



MINNESOTA MARSGRAM



Information for Minnesota Navy-Marine Corps. MARS Members

July, 2009

Volume 13, Number 7

NNN0ALL Minnesota

by NNN0GAZ Tim

Greetings, a month has passed since the announcement on the future of the Navy-Marine Corps MARS program, and as of this date we still have no news on the status of the program. Considering the lack of news and the possibility that NAV Four will be permanently shuttered, we will be holding a Region Five conference on August 22, 2009 at Great Lakes. We sincerely hope that by the time of the conference we will news that makes this a conference and not a farewell for Chief Anderson and closing of NAV 4.

To those that have written to our Minnesota delegation in Washington regarding the Navy-Marine Corps MARS program, thank you for your support of the program. Time will tell if we, and others, are successful at influencing the proper people that saving the program makes good sense.

If the program survives, then we all should take this near "sun-setting" as a wake up call. Last month I cited figures which clearly demonstrated that the program is worth saving – but hours, equipment, and volunteering aren't all that is necessary to keep this program alive. I also cited references from the MARS discussion list that contend we, the members, are to blame

for our undoing. As a whole, the program was slow to embrace changing technology, lost sight of our primary mission, etc. Some of the comments were on target and the call to "sun-set" the program should be considered the slap in the face we needed to step up, demonstrate that we are a viable organization that can change and evolve.

Over the past few months, even before news of the demise of the program, there were changes locally – traffic being passed via voice, digital and WL2K, this is excellent and I'm happy to see a variety of modes being used. For those of you not on the digital modes – how can we help you – equipment, advice and expertise – let us know, there are members here that are more than willing to help.

We also need participation – not just in nightly nets, but ecomm exercises as well. In June, NNN0KZC had a very timely exercise involving the distribution of supplies in response to a pandemic. As usual there was the core group of members present that always participate – creating and transmitting

messages – thank you for your participation.

We need more of you to join us during these exercises. Al has even made it easy – the ecomm net replaces the regular evening net you would show up for anyway, so why not join in the fun. Afraid of making a mistake – got news for you, even those that are here for every exercise have had their moments – we call them "teachable moments." Exercises are the time and place to make errors – a time to learn. Afraid equipment won't work – an exercise is the perfect time to find out if you have those soundcard settings right or you know how to make the adjustments on the fly. Afraid the net will last longer than the 15-20 minutes we usually spend on an evening net – we only ask for this extra time once a quarter, how tough is that sacrifice?

I don't know how else to put it – we need members to participate in order to prove that we are a viable organization capable of handling routine as well as

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Content Contributions Welcomed and Encouraged

MINNESOTA TRAFFIC NETS

Designator	Frequency	Local Times
5G1B	Pri. NCE Sec. NBG Ter. NAR	18:30 Daily

MINNESOTA ADMIN. NET

5G4A	Pri. NCE	19:00 2nd Sunday
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MARS DATA SYSTEM

NN0DVD	Freq. NCO AFSK/USB
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Website <http://www.mnmars.org>

Intranet site <http://www.communityzero.com/mnmars>

GAZ cont'd from pg. 1

emergency traffic under the best and worst of on-air conditions using a variety of transmission modes. We don't expect you at every net or exercise – all of us have other commitments outside of MARS. What we would like to hear is a variety of voices at each evening and ecomm net. Each of us took the time to get trained and build and maintain our station – we should all be putting that training and effort to use. (Ed. Note: Just think how regular, documented, participation in the MARS program would benefit your case when a neighbor decides they don't like the looks of YOUR antennas!)

BT OVER



“Our soldiers fight not because they hate what is in front of them, but because they love what is behind them”

G.K. Chesterton

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Test Your NIMS Knowledge

Each month we take a look at a topic covered in the FEMA on-line courses required of all emergency communications volunteers. See how much you recall from the course.

Branches within the ICS organization can be established:

- A. Geographically or functionally.
- B. Along agency jurisdictional lines.
- C. Within Groups to organize resources.
- D. Under the supervision of a Leader.

