

THE eQRM

MARCH 2017



The BVARA in Beaver County Pennsylvania

Beaver Valley Amateur Radio Association

W3SGJ

Repeater 145.310 PL 131.8

On the cover:

Spring is right around the corner. This is one of the many beautiful waterfalls at Ricketts-Glen State park in Pennsylvania. What a great place to go camping. Don't forget your radio. Photo courtesy of Yahoo Images. Click link for more info.

<http://www.dcnr.state.pa.us/stateparks/findapark/rickettsglen/index.htm>

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Check into our nets

Wednesday 2 Meter

8:30PM on 145.310 MHz PL 131.8

Wednesday 10 Meter

9:00PM on 28.470 MHz

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Who We Are

2017 BVARA OFFICERS

President: Jack Spencer, KZ3Z

Vice President: Mark Kavic, KB3LED

2nd Vice Pres.: Rob Miller, N3OJL

Treasurer: Pam Spencer, W3PMS

Secretary: Norm Trunick, K3NJT

Director: Bob Winkle, N3AZZ

Director: Bob Croft, KB3RHN

Trustee: Rich Soltesz, K3SOM



MONTHLY MEETINGS

E-Board meetings are now held the Saturday before the monthly club meeting.

VE testing begins at 5:00 PM.

Regular meetings are at 6:30 PM

All meetings are held at the
Beaver County
Emergency Services Center
351 14th Street
Ambridge, PA 15003
on the second Thursday of every month
(unless otherwise stated).



2017 MEETING DATES

Mar 09

Apr 13

May 11

Jun 08

Jul 14

Aug Corn Roast TBA

Sep 14

Oct 12

Nov 09

Dec Christmas Party TBA



This Month

BVARA Club Feature Presentation

This Month:

Speaker:

Rich Soltesz
K3SOM

Topic:

Impressions of the SDR play RSP2Pro

Including:

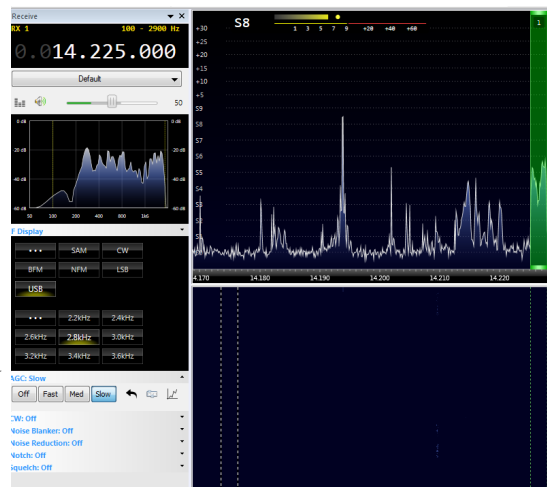
Continuing with our BVARA Presentation Series this year, our topic this month deals with our impressions of the SDR receiver that is packed with significant performance features. In March, 2013 we first presented the DVB-T Dongle for SDR reception of VHF/UHF signals. Sometime later, we examined the same class of devices with an up converter to include reception of the HF amateur bands. The RSP1 product from SDR play Limited was reviewed in the February 2017 issue of *QST* by Steve Ford, WB8IMY. As his excellent article was going to press, SDR play Limited announced two new models with additional features. This presentation looks at one of these, the RSP2pro.

We'll first look at the difference in features of the new versus the older RSP1 product. Then the architecture of the two models will be compared. Specifications for the RSP2pro together with the *QST* review summary will be included. Two of the many free software applications for SDR were installed to process the information from the RSP2pro. These software packages now include many features not available back in 2013. Screen shots will show various amateur radio and other signals that have been received.

But wait, there's more! On-the-air reception at the 911 Center location can cause obstacles to effectively demonstrating the performance of this device. But with its recording capabilities we captured the entire 20-meter band for 30 minutes, so that you can personally 'try out' the many features of this receiver on many signals from some good DX stations. Whether you are a beginner or a veteran ham, bring your curiosity and questions to the meeting because this is one exciting presentation that you won't want to miss.

Rich's Background:

Extra Class Ham, Licensed since 1962, VE,
B.S. Electrical Engineering



This was Fran, TK5AE from Corsica monitored on 14.225 MHz with a great USB signal.

More this Month

Weekly

The Freedom Square Diner in Monaca has a great wait staff. Come let them take your order.

Thursday Morning Breakfast
(or you can have lunch)



The BVARA meets every Thursday at the Freedom Square Diner in Center Township, just to the right of the Cinemark Center Township Marketplace at 09:45 AM. All radio amateurs and those interested in amateur radio are encouraged to come join us at our Thursday morning breakfast.

