

\$9  
\$8  
\$7

# Hamtown Wave

Western Tidewater Radio Association

Volume 4 - No 05 - May 2009



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## IOW ERO Holds Shelter Operator Training

N4KIT - Chris Peters

On Saturday April 25th, a training session was held for Isle of Wight County and Smithfield Disaster Shelter Station Amateur Radio Operators. The training was held at the Smithfield Public Library and was conducted by our IOW ERO (Emergency Radio Officer) Bruce Powell, KE4GFM.

Bruce went over the fundamentals of the Incident Command System, which all municipal emergency management organizations use to manage an emergency response. All amateurs who are registered to assist in an emergency need to become familiar with the ICS system by completing the FEMA online ICS training courses ICS-100a and ICS-700a. The training can be accessed at:

ICS-100a: <http://www.training.fema.gov/EMITWeb/IS/IS100HE.asp>

ICS-700a: <http://emilms.fema.gov/IS700a/index.htm>



W4RGN, KI4HMU, W4RRH and KI4WKT look on as KE4GFM demonstrates packet operation.

Also covered in the class were the procedures for an amateur radio call-up, check-in at your assignment, setting up a shelter station and fundamentals of packet radio operations. Go to the WTRA Training page at [www.wt4ra.org/Training.html](http://www.wt4ra.org/Training.html) for a .pdf outline of this training class.



Clockwise from left: KE4GFM, W4RRH, KI4WKT, KJ4HMU, W4RBH, W4RGN. Not pictured: N4KIT taking the photo.

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# Sunspot Cycle 23 Update

Dick Harrell W4RBH

Ever wonder what that Solar-Terrestrial Data block on the home page of the WTRA website is telling you? This stuff sounds really technical, but with a few words of explanation, hopefully it will make sense to each of you. I've provided explanations based on my best understanding of the subject. Some of the data is actually explained in the block, but here is a more detailed breakdown of the info provided.

First, here is a sample of the data shown on April 24, 2009 on the WTRA website. This data updates automatically from the [www.hamqsl.com/solar.html](http://www.hamqsl.com/solar.html) website operated by Paul, N0NBH.

Solar-Terrestrial Data			
<b>2009 Apr 24 2101 UTC</b>	Condition	K-In	A-In
Solar Flux: <b>70</b>	Quiet	0-1	0-7
A-Index: <b>5</b>	Unsettled	2	8-15
K-Index: <b>2 / 11 nT</b>	Active	3	16-29
X-Ray: <b>LT A1.0</b>	Minor storm	4	30-49
SSN: <b>000</b>	Major storm	5	50-99
	Severe storm	6-9	>99
		<b>Calculated Band Cond</b>	
		160m-30m: <b>Excellent</b>	
		20m-10m: <b>Poor</b>	
		SFI	A-In
		>180	<8
		>180	<8
		>250	>30
		K-In	Prop Opng
		<3	E-W open
		>3	N-S open
		>3	Aurora
Click to Install Solar Data On your Web Site			
<a href="http://www.n0nbh.com">http://www.n0nbh.com</a> - Copyright Paul L Herrman 2008			

Let's run through the data in the order it is presented. The first item displays the date and time of the last update and should need no explanation. Now for the good stuff:

Solar Flux – The Solar flux value is actually a measurement of radio signals from the sun. This measurement is taken once a day at a frequency of 2800 MHz (10.7 cm). Increased radio noise from the sun means more ionizing radiation and correlates with the sun spot number. Solar Flux values range from 60 (no sunspots) to 300. Higher flux values generally result in higher Maximum Useable Frequencies (MUF's) but actual procedures for predicting the MUF are quite complicated and are affected by sun angle, season, time of day, propagation path, and other variables.

*(Continued on page 7)*

## REPEATER REPORT

Dick Harrel W4RBH

The WT4RA repeater (147.195+), remote base, and packet node system continues to function normally. Members are encouraged to check-in to the weekly net sessions each Thursday at 7:30 PM.

I've recently noticed that some non WTRA members have gotten a bit long-winded while talking on the repeater. This is a bad habit as it does not allow stations with an urgent need for the repeater to easily break in to the conversation. Whenever you talk continuously for over 2 minutes it is a good idea to briefly un-key your radio for a few seconds before continuing. This will reset the carrier time out timer and allow other stations to break in if needed. If you should transmit continuously for 3 minutes or longer several things will happen; First, at the 3 minute mark those in the QSO with you and those monitoring the repeater will hear a "gun shot"; then the repeater will drop off of the air and stay off until the long-winded station un-keys his radio; and finally the repeater will return to the air with a brief period of laughter. This is always a good time for the other stations in the QSO to remind the offending station of proper operating procedures.



