

QRZ NEWS

A MONTHLY PUBLICATION OF
SOUTHERN PENNSYLVANIA AMATEUR RADIO CLUB, INC
PO BOX 1033 - LANCASTER, PA 17608-1033

(Founded June 1960)

AN AFFILIATED SPECIAL SERVICE CLUB OF THE ARRL, INC.

"Public Service through Communication"

Website: www. K3IR.org

Email address: k3ir@arrl.net

Repeaters: 145.230 - 449.975 - Packet 145.030 - ATV 923.250, FN10se

August 2009

August SPARC Meeting

The SPARC business meeting will be Wednesday, 19 August 2009 at the Rapho Township Municipal Building, 971 N. Colebrook Rd, in Rapho Twp. Meeting time is 7:00PM. Members and others interested in Amateur Radio are invited to attend.

Field Day 2009 Report

First thanks to all who helped make Field Day a Fun Event.

Special thanks to our two chefs Judy Wagner and Dianne Gadbois who prepared the delicious food which was served on both days of the event.

I really am concerned about the use of the operating shack for field day. I checked the rules and really one is not supposed to use any existing structure for operating or support of the antennas. I have submitted our results to ARRL and in the notes I stated that two of the operating positions were in an existing structure, I did however say that a generator provided all the power and that antennas used were erected by the club for field day.

More use of the phone mode should be our goal for next year. I am disappointed that more members did not participate at the operating positions. We need to get the

newer hams on the air. There is no better contest to do just that.

I also suggest that next year we do not set up the day before and start the set up at 1800Z. We can get an antenna up and operating in a short time while the setup continues. This will enable operation for another 4 hours of contesting.

Total QSOs 463

CW	Digital	Phone
375	31	57

Total QSO points 879 times power multiplier of 2 = 1758

Estimated bonus points	Generator	400
Sending results to ARRL by net		50
Total overall		2208

Ross Kauffman, W3ZKU
Field Day Chairman

See photos below and in the July issue.



Jon, K3QF; Ted, K3KSA; and Jim, KW3E
prep the HF antenna



Antenna raising crew at work.



The HF stick is up

Photos by Gerry Wagner, KB3SSZ

Coming Events

Lancaster County RACES Meeting
Thursday, August 20th , 2009 7:00pm at the
Lancaster County Public Safety Training
Center

Ham radio class Aug 29th and 30th at the
West Earl Fire Company.
Contacts : Ron Small WB2OOB
wb2oob@arrl.net 717-481-8589 OR Joe
Ryan KB3POC reactsch1@comcast.net 570-
915-6053

Saturday, September 12, is the Keystone
Trails hike in southern Lancaster and York
Counties. The Red Rose club is
coordinating communications for the event.

They will be contacting SPARC for
operators.

September 12 - 13 ARRL September VHF
QSO Party

Begins 1800 UTC Saturday and ends 0300
UTC Monday (September 12 - 14, 2009).

Editor's Notes

The digital TV conversion for high power
broadcasters is now complete. Viewers with
good VHF locations and outdoor antennas
appear to have come out way ahead on
viewing options. Those dependent on rabbit
ears didn't do so well. The publicity has
died down and the final accounting appears
yet to be made.

Six Meter Report

The Summer Es season is coming to an end
with a lot of good DX worked by many
stations. The path to Florida still opens
frequently, but not as well or for as long as it
did near the peak July 4th.

I hear the C6AFP beacon several days a
week usually in the morning hours. The
C6AFP beacon is located at the QTH of Bill,
C6AGN, Green Turtle Cay, Abaco, The
Bahamas, FL16. This location is about 150
miles east of Fort Lauderdale, FL.
Unfortunately, there appears to be no 6m
stations in FL16. Vacationing hams activate
FL15 frequently.

I worked C6AQO in FL22 on July 27th. He
did not give his exact location, but it is in
the Bahamas chain much further south and
east.

Multi hop Es is still in there, but not as
frequent. Listen for the weak stations. They
may be another hop away. Last week I
heard K7ICW in New Mexico under
KORDW in Minnesota. No chance to break

through his huge signal. I expect the season to gradually decline for the next couple of weeks.

