The Black Hole

Official Journal of The Society of Midwest Contesters

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Adventures in SO2R Land - Part 6

By Bill Axelrod ND9E

Prolog. So there I was, the Saturday morning one week after the SSB sweepstakes, contemplating my boxes of radios, wire, coax, miscellaneous junk, trees, open land, hills and valleys and trying to lay out my systems engineering plan to rebuild my SO2R station square in the middle of the black hole……..

This time I was determined to follow my own advice and apply some basic systems engineering processes to developing my station.

The first step is requirements definition. In English that means deciding what you want your station to be when it grows up. Since I had all the inside "stuff" (meaning radios, amplifiers, SO2R switching, band-pass filters, and the like) I just had to plan my antenna farm. Sounds easy, huh? Not so fast, radio breath.

The hardest thing about this phase isn't the technical part. It is the "being honest with yourself" part. The obvious technical answer would be a couple of 100+ foot towers with stacked beams, four squares for 80 and 160 meters, and full length beverages for receiving. But the obvious answer is not often the correct answer. Aside from minor issues like "Do I have enough real estate for this antenna farm?" or "Do I have enough money for this antenna farm?", there are come more complex and demanding questions that need to be honestly addressed.

(Continued on page 4)

Rock the QSO Parties

In an effort to increase SMC activity, we're encouraging everyone to actively participate in state QSO parties in 2009. A calendar listing the state QSO parties for 2009 has been posted on the SMC website. Let's make a concerted effort to rock the state QSO parties.

Alabama QSO Party	16Z Jun 6 - 04Z Jun 7
West Virginia QSO Party	18Z - 24Z June 21

ZO-fest 2009

August 8th, 2008

Double Tree Conference Center
Bloomington, IL

Agenda and schedule TBD
Lunch will be provided at a cost of about $20

http://w9smc.com/zofest_2009.htm

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Membership in **The Society of Midwest Contesters** is open to all persons with a bona-fied interest in amateur radio contesting. For more information contact one of the following officers:

SMC Dues

Dues are $10 a year, but may be waived based on the fulfillment of participation requirements:

In the SMC SS circle: Make 100 total Sweepstakes QSOs over the two weekends and submit your score(s) for "Society of Midwest Contesters." In addition, submit one other score for an SMC club competition in one of the following contests: ARRL VHF, 160m, or 10m, NAQP, CQWW, ARRL DX , etc.

Outside of the SMC SS circle: Submit two scores per year for SMC club or team competition in any of the six NAQPS and four Sprints.

Qualifying scores are those submitted during the calendar year prior to January 1.

Donations are still accepted

You can make your payment two ways:

1. Send a check, money order, or cash to:

   Zig Markowski - KM9M
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2. Use Paypal and email your donation to dues@w9smc.com.

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SMC Stuff

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Order Today!

To get your SMC stuff, see the last page of the newsletter or visit the SMC website, http://www.w9smc.com/merchandise.htm

Shirts

Field Day Anyone?

Ed. Thanks to all the members who shared their Field Day plans. If you're looking for a place to do a little operating, look for a group in your area and see if you can join them.

City, St	Location	Club Name	Call	Cat	Contact
Elmhurst, IL	910 N. Addison (Fire Department Training Facility)	York Radio Club	W9PCS	2F	John, n0fcd@yahoo.com
Wauconda, IL	260 Jamie Lane, Unit D	Cortek Radio Assoc.	W9CA	3A	Charlie, n9co@aol.com
Northbrook, IL	Village Green Park, Shermer Rd and Walters Av	North Shore Radio Club	K9OR	3A	Randy, k9or@comcast.net
Elburn, IL	Johnson's Mound Park	Fox River Radio League	W9NE/ W9CEQ	8A	Bill, wcm@millnem.com
Raytown, MO	Raytown City Hall	Raytown ARC	K0GQ	2A	Steve, k0ou@comcast.net
Terre Haute, IN	Shiner's Picnic/Camp Grounds	Wabash Valley Amateur Radio Assn.	W9WUU	8A	Ray, k9dur@rnacs.com
Cicero, IN	Cicero, IN	The Hoosier DX & Contest Club	KJ9D	2A	Mel, kj9c@iquest.net
Kankakee, IL	5 airline miles southwest of Kankakee	KARS	W9AZ	3A or 4A	Don, k9nr@daca.net
Woodstock, IL	Woodstock, IL	Robert F. Heytow Memorial Radio Club	K9YA	1A	Mike, hrg@cifnet.com
Peoria, IL	Robinson Park	Peoria Area ARC	W9PIA	3A	Craig, craig@thompsonet.com
Bloomington, IL	Karst Farm Park	Bloomington ARC	K9DIY	2A	Bob, k9sql@k9sql.us
Munster, IN	Munster, IN	Bozo and the Lids	W9TG	1A	Joel, w9wju@aol.com
Goshen, IN	Elkhart County 4H Fairgrounds	Goshen ARC	K9WJU	3A	Jim, arswt9u@gmail.com
Fairview Heights, IL	Pleasant Ridge Park	P.R.I.M.E. ARA	K9JHQ	2A	Chuck, ki9a@aol.com
Wooster, OH	Memorial Park	Wayne ARC	W8AV	2A	Scott, kg9z@hotmail.com
Quincy, IL	Quincy Regional Training Facility	Western Illinois ARC	W9AWE	3A	Danny, dpease@adams.net