Check in next month's MARSGRAM for the answer.

June NIMS Solution

Who is responsible for determining the appropriate tactics for an incident?

- B. The Operations Section

BT OVER



Second Quarter 2009 Exercise

Bravo Zulu to all that participated in the second quarter exercise this year. The exercise was delayed awhile in the hopes that more members would become WL2K capable. While progress has been made in this new system of handling traffic in the MARS system, there is still much work to be done.

The goal would be that all members be capable of at least the Telnet side of WL2K, while the real goal should be to become capable of the RF side as well. In the event that the internet does fail, the RF capability would become very valuable in our mission to handle traffic.

As in the second quarter exercise, MT-63 and PSK-31 digital modes were also used. Capability of these two modes of traffic handling is also encouraged.

We will continue to try and pass traffic on the net in these two digital modes and we are ready and willing to help anyone that needs help.

Again, thanks to all that participated in the last exercise and hope the participation will continue to improve.

BT OVER

Training Corner

Joint Service Mars Interoperability

by: Bob, NNNOGAZ FOUR

NTP 8 (D), ANNEX J, deals with interoperability. References in this article are to that annex unless otherwise noted.

Army and Air Force MARS began full interoperability on all circuits in April 1997. Army and Air Force MARS interoperability with Navy-Marine Corps MARS was limited only by Navy-Marine Corps MARS frequencies not being authorized on a nation-wide basis. PARA. J110.

It was not until 2008 that a standard procedure for calling and operating a voice net was promulgated and became effective. (Letter of Promulgation dated 22 Nov. 2007, effective Jan. 1, 2008).

JOINT OPERATIONS

PARA J200 provides:

All service MARS interoperability is authorized on a nation-wide basis subject to the following restrictions:

a. All service MARS stations are authorized to use any VHF circuits for digital and voice communications within the host service's established guidelines.

b. All service MARS stations are authorized to enter any Army or Air Force MARS HF traffic net.

c. All Army and Air Force MARS stations are authorized to enter any Navy-Marine Corps MARS area, region or state traffic net as long as they are located within the borders of the Navy-Marine Corps MARS region, specified below, in which the net is being operated. Navy-Marine Corps MARS regions used for frequency allocations and the states which they encompass are listed below:

REGION 1: CT, DE, MA, ME, NH, NJ, NY, OH, PA, RI and VT

REGION 2: AL, DC, FL, GA, KY, MD, MS, NC, SC, TN, VA, WV and PR

REGION 3: AR, LA, NM, OK and TX

REGION 4: CO, IA, IL, IN, KS, MI, MN, MO, ND, NE, SD, WI and WY

REGION 5: AZ, CA, NV and UT

REGION 7: AK, ID, MT, OR and WA

REGION 8: HI and Pacific shore stations

d. All service MARS stations are authorized to enter any service MARS emergency communications net during an actual emergency.

e. This interoperability does not apply to HF phone patch nets to and from Navy and Coast Guard ships. Operations for these units is restricted to Navy-Marine Corps MARS circuits by fleet commander frequency authorizations.

Note that the listing of Minnesota in REGION 4 appears to be related to frequency allocations. It has no relation to the organization of NAVMARCORMARS into four areas and ten regions, and the assignment of states to each region. (NTP8 (D) ANNEX K).

MESSAGE FORMAT AND REFILING

PARA J210 provides:

All three services basically use the same 16 line message format; however, there are minor differences. The following guidance is provided for refiling messages between service networks:

- Message precedence will not be changed.
- Any other changes to messages needed to comply with another service's policies or procedures will be made by the receiving station.

J300. NET OPERATIONS

PARA. J300 provides:

By tri-service MARS Chiefs agreement, the host service will provide the net control station who is the governing authority on procedures. Host net procedures will be observed without comment or debate. If the guest is unwilling to follow the host procedures, a tactful withdrawal from the frequency is recommended.

