

# The Feedline



**Vol. 2009, #6**  
**June 2009**



Gary Johnston, KI4LA, Great Lakes Division Vice-Director, gave a talk at the May meeting of the Northern Kentucky Amateur Radio Club. He brought members up to date on how the ARRL is serving its members, and encouraged members to attend the Great Lakes Di-

vision [convention](#) in Findlay, OH on September 12.

Oh, and he brought along his ARRL “goodie bag” from which he pulled out door prizes for those in attendance!

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## Dates to Remember:

- Jun 6 – NKARC [Antenna Building Party](#)
- Jun 8 – NKARC Membership Meeting
- Jun 27 – [Paddlefest](#)
- Jun 27,28 – [Field Day!](#)
- Jul 13 – NKARC Membership Meeting

## Upcoming Programs

The **June 8** meeting will be devoted to preparations and planning for Field Day.

At the **July** meeting, Robert Kluck, N4IJS, will present a program on D-STAR. If you are interested in learning about this protocol for the transmission of digital voice and data via radio, you won't want to miss this meeting!

# NKARC Directory

<b>President:</b> Dann Fox, KI4AVO <a href="mailto:dfox03@fuse.net">dfox03@fuse.net</a>	<b>Vice President:</b> Robert Gulley, AK3Q <a href="mailto:ak3q@arrl.net">ak3q@arrl.net</a>	<b>Club Trustee &amp; Historian:</b> Brian DeYoung, K4BRI <a href="mailto:k4bri@arrl.net">k4bri@arrl.net</a>
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**Repeaters (K4CO):** 147.255+ and 444.350+ Edgewood (PL 123.0), 147.375+ Walton, 146.895+ Highland Heights. The 147.255 repeater is a linked Echolink node, accessible via N4IJS-R.

**NKARC Net:** Tuesdays, 8:30 PM on the 147.255 repeater

**VE Testing:** Testing sessions are held by appointment only on the 2nd Monday of each month, prior to the NKARC membership meeting. Testing begins at 6:00 pm. To make an appointment, contact Lyle Hamilton at [ab8sh@arrl.net](mailto:ab8sh@arrl.net) or tel. 513-315-4032

**NKARC Web Site:** <http://www.k4co.org>

**NKARC Membership Meetings:** 2nd Monday of each month at 7:30 pm at the Hilltop Church of Christ, 5300 Taylor Mill Rd (Ky. 16), Taylor Mill, KY. Visitors are always welcome!

The Feedline is published monthly by and for the members of the Northern Kentucky Amateur Radio Club. It is distributed via direct email to current NKARC members. **If you are a member but are not receiving your copy, please notify the Feedline editor.** Permission is hereby granted to any non-profit amateur radio group to quote or reprint from this publication provided appropriate source credit is given. Submissions for the July

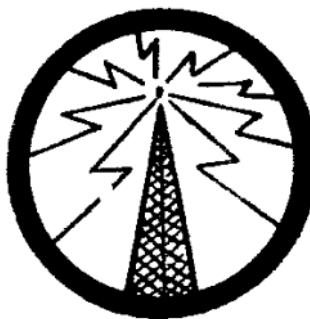
2009 Feedline must be received no later than July 3rd. Submissions, address or call changes and circulation problems may be sent to the Feedline editor:

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# Top of the Tower

Well, Field Day is just around the corner, and closer yet is our June 6th antenna building day at the church parking lot where we hold the meetings. We hope for good weather and a good turnout! This is an opportunity for you to come with antenna questions and designs, as well as whatever materials are needed for building your antenna. Not only will there be helping hands to assist with the building, but hopefully some people there with the expertise to handle your particular questions.

For myself, I am contemplating building something that can be rolled up and stored in a to-go kit along with a telescopic mast I have, to give me real portable HF capabilities. I already have the marine battery I need and the cables, so this is a project I hope comes together easily. While it will have its uses for emergency work, I also look forward to having the ability to go out to a park or a local hillside and work some DX. I have some very real space limitations in my home location, so getting away from time to time just



for DX would be fun.