New Solar Cycle Prediction

By http://science.nasa.gov

May 29, 2009: An international panel of experts led by NOAA and sponsored by NASA has released a new prediction for the next solar cycle. Solar Cycle 24 will peak, they say, in May 2013 with a below-average number of sunspots.

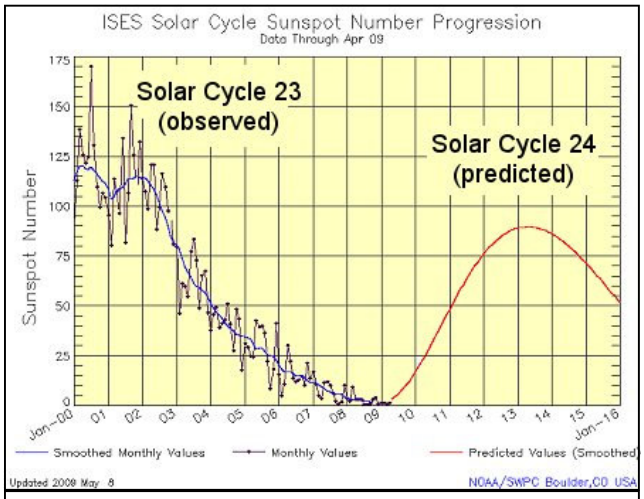
"If our prediction is correct, Solar Cycle 24 will have a peak sunspot number of 90, the lowest of any cycle since 1928 when Solar Cycle 16 peaked at 78," says panel chairman Doug Biesecker of the NOAA Space Weather Prediction Center.

Right: A solar flare observed in Dec. 2006 by NOAA's GOES-13 satellite.

It is tempting to describe such a cycle as "weak" or "mild," but that could give the wrong impression.

"Even a below-average cycle is capable of producing severe space weather," points out Biesecker. "The great geomagnetic storm of 1859, for instance, occurred during a solar cycle of about the same size we're predicting for 2013."

The 1859 storm--known as the "Carrington Event" after astronomer Richard Carrington who witnessed the instigating solar flare--electrified transmission cables, set fires in telegraph offices, and produced Northern Lights so bright that people could read newspapers by their red and green glow. A recent report by the National Academy of Sci-



This plot of sunspot numbers shows the measured peak of the last solar cycle in blue and the predicted peak of the next solar cycle in red. Credit: NOAA/ Space Weather Prediction Center *(Continued on page 5)*

(Continued from page 1)

For example, My interests are DXing and Contesting. Or maybe Contesting and DXing. Together they are number 1. All my other ham interests are number 4 or 5 in comparison. While not mutually exclusive, there are significant differences between an antenna farms optimized for DXing and Contesting.

For contesting, one wants some antennas good for close-in QSOs as well as antennas optimized for DXing. For DXing you don't much care about close-in QSOs, but you do want gain antennas on 30, 17, and 12 meters that are not required for Contesting. At 311 entities confirmed, everything else I need will be serviced by DXpedition. So you will need to be competitive to get them while they are there on any band.

At the same time, you really need to take an honest look at what kind of contester you are. In my case, I painfully came to the conclusion that I am not competitive enough an operator to be number 1 in the sweepstakes or the DX contests. Regardless of what kind of station I would build, I no longer have the endurance to put 40 some hours in the chair for a single weekend. And, frankly, I don't have the drive and competitiveness I once had. Each of us will have a different set of answers. And differing solutions.

So, for me, I settled on an antenna farm with one beam (SteppIR 3 element with 30/40 meter dipole), phased ¼ wave verticals for 40 meters, an 80 meter vertical, a 160 meter inverted L, a very low G5RV for close in 80 and 40 meter contesting, and a pair of bi-directional mid-sized beverages to fit in the room I have.

Next step – construct an as-is and a to-be diagram. My as-is drawing was easy – a blank piece of paper. Things got a it more easy without legacy antennas to factor in. My to-be included a rough sketch of where all my new antennas would go. I also included a couple of interim steps like some useable antennas to get on the air and a migration path to my to-be antenna system.

