. He showed a dramatic photo of a lightning bolt striking a gravestone while completely missing a nearby skyscraper.

So how do scientists measure the current from a lightning strike?

- Record a 1000 Hz tone on ordinary magnetic recording tape.
- Lay out the tape near the area that will be struck. Later, play back the tape and see how many feet of tape were erased by the magnetic field of the lightning strike's current.

Rich built a Spice model to show how a 30000 amp lightning strike affects home electronics. He adapted the model to show how different grounding systems can reduce the peak voltages and the related damage. A ring ground running all the way around the house, at least one foot deep and one meter from the foundation

Continued, page 3

Contest Club reflector and asked if any CW operators were interested in coming up to do CW—food and lodging provided. Ed K1EP said he might come up, but only if I could provide him with a date (!?). I'm into a lot of things, but I wouldn't know how to handle being an escort service! I started calling every contester I knew. I would have had the devil come up and operate if he could promise me consistent CW rates over 70 per hour!

A little bit at a time, the bad news gave way to bits of good news. We learned that Nancy NK1A, who operated with us at GOTA two years ago, would again be coming to Vermont to attend a craft workshop and she would be available. And she would also be bringing her SO Mike K1TWF. Besides being the New England Vice Director and one of the key people running NEAR-Fest, Mike is also a crack CW operator. Then Doug AB1T decided to delay leaving for vacation to get a few hours in at Field Day. We got Jeff N1YWB committed to the cause and suddenly, we had a doable plan.

Setup was relatively uneventful. The biggest issue was working around Bob's hellish work schedule. Herb WAITLI was the hero as he assumed truck driver duties to move the trailer with all of the equipment to and from the site. Just before setup, I decided to make a major change in the location of the CW and GOTA stations to alleviate some noise on CW. By the end of Field Day, we all realized this was a great idea for many reasons.

Conditions were, to say the least, interesting. Right at the beginning of the contest, 15 meters was wide open. And then 10 meters had a big opening. The result was that stations ran up to the higher bands and our pileup on 20 meters trickled down, causing us to chase our prey on phone. Jeff and I fought with these strange conditions and kept the rates up, but we significantly fell behind where we needed to be. At 4:30 AM, we installed Zack K1ZK on the air, bade him good luck and shuffled off to bed. After a couple of typically slow hours, he starting banging out monster rates early Sunday morning on 40 meters.

Over on CW, we had a team with a mission to improve on last year's numbers. Doug AB1T started out like a house on fire, followed by some big hours by Mike K1TWF and Paul AA1SU. Howie K2MME held down the fort through the slow night hours, but returned for a monster finish at the end.

GOTA, not to be undone, had their own monster rates going. The first 100 contacts were picked up by Kristen, a non-ham! Vinnie KB1RRF came on for 2 shifts and Jeff N1YD jumped up to 10 meters and peaked at a 67 rate! Nancy NK1A took the Sunday morning shift and ran the numbers up to 500, the GOTA maximum. A few kids went on the air and we amassed a lot of GOTA bonus points in addition to all of the other bonuses available.

Continued, page 3

CONTACTS

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

Carl **AB1DD**, V-Pres./Treas. 482-3878
ab1dd@arrl.net

Jeff **N1YD**, Sec'y 879-1789
jbonn@us.ibm.com

EDITORS

Kathi **K1WAL** 985-8535
k1wal@arrl.net

Robin **N1WWW** 349-0214
n1www@arrl.net

Newsletter submissions to both (in case one of us is away: k1wal@arrl.net
n1www@arrl.net)

US Mail: POB 9392
South Burlington, VT 05407

Web: www.RANV.org

Reflector:

groups.yahoo.com/group/RANV

Meetings: 2ND Tuesdays • 7:00^{PM}
113 Patchen Road
South Burlington
The O'Brien Civic Center

Repeater: 145.150, PL100; **WB1GQR**

New Hams, Mentoring:

RANVMentor@gmail.com

Field Day cont

Saturday night, chef Kathi put on a wonderful feast of steak and chicken and several types of desserts. I don't think anyone went hungry!

We scored 14230 points and made 4565 QSO's—the second highest we have ever scored, missing our 2008 high water mark by 524 points, but a lot better than last year. How we did compared to other groups will have to wait until the results are published later this fall. With conditions as hot as they were, there will be a lot of big scores.

By the end of this show, most everyone was very tired. But, as far as I know, everyone had a great time. We met and exceeded all of our goals and everyone returned home safely. In short, it was a very successful Field Day. Thank you to everyone who contributed to this great effort!