See you
Thursday at



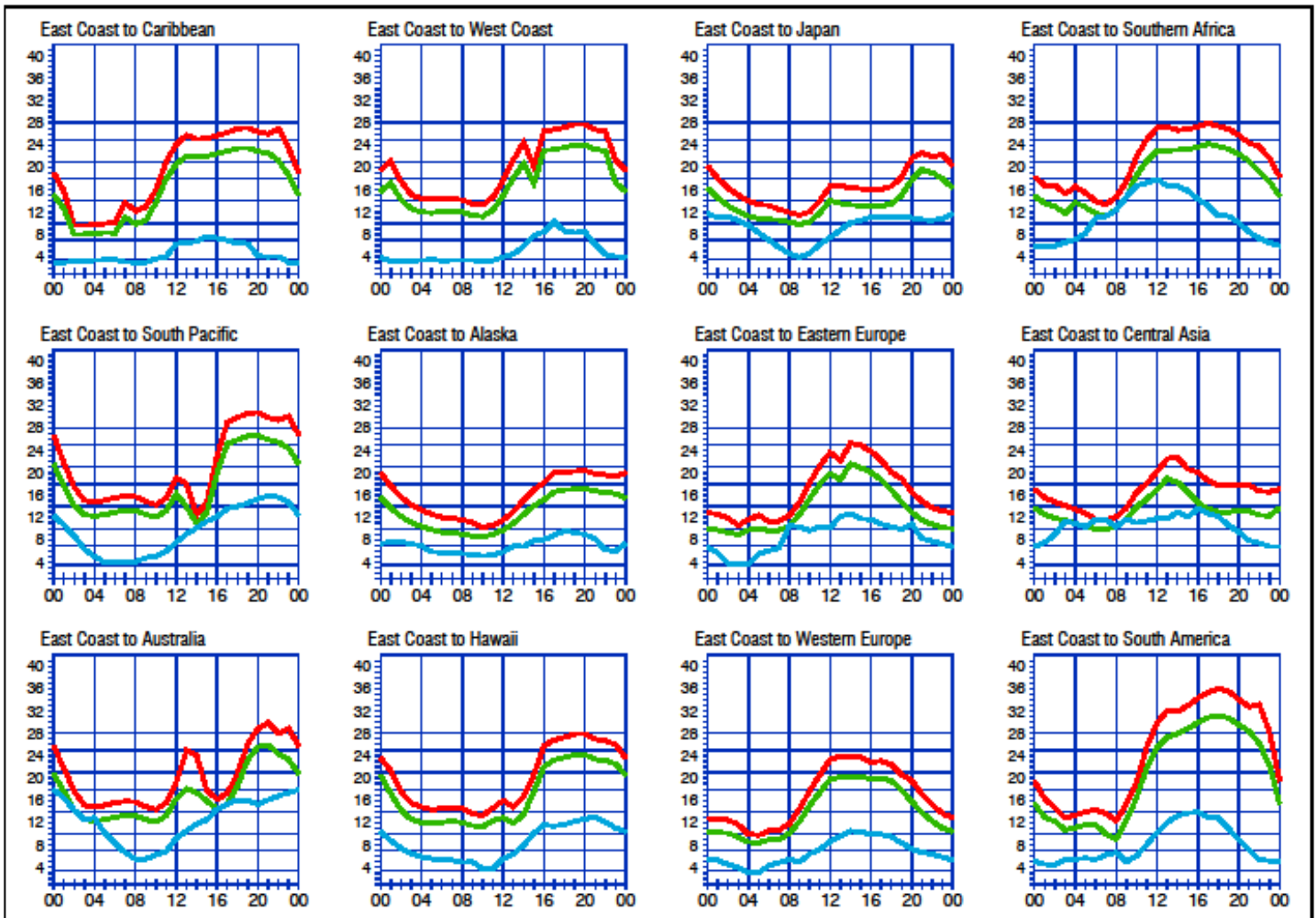
The eQRM urges all Beaver County licensed amateurs to participate in the County's RACES and ARES programs.

Any Beaver County Amateur that is interested in participating in the RACES/ARES programs can do so by checking into the Beaver County Public Service Net which meets every Monday evening at 8:30 PM local time on the N3TN 146.850 MHz repeater (131.8 PL)

RACES / ARES
The eQRM Urges All County Hams to Participate.



Propagation



When are the bands open? These charts, generated using CAPman, show probabilities for average HF propagation in the month of March for the paths indicated. The horizontal axes show Coordinated Universal Time (UTC), and the vertical axes frequency in MHz. On 10% of the days of this period, the highest frequencies propagated will be at least as high as the upper red curves (HFF, highest possible frequency) and on 50% of the days they will be at least as high as the green curves (MUF, classical maximum usable frequency). The blue curves show the lowest usable frequency (LUF) for a 1500-W CW transmitter. For SSB or a lower transmitter power, the LUF will be somewhat higher than the blue curves indicate. See Oct 1994 QST, pp 27-30, and Feb 1995 QST, pp 34-36, for more details. The predictions assume an observed 2800-MHz solar flux value of 77. This is a Very Low level of solar activity. See the detailed propagation tables on *The ARRL Antenna Book CD-ROM*.