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## Upcoming Contests

Listed below is a selection of interesting contests coming this month. For more complete contest calendars, visit the WA7BNM Calendar at <http://www.hornucopia.com/contestcal/contestcal.html> or the ARRL Contest Calendars at <http://www.arrl.org/contests/>

CONTEST	DATE/TIME	MODES	MORE INFO
7th Call Area QSO Party	1300Z, May 2 to 0700Z, May 3	CW/Phone/Dig	<a href="http://www.7qp.org">www.7qp.org</a>
Indiana QSO Party	May 2, 1600Z - May 3, 0400Z	CW/Phone	<a href="http://www.hdxcc.org/inqp">www.hdxcc.org/inqp</a>
Radio Club of America QSO Party	May 2, 1700Z - May 3, 0459Z	Phone	<a href="http://www.radio-club-of-america">www.radio-club-of-america</a>
New England QSO Party	May 2, 2000Z - May 3 2400Z	CW/Phone/Dig	<a href="http://www.neqp.org">www.neqp.org</a>
Armed Forces Comm'ns	May 9, 1200Z - May 10, 2400Z	Phone/Dig	<a href="http://www.netcom.army.mil/mars">www.netcom.army.mil/mars</a>
FISTS Spring Sprint	May 9, 1700Z - May 9, 2100Z	CW	<a href="http://www.fists.org/sprints.html">www.fists.org/sprints.html</a>
Nevada QSO Party	May 9, 1700Z - May 10, 1700Z	CW/Phone/Dig	<a href="http://nv.arrl.org/NQP">nv.arrl.org/NQP</a>
Kids Roundup	May 30, 1400Z - May 31, 2200Z	Phone	<a href="http://kidsroundupcontest.w3vpr.org">kidsroundupcontest.w3vpr.org</a>

## Buy - Sell - Trade

Jim Jackson - KD4FN has the following items are for sale. Contact Jim direct via landline at 365-0125. All items come with the Owners Manuals.

- Drake MN 2000 Antenna tuner, 80 - 10 meters \$215.00

## DX Opportunities

DATES	COUNTRY	CALL/PFX	DATES	COUNTRY	CALL/PFX
05/09 - 05/30	Dominican Republic	HI7	05/11-05/16	Micronesia	V6
05/11-05/29	Corsica	TK	05/16-06/02	Tanzania	5HI
05/16-06/20	Niue	ZK2V	05/17-05/23	El Salvador	YSIG
05/20-05/24	Corsica	TK	05/22-06/03	New Caledonia	FK
05/22-06/11	Corsica	TK			
CQ WW WPX Contest May 30-31, 2009					



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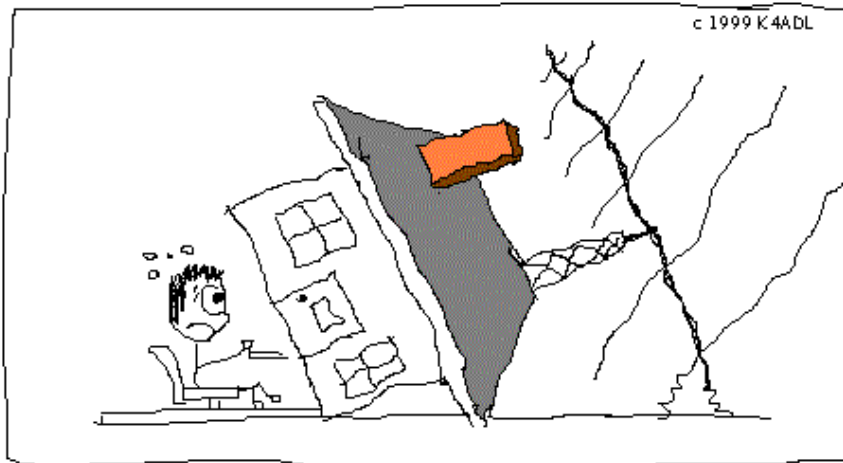
[www.wt4ra.org](http://www.wt4ra.org)

# The K4ADL Kartoon Korner

By Andy Cohn K4ADL

"Original ham radio cartoons of dubious merit"

[www.qsl.net/k4adi](http://www.qsl.net/k4adi)



DONALD HAD BEEN WARNED TO CENTER THE 40 METER BEAM ON HIS ROOF.