2010 RANV FIELD DAY				
BOX SCORE				
80 CW	175	80 Ph	474	
40 CW	328	40 Ph	432	
20 CW	735	20 Ph	1071	
15 CW	189	15 Ph	527	
GOTA CW	0	GOTA Ph	500	
VHF CW	8	VHF Ph	125	
Sat CW	0	Sat Ph	1	
Total CW	1435	Total Ph	3130	

2010 RANV FIELD DAY	
HALL OF FAME	
<i>AA1SU</i> Paul	CW op; VHF Op; Bonuses; Setup; Tear down.
<i>AB1DD</i> Carl	GOTA Organizer; Setup.
<i>AB1T</i> Doug	CW op; Equipment.

	2010	2009	2008	2007	2006
QSO's	4565	4411	4779	3968	4643
Bonus	2230	2190	2090	1850	2050
Points	14230	13294	14754	12328	13858

2010 Field Day Crew

K1JCM John—Tear down.
K1TWF Mike—CW op;
K1WAL Kathi—Food; Setup; Tear down.
K1ZK Zack —Phone op; GOTA Coach; Setup; Tear down.

K2MME Howie—CW op; Setup; Tear down.

KB1FRW Bob—VHF op; Equipment; Traffic; GOTA Coach; Setup; Tear down.

KB1KPO Jerry—Setup; Tear down.

KB1KVW Erich—GOTA op.

KB1LIF Barb—VHF op.

KB1MDC Alan—Setup.

KB1PDW Spence—GOTA op;

KB1RQX Chuck—GOTA op; Tear down.

KB1RRF Vinnie—GOTA op; Setup; Tear down.

KB1TLZ Mike—GOTA op.

N1BQ Brian—VHF op; Set up; Tear down.

N1WWW Robin—Tear down.

N1YD Jeff—Demos; GOTA op; Set up; Tear down.

N1YWB Jeff—Phone op; Setup; Tear down.

N6PRT Doug—Setup; Tear down.

NK1A Nancy—GOTA op;

W1SJ Mitch—Chairman; Phone op; Equipment; Setup; Tear down; Results.

W4YFJ Bob—GOTA Coach; Bulletins.

WAITLI Herb—Truck driver; Setup; Tear Down.

REPEATER NEWS

MITCH W1SJ

AFTER MONTHS OF PLANNING AND SCHEDULING, Bob and I were able to make it up to the repeater site. There were two important missions. First, was to fix the receiver problem which has been bugging us for a year and second, to do the site planning for moving the equipment.

Last summer, I noticed that the repeater was not performing up to par. There have been several spots along I-89 way down in New Hampshire I used to be able to hold a conversation. Instead, my signal was all noise, if it keyed the repeater at all. I also

Secretary cont.

was his best-practices suggestion. Antenna coax should be bonded to the top of the tower. Foil should run from the base of the tower to ground rods. Do not solder any of the grounding wires, because solder joints will not stand up to 30000 amps. Everything in the shack should be grounded to a single point. Use an appropriate device between the antenna coax and the transceiver. Rich recommends screwed connections, or do-it-yourself thermite welding, which really sounds like fun.

noticed that reception of the HT on low power around the house was poor. I finally got out my low powered transmitter and attenuator and found that the repeater receiver was around 15 db from where it should be. At the same time, the repeater transmitter output was right where it should have been. I repeated the measurements several times and found the same thing.

In discussing the problem with several repeater gurus, two possibilities emerged. The receiver preamp might have been damaged. Normally when a preamp blows, it doesn't pass any signal at all, but there are some lighter failure modes. The second possibility was tin whiskers.

To be honest, I really thought this tin whisker business was straight out of a grade B Sci-Fi movie. I was still skeptical after seeing a preponderance of discussion on it on the Internet. In the GE Mastr II radios, the receiver uses 5 helical resonators to filter out off-frequency stuff. A helical resonator is a sharp filter consisting of a 1 inch wide cavity with a coil and movable screw in the middle. The casting is made of an alloy consisting

of a good deal of tin. After a period of time, a chemical reaction causes the tin to grow a whisker-like formation across the cavity. If the conductive whisker touches the coil in the middle, the entire circuit is detuned and receiver loss results.

Being the skeptic that I am, I decided to open up the helical resonators on some of the spare Mastr II receivers I had lying in the basement. I opened up one such unit and commented to myself, "How did this damn cat hair get in here." It was then I had the chilling realization that the cat doesn't go in the basement and there is no way a cat hair can get into a sealed resonator. Ladies and gentlemen, I was looking at an honest to god tin whisker of about 1/2" in length. I quickly opened up another receiver and found the same thing.

Repeater cont.

