

The Static

An evolving publication of the Hill
Country Amateur Radio Club



...and now a word from the prez.

This month I think it is a good time to talk to hams but also to their XYL's. Those folks who participate in this hobby really need the support of their friends, family, and especially XYL's. Yes, a wife can make or break the desire of a husband to become actively involved in ham radio as some of you gentleman might be aware.

Here are some thoughts that might be used to help others understand what hams do and how important this skill can be to others.

Fellows, let it be known to your XYL what you can do in case of an emergency,

Include your XYL in the process of preparing and testing for your license. She might even become interested and begin to study also.

Put her mind at ease as to the cost of the hobby. Explain that yes, it can be very expensive but the "Mercedes" level is not necessary to enjoy this unique hobby.

Ladies, remember one's age is forever moving upward. What is your man to do when maturity causes his physical capability to decline while the mind is still very sharp? It's a wise move to encourage the preparation of the physical part of ham radio to take place in the years before physical decline. Say yes to a new tower and be happy with the possibility of improved communication. Let's face it, all of us need an outlet in our years of retirement. Ladies, what is your hobby and is it expensive? Keep in mind, if a husband and wife enjoy the same hobby, the cost suddenly goes down.

Fellows, share this with your XYL and if you need some help explaining the importance of your hobby just give me a shout. I would be happy to explain why I think the hobby can truly be a lifesaver for everyone concerned.

.....By the way you XYL ladies.....Have you thought about Field Day? This will be a marvelous time to see everything the ham hobby offers, or most of it. Think about supporting your man by coming out to observe, staying for the meal, and meeting others who consider this an important time in the life of a ham. I will look forward to seeing you. Also, I might be calling you to bring something for the meal. I feel sure you will say "YES". Thanks in advance and I will see you there.

NASA Measures Impact of Huge Solar Flare On Earth's Atmosphere

ScienceDaily (Mar. 23, 2012) — A key NASA instrument that can directly measure the impact of solar events on Earth's upper atmosphere has weighed in on the huge flare that impacted Earth last week.

The flare was considered one of the largest solar events in years even though its impact on the power grid and communications was minimal due to the angle it hit Earth.

Its direct interaction with the upper atmosphere was measured by NASA's SABER (Sounding of the Atmosphere using Broadband Emission Radiometry) instrument orbiting on the TIMED (Thermosphere, Ionosphere, Mesosphere, Energetics and Dynamics) satellite.

The upper atmosphere heated up, and huge spikes occurred in infrared

emission from nitric oxide and carbon dioxide, said Marty Mlynczak, SABER's associate-principal investigator at NASA's Langley Research Center in Hampton, Va.

Sol 'waking up'

"It's been seven years since we've had a storm like that," he said. "This is the first major storm event since the deep solar minimum of 2008-2009. We are finally seeing the Sun 'wake up' as it proceeds to the next solar maximum."

A solar maximum is a period of increased activity on the Sun, and minimum-to-maximum-to-minimum cycles generally last 11 years each. Solar activity began to pick up in 2010, is steadily increasing and should peak in late 2014.

As the Sun becomes more active, Mlynczak said, it emits more ultraviolet radiation and produces more solar flares -- coronal mass ejections (CMEs) -- which are absorbed in the atmosphere.

"More heating results, and the atmosphere gets warmer, and the infrared emission increases," he said.

"We don't know yet how these affect weather or climate -- likely there is not any direct effect," he said, "but there may be, over time, influences on ozone that affect climate."

"These results are very timely," said James Russell, SABER's principal investigator at Hampton University in Hampton, Va. "SABER is cataloging the atmospheric response to solar forcing and is providing a solid baseline for examining long-term changes in the climatology of the upper atmosphere."

"The data set is a vital resource for study of atmospheric trends, for validating atmospheric models of the region, and for evaluating our

understanding of solar/atmosphere coupling, he said.

Unique Record

SABER is one of four instruments on the TIMED spacecraft launched in December 2001. TIMED studies Earth's mesosphere and lower thermosphere, the least explored and least understood region of our atmosphere.

"SABER has a unique, continuous record of over 3,700 days observation of the climate and energy balance of the Earth's upper and outer atmosphere," Mlynczak said.

"From this, we are learning with each event how sensitive this region of the Earth's atmosphere is to short- and long-term variability of the Sun," he said. "We have documented the decline of the prior solar cycle, the deep minimum and the 'ground state' of the atmosphere during that time, and are now seeing the uptick."

TIMED was designed to operate for two years but has operated flawlessly for more than 10 years. Another NASA review is planned in 2013 to determine if SABER will continue operating for at least three more years.

"This is well before the predicted solar maximum," Mlynczak said. There are no other measurements like it, and the entire SABER science team is working hard to make the scientific case to keep the mission operating."