## MEMBERSHIP REPORT

Dick Harrel W4RBH

Currently there are fifty-one members on roll. I wish to thank each of our 2009 members for continuing to support the WTRA.

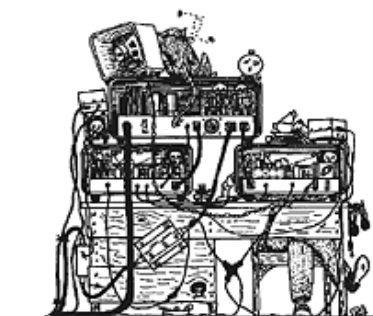
## Treasurer's Report

Dick Harrel W4RBH

Treasurer's Report (by W4RBH)

Main Account Balance as of 03/25/2009	\$ 1752.78
Remaining budgeted expenses for 2009	\$ 808.00
Recent expenses:	
None	

VE Program Account Balance as of 03/25/2008	\$ 306.53
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## Calendar

DATE	EVENT	LOCATION
Every Tues 7:30 pm	WTRA Net	147.195
Mon May 11 2009	WTRA Quarterly Meeting	TBA
Mon May 25 2009	Memorial Day Eyeball QSO	Dairy Queen - Windsor
Sun June 14 2009	BRONCO CLUB PICNIC	Bronco Club—Franklin
June 27 - 28 2009	FIELD DAY	TBA



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# Club Mail List / E-mail reflector

W4RBH - Dick Harrell

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Over the past few months I have received several e-mails from club members that I wished to reply to and being a creature of habit I would just hit the “reply” button and go ahead with my response. To my surprise I would get back a copy of my response and I would then realize that the original e-mail wasn’t really addressed just to me, but that it had come through the club e-mail reflector and therefore my “reply” also went back through the reflector to all club members. I’m probably one of the worst offenders in replying to e-mails when my intention was to send a response just to the originator, but I do have some company with this. I apologize for my poor e-mail skills and hopefully will do better.

Some time ago I developed the following instructions related to the use of the WTRA club mailing list and e-mail reflector for inclusion in the “New Member Welcome” e-mail that I send to our new members. This may be a good time for all of us to review these.

The club e-mailing list is hosted by Chris, W4VX. All active WTRA Members can send an e-mail from their “normal” e-mail address (this is the address that is on file with the WTRA) to the entire club by addressing it to wt4ra@w4vx.org . If you wish to reply to an e-mail received from the club e-mail list, using the “reply to” function on your e-mail program will send your reply to the entire club. To reply to a single member, it is best to “forward” your response to the specific member. If you use e-mail filters to block unwanted e-mail, be sure to set your filters to receive mail from wt4ra-bounces@w4vx.org (this is the address that will appear on e-mail sent from the club mailing list). If you desire not to receive WTRA related e-mails, you can opt out of this service by sending an e-mail request to Chris, W4VX, at w4vx@wt4ra.org. The WTRA e-mail list should only be used for e-mails related to the WTRA activities, related ham club activities, or for items of general interest to the amateur community. Do not under any circumstances use this service to send jokes or other junk e-mails to club members.

The club e-mail reflector, which you may use anytime you wish, is hosted by Joe, WC4R. Any e-mail sent to <your call sign>@wt4ra.org will automatically be forwarded to the “normal” e-mail address that you provided to the club. The club roster which is periodically sent to WTRA members will list only the <your call sign>@wt4ra.org address. You can send an e-mail to any specific club member by addressing the e-mail to <the member’s call sign>@wt4ra.org.

Should your e-mail address change, you should immediately notify me of the change at w4rbh@wt4ra.org so that I can arrange to have the club e-mail list, e-mail reflector, and master copy of the roster updated.

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## Reminder! US Postage rate to go up

Dick Harrell W4RBH

New rates take effect on May 11. It will now cost you \$0.28 to mail a QSL card. First class letters that are not over one ounce will be \$0.44 and if they are one ounce or over but less than two ounces the rate will be \$0.61. Unless I really need a paper card from a particular contact I plan to almost exclusively QSL via [www.eqsl.cc](http://www.eqsl.cc) .



May 2009

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## The Wave Workbench

### Technical Tips & Tricks for the Radio Amateur

#### How To Solder - courtesy of <http://www.aaroncake.net/electronics/index.html>

Soldering is defined as "the joining of metals by a fusion of alloys which have relatively low melting points". In other words, you use a metal that has a low melting point to adhere the surfaces to be soldered together. Soldering is more like gluing with molten metal than anything else. Soldering is also a must have skill for all sorts of electrical and electronics work. It is also a skill that must be taught correctly and developed with practice.