BT OVER



The Coast Guard Cutter Eagle (left) and the tall ship Picton Castle, of Lunenburg, Nova Scotia, make way toward Boston Harbor Wednesday, July 8, 2009, for the Sail Boston 2009 tall ships event. The Eagle is a 295-foot barque based in New London, Conn., and is used to train future Coast Guard officers.

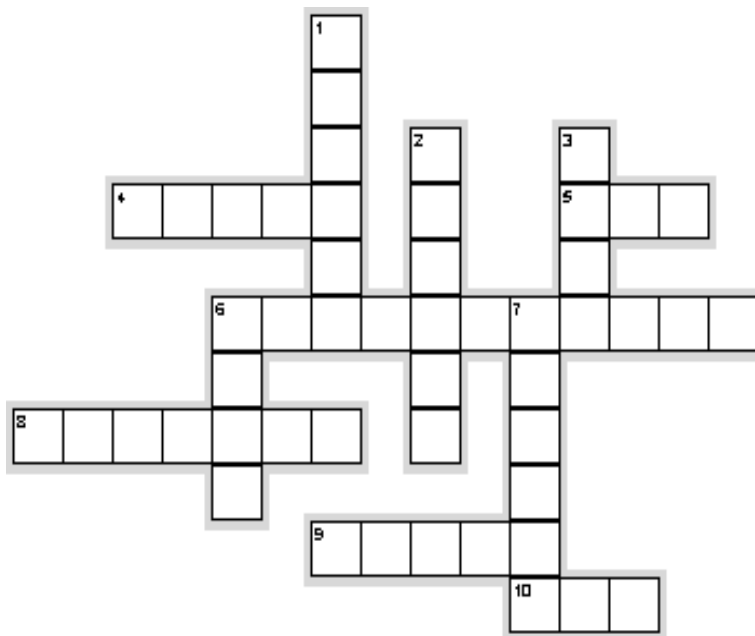
DC Basics

Across

- 4. Measure of a quantity of energy
- 5. Unit of resistance.
- 6. ——— current - Flow of charged particles through a conductor first in one direction then another
- 8. Unit of measure of a quantity of electrically charged particles.
- 9. The rate at which work is done.
- 10. Term used to define the force of attraction between two points of different charge potential.

Down

- 1. ——— Current - Flow of charges particles through a conductor in one direction



- 2. Capability of doing work. Measured as watt-seconds or kilowatt-hours.
- 3. A measure of electromotive force.
- 6. The smallest particle of matter that makes up an element.
- 7. Measure of the flow of charged particles per unit of time



ANTENNA TERMS

Crossword Solution

Across

- 1. TRANSFORMER—A device consisting of at least two coupled inductors capable of transferring energy through mutual inductance.
- 5. RESONANCE—The condition in an AC circuit containing both capacitive and inductive reactance in which the reactances are equal.
- 8. CURRENT—The rate of electron flow through a conductor.
- 11. RESISTANCE—Opposition to current by conversion into other forms of energy, such as heat.
- 12. CAPACITANCE—Ability to store electrical energy in an electrostatic field.
- 13. VOLTAGE—Electromotive force or electrical pressure.
- 14. POWER—The rate of electrical energy use.

Down

- 2. FREQUENCY—The rate of change of an AC voltage or current measured in hertz.
- 3. RMS—The square root of the average of the squares of the instantaneous values for one cycle of a waveform.
- 4. PERMEABILITY—The ratio of the magnetic flux density of an iron, ferrite, or similar core in an electromagnet compared to the flux density of an air core, when current is held constant.
- 6. REACTANCE—Opposition to alternating current by storage in an electrical field or magnetic field, measured in ohms.
- 7. FLUX DENSITY—The number of magnetic-force lines per unit area. Measured in gauss.
- 9. IMPEDANCE—The complex combination of resistance and reactance measured in ohms.
- 10. INDUCTANCE—The ability to store electrical energy in a magnetic field.