Speaking of building antennas, I had the opportunity just this past week to help a friend put up a couple of dipoles, and it was an educational experience. We added a 20 and a 40 meter dipole to an existing 80 meter setup, using the same balun, mast and coax. We cut the wires a bit long, since shortening wire is much easier than lengthening it!, and then tested for VSWR and made adjustments. We were pretty lucky all-in-all, because after making a relatively small adjustment we were in an acceptable range. Ben (KG4NMH) made a great PSK31 contact on his 20 meter dipole later that day, working UA3DP, Russia. How cool is that!

Ben's experience just motivates me to do more work with my own antennas. I want to add a 10 meter dipole to my setup, and possibly even a 40

**Continued on page 4**

## May Net Report

**Important notice:** The weekly NKARC net is moving from 7:30 to 8:30 on Tuesday evenings, beginning June 9.

If you are interested in helping the club out and expanding your Amateur Radio skill set, please take a turn at running one of our weekly nets! This is a great way to hone your radio, net

control, and message handling skills in a friendly environment. If you are interested, please contact Robert Kluck, N4IJS, at (859) 426-5588 or [n4ijs@k4co.org](mailto:n4ijs@k4co.org)

DATE	NCS	CHECKINS	TIME (MINS)	TRAFFIC
5/5/09	AJ4DK (Don)	8	26	0
5/12/09	KB4VKS (Mike)	7	24	0
5/19/09	KB4VKS (Mike)	8	27	0
5/26/09	KB4VKS (Mike)	9	29	0
TOTALS:		32	106	0

meter Delta Loop to my existing 20 meter loop.

That's the fun of antennas - there is an infinite amount of experimenting available to you. Add to that Mark's recent presentation on using antenna modeling software, and I foresee a busy summer for this camper!

Just by way of reminder, look for some exciting changes that are happening to our Tuesday night net. Robert Kluck has been hard at work putting together a club contest, some format changes, and a rescheduling of the net to 8:30 Tuesday nights instead of 7:30. Our hope is that more people will be able to participate, and that there will be more reasons than ever for people to join the net each week. Tune in and find out what's happening!

As a closing thought, I hope you are making plans to come to Field Day June 27th/28th. There will be an opportunity to sign up for operating

slots at the June club meeting, as well as putting the final touches on Field Day plans. This year promises to be better than ever with opportunities for getting on the air, meeting new people, and showing the community how we can be more relevant than ever, especially with the storms our area has seen these last few years. Amateur Radio really is there "when all else fails." Emergency services is one of the main reasons we are a licensed, protected group with far-ranging broadcast capabilities. Field Day tests our ability to "take our stuff on the road" and prepares us for serving during real-world disasters. Sound like fun? You bet! Hope to see you there!

Until then, here's to grabbing all the signals you can!

73,

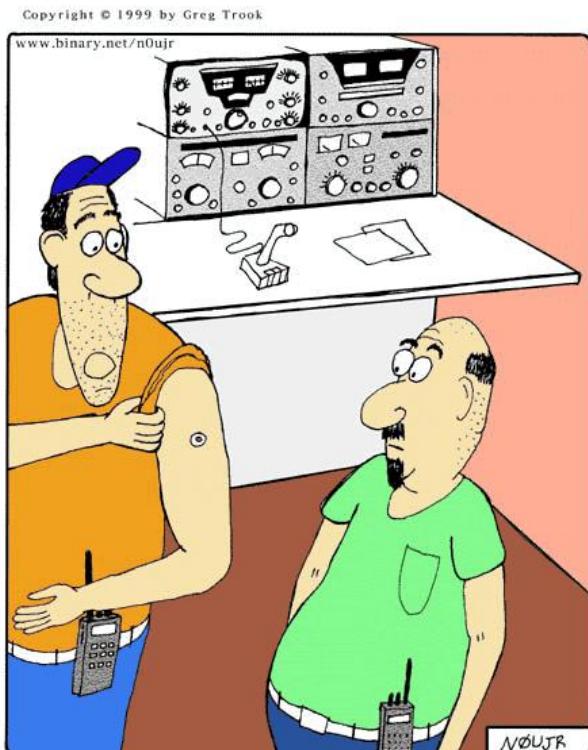
Robert AK3Q/AAR4IS

## Mystery Ham Revealed!

No one was able to identify the young ham whose 1961 photograph appeared in last month's Feedline. He is none other than our own Dave Core, K8WDA! He hasn't changed much, has he?