#### Equipment

Soldering requires two main things: a soldering iron and solder. Soldering irons are the heat source used to melt solder. Irons of the 15W to 30W range are good for most electronics/printed circuit board work. Anything higher in wattage and you risk damaging either the component or the board. Note that you should not use so-called soldering guns except to solder coax connectors to cable. These are very high wattage and generate most of their heat by passing an electrical current through a wire. Because of this, the wire carries a stray voltage that could damage circuits and components. The choice of solder is also important. One of the things to remember is to never use acid core solder. Acid core solder will corrode component leads, board traces and form conductive paths between components. The best solder for electronics work is a thin, 50/50 or 60/40 rosin core solder.

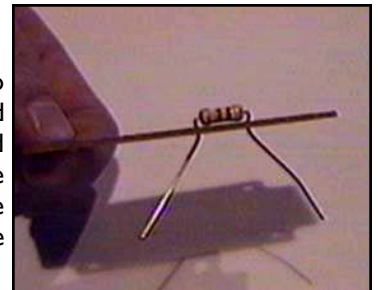
Remember that when soldering, the rosin in the solder releases fumes. These fumes are harmful to your eyes and lungs. Therefore, always work in a well ventilated area. Hot solder is also dangerous. Be sure not to let it splash around because it will burn you almost instantly. Eye protection is also advised.

#### Surface Preparation

A clean surface is very important for a strong, low resistance joint. All surfaces to be soldered should be cleaned with steel wool and some sort of solvent. Lacquer thinner works well. Don't neglect to clean component leads, as they may have a build up of glue from packaging and rust from improper storage. When soldering stranded wire leads to a circuit board, it is a good idea to twist the stripped leads tightly and then "tinning" the lead with solder before installing on the board.

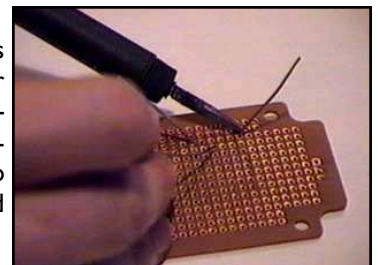
#### Component Placement

After the component and board have been cleaned, you are ready to place the component on the board. Bend the leads as necessary and insert the component through the proper holes on the board. To hold the part in place while you are soldering, you may want to bend the leads on the bottom of the board at a 45 degree angle. Once you are sure that the component is properly placed, you can move on to the next step.



#### Apply Heat

Apply a very small amount of solder to the tip of the iron. This helps conduct the heat to the component and board, but it is not the solder that will make up the joint. Now you are ready to actually heat the component and board. Lay the iron tip so that it rests against both the component lead and the board. Normally, it takes one or two seconds to heat the component up enough to solder, but larger components and larger soldering pads on the board can increase the time.



**A-Index** – This describes the geomagnetic conditions of the last 24 hours (basically what happened yesterday). It can range from zero to over 400, but it is rare to see it go over 100. Values below 10 are very desirable for HF communications

**K-Index** – This is similar to the “A-Index” but is quasi-logarithmic in nature and reflects conditions from the previous 3 hours and its values will only range from 0 to 9. Lower numbers mean a quieter ionosphere. When “K” rises you can expect HF propagation conditions to worsen; however, when “K” values rise above 3 this should alert VHF operators of possible auroral conditions.

**X-Ray** – This is a daily average background X-ray flux in the 1 to 8 angstrom range. It is a midday minimum designed to reduce the effects of flairs. Note that there is a letter and number displayed in the data. The letter refers to the class of X-ray flare that may be occurring. Solar flares are classified as A, B, C, M or X according to the peak flux (in watts per square meter, W/m<sup>2</sup>) of 1 to 8 angstrom X-rays near Earth, as measured on the GOES spacecraft. Each class has a peak flux ten times greater than the preceding one; with X class flares having a peak flux of order 10<sup>-4</sup> W/m<sup>2</sup>. Within a class there is a linear scale from 1 to 9, so an X2 flare is twice as powerful as an X1 flare. The letter “A” is used to indicate the lack of a solar flare.