FEED LINE HINT

by; Lyle, NNN0APL

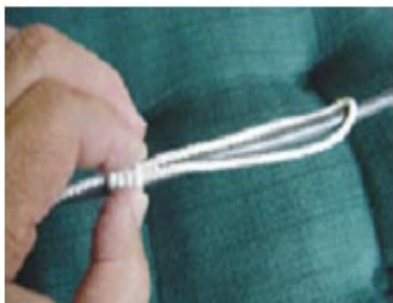
Here's the way I anchored the coaxial feedline from my windom antenna to my house. It is free to swing in the wind with the antenna, without becoming crimped or kinked I use 1/8 inch nylon rope and a variation of the knot used to lace telephone cables. For RG-8X coax, I start with a 5 foot piece of rope in which I tie simple overhand knots on each end.



Next, I melt the end with a lighted match. When the melting nylon forms a ball, I put the fire out and press the melted ball against the flat side of a screwdriver blade or some-thing similar, to blunt the end of the rope with the now hardening ball. If you do this just right you will have a hard glob on the end that is larger than the diameter of the rope and it will not pull through a simple overhand knot tied at that end of the rope.



Then measure 40 inches from one end of the rope and fold the rope back on itself. Place this loop on and parallel to the coax at the point where you want to secure it. Starting 5 inches from the end of the loop (see Figure 2), wind the longest loose end of the rope around this loop and the coax in close tight turns, toward the loop (see Figure 3). When you run out of rope, you should have about 3.5 inches of wrapping, ending about 1 inch away from the loop end (see Figure 4).



Now pull the knot at the end of the wrap through the 1 inch loop and while holding the wrapped coax in one hand, pull the other end of the rope with your other hand, so that it slips under the wrapped turns and closes the loop around the knot on the other end (see Figure 5). A little practice may be necessary



here to get everything tight and neat.



After tying the rope to the screw eye with a couple of half hitches, the remaining rope is wrapped around the screw eye to make it neat and keep it from dangling in the wind.

All photos by the author. — 73, Lyle H. Nelson, ABØDZ, 1450 201st Ave NW, New London, MN 56273, joannmn@tds.net

Field Day on



The ARRL started the Field Day video postings with a 30sec promo.

<http://www.youtube.com/watch?v=YQx2O9VuZts>

The Raytown (Missouri) Amateur Radio Club received some great coverage. Their President Barb, green shirt in the video interviews, did a very professional job explaining exactly what Field Day is all about. A club member, Jerry, NF9L, compiled the TV coverage their Field Day received in a series of live remotes.

This is a compilation of the FOX TV coverage done on the Sunday morning of Field Day weekend.

<http://www.youtube.com/watch?v=y3gRWG-EUGU>

This video was produced by a Raytown member and includes some of the Fox News coverage.

<http://www.youtube.com/watch?v=sr80I5ggOXo>

The Orange County Amateur Radio Club produces a nice documentary on the contest.

<http://www.youtube.com/watch?v=RCYwAHfJ16Q>

CQWW Adds New "Xtreme" Category

A new "Xtreme" category is being added to the CQ World Wide DX Contest to encourage the development of new technologies in amateur radio communications in general and contesting in particular. According to CQ WW Contest Director Bob Cox, K3EST, this new category has been established to allow amateurs to participate in the CQ WW contest while experimenting creatively with Internet-linked stations and other new technologies.

"Contesters are often early adopters of new technologies," said Cox, "and we want to encourage this as a continuation of ham radio's pioneering spirit. However, many of these technologies are not currently permitted in any existing CQ WW categories. The Xtreme category will allow these stations to compete, but only with other stations using new technologies."

Scoring for logs submitted in the new category will be a mix of standard CQ WW scoring plus a more subjective score for level of innovation and originality, as determined by a panel of judges on the CQ WW Contest Committee. The highest-scoring entries in the single-operator and multi-operator categories will win the John Kanzius, K3TUP, Memorial plaques, sponsored by Tim Duffy, K3LR. Kanzius, a prominent contester, was also an experimenter who developed a potentially ground-breaking approach to cancer treatment in the course of his own, ultimately unsuccessful, battle with the disease.