The minutes of the May meeting of the Northern Kentucky Amateur Radio Club are not available.



"This is the new RF exposure monitor device I came up with. When you reach the maximum cumulative exposure, the red center pops out. My wife says it's perfect for a turkey like me."

Blah, blah, blah...

# Mark's Mutterings

Last month, I mentioned that I was planning to buy a **PTT foot pedal** to use with my K3 during Field Day. I thought that I had found a bargain in a \$15 Yamaha sustain pedal for keyboards at Amazon.com. Unfortunately, when it arrived I discovered that it was a normally-closed switch instead of normally-open as required by virtually all ham rigs. I opened the pedal up, and decided that I might be able to convert it. An hour later, aided by a Dremel tool, some double-sided tape and plenty of grunting and a few choice cuss words, the deed was done, and I now have a working foot pedal for my K3. I'll let you know after Field Day whether it was worth the effort or not!

My article on constructing a **portable, all-band doublet antenna** elicited a couple of questions from readers. One asked if the length of the feedline (46 feet) was critical. Well, I wouldn't say that it is absolutely critical, but if you want to avoid tuning difficulties on some bands, you shouldn't stray too far from this length. That's because the feedline acts as an impedance transformer, and converts what might be an unmanageable impedance at the feedpoint of the antenna to an impedance that a reasonably good antenna tuner can convert to the 50 ohms expected by your transmitter. Us-

ing EZNEC and Transmission Line for Windows (two programs that I demo'd at the April meeting), I experimented with various feedline lengths and decided that 46 feet provided the best compromise between what was physically practical for field use and what gave a reasonable impedance match.

"Reasonable" is relative, of course. Here are the end-of-feedline loads that I came up with by using TLW:

Band (freq.)	Impedance
40 m (7.100)	$150\Omega - j830$
30 m (10.100)	$210\Omega + j880$
20 m (14.100)	$65\Omega - j260$
17 m (18.100)	$675\Omega + j1550$
15 m (21.000)	$185\Omega - j145$
12 m (24.900)	$130\Omega - j450$
10 m (28.300)	$105\Omega + j585$

The worst-case impedance occurs on 17 m, but even here the auto-tuner on my Elecraft K3 has no trouble in achieving a 1.0:1 match. Of course, the SWR on the feedline itself might be quite high, but the beauty of open-wire feedline is that losses due to SWR are generally extremely low.

You will notice that I did not include 80 m on my chart. That's because I configure the

antenna as a top-loaded vertical on this band, and I have not yet learned how to model this in EZNEC! However, here again my K3 autotuner has little difficulty in finding a 1.0:1 match.

Another reader asked where they could obtain the 24 AWG Teflon-insulated stranded wire that I swear by for my portable antennas. I obtained 500 feet of the stuff for under \$20 quite a few years ago from Jim Skalski, N2GO. He must have miles of the stuff in his basement, because I still see his name popping up in recent internet postings. He can be reached via email at [hiscallsign@arrl.net](mailto:hiscallsign@arrl.net). He also sells the same wire in 22 and 26 AWG. Last time I checked I only had about 100 feet left myself, so I guess it's time to re-order!

To connect the feedline to my rig, I use a combination of a [BNC-to-dual-banana-jack](#) adapter and a [BNC-to\\_UHF](#) adapter.