**SSN** – This is the number of sunspots currently visible. Well that may be a bit over simplified as “currently visible” may depend on the telescope or satellite you are using to observe the sun. Actually the number is referred to as the daily “Boulder Sunspot Number”, and is computed by the NOAA Space Environment Center using a formula devised by Rudolph Wolf in 1848. As a rule of thumb, if you divide the sunspot number by 15, you'll get the approximate number of individual sunspots visible on the solar disk if you look at the Sun by projecting its image on a paper plate with a small telescope. Note that zero sunspots are shown. The April 22, 2009, data was the first to show an actual number here in a very long time and for just that day the number was listed as “011” before returning to the “000” that we have become very familiar with.

The center portion of the block provides the “A” and “K” values that correspond to the various values of geomagnetic activity, ranging from “Quiet” to “Severe storm”.

The block on the far right provides calculated band conditions, shows the relationship between the Solar Flair Index (SFI) also referred to as Solar Flux and the “A” and “K” indexes. The block also identifies the directions of best propagation.

That is the best info I have related to the data shown. If any of you can explain the numbers and letters following the “/” shown under the “K-Index” or the initial letter group under the “X-Ray” listing please let me know.

With this little bit of knowledge I hope that you will check the club website frequently to see just what is happening with HF propagation. Since we are now in a bit of uncharted territory related to the late start of sunspot cycle 24, the sun spot number listed in the table should be of particular interest. By my calculations cycle 23 was 12.895 years long on April 25, 2009.

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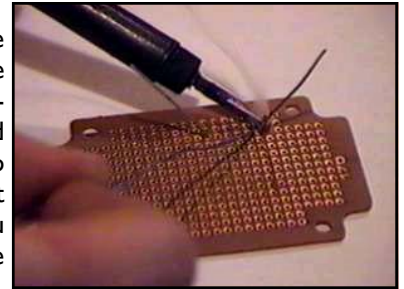
[www.wt4ra.org](http://www.wt4ra.org)

## How to Solder (con't)

(Continued from page 6)

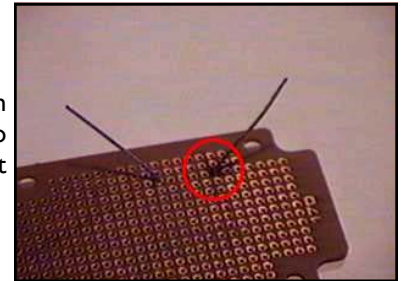
### Apply Solder And Remove Heat

Once the component lead and solder pad has heated up, you are ready to apply solder. Touch the tip of the strand of solder to the component lead and solder pad, but not the tip of the iron. If everything is hot enough, the solder should flow freely around the lead and pad. Once the surface of the pad is completely coated, you can stop adding solder and remove the soldering iron (in that order). Don't move the joint for a few seconds to allow the solder to cool. If you do move the joint, you will get what's called a "cold joint". This will be discussed shortly.



### Cleanup

After you have made all the solder joints, you may wish to clean with steel wool or solvent to remove all the left over rosin. You may also wish to coat the bottom of the board with lacquer. This will prevent oxidation and keep it nice and shiny.



### Cold Solder Joints

A cold joint is a joint in which the solder does not make good contact with the component lead or printed circuit board pad. Cold joints occur when the component lead or solder pad moves before the solder is completely cooled. Cold joints make a really bad electrical connection and can prevent your circuit from working.

Cold joints can be recognized by a characteristic grainy, dull gray color, and can be easily fixed. This is done by first removing the old solder with a de-soldering tool or simply by heating it up and flicking it off with the iron. Once the old solder is off, you can re-solder the joint, making sure to keep it still as it cools.

### Tips and Tricks

Soldering is something that needs to be practiced. These tips should help you become successful so you can stop practicing and get down to some serious building.

- Use heatsinks. Heatsinks are a must for the leads of sensitive components such as ICs and transistors. If you don't have a clip on heatsink, then an alligator clip or a small pair of pliers is a good substitute.
- Keep the iron tip clean. A clean iron tip means better heat conduction and a better joint. Use a wet sponge to clean the tip between joints.
- Double check joints. It is a good idea to check all solder joints with an ohm meter after they are cooled. If the joint measures any more than a few tenths of an ohm, then it may be a good idea to re-solder it.
- Use the proper iron. Remember that bigger joints will take longer to heat up with a 30W iron than with a 150W iron. While 30W is good for printed circuit boards and the like, higher wattages are great when soldering to a heavy metal chassis.
- Solder small parts first. Solder resistors, jumper leads, diodes and any other small parts before you solder larger parts like capacitors and transistors. This makes assembly much easier.



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