PROPAGATION

The East Coast propagation chart listed here is for March 2017.

If you would like more information in general, please visit <http://www.arrl.org/propagation>

Get your License or Upgrade

If you are interested in getting your first FCC license or upgrading your current amateur radio license, the Beaver Valley Amateur Radio Association holds VE Test sessions (Volunteer Examinations) the second Thursday of each month at the Nine One One center in Ambridge Pennsylvania prior to our BVARA Club meeting. If there is no meeting there is no test session. Please come take your test with us!



For more information, contact :
Rich Soltesz, K3SOM
(724) 847-0610
k3som@arrl.net

VE TEST SESSIONS

Beaver County Emergency Services Center 351 14th Street Ambridge, PA 15003.
Tests begin promptly at 5 pm on the same day as BVARA Club Meetings
(the second Thursday of the month).
All classes of amateur radio license tests are administered.

ALL candidates MUST bring ALL of the following:

1. 2 forms of I.D. - one MUST be a photo I.D.
2. A pencil AND a pen with blue or black ink.
3. The original AND a photocopy of any valid ham license.
4. The original AND a photocopy of any C.S.C.E.
5. The test fee of \$15 - cash, check, or money order.

New License and Upgrades

BVARA VE Testing

We had a great turn out for our February testing session. Here are the results.



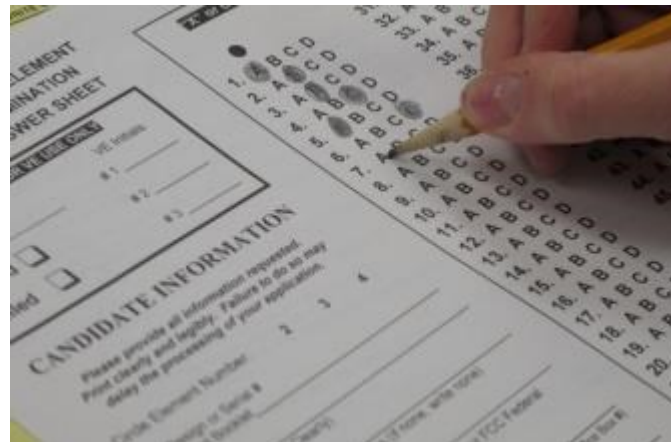
Dan Grazulis, KB3VSP, New Sewickley Township, PA Extra Class

Ron Lapina, KC3IDZ, Cranberry Township, PA General Class

Matt Heere, N3NWV, Harmony, PA General Class

Andrew Lipsitz, KC1HAT, Orange, CT Technician Class

Ben Koo, KC3IOU, Pittsburgh, PA Technician Class



Membership Information

By becoming a BVARA member you help secure the future of Amateur Radio in Beaver County. Additionally, the BVARA receives a portion of each ARRL

membership you purchase!

Join the BVARA and ARRL

Sign up for:	Price	
<input type="checkbox"/> BVARA full membership	20.00	_____
<input type="checkbox"/> BVARA student membership	15.00	_____
<input type="checkbox"/> BVARA associate membership	10.00	_____
<input type="checkbox"/> BVARA Child under 21 at home membership	5.00	_____
<input type="checkbox"/> One year ARRL membership	49.00	_____
A Club Donation		_____
ARRL Member? Yes No	Total Enclosed	_____

Your License Class (If you have one.)

<input type="checkbox"/> Technician	Name _____
<input type="checkbox"/> General	Address _____
<input type="checkbox"/> Advanced	_____
<input type="checkbox"/> Extra Class	Email _____
	Phone _____
	Your Call sign _____
	Your Signature _____

Make check or money order payable to:

The Beaver Valley Amateur Radio Association, P.O. Box 424

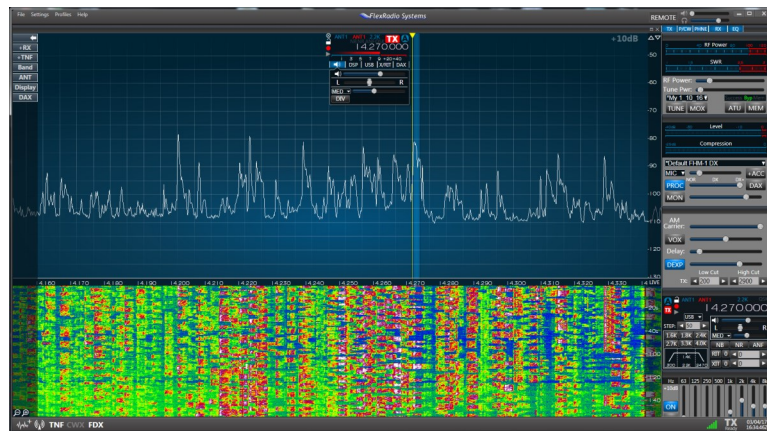
South Heights, Pa 15081

Hamfests & General Announcements

This past weekend was the ARRL International DX Contest for SSB. The CW version was held back in February.