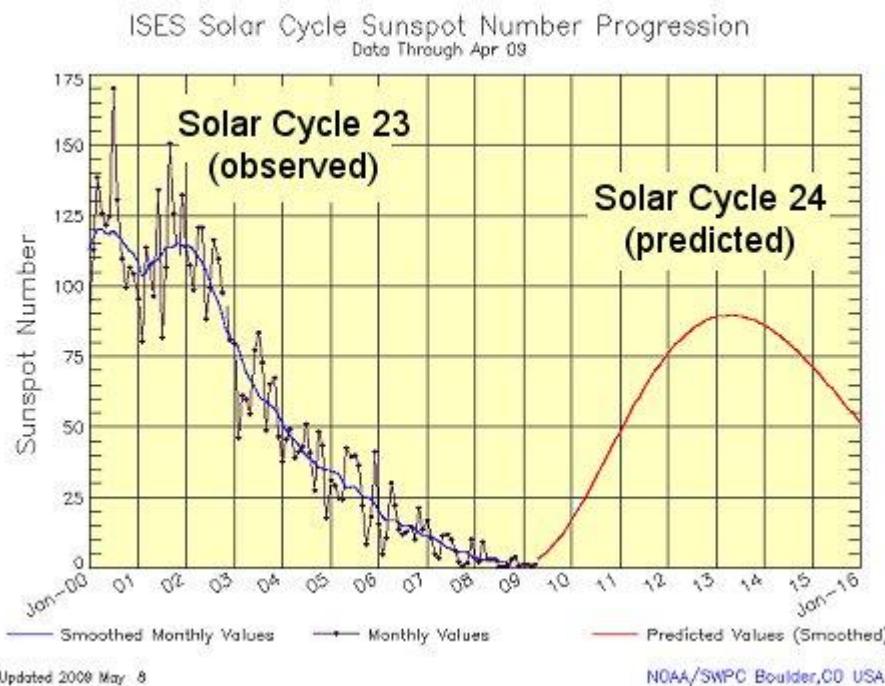
When I'm finished operating, I roll the whole antenna up like a kite-string on a piece of cardboard and tuck it into a gallon-sized Ziploc freezer bag for safe storage.

73,  
Mark, AI4BJ

# NASA Releases New Predictions for Solar Cycle 24

From ARRL web site

An international panel of experts -- led by the National Oceanic and Atmospheric Administration ([NOAA](#)) and sponsored by [NASA](#) -- has released a [new prediction](#) for the next solar cycle: Solar Cycle 24 will peak in May 2013 with a below-average number of sunspots. "If our prediction is correct, Solar Cycle 24 will have a peak sunspot number of 90, the lowest of any cycle since 1928 when Solar Cycle 16 peaked at 78," said panel chairman Doug Biesecker of NOAA's Space Weather Prediction Center ([SWPC](#)). This report clarifies a [NOAA report](#) from earlier this month that stated that Solar Cycle 24 would bring "90 sunspots per day on average."



The latest forecast revises an [earlier prediction](#) issued in 2007. At that time, a sharply divided panel believed solar minimum would come in March 2008 followed by either a strong solar maximum in 2011, or a weak solar maximum in 2012. "It turns out that none of our models were totally correct," said Dean Pesnell of the Goddard Space Flight Center ([GSFC](#)) and NASA's

lead representative on the panel. "The Sun is behaving in an unexpected and very interesting way."

In 2007, experts varied in their predictions on when the solar cycle would peak and how strong it would be. In April of that year, NOAA, in coordination with an international panel of solar experts, predicted that the next [11-year cycle of solar storms](#) "would start in March 2008, plus or minus six months, and peak in late 2011 or mid-2012." In the cycle forecast issued in April 2007, half of the panel predicted a "moderately strong cycle of 140 sunspots, plus or minus 20, expected to peak in October 2011. The other half predicted a moderately weak cycle of 90 sunspots, plus or minus 10, peaking in August 2012. An average solar cycle ranges from 75 to 155 sunspots. The late decline

of Cycle 23 has helped shift the panel away from its earlier leaning toward a strong Cycle 24. The group is evenly split between a strong and a weak cycle."