From that I went out and planted two verticals. One was a 43' vertical with an antenna tuner and the second an interim 40 meter vertical. Threw down about 16 radials each to get started. There's been a lot of yapping on the reflectors about 43' verticals. Some good technical discussion; more self-serving blah-blah. But it is a fairly efficient antenna on 80 through 20 meters, easy to match with a 4:1 unun, and easy to convert to an 80 meter vertical by adding capacitive top loading. And I was on the air with full power and a SO2R capability (as long as 40 meters is open).

I thought I would have a month or so to get cracking on my antenna system. But I really screwed up. I mentioned once before that I had once opined that my next SSB SS would only happen after Hades froze over. Turned out that was a prophetic statement for a guy who just moved to the Black Hole. Because a week later it started to snow. And it

(Continued on page 5)

(Continued from page 4)
snowed every couple of days for the next couple of months. Sure put a damper on my antenna work. But I did form a very close relationship with my snow blower and shovel.

At this point my XYL surprised me. She isn't interested in ham radio a bit, but she is very supportive and even supports and enables my contesting habit. My home has a heated and air conditioned but unfinished basement. I had planned to use the corner of the basement with a window and walk-out door for my ham shack. She arranged to have a dedicated radio room finished out for me! A dream come true. And sure enough, the following Monday morning Builder Bob (Yes, his name really is Bob so Builder Bob he became) showed up to get started. Wow, conduits for antenna and control cable runs, ground bus, plenty of 115 and 220 VAC outlets for my gear. A dream come true.

Preview… So there I was, the next Saturday morning, sitting in front of my computer, making lists and ordering antennas, cable, and parts. Parts simply aren't just parts. An antenna farm needs all kinds of parts.

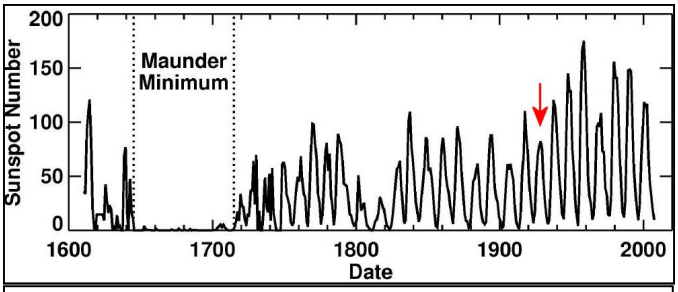
73 and GL… Bill ND9E

(Continued from page 4)
ences found that if a similar storm occurred today, it could cause $1 to 2 trillion in damages to society's high-tech infrastructure and require four to ten years for complete recovery. For comparison, Hurricane Katrina caused "only" $80 to 125 billion in damage.

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. Competing models gave different answers, and researchers were eager for the sun to reveal which was correct.

"It turns out that none of our models were totally correct," says Dean Pesnell of the Goddard Space Flight Center, NASA's lead representative on the panel. "The sun is behaving in an unexpected and very interesting way."

Researchers have known about the solar cycle since the mid-1800s. Graphs of sunspot numbers resemble a roller coaster, going up and down with an approximately 11-year period. At first glance, it looks like a regular pattern, but predicting the peaks and valleys has proven troublesome. Cycles vary in length from about 9 to 14 years. Some peaks are high, others low. The valleys are usually brief, lasting only a couple of years, but sometimes they stretch out much longer. In the 17th century the sun plunged into a 70-year period of spotlessness known as the Maunder Minimum that still baffles scientists.



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. Credit: NASA/MSFC

Right now, the solar cycle is in a valley--the deepest of the past century. In 2008 and 2009, the sun set Space Age records for low sunspot counts, weak solar wind, and low solar irradiance. The sun has gone more than two years without a significant solar flare.

"In our professional careers, we've never seen anything quite like it," says Pesnell. "Solar minimum has lasted far beyond the date we predicted in 2007."

In recent months, however, the sun has begun to show timorous signs of life. Small sunspots and "proto-sunspots" are popping up with increasing frequency. Enormous currents of plasma on the sun's surface ("zonal flows") are gaining strength and slowly drifting toward the sun's equator. Radio astronomers have detected a tiny but significant uptick 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.

According to the forecast, the sun should remain generally calm for at least another year. From a research point of view, that's good news because solar minimum has proven to be more interesting than anyone imagined. Low solar activity has a profound effect on Earth's atmosphere, allowing it to cool and contract. Space junk accumulates in Earth orbit because there is less aerodynamic drag. The becalmed solar wind whips up fewer magnetic storms around Earth's poles. Cosmic rays that are normally pushed back by solar wind instead intrude on the near-Earth environment. There are other side-effects, too, that can be studied only so long as the sun remains quiet.

Meanwhile, the sun pays little heed to human committees. There could be more surprises, panelists acknowledge, and more revisions to the forecast.

"Go ahead and mark your calendar for May 2013," says Pesnell. "But use a pencil."

On the next episode of "Queer Eye for the Straight Guy" ….

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