The new category will take effect with the 2009 CQ World Wide DX Contest this fall. It was introduced to contesters at the 2009 Dayton Hamvention® and received an immediate positive response. Complete details of the Xtreme category are in the June issue of CQ and are on the CQWW page of the CQ magazine website, www.cq-amateur-radio.com.

BT OVER

You have brains in your head
 You have feet in your shoes
 You can steer yourself
 Any direction you choose

Dr. Seuss
Oh, the Places You'll Go

Freedom Isn't Free



**I watched the flag pass by one day,
 It fluttered in the breeze.
 A young Marine Saluted it,
 And then he stood at ease..**

**I looked at Him in uniform
 So young, so tall, so proud,
 With hair cut square And eyes alert
 He'd stand out in any crowd.**

**I thought how many men
 Like him Had fallen through the years.
 How many died on foreign Soil
 How many mothers' tears?**

**How many pilots' planes shot down?
 How many died at sea
 How many foxholes were soldiers' Graves?
 No, freedom isn't free**

**I heard the sound of Taps One night,
 When everything was still,
 I listened to the bugler Play
 And felt a sudden chill.**

**I wondered just how many times
 That Taps had meant 'Amen,'
 When a flag had draped a Coffin.
 Of a brother or a friend.**

**I thought of all the Children,
 Of the mothers and the wives,
 Of fathers, sons and Husbands
 With interrupted lives.**

**I Thought about a graveyard
 At the bottom of the sea
 Of unmarked graves in Arlington.
 No, freedom isn't free.**



Deep Solar Minimum

The sunspot cycle is behaving a little like the stock market. Just when you think it has hit bottom, it goes even lower.

Last year, 2008, was a bear. There were no sunspots observed on 266 of the year's 366 days (73%). To find a year with more blank suns, you have to go all the way back to 1913, which had 311 spotless days. Prompted by these numbers, some observers suggested that the solar cycle had hit bottom in 2008.

Maybe not. Sunspot counts for 2009 have dropped even lower. As of March 31st, there were no sunspots on 78 of the year's 90 days (87%).

It adds up to one inescapable conclusion: "We're experiencing a very deep solar minimum," says solar physicist Dean Pesnell of the Goddard Space Flight Center.

intense UV radiation. Plotting sunspot counts, Schwabe saw that peaks of solar activity were always followed by valleys of relative calm—a clockwork pattern that has held true for more than 200 years. The current solar minimum is part of that pattern. In fact, it's right on time. "We're due for a bit of quiet—and here it is," says Pesnell.

But is it supposed to be this quiet? In 2008, the sun set the following records:

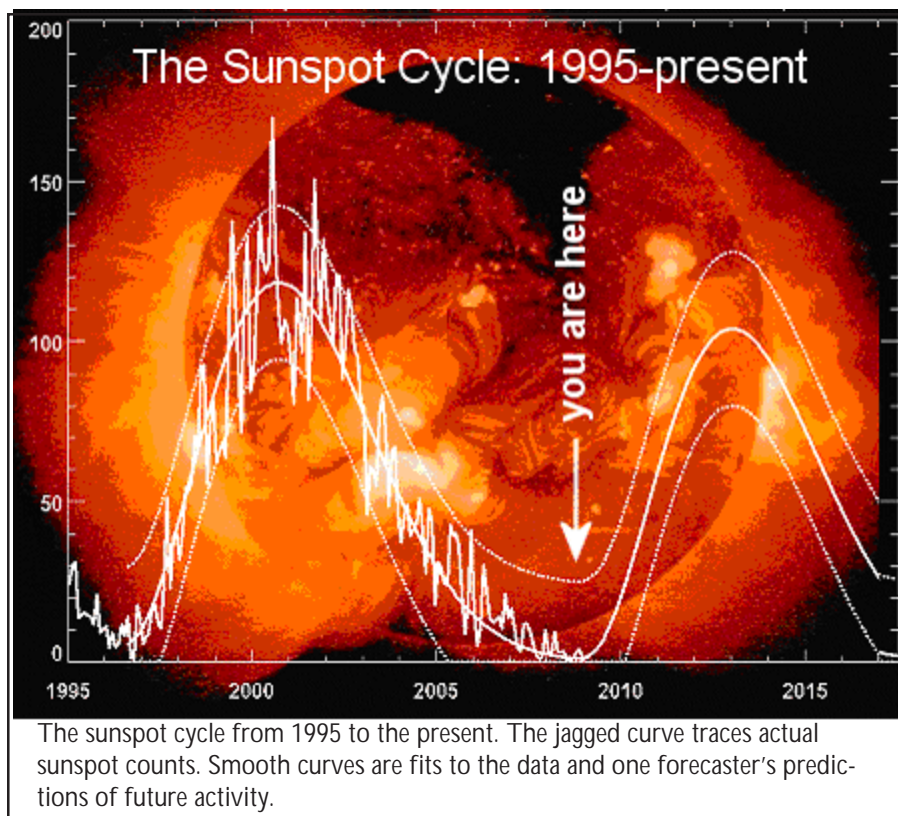
A 50-year low in solar wind pressure: Measurements by the Ulysses spacecraft reveal a 20% drop in solar wind pressure since the mid-1990s—the lowest point since such measurements began in the 1960s. The solar wind helps keep galactic cosmic rays out of the inner solar system. With the solar wind flagging, more cosmic rays are permitted to enter, resulting in increased health hazards for astronauts. Weaker solar wind also means fewer geomagnetic storms and auroras on Earth.