At a meeting of the American Geophysical Union in San Francisco in December 2007, David Hathaway of NASA's Marshall Space Flight Center, along with colleague Robert Wilson, said that Solar Cycle 24 "looks like it's going to be one of the most intense cycles since record-keeping began almost 400 years ago." They said they believe the next solar maximum should peak around 2010 with a sunspot number of 160, plus or minus 25. "This would make it one of the strongest solar cycles of the past 50 years -- which is to

say, one of the strongest in recorded history." Four of the five biggest cycles on record have come in the past 50 years. "Cycle 24 should fit right into that pattern," Hathaway said.

Right now -- June 2009 -- the solar cycle is in a valley, the deepest of the past century. In 2008 and 2009, the

Sun showed some of the lowest sunspot counts on record, as well as weak solar winds and a low solar irradiance, going more than two years without a significant solar flare. "In our professional careers, we've never seen anything quite like it," Pesnell said. "Solar minimum has lasted far beyond the date we predicted in 2007."

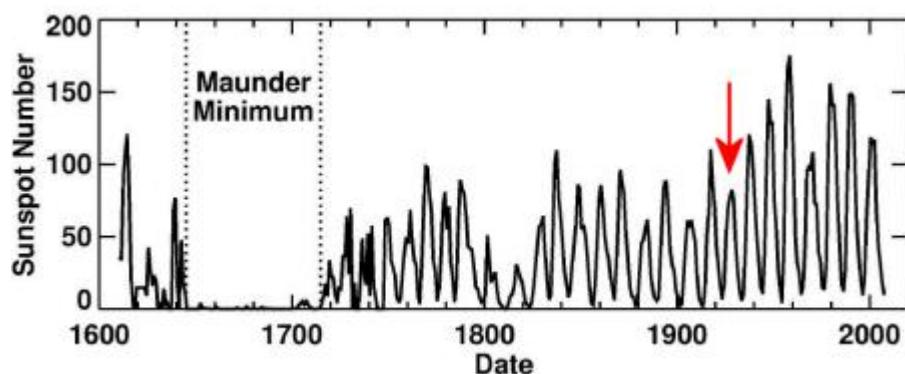
In recent months, however, Pesnell said that the Sun has begun to show some small signs of life: Small sunspots and "proto-sunspots" are popping up with increasing frequency. Enormous currents of plasma on the Sun's surface are gaining strength and slowly drifting toward its equator. Radio astronomers have detected a tiny but significant up-tick in solar radio emissions. All these things are precursors of an awakening Solar Cycle 24 and form the basis for the panel's new, almost unanimous forecast.

Pesnell cautioned optimism, telling the ARRL that there is an "error bar of +/- 20." This means Solar Cycle 24's sunspot number could be as high as 110,

or as low as 70. "Based upon my own personal research, I don't think we'll see 90 [sunspots in Solar Cycle 24]," he said.