For those of you who thought that the ARRL's International SSB DX Contest this past weekend would be poor due to the declining sunspot activity, you would have missed a very good opportunity for DX. This contest requires US and Canadian hams to only make contacts with DX stations. DX stations are required to only make contacts with US and Canadian stations. The exchange for a Western PA ham was very easy: "You're 59 in Papa Alpha!". Were the bands crowded with activity? Here is a screen shot of the 20 meter band at around 11:34 am (16:34 UTC) on Saturday. You decide!"



I also mention the upcoming CQ World-wide WPX SSB DX Contest on March 25th (see Page 11). Also, there are three state QSO parties this month for those seeking to get their Worked All States (WAS) ARRL award.



Contest Corral – March 2017

Check for updates and a downloadable PDF version online at www.arrl.org/contests.

Refer to the contest websites for full rules, scoring information, operating periods or time limits, and log submission information.

Start Date-Time	Finish Date-Time	Bands	Contest Name	Mode	Exchange	Sponsor's Website
1 2000	1 2100	3.5	UIKEICC 80-Meter Contest	Ph	4-char grid square	www.ukeicc.com
2 1800	2 2200	2B	NRAU 10-Meter Activity Contest	CW Ph Dig	RS(T), 6-char grid square	www.nrau.net/activity-contests
4 0000	5 2359	1.8-2B	ARRL International DX Contest, SSB	Ph	WVE: RS, SP, DX: RS, power	www.arrl.org/arrl-dx
4 0600	4 0800	7-14	Wake-Up! QRP Sprint	CW	RST, serial, suffix of previous QSO	qrp.ru/contest/wakeup
4 1800	5 1359	1.8-2B	Open Ukraina RTTY Championship	Dig	State/province/canton, etc., serial	ua1.com.ua/
5 0700	5 1100	3.5	UBA Spring Contest, CW	CW	RST, serial, UBA section (if any)	uba.belenhf/contest-rules
5 1100	5 1700	2B	DARC 10-Meter Digital Contest	Dig	RST, serial	www.darc.de
5 1200	5 1400	7	SARL Hamnet 40-Meter Simulated Emergency	Ph	RS, serial	www.sarl.org.za
5 1200	5 2200	3.5	NSARA Contest	CW Ph Dig	RS(T), Nova Scotia county (if any)	nsam.vet1city.net/?page_id=82
6 2000	6 2130	3.5	R5GB 80-Meter Club Championship, Data	Dig	RST, serial	www.r5gbc.org/hf
7 0200	7 0400	3.5-2B	ARS Spartan Sprint	CW	RST, SPC, power	arsqrp.blogspot.com
7 1900	7 2100	3.5	AGCWYL-CW Party	CW	RST, serial, "YL" (if YL), name	www.agcw.org
8 2300	12 2300	7-14	AWA John Rollins DX Memorial	CW	RST, eqpt type, eqpt year	www.antiqwiresloss.org
11 0800	11 1359	3.5-2B	Nauryz DX Contest	CW Ph	RS(T), 2-char oblast or ITU zone	www.nauryz-dx-contest.com
11 1000	12 1000	50-120B	SARL VHF/UHF Analog/Digital Contest	Dig	RS, 6-char grid locator	www.sarl.org.za
11 1000	12 1000	3.5-2B	R5GB Commonwealth Contest	CW	RST, serial	www.r5gbc.org/hf
11 1200	12 1200	3.5-2B, 144	FoAA Cup, SSB	Ph	RST, serial	www.site.urec.asso.fr
11 1200	12 1200	2B	South America 10-Meter Contest	CW Ph	RS(T), CQ zone	sa10m.com.ar
11 1200	12 2359	1.8-50	SKCC Weekend Sprintathon	CW	RST, SPC, name, mbr or "none"	www.skccgroup.com
11 1400	11 2000	3.5-2B	AGCW QRP Contest	CW	RST, serial, class, mbr or "NM"	www.agcw.org
11 1400	12 2000	3.5-50	Oklahoma QSO Party	CW Ph Dig	RS(T), county or SPC	k5om.com/okqp.htm
11 1500	12 1500	1.8	Staw Perry Topband Challenge	CW	4-char grid square	www.kln.net/staw
11 1600	12 1600	3.5-2B	EA PSK83 Contest	Dig	RSQ, EA province code or serial	concursos.ure.es/en
11 1800	12 1800	1.8-50	QCWA QSO Party	CW Ph Dig	Year licensed, name, SPC or QCWA chapter	www.qcwa.org
11 1800	13 0559	3.5	TESLA Memorial HF CW Contest	CW	RST, serial, 4-char grid square	www.radiosport.org.rs
11 1900	12 1900	1.8-2B	Idaho QSO Party	CW Ph Dig	RS(T), county or SPC	idahoamf.info/qsoparty