A 12-year low in solar "irradiance": Careful measurements by several NASA spacecraft show that the sun's brightness has dropped by 0.02% at visible wavelengths and 6% at extreme UV wavelengths since the solar minimum of 1996. The changes so far are not enough to reverse the course of global warming, but there are some other significant side-effects: Earth's upper atmosphere is heated less by the sun and it is therefore less "puffed up." Satellites in low Earth orbit experience less atmospheric drag, extending their operational lifetimes. Unfortunately, space junk also remains longer in Earth orbit, increasing hazards to spacecraft and satellites.

A 55-year low in solar radio emissions: After World War II, astronomers began keeping records of the sun's brightness at

radio wavelengths. Records of 10.7 cm flux extend back all the way to the early 1950s. Radio telescopes are now recording the dimmest "radio sun" since 1955. Some researchers believe that the lessening of radio emissions is an indication of weakness in the sun's global magnetic field. No one is certain, however, because the source of these long-monitored radio emissions is not fully understood.

Solar Minimum cont'd pg. 8



"This is the quietest sun we've seen in almost a century," agrees sunspot expert David Hathaway of the Marshall Space Flight Center.

Quiet suns come along every 11 years or so. It's a natural part of the sunspot cycle, discovered by German astronomer Heinrich Schwabe in the mid-1800s. Sunspots are planet-sized islands of magnetism on the surface of the sun; they are sources of solar flares, coronal mass ejections and

Solar Minimum cont'd from pg.7

All these lows have sparked a debate about whether the ongoing minimum is “weird”, “extreme” or just an overdue “market correction” following a string of unusually intense solar maxima.

“Since the Space Age began in the 1950s, solar activity has been generally high,” notes Hathaway. “Five of the ten most intense solar cycles on record have occurred in the last 50 years. We’re just not used to this kind of deep calm.”

Deep calm was fairly common a hundred years ago. The solar minima of 1901 and 1913, for instance, were even longer than the one we’re experiencing now. To match those minima in terms of depth and longevity, the current minimum will have to last at least another year.