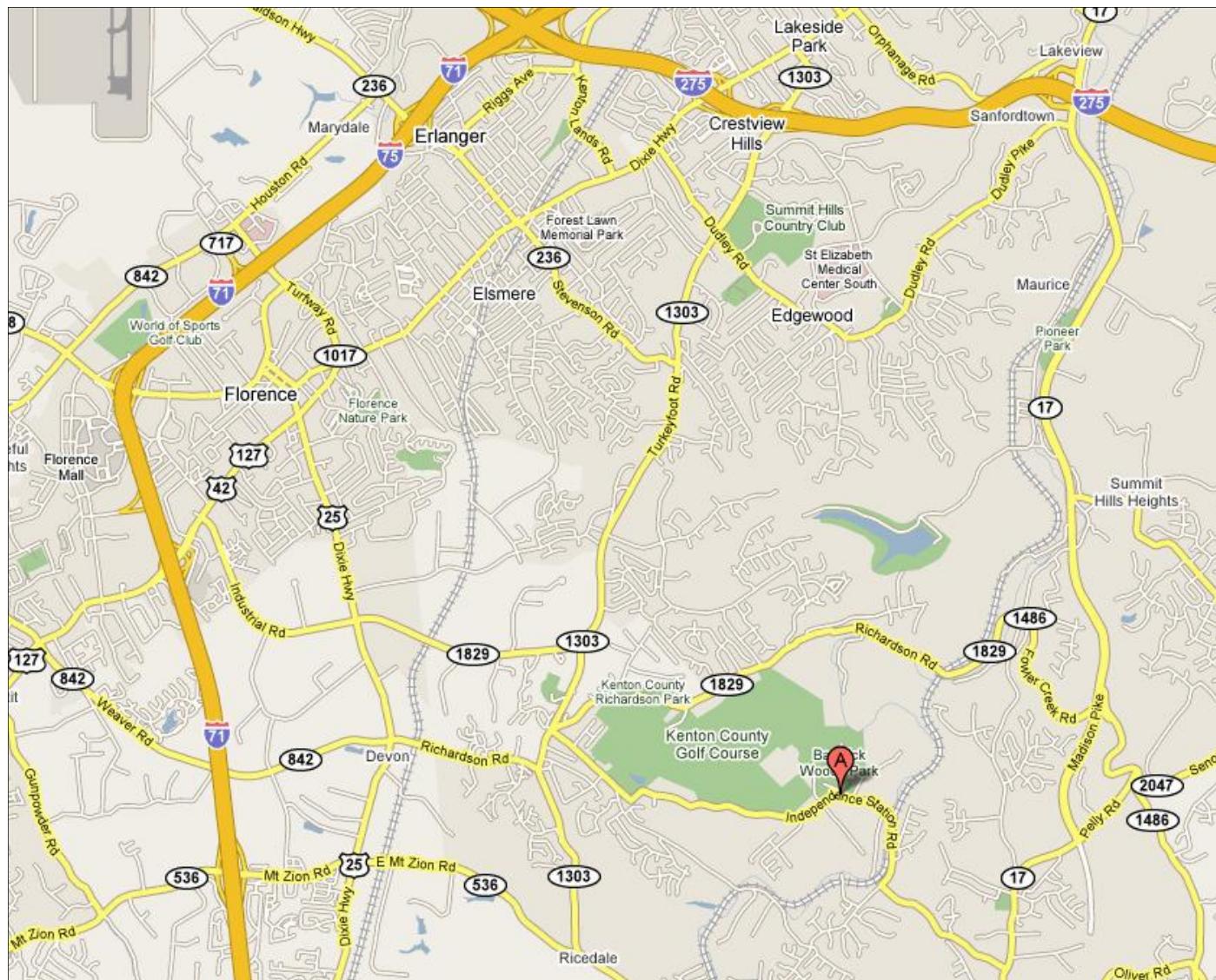
When asked if such a low number foretold the beginnings of a [Maunder Minimum](#), Pesnell said that a Maunder Minimum takes several cycles to appear: "Sunspots [in solar cycles] leading up to the Maunder Minimum took several cycles to disappear. I really can't predict what will happen in Solar Cycle 25. What we're seeing now is something that looks like a sunspot, but it looks as if someone has come along and 'stomped' on it, creating a multitude of little things. We don't have a name for this and we've never seen anything like it before."

There could be more surprises, panelists acknowledge -- and more revisions to the forecast. "Go ahead and mark your calendar for May 2013," Pesnell said. "But use a pencil." -- *Some information from NASA*



This chart from NASA shows the yearly-averaged sunspot numbers from 1610 to 2008. Researchers believe upcoming Solar Cycle 24 will be similar to the cycle that peaked in 1928, marked by a red arrow.

# Location of NKARC/KD7ARET Field Day Site: Lincoln Ridge Park (formerly known as Banklick Woods Park)



To ensure that we have enough operators to keep two stations busy throughout Field Day, please schedule the times that you would like to work here:  
<http://doodle.com/9emccn9pknynhxpw>

The club will be providing dinner on Saturday (at around 5:00 p.m.) and lunch on Sunday (at around 12:30). Visitors are always welcome!

For the latest information, please check the K4CO web site: <http://k4co.org/>



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