September and October are the best months for VHF/UHF tropospheric propagation so be on the lookout for stations closer in but not usually workable. The ARRL VHF contest September 12th & 13th is a good opportunity to work DX out to about 1000miles. The UHF bands may open with great ducting propagation when the VHF bands are only mildly enhanced.

Note that rag chewing is okay on any band. This helps to keep things active. Please don't rag chew on the calling frequencies of the lower bands. Even on the microwave bands you should QSY off the calling frequency if there is evidence of other activity.

73,
George, W3FEY

ARES/RACES



As part of the clubs commitment to emergency communications, the SPARC repeater system is maintained as available for linking with other area repeaters.

Lancaster County VHF Net is held on the first Tuesday of the month at 2030 hours local time. Presently being held on the 145.230, 145.310 and 147.015 (+ offset) MHz repeaters with minus offset and 118.8 PL.

The Lancaster County primary ARES/RACES repeater is on 145.310 MHz with minus offset and 118.8 PL.

Combined York County Amateur and ARES/RACES NET convenes at 8:30 PM (2030) Mondays on 146.97.

Pennsylvania RACES HF Nets are held at 3993.5 kHz LSB on all Sundays except holidays.

The statewide net is on the first Sunday of the month at 0800 hours local time.

The Central Area (including Lancaster County) net is at 08:30 local time.

SPARC Nets

SPARC holds nets on the 2nd, 3rd, 4th, and 5th Tuesday (every Tuesday except the first) at 2030 local time on 145.230 MHz minus offset and a PL of 118.8.

Club Officers

President Harry Bauder – [WA3FFK](#)
Vice-President: Rick Watson - [N3SWJ](#)
Secretary - Dave Sarraf. - [N3NDJ](#)
Treasurer - Ted Freedman - [K3KSA](#)
Repeater Trustee - Dave Payne - [N3LOM](#)
Past President - Mike Warner – [N3XPD](#)
Board of Directors - Jim Silvius – [KW3E](#)

Other Nets of Local Interest

Delaware Co. Mobile Sixers Net Schedule
Sunday 2000 50.550 MHz USB

Cumberland Co.
Monday 2130 144.160 MHz USB

Packrats 1296.100 MHz USB net Mondays at 2130 local time

Bob, W2SJ, Pennsauken, NJ, FM291w, is net control.
Bob has a good signal into Lancaster County. He looks west ~ 2135-40.

Combined York County Amateur and ARES/RACES NET convenes at 8:30 PM (2030) Monday on 146.97.

Technical/Elmer NET -- following Monday
Combined York NET

For discussion or questions in reference to Amateur radio, the club, equipment, operating procedures, etc, have them ready to ask. If you just want to talk about something particular to Amateur radio, we can do that too. The net will start at 9 PM on the York 146.97 repeater. If the regular net runs longer than this, it will start when the normal Monday night net ends.

If you would like to volunteer to discuss a topic, for 5 to 10 minutes, please send your name and topic to the NET Manager, Richard Reese at "kr3ee@frontiernet.net". Rich will schedule you.

Sandy Goodman, N3ECF

QRZ News Publication

QRZ News is published monthly on the second Wednesday of each month, one week before the monthly meeting. Deadline for article submission is the second Tuesday of each month.

We operate on an exchange basis with other non-commercial publications. Articles printed in QRZ News may be reprinted in a not for profit publication provided proper credit is given. Reprinted articles require permission from the original source.

QRZ News is archived at http://www.k3ir.org/QRZ_News.html. Documents are in PDF format.

Thanks to Jim Silvius, KW3E and Dave Sarraf, N3NDJ for providing many missing issues for the archive. Jim Silvius is the SPARC historian.

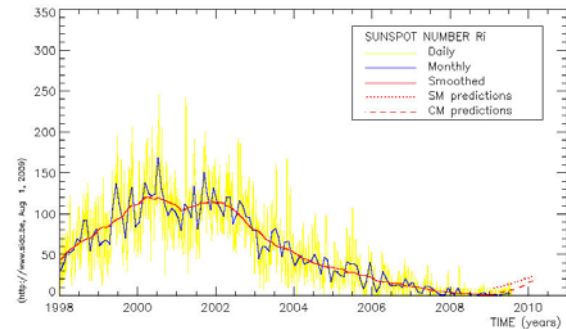
Where are the Sunspots?