Of course, this didn't prove what our particular problem was. Since taking apart a receiver and tuning it was out of the question on the mountain, I put together another receiver thanks to parts provided by Allen N110E. So, no matter what the problem, I would be able to drop a new receiver in place.

And then we wait 9 months! Since the repeater was working, albeit poorly, it didn't warrant rushing up to the mountain right away. In March, we learned that we would have to make changes to where the equipment would be located, so we had a compelling reason to go. And then it snowed. And it even snowed in May! And when the snow melts, you get one big soggy mass of mud up and down that mountain. We weren't in a big hurry to experience that. And then when conditions started to clear up, it was hard getting everyone to have the same day off.

When I was at the site last Wednesday, I tested the repeater by injecting a weak signal from my trusty DEAD VX5R (another Yaesu story). I monitored a noisy signal through the repeater. Then I took a screwdriver and whacked the helical resonator case. The signal instantly went from noisy to almost full quieting. What happened was that the shock of the hit knocked the tin whisker off of the resonator coil, putting it back in tune and putting the receiver back to where it should be. I quickly changed out the receiver to the new unit.

I spoke to several people on the repeater and some reported that they were in areas where they had trouble getting into the repeater. I found that my HT holds the repeater with 1/2 watt all over town. And I measured an 18 db improvement in receiver sensitivity putting the system back to where it should be.

Meanwhile Bob was outside surveying the site and developing plans for the equipment move. The next day, our enclosure was airlifted up to the site. The coming months will be challenging to plan and implement this move, but I am optimistic that we will succeed in this venture and maintain the level of repeater performance we have come to expect over the years.

So, HOT 515 is BACK! Get on the air and talk to people!

MEMBER PROFILE

SPENCER HILL KB1PDW

Spencer's interest in Amateur radio stems from his former military experience and current emergency management and 1st response activities.

Spencer is active with CERT, the Huntington Fire Department, the Vermont State Guard, and the Red Cross. He has been called to several disasters, including a fire last spring in Hinesburg. He is also an instructor for CERT training classes.

He While in the Army's infantry armor division, Spence worked with a variety of radios. On maneuvers, he and his fellow soldiers would make their own triangular shaped antennas to allow them to communicate longer distances. The Command didn't always approve of this, but it worked!

When a group from the Vermont State Guard decided to get together to study for their Technician licenses, Spencer decided to participate. The group was led by a fellow who had his extra class ticket.

Not being especially gifted in electronics, Spence feared much of the material would be over his head. But, as it turned out, he was the only one who followed through, earning his Technician license in 2006.

Spencer uses a Yaesu VX-7 triband HT. He is often listening, and occasionally makes contact, on the local repeaters from his home in Huntington. He plans to earn his General ticket in August or September and looks forward to shopping for a mobile rig and being active with ham radio events.

ROOKIE ROUNDUP AT THE PICNIC

The picnic is coming and we'll have Special Event station W1V set up to make lots of contacts This year, the picnic coincides with Rookie Roundup—a contest for hams who have been licensed 3 years or less. So we will have two modes of operation:

- W1V Special Event Station: we are non-rookies, but can work them and give them points.
- Rookie Station: a ham who has been licensed in 2008-09-10 who uses his or her own call sign can call CQ Rookie Roundup and work everyone for credit.

A Technician can operate on 10 meters (if it is open), otherwise, a General or higher class license is required. The Roundup starts at 2 PM, allowing plenty of time to tend to barbeque and eating activities first. The Roundup ends at 8 PM—allowing you time to go home and work a few more.

Who will be getting on the air?

VEC Exams

Every 2nd Friday
6:30–8:00^{PM}

29 Mansfield Ave. • Burlington

Tech, General, Extra Class Licenses. Bring 2 forms of identification, copies of existing license and CSCE (if applicable), pens and pencils & the exam fee (\$15 amateur/\$35 commercial), exact cash only please.

??s Email Ralph KD1R@arrl.net
or the GBA ARRL VE Team
website at BARCVT.net

STARC 2010 SUMMER HAMFEST

Saturday, August 14th
8^{AM} to 2^{PM}

Location:

Raven Industrial, INC
Route 78
Swanton, VT 05488

Directions:

- Take VT I-89 to Swanton Exit 21
 - Then take Rte. 78 East.
- Coming from N.Y State:
- Turn on to Rte. 78 East to Swanton Village
 - Stay on Rte. 78.
 - Go 1.5 miles
 - Watch for John Deere Tractor Sales on the right. The Ham-Fest Site is .2 mile on the right. Look for Sign.