In a way, the calm is exciting, says Pesnell. “For the first time in history, we’re getting to see what a deep solar minimum is really like.” A fleet of spacecraft including the Solar and Heliospheric Observatory (SOHO), the twin STEREO probes, the five THEMIS probes, Hinode, ACE, Wind, TRACE, AIM, TIMED, Geotail and others are studying the sun and its effects on Earth 24/7 using tech-

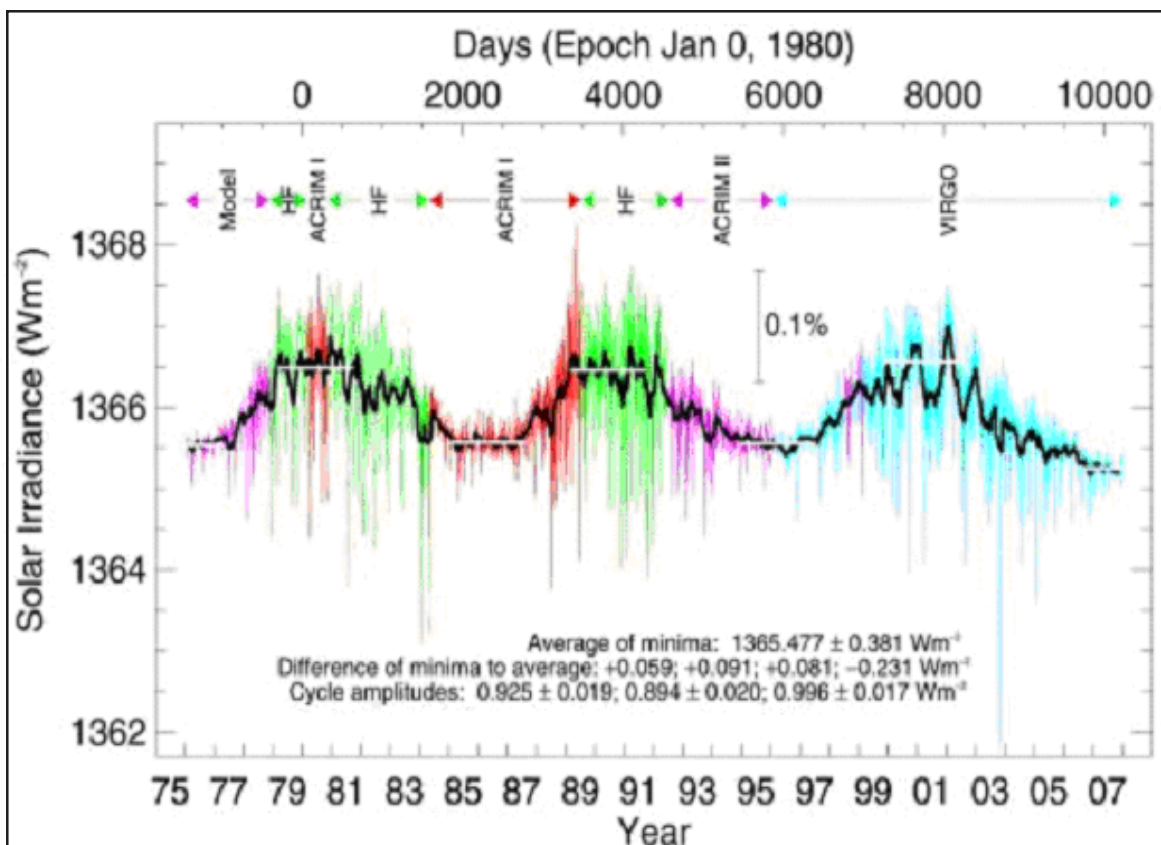
nology that didn’t exist 100 years ago. Their measurements of solar wind, cosmic rays, irradiance and magnetic fields show that solar minimum is much more interesting and profound than anyone expected.

Modern technology cannot, however, predict what comes next. Competing models by dozens of top solar physicists disagree, sometimes sharply, on when this solar minimum will end and how big the next solar maximum will be. Pesnell has surveyed the scientific literature and prepared a “piano plot” showing the range of predictions. The great uncertainty stems from one simple fact: No one fully understands the underlying physics of the sunspot cycle.

Pesnell believes sunspot counts will pick up again soon, “possibly by the end of the year,” to be followed by a solar maximum of below-average intensity in 2012 or 2013.

But like other forecasters, he knows he could be wrong. Bull or bear? Stay tuned for updates.