We are all waiting for sunspot cycle 24 to really get going so we can enjoy better F2 layer propagation on the HF bands. So far there is no increase in sunspots in sight.

The Solar Cycle 24 Predictions Panel has recently reissued their prediction for cycle 24 with the maximum predicted count of about 85 spots at the peak in May 2013. Sky & Telescope has a report in the August 2009 issue titled "What's Wrong With Our Sun?" See

<http://www.skyandtelescope.com/> for more information. The on line .pdf for the referenced article is temporarily unavailable as of this writing. Perhaps your local library has a copy of the magazine.

Here is a chart for the present solar spot count from the Solar Influences Data Analysis Center.



Note the optimistic uptick predicted at the end of the graph.

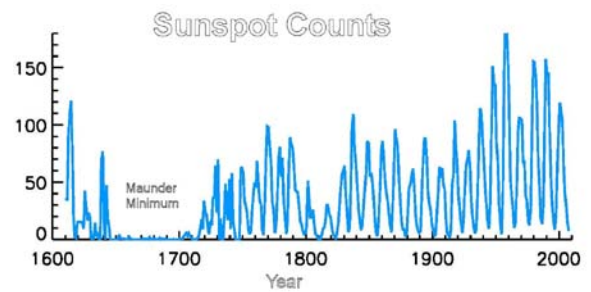
The following report is from the Aug 7, 2009 ARRL bulletin.

'SOLAR UPDATE
(Excerpt from the 14 August ARRL letter)

Tad "The fair haired Sun rises in the sky" Cook, K7RA, this week reports: Another quiet week on the Sun.

Sunspot numbers for August 6 through 12 were 0, 0, 0, 0, 0, 0, and 0 with a mean of 0.'
No sunspots now. What has been the history?

Historic Sunspot Counts



Judith Lean U. S. Naval Research Laboratory

The Sun's magnetic field has weakened progressively for the past three sunspot minimums. Some experts wonder if a new period of near zero sunspots is coming. None of this bodes well for HF propagation during cycle 24. We will see little if any F2 on six meters.

Incidentally, the Earth's magnetic field is weakening and there is speculation that a reversal may be coming. Geologic evidence shows that the Earth's magnetic field has reversed several times in the past. A weak magnetic field means more cosmic radiation reaches the Earth's surface. More on this topic in the next issue of QRZ News.

73.
George, W3FEY

Six Meter Nostalgia

Look back at the historic sunspot record above for the 1959/1960 record peak. Six meters was still mostly populated with crystal controlled AM transmitters. One called CQ and tuned the band for answers. Inefficient, but it was still fun. Channel 1 television was still around in most of the world so six meters was not a global Amateur band. A few European hams had special limited operating permits for six meter operation provided they didn't interfere with local television. This resulted mostly from the Amateur involvement with the International Geophysical Year from January 1957 to December 1958.

Sunspots produce ultraviolet radiation to ionize the F2 layer of the ionosphere at a height of about 120 miles. The result is a single hop distance of about 2500 miles.

The intensity of the solar radiation and hence the level of ionization is very predictable. Perihelion (the Earth's closest approach to the Sun) is about January 4th so F2 propagation peaks in the winter. See the

March issue of QRZ News at http://www.k3ir.org/QRZ_News/QRZ_News_March_2009.pdf for an explanation of sporadic E layer ionization and why it peaks at aphelion (the Earth's greatest distance from the Sun).

During the winters of the cycle 19 peak, I came home for lunch and checked 6m everyday. CT1CO ran a beacon that was always copiable. A few people worked CT1CO, but I never heard him on the air.

You would hear European TV audio and sometimes the band was clobbered by video. I didn't have much success making contacts in Europe, but it was a lot of fun anyway. I did work the west coast of the US and heard Alaska and Hawaii. The pileups seemed huge at the time, but I now know they were puny compared to an intense Es session today. Six meters is now a worldwide band and the activity and equipment sophistication are much greater. If only cycle 24 would make the more optimistic predictions of two years ago.