11 2000	11 2359	1.8-2B	QRP ARCI Spring Thaw SSB Sprint	Ph	RS, SPC, mbr or power	www.qrpaci.org/contests
12 0000	12 0400	3.5-14	North American Sprint, RTTY	Dig	Other station's call, your call, serial, name, SPC	ncjweb.com/Sprint-Rules.pdf
12 0700	12 1100	144	UBA Spring Contest, 2 Meter	CW Ph	RS(T), serial, UBA Section (if any)	uba.belenhf/contest-rules
12 1800	12 2200	3.5	WAB 3.5 MHz Phone	Ph	RS, serial, WAB square or country	wab.internip.net
12 1800	13 0100	All	Wisconsin QSO Party	CW Ph Dig	County or SPC	www.wamc.org/wqp
15 2000	15 2130	3.5	R5GB 80-Meter Club Championship, CW	CW	RST, serial	www.r5gbc.org/hf
16 0030	16 0230	1.8	NAQCC CW Sprint	CW	RST, SPC, mbr or power	naqcc.info
18 0200	20 0200	3.5-2B	BARTG HF RTTY Contest	Dig	RST, serial, 4-digit time (UTC)	www.bartg.org.uk
18 1200	19 1200	1.8-2B	Russian DX Contest	CW Ph	RS(T), 2-char oblast or serial	www.rdxo.org
18 1400	18 1800	144, 432	AGCW VHF/UHF Contest	CW	RST, serial, power class, 6-char grid locator	www.agcw.org
18 1400	19 0200	1.8-144	Louisiana QSO Party	CW Ph Dig	RS(T) Parish or SPC	lqcp.louisianacontestclub.org
18 1400	19 2359	All	Virginia QSO Party	CW Ph Dig	Serial, county or SPC	www.qsl.net/starling
18 2000	18 2159	1.8-50	Feld Hall Sprint	Dig	RST, mbr, SPC, grid	sites.google.com/site/feldhallclub
19 0700	19 1100	3.5	UBA Spring Contest, SSB	Ph	RS, serial, UBA Section (if any)	uba.belenhf/contest-rules
20 0200	20 0400	1.8-2B	Run for the Bacon QRP Contest	CW	RST, SPC, mbr or power	qrpcontest.com/pigrun
20 1800	20 2059	3.5-7	Bucharest Contest	CW Ph Dig	RS(T), serial, YO Sector or country	yo3test201x.blogspot.ro/p/blog-page.html
21 1700	26 1700	3.5-2B, 144	CLARA Chatter Party	CW Ph	RS(T), name, SPC	www.clarayl.ca
22 0000	22 0200	1.8-2B	SKCC Sprint	CW	RST, SPC, name, mbr or power	www.skccgroup.com
23 2000	23 2030	3.5	R5GB 80-Meter Club Championship, SSB	Ph	RS, serial	www.r5gbc.org/hf
25 0000	25 2359	1.8-VHF	FOC QSO Party	CW	RST, name, mbr (if any)	g4foc.org/qsoparty
25 0000	26 2359	1.8-2B	CQ WW WPX Contest, SSB	Ph	RS, serial	www.cqwpw.com/rules.htm
26 0600	26 1000	50	UBA Spring Contest, 6 Meter	CW Ph	RS(T), serial, UBA Section (if any)	uba.belenhf/contest-rules
29 2000	29 2100	3.5	UIKEICC 80-Meter Contest	CW	4-char grid square	www.ukeicc.com

All dates refer to UTC and may be different from calendar dates in North America. Times given as AM or PM are local times and dates.

No contest activity occurs on the 60-, 30-, 17-, and 12-meter bands. Mbr = Membership number. Serial = Sequential number of the contact. S/P/C = State, Province, DXCC Entity. XE = Mexican state. Data for Contest Corral is maintained on the WA7BNM Contest Calendar at www.hornucopla.com/contestcal and is extracted for publication in QST 2 months prior to the month of the contest. ARRL gratefully acknowledges the support of Bruce Horn, WA7BNM, in providing this service. Listings in blue indicate contests sponsored by ARRL or NCI. The latest time to make a valid contest QSO is the minute listed in the "Finish Time" column.

Bits and Pieces

Hello everyone. This month I present Rob Miller N3OJL for the newsletter page “Interview with a Ham”. I didn’t get to talk to Rob directly. He is a busy guy. We tried to call one another a few times; we ended up in a phone tag stalemate. We simply didn’t get to talk to one another. He was gracious and sent the interview to me via email. Thanks Rob. I will catch up with you soon. It is most likely easier to talk to N3OJL on the radio than a land line phone.