BT OVER



Space-age measurements of the total solar irradiance (brightness summed across all wavelengths). This plot comes from researcher C. Fröhlich.

5G1B Net Schedule

6:30PM 4007 kHz USB

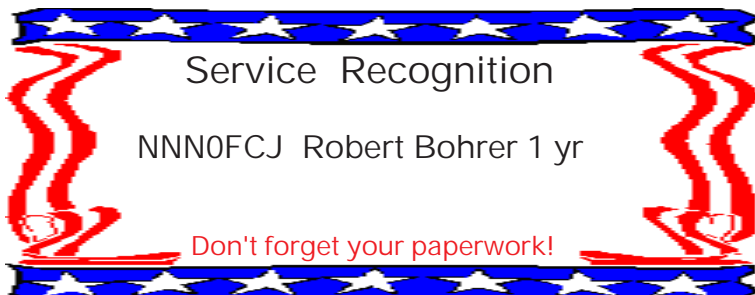
Day	NECOS	Tfc Rep
Sun.	XYA	XEE
Mon.	XEE	XEE
Tue.	BQH	BQH
Wed.	KZC	KZC
Thu.	SXU	SXU
Fri.	???	OCF

Sat. Rotating Duty (see below)

Don't be bashful, if the net has not been called by the net control station within 2 minutes, jump in and start things rolling.



NNNOVEU Neil McMillin 7/8
 NNN0XAY Skip Green 7/15
 NNN0YWH Robert Olson 7/17



Saturday NECOS / TREP Schedule

	NECOS	TREP
Jul 11	XYA	XEE
Jul 18	XEE	XEE
Jul 25	BQH	BQH
Aug 1	KZC	KZC
Aug 8	SXU	SXU
Aug 15	XYA	XEE
Aug 22	XEE	XEE
Aug 29	BQH	BQH
Sep 5	KZC	KZC



LITTLE KNOWN NAVAL HISTORY.....

The U.S.S. Constitution (Old Ironsides), as a combat vessel, carried 48,600 gallons of fresh water for her crew of 475 officers and men. This was sufficient to last six months of sustained operations at sea. She carried no evaporators (i.e. fresh water distillers!)

However, let it be noted that according to her ship's log, "On July 27, 1798, the U.S.S. Constitution sailed from Boston with a full complement of 475 officers and men, 48,600 gallons of fresh water, 7,400 cannon shot, 11,600 pounds of black powder and 79,400 gallons of rum."

Her mission: "To destroy and harass English shipping."

Making Jamaica on 6 October, she took on 826 pounds of flour and 68,300 gallons of rum.

Then she headed for the Azores, arriving there 12 November. She provisioned with 550 pounds of beef and 64,300 gallons of Portuguese wine.

On 18 November, she set sail for England. In the ensuing days she defeated five British men-of-war and captured and scuttled 12 English merchant ships, salvaging only the rum aboard each.

By 26 January, her powder and shot were exhausted. Nevertheless, although unarmed she made a night raid up the Firth of Clyde in Scotland. Her landing party captured a whisky distillery and transferred 40,000 gallons of single malt Scotch aboard by dawn. Then she headed home.

The U.S.S. Constitution arrived in Boston on 20 February, 1799, with no cannon shot, no food, no powder, no rum, no wine, no whisky, and 38,600 gallons of water.

Test Your Analytical Skills

Two Words

What two words, formed from different arrangements of the same eight letters can be used to complete the sentence below?

_____ to say, the tension at the small shop
 _____ a great deal when the missing check turned up.

Answer in the next issue of the Minnesota MARSGRAM

Solution for June Test

What number goes in the empty spot?

Courtesy of The Electron, Cleveland Institute of Electronics

What number from the bottom row goes in the empty spot and why?

- 5, 4, 7, (4)
- 4, 3, 2, (3)
- 2, 1, 1, (2)
- 9, 8, 8, (?)

Answer: 1

Column 4 is the square root of the sum of the first 3 columns, so $9 + 8 + * = 25$ and the square root of 25 is 5

**GO
NAVY!**