Cycle 19 was a historic event for sunspots and 6m propagation via the F2 layer. Will we see this again or is it gone for decades?

73,
George, W3FEY

Sun Noise Measurement for EMERs and Microwavers.

By John Jaminet, W3HMS

EME operators use sun noise measurements and Microwave operators do not, or so it seems! I have always been intrigued by the idea of sun noise measurement but have been “turned –off” in the past by an apparent lack of detail and precise “how to do it “methods.

I became active on 23 cm EME in August 2008 with a 3m/10 ft dish and 120 watts. Very quickly I learned that my station is a very small QRP station and that it would take perhaps one year to get it finely tuned for maximum performance. Equally rapidly I learned that EME ops use sun noise measurements to fine- tune their systems for the last few tenths of a dB. This is so because EME signals are weak at best and often very weak. It seems that few conventional microwave ops use sun noise measurements yet the improvements on a band like 10 GHz would seem obvious given the weak signals found in DX QSOs.

What is sun noise measurement? The sun is a very dependable and constant noise source for the UHF and up bands. I do not know how low nor how high it is usable but I have seen references to measurements on 6m through 47 GHz which is good enough for me. The basic reference is to cold sky which is ideally a place in the sky where there are no celestial bodies that emit noise,

nor trees, nor buildings, etc in the antenna view.

The Purest would note that one should indeed avoid constellations that emit noise but that it is equally not a concern to a small 3- meter dish station like mine.

The sun noise then is a measurement of the cold sky value, example –67 db compared to, example –57 db when the antenna is on the sun which yields a difference of 10 db. This is the sun noise value. If I were to log these 3 values along with the date, time, and solar flux, I would know that if I installed a new “Super –Snazzy” Model X10FV LNA from Brand X LNA, LTD and had 4 db of sun noise that I was going very much in the wrong direction!!!! Conversely, if I replaced an LNA protection relay of unknown value and found a sun noise reading of 10.7 db, I would be happy!!

Some advantages of precise sun noise measurements:

1. No near -field distortions with a noise source only 93 millions miles away, HI!!
2. Repeatability when referenced to the solar flux.
3. Precision to about one tenth of a dB to make system improvements be noticeable.
4. The same level of precision to make system degradation evident.
5. No worries about polarization being H, V or circular.
6. No installation costs or power bills to pay for beacons.
7. No political “overrides” on your signal source location.

Most references to measuring sun noise that I have seen suggest that one must have a

very wide- band amplifier connected to at least two or more expensive pieces of GR, HP, ABC equipments. As I did not work in the electronics business, I was neither a “walking catalog” of nomenclatures nor a person for whom pieces of lovely test equipment fell from unmarked trucks in front of his QTH, Hi!

Many EME ops like microwave ops are quite helpful to “newbies” into these two hobby sub-sets even those with gray hair!. Some are not and one just answered my question about sun noise measurement simply saying the GR-1296 is the standard with no info like, what is it called by function, where can I get one, what is the going market rate, what else do I need to use with it, etc. At this point, I was almost a retired EME op before being a working one!!

How to do it or not do it?

It seemed reasonable that my 23 cm EME IF radio, the IC 756P3 with AGC disabled, would measure sun noise and so it will with questionable precision. Is each S unit equal to 4 or 6 db? My Users Manual doesn't tell me and even if it did I could not read it by eye with sufficient accuracy for repeat measurements. I would also not know how it compared to the GR-1236 meter for comparison to other station measurements.

An option to this, not tried by me, with possibilities is a large audio dB meter on the speaker terminals or a digital VOM that can show readings to at least one decimal place.

It seemed perfectly reasonable to me that my SDR IQ at the 28 Mhz EME IF frequency could be used to measure sun noise using the Spectravue software. To get more help, I posed the question to the Moonnet and the WA1MBA Reflector. Ben, W4SC, kindly

replied with info that he had done just as I had envisioned at Dale, W4OP's EME station and that the sun noise values were very close, within 4 tenths of a dB, to the GR-1236 standard meter. He emphasized that the SDR-IQ is thus a very good relative measure. He offered as well the complete settings as I have show below.