I slowed down a little this month. I sustained some cracked ribs from a fall. For six weeks I have been healing. Things are better, I had to take it easy but I am almost back to normal. I am still having a great time with the newly added content of the newsletter. Thank you for continuing to help me make our monthly newsletter better by sharing your ideas with me.

I added a page or two about my experience of using solar heat. My design is very simple. I am sure it’s nothing new to others that have played with solar energy. I use the solar heater in my little workshop. The solar heater could easily be used to heat a radio shack. This is not a primary heater but a supplemental heater. It keeps my shop tools rust free by keeping moisture away and the temperature in my shop is about twenty degrees warmer than the outside temperature. There are ways to make it more efficient. I may do that someday. For now the heater keeps my shop warm and dry. It takes no money, only the free heat from sunshine.

I have a rather odd, no... ah... well interesting (?) safety story to share this month. This is the story an old ham shared. The story goes something like this... He was a teenager when he was seriously burned by hot solder. He was really focused and wanted to finish a particularly interesting device for his homebrew Ham radio. It was close to bed time. His mom would let him stay up past bedtime to finish the last little bit of soldering if; he promised to brush his teeth, put on his pajamas and go to bed immediately after he finished the soldering. He assured his mom this soldering would only take a short time to finish an’ straight to bed. Well what happened was an embarrassing burn and a visit to the hospital. He loaded up his soldering iron with lots of solder to make the last couple of connections in one “go”. The overloaded soldering iron was right over his lap when the hot solder just fell off! His pajama bottoms were made of very thin material. The hot solder burned right through. He had to be seen by many for his treatment at the hospital. He kept it a secret, from his friends, exactly what got burned. It was too embarrassing for a teenager to talk about. Although these many years latter it is easier to talk about, he assured me no one would enjoy sustaining the misfortune he had. Be mindful of hot solder that could drip off a soldering iron. He also shared about picking up that hot iron from the business end instead of the handle. That burn was much less serious and no where near as embarrassing.

As always, Be safe.73, KC3BXC



Interview with a Ham

Name : Rob Miller

Call sign and license class: N3OJL Extra

Year of first FCC License : 1993 Tech Plus

Did you ever make a crystal radio? Yes, around 1957

Did you ever listen to short wave radio? Yes, my dad was a SWL in in the 30's and he passed this hobby on to me. I have 2 of his QSL cards both dated in 1938. One card from OLR, Prague, Czechoslovakia 11,840KC and one from SABC (South African Broadcasting Corporation) 9.606MC, Johannesburg, South Africa.

Did you ever use CB radio? Yes KCS1294

How did you get interested in Ham Radio? A boss of mine was a HAM and still is, KA3RNF started the ball rolling. Al, WA3GFM my "Guru" pushed me until I finally upgraded to Extra. He was and still is coaching me, the best "Guru" ever.

Did you ever build a Ham Radio? No, but I like to Home Brew antennas.

What was your first radio? Yaesu FT-209RH 2M, Yaesu FT-890 HF.

What was your first antenna? 40m Doublet Dipole.

What is your current antenna & radio? Kenwood TM-733 2m and 70cm, Yaesu FT-950 HF. Antennas: 80ft doublet and a 130ft doublet dipoles.

What is your favorite mode to operate? Phone but also really like the Digital Modes, RTTY, PSK31, JT9 and JT65.

Your most memorable contact? My very first one on HF, WB8ENR/J68, St. Lucia

What was your most fun contact? Working KR3DX, N3AZZ and WA3GFM from the Flight Deck of a C130-H aircraft in Germany.

What part of the hobby interests you the most? (field day, home brewing, contesting, Hamfest, restoring old radios) Contesting, chasing DX and making antennas.

Have you ever been on a fox hunt? No

Do you use a logging program? (what is it) Yes, Amateur Contact Log by N3FJP.

Would you purchase a Software Defined Radio? NO, not gonna happen, gotta have knobs.

Do you use automation with your Ham Radio? Yes, CAT control from my logging DX Spotting program.

If you had a magic wand and could change Ham radio what would you change and why? I would like to see the FCC or ARRL revoke licenses of people who do not follow the DX Code of Conduct.

Where do you see ham radio in ten years? Unfortunately, SDR radios will eventually take over the Knobbers.

It's Your Dime

Remember back when you could communicate by "Pay Phone" for ten cents? This page is for anyone who wants to communicate with the BVARA community and beyond. Please send me your article that you would like posted on this page. Please, only topics and language in good taste. As the editor I reserve the option to post it or ignore it. Send your dime to me at: kc3bxc.73@gmail.com

I await your input...