Partners in the SABER mission include Hampton University in Hampton, Va.; Science Systems and Applications, Inc.; GATS Inc.; NASA's Goddard Spaceflight Center in Greenbelt, Md.; and Johns Hopkins University Applied Physics Laboratory in Laurel, Md. Utah State University Space Dynamics Laboratory built SABER.

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The Angry Sun: How to Predict Space Weather



By Katharine Gammon,
OurAmazingPlanet Contributor | LiveScience.com –
Tue, May 15, 2012

Get ready for some solar action. Earth is entering a period where potentially damaging solar storms can wreak havoc on communications and satellites. That's what the experts at the Space Weather Prediction Center tell us.

But how do scientists know what the sun is going to dish out at us?

"We do just what you think we do — we watch the sun and watch for eruptive activity at [coronal mass eruptions](#)," said Joe Kunches, of the Space Weather Prediction Center in Colorado, and run by the National Oceanic and Atmospheric Administration.

The sun follows an 11-year weather cycle and the current cycle is known as Solar Cycle 24. The current cycle, scientists say, is in an active phase that is building up to a peak sometime next year.

Solar bursts

Coronal mass ejections (or CMEs) are solar [eruptions of solar plasma](#) that resemble the sun spitting fire from its surface. When the explosion is aimed

toward the Earth and reaches the planet as an interplanetary shock wave of particles, it can cause a geomagnetic storm that may disrupt the Earth's magnetosphere. That disruption can mess with communications and GPS satellites, the stuff we depend on in everyday life. (These storms can also trigger [fantastic aurora displays](#).)

Kunches says that predicting space weather can be like predicting the arrival of a hurricane. "It starts as a little ripple, then builds strength, and we're trying to predict when it will reach us," he told Our Amazing Planet.

The center employs about 50 people, and someone is always monitoring space weather around the clock, seven days a week, Kunches said.

Like hurricanes vary in their speed and path, space weather can vary in the time it takes to cross the 93 million miles (150 million kilometers) from the sun's surface to Earth. The fastest coronal mass ejections can arrive in 18 or 19 hours, Kunches said. During the fall of 2003, there was a series of coronal mass ejections that reached Earth in less than a day. [\[Worst Solar Storms in History\]](#)

"The more typical plasma clouds take 48-72 hours," Kunches said. That window gives the forecasters a bit more time to warn planes and

communications providers that there could be a disturbance.

Solar cycle

The sun has operated on its [11-year solar cycle](#) for millennia, but we've only just begun to notice its effects because so much of our affected technology is so new, Kunches said.

"The sun has been doing its thing for a long time, which we know because we can look at proxy data from ice cores and tree rings. Until we became technologically mature, we didn't care," he said. "Now that we have satellites and GPS, and communications like TV frequencies of radio, as well as manned space flight, it makes us care."

The space-weather-prediction field is also benefitting from new technology. A 2010 project dubbed the Active Magnetosphere and Planetary Electrodynamics Response Experiment (AMPERE) uses commercial satellites orbiting Earth to take magnetic-field measurements in real time. The result is output that has up to 100 times greater sampling density than previously possible — meaning that scientists are a bit closer to accurate, year-round space weather tracking.

"Starting two years ago, we are on the increasing side of the solar cycle," Kunches said. "From now until 2015, we can expect more eruptions from the sun."

Then probably things will go back to quiet conditions."

Smithville Swap Meet

By a stroke of luck I was in Smithville on May 5 and visited the local Swap Meet. It was a small gathering but I noted a few interesting items. One table had some Kenwood gear – two TS 440 transceivers, a TS 2000 and a TS 700, an all mode two meter rig. There was also a Yaesu FT 767 and a nearly new rack mount all mode Ranger transceiver for \$300. Tailgaters offered some mobile antennas and I saw three Collins transceivers in the \$500 to \$750 range. A couple of Bird watt meters were priced at \$225 and an older model oscilloscope carried a \$100 price tag. As with all used electronics they were sold as is.

Be careful, it's a dangerous world out there.

\$5.37! That's what the kid behind the counter at Taco Bell said to me.

I dug into my pocket and pulled out some lint and two dimes and something that used to be a Jolly Rancher.

Having already handed the kid a five-spot, I started to head back out to the truck to grab some change when the kid with the Elmo hairdo said the hardest thing anyone has ever said to me.

He said, "It's OK. I'll just give you the senior citizen discount."

I turned to see who he was talking to and then heard the sound of change hitting the counter in front of me.

"Only \$4.68 " he said cheerfully. I stood there stupefied. I am 56, not even 60 yet?

A mere child! Senior citizen? I took my burrito and walked out to the truck wondering what was wrong with Elmo. Was he blind? As I sat in the truck, my blood began to boil .