• VE-TESTING ONLY FOR TECH-CLASS

• FREE ADMISSION FOR COMMERCIAL VENDORS

• CRAFT FAIR SELLERS WELCOME

• FRIDAY 13th

GATES OPEN 3^{PM} for Early Bird Vendors, Tailgaters, and overnight Camping.

• SATURDAY 14th

GATES OPEN at 7^{AM} to 2^{PM}

• Admission \$5.00 this includes Tailgaters, Craft Fair Sellers

• Camping space for RV or Trailers and Tents (NO AC POWER) \$5.00 per night.

Contact Arn Benjamin n1arn@yahoo.com or Call 802-309-0666 or www.starc.org

SIX METER FIREWORKS

MITCH W1SJ

IN JUNE, I OPERATED IN THE VHF QSO PARTY. The highlight of this contest was the 6 meter opening which was going on at the start of the contest Saturday afternoon, ran until evening past 10 PM and then reopened Sunday afternoon until 7 PM. That's about 14 hours of skip. Reports I've heard from down south indicate that the band was open even longer. This was a classical Sporadic E opening, with contacts to all corners of the Southeastern United States. Contacts were as far north as EN53 in Wisconsin, and as far west as EM00 in Texas and DM34 in Arizona (probably a double hop). Going further south was real special as I had contacts from FK88 in St. Martin (I was there last year), FK86 in Montserrat, FL31 in Turks & Caicos and FJ92 in Brazil! In all, 439 QSO's in 111 Grid Squares were logged. There was a similar opening back in 2006 and I would have to go back to 1987 to find a bigger opening with 123 Grids.

All this was worked with a fairly modest station of 100 watts to a 5 element yagi. Many of the guys on 6 meters run kilowatts and much larger antennas. The fact that I was on a 3800 foot high mountain helps very little with skip. In fact, sometimes being too high might hurt you in ionospheric propagation if the drop-off is too steep.

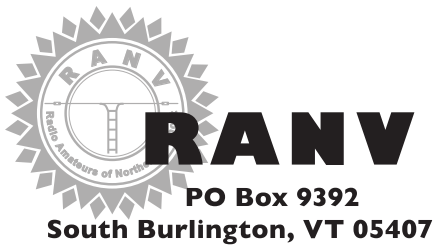
The peak of the Sporadic E season is usually late May and June. However, that doesn't stop openings from occurring all year. For example, there was a nice Sporadic E opening during the 10 Meter contest last December. But these openings cannot be predicted (hence the name "sporadic E"). To partake in these openings you either have to 1. Listen all the time on 6 and/or 10 meters, 2. Watch Internet sites which report these openings or 3. Have a trusted friend call you up when things heat up.

It doesn't take much to partake in 6 meter openings, but you should have a reasonably good station. While 10 watts to a dipole hanging out of a shady tree will net you a contact or two, you really should have something better, since you have to wait a while for a good opening. As a minimum, you should have a 3 element, 6 meter yagi, mounted high enough to be in the clear of buildings and stuff in the neighborhood. A small 6 meter yagi is reasonably priced. Or better yet, if you are handy with tools you can construct a yagi out of an old VHF TV antenna (don't need those no mo'). Such an antenna will not be terribly robust, but if you build it and tune it carefully, it will work great. Having higher power is also important. Normally, the other station should hear you if you hear them. But when 6 meter opens, the QRM gets crazy. And 6 meters is prone to power line interference. So you may be normally copiable but are getting covered up by interference and noise. Many HF radios now have a 100 watt 6 meter transmitter so this shouldn't be a problem.

But you don't hear anything or work anything unless you get on the air! Operating 6 meters is much like fishing. Many times you don't catch anything, but you live in anticipation that when it happens, you want to be there. And as they say, a bad day DXing is still better than a good day at work.

Upcoming, Notices, & Other Misc

- RANV: Summer Picnic—August 15
- RANV: Next Meeting—September 14—Topic: TBA
- ARRL New England Division Convention: August 28—Boxboro, MA
- STARC Summer HamFest—August 14
- NEAR-Fest—October 15 and 16
- Steering Wheel: 3rd Tuesdays—Ground Round, 1633 Williston Rd (Rt 2), South Burlington—6:30-8:30
- Dues due? Pay online at www.ranv.org/ranvpay.html
- VT Ham Radio Calendar—www.vthrc.net



NEWS & VIEWS

August • 2010

INSIDE

- Sec'y Report: 7/13
- Field Day Recap
- Summer Picnic
- STARC HamFest
- Repeater News
- Profile: KB1PDW
- VHF QSO

www.RANV.org

NEXT MEETING

Sunday • August 15 •
Kill Kare State Park • Saint Albans

“Summer Picnic”

**Note
location
change!**