Some Interesting Links



Just to see if you are checking these links <http://www.qsl.net/ve7caq/index.html>

Old radio show <https://beta.tunein.com/station/?StationId=232052>

Shortwave radio source <http://www.radiolabs.com/radio/shortwave.php>

Antique radio forum <http://www.antiqeradios.com/forums/index.php?sid=5562df7b27d66a154a2f5a8a7378b0e0>

Antique radio restoration parts <http://stores.ebay.com/Tracktronics-Technologies>

Old radios for sale <https://www.retroradiofarm.com/>

Capacitors for radio restoration <http://www.tuberadios.com/capacitors/>

Solar Heater DIY

My answer to a DIY solar heater.

I wanted to get into solar energy. For my first experiment, I wanted to heat my workshop and keep moisture from rusting my tools. My shop is well insulated it takes little to warm it up in cold weather. It gets cold inside and is like an ice box or it gets hot and stays that way for hours. Unless I open the door or window it stays at a pretty constant temperature. I use a propane heater when I work in my shop in winter. I wanted to keep my shop warm without the cost of propane or electric. I had doubts as to whether it was worth doing. I wanted to experiment with solar heating but not spend a lot of money in case it wasn't really viable. I did a small amount of research. Everything seemed expensive and complicated. I found little I could do myself (DIY). Some solar heaters I saw heated a liquid to put heat inside a building. These were pretty complex and expensive. I slimmed down my interest to solar heated air. I asked a few friends about solar heating. None of them had tried any type of DIY solar or any type of solar heating for that matter. I looked on you tube, there are a lot of DIY ideas. I got so much information I was overloaded now. Many of the solar heaters used "store bought" new items to build their solar heaters. Some were commercial solar heaters for sale. I stepped back for a minute and considered "what do I have just lying around that I could use and not spend too much



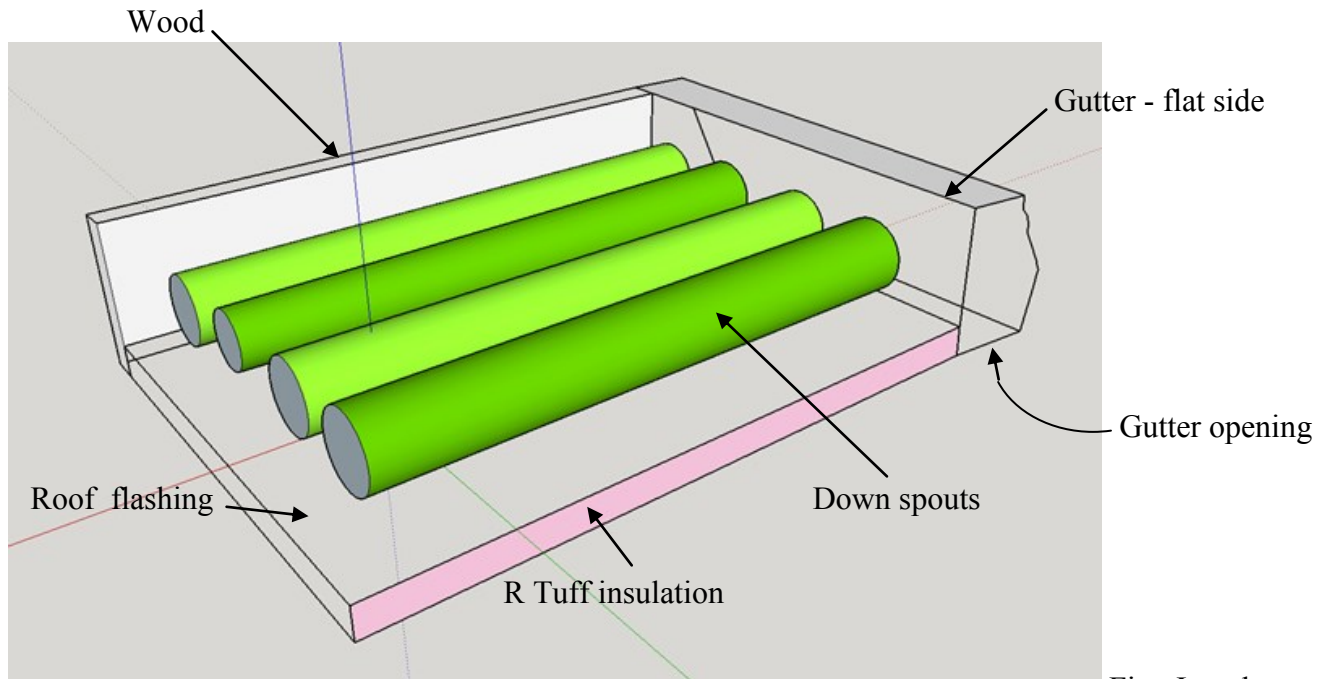
money? I don't want to waste money if this solar stuff doesn't work."