Old? Me? I'll show him, I thought. I opened the door and headed back inside. I strode to the counter, and there he was waiting with a smile. Before I could say a word, he held up something and jingled it in front of me, like I could be that easily distracted! What am I now? A toddler? "Dude! Can't get too far without your car keys, eh?" I stared with utter disdain at the keys. I began to rationalize in my mind!

"Leaving keys behind hardly makes a man elderly! It could happen to anyone!" I turned and headed back to the truck. I slipped the key into the ignition, but it wouldn't turn. What now? I checked my keys and tried another. Still nothing.

*That's when I noticed the **purple beads** hanging from my rear view mirror. I had no **purple beads** hanging from my rear view mirror. Then, a few other objects came into focus: The car seat in the back seat. Happy Meal toys spread all over the floorboard. A partially eaten doughnut on the dashboard. Faster than you can say **ginkgo biloba** , I flew out of the **alien** vehicle.*

Moments later I was speeding out of the parking lot, relieved to finally be leaving this nightmarish stop in my life. That is

when I felt it, deep in the bowels of my stomach: hunger! My stomach growled and churned, and I reached to grab my burrito, only it was nowhere to be found.

I swung the truck around, gathered my courage, and strode back into the restaurant one final time. There Elmo stood, draped in youth and black nail polish. All I could think was, "What is the world coming to?" All I could say was, "Did I leave my food and drink in here"?

At this point I was ready to ask a Boy Scout to help me back to my vehicle, and then go straight home and apply for Social Security benefits. Elmo had no clue. I walked back out to the truck, and suddenly a young lad came up and tugged on my jeans to get my attention. He was holding up a drink and a bag. His mother explained, "I think you left this in my truck by mistake." I took the food and drink from the little boy and sheepishly apologized. She offered these kind words: "It's OK. My grandfather does stuff like this all the time."

*All of this is to explain how I got a ticket doing 85 in a 40 mph zone. **Yessss**, I was racing some punk kid in a Toyota Prius. And no, I told the officer, I'm **not** tooold to be driving this fast.*

*As I walked in the front door, my wife met me halfway down the hall. I handed her a bag of cold food and a **\$300** speeding ticket. I promptly sat in my rocking chair and covered up my legs with a blanket.*

The good news was I had successfully found my way home.

Thanks to John Guida for the above story.

Have you ever thought about Echolink?

EchoLink® software allows licensed Amateur Radio stations to communicate with one another over the Internet, using streaming-audio technology. The program allows worldwide connections to be made between stations, or from computer to station, greatly enhancing Amateur Radio's communications capabilities. There are more than 200,000 validated users worldwide — in 162 of the world's 193 nations — with about 5,000 online at any given time. The club repeater supports Echolink

Some hams say that Echolink is not really radio and if the definition of being really radio means having an RF link from point to point they are right. It is a form of communication with an RF assist.

We have a regular check-in to the Monday evening FM net via EchoLink. I was a regular on an FM net in Missouri for several months via EchoLink and there was a ham in Mexico who checked in and served as the net control station using EchoLink. If you are interested in more information on this mode, check this link: <http://www.echolink.org/>

Weather and Amateur Radio

Although there is not a direct link between the two, a number of hams

participate in two well organized citizen/science programs. Some members of our club report precipitation through CoCoRaHS. This link will get you official information on the program. <http://www.cocorahs.org/> Participants in this program are asked to report precipitation on a daily basis. Another program many hams participate in is the Skywarn program administered by the National Weather Service. Participants report hazardous or potentially hazardous weather situations as they occur. You'll need to take a free two hour training course for this program. You can find additional information at the following <http://skywarn.org/> If you are interested in taking some free, on-line weather courses, go to the following site to see what is available. <https://www.meted.ucar.edu/>

If you have an electronic weather station that connects to the internet, you can contact <http://wxqa.com> and have your data used in short term forecasts. Also check <http://www.met.utah.edu/mesowest> from the University of Utah to see plots of surface observations from home weather stations, National Weather Service, state Departments of Transportation, the Federal Aviation Administration and the U.S. Forest Service.

June Meeting

The regular monthly meeting will be held on June 7. This will be an important meeting because final arrangements and last minute details for Field Day will be discussed. Dale Gaudier will present the program on erecting a three section crank up tower.

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Some members have expressed an interest in the Salvation Army SATERN net. This is an emergency communications organization that has a good reputation. There is a daily net on 14,265 +/- and you do not have to be a member to join in. You can get additional information from their website www.SATERN.org

Thanks to Pete Schuyler for the suggestion to add a date or edition number to this publication. You'll note a footer on each page.

If you have suggestions, comments or ideas for The Static, please contact me at bob.ky5yb@yahoo.com