One could, of course, suggest that the SDR-IQ is an equally esoteric piece of gear not widely held and that my conclusions about the GR standard meter apply here. In the instant case, that is correct. However, we note with pleasure that the SDR design is here to stay with more and more radios using it so the SDR radio will be found in more and more stations as time moves along.

My steps are as follows:

1. Using the camera on feed to the station video monitor, position the dish on the vertical line that extends above and below the sun.
(Ed note: John must visually aim his antenna at this time. He does this with a video camera.)
2. Switch this camera off to avoid damage caused by too much sun.
3. Activate SDR IQ receiver on 28.050 MHz, CW, BW to 150 KHz, DEMOD is off, S meter is RMS, AGC is OFF, FFT/BLK size at 32768 to reduce “jump”, Display Peak Markers is ON, FFT Average to 1, and “Continium Mode” is the display. Set the vertical scale to 1 or 2 dB but this a function of your dish size and gain.

4. Move the dish EL and AZ for maximum sun noise. Mine is often about -57 db on sun....record value on note paper.
5. Move dish in AZ and EL so the TV camera shows no trees in view nor any object and record the cold-sky value, example -67 db.
6. Calculate the difference: in this case it is 10 db and this is your sun noise measurement.

7. Enter these values into an EXCEL spreadsheet along with the solar flux obtainable from www.solen.info/solar/ among other sites and log the date and time. Do this every time you make an improvement or you think you do in your system.

The "Display Peak Markers", per Pete, N4ZR, will give you more precision by showing the 4 highest power peaks on a list marked by an "x" with numeric values in the INFO box.

Some EME ops have suggested that you can add date and time to an image of the above as a permanent record but I did not record the details. To me, the record in EXCEL is enough.

The next question is the obvious, I think: OK, so I have 10 dB of sun noise, what should it be for my station? The K5SO Web site....Google this call.....has an excellent article on the topic and shows a chart of actual measurement by several most competent EME stations for different size dishes. My 3 m dish fell between 2 measures so I drew in a line to represent a 3m dish. This told me I needed to find about 2 dB in loss now present in my system. For info, VK3UM has developed and modified

over time an excellent no cost software program in which the entry of the receive side data yields the predicted sun noise value. There are also simpler programs to do this in K1JT's WSJT4, F1EHN's EME among others.

With this as a background, I said to my Roving partner, Joe, WA3PTV, "Lets check-out our 10 GHz rigs the same way". I did some planning and realized that I could power the laptop PC, the SDR-IQ receiver, and the 144 MHz to 28 MHz converter from an alternator in the van. The planned scenario for measurement would have Joe and I, plus MW colleagues, at a school yard about noon when the sun is overhead.

Then a seemingly mundane question hit us both: will the tripods permit looking up at 90 degrees and making minute and very precise adjustments without holding the dish and without the dish falling over?

A quick look at our two portable stations said: NO!! So before we venture forth to measure we must venture forth to our respective workshops to change the dish mountings. When ready, our objective will be to:

1. Set up the dishes on cold sky and record the value.
2. Set the dishes on the sun and record the value.
3. Subtract and record the sun noise.
4. Change the focal length + or - about 4 mm (a guess but go small) and do steps 1-3 again.
5. Repeat steps 1-4 enough times with changed focal lengths until you know that you have found the maximum value.
6. If you are using an offset dish, do the same steps 1-5 with vertical

alignment of the feed until you have the maximum sun noise.

The 23 cm EME test is very easy to do and I can do it in just a few minutes. One day I got my physical exercise by making 7 trips to the dish, each time making an adjustment in the focal length of the feed, then measuring and recording the sun noise again, then repeating this 6 more times!!!

The question can be asked: can I measure sun noise in the rain or overcast skies? Some authorities say yes and some say no. I take no sides on this issue: I just simply prefer to see the sun on camera, HI!!

WA3PTV and I look forward to trying our hand at 10 Ghz measuring using the procedure as above which we have NOT tried to date. We can and no doubt will learn some new points and change our methods accordingly.

Please address any questions, comments or concerns to me at W3HMS@aol.com.....73,
John W3HMS