I built my *solar air heater* in the fall of 2013 from junk rain gutters, down spouts and stuff I had. In 2012 there was a late winter "weather event" that had freezing rain; it pulled the gutters and downspouts off my brother's house. He gave them to me to recycle at the local scrap metal yard. I had a 4 foot by 5 foot glass picture window salvaged from a remodeling project. The wooden frame was all rotted, the glass was fine. It was double pane and vacuum insulated.

I also had some plywood from a shipping pallet

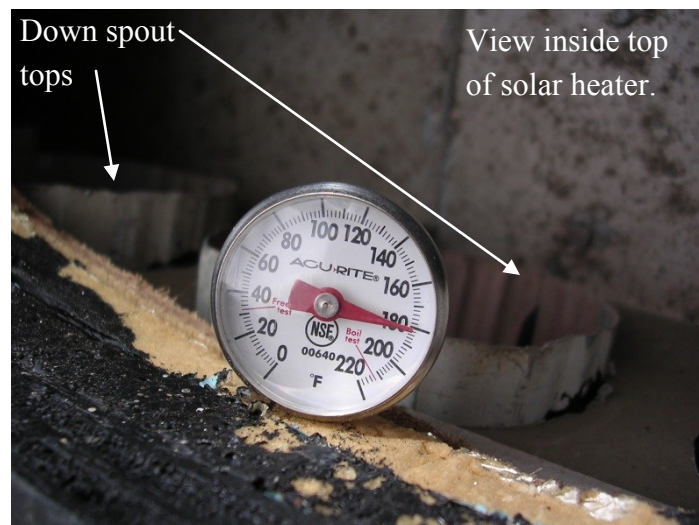
I had been given for free. There were also some half empty left over black paint cans, some left over metal flashing from a roof project and other bits & pieces lying around the farm. I looked at that junk and began to get an idea of how to build my solar heater. Cheap.

Solar Heater DIY



First I made a box out of 2x8, just large enough for the window glass to fit in. (The 2x8 was the only thing I had to purchase.) I cut a groove out of the 2x8 for the glass to set in. I put the pallet plywood on the back. I put some insulation on the plywood inside the box and covered that with the aluminum flashing sheet metal. I used gutter pieces at the top & bottom. They were turned so the open part was lying on the flashing. I connected the upside down gutters with downspouts. The gutters have large holes in them that the down spouts fit in. These are inside the wooden box that has glass covering it. I painted everything black.

The performance of my solar air heater really surprised me. It wasn't air tight, it was made of junk and there is only one duct from the top of the heater to the inside of my shop. The heater is open at the bottom to outside air. The solar heated air enters the shop by convection. In the photo the outside temperature was 60 degrees Fahrenheit and the solar heater was putting out 180 degree air. Does my shop get to 180 degrees? No. The air was heated to 180, my shop was only about 75-80 degrees.



Solar Heater DIY



This is the finished heater next to my work shop. Mounted on posts and slightly tilted / angled toward the winter sun. Tilting improved the temperature from 160 degrees to the 180 degrees you saw on the previous page. I am happy with this solar heater, it warms my shop up for free every sunny day.

The heater has been great! On sunny days my shop gets about 20 degrees warmer than the outside temperature. Once warmed up, even when there is no sun, the shop will stay warm for about 3 days. There is no monthly cost involved. The only maintenance so far has been keeping the glass clean and a yearly coat of paint on the outside box/frame work. There are some ways to improve the efficiency of the heater: a larger solar heater or a second solar heater would give more heat, putting a cold air return inside the shop connected to the heater, installing a fan ... but I am happy with the way it works for now. The heater is located in a great place. It faces the southern sky. Also it is near trees that lose their leaves in fall. How is that good? In winter the solar heater gets all the sunshine. In summer the leaves shade the solar heater so it doesn't overheat, otherwise I would have to cover it.

A person could easily use such a solar heater to heat their Ham Shack on sunny days. Solar doesn't have to be complicated or expensive. It works! This project was worth the effort to me. It may be something you may want to experiment with too.

This article presented by me KC3BXC.

For All Radio Operators

Whether at home or



on the road



The Amateur's Code

CONSIDERATE ...never knowingly operates in such a way as to lessen the pleasure of others.

LOYAL ...offers loyalty, encouragement and support to other amateurs, local clubs, and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.

PROGRESSIVE ...with knowledge abreast of science, a well-built and efficient station and operation above reproach.

FRIENDLY ...slow and patient operating when requested; friendly advice and counsel to the beginner; kindly assistance, cooperation and consideration for the interests of others. These are the hallmarks of the amateur spirit.

BALANCED ...radio is an avocation, never interfering with duties owed to family, job, school or community.

PATRIOTIC ...station and skill always ready for service to country and community.