



## GPS & The Sun - Flares Coming - Update!

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 UNITED STATES COAST GUARD AUXILIARY



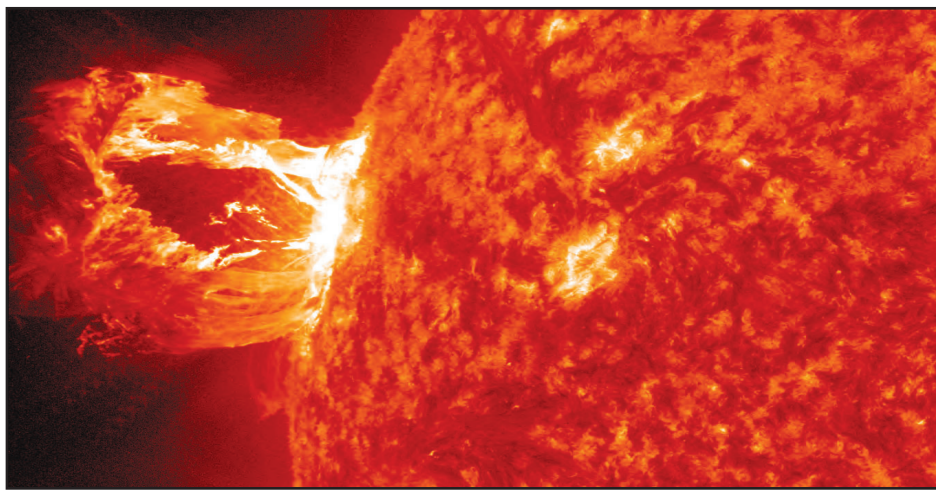
Over the years, we've written quite a bit about GPS technology. Interestingly, other than the first column, (see SSP, "GPS - Gee, How Does It Work?", 2/06/13), the other columns were about what could go wrong and what you could do about it. With all the news lately about solar flares, I thought it was time for an update. This column is an update on that.

### Solar Flares

By way of background, it may be hard to believe but 99.86% of all the mass in our entire Solar System is one object alone - the Sun. So, when things happen there, it is probably going to have an impact, particularly here if only because of our high-technology-based reliance on radio waves of all usable frequencies. On balance, the average day on the surface of the Sun clocks in at 10,000-degrees Fahrenheit. That, as we will learn, is a good day.

Solar flares are, essentially, an explosion in the Sun's atmosphere. When that happens, the surrounding solar atmosphere gets heated up to over 20,000,000-degrees Fahrenheit. That's 20 million degrees vs. 10 thousand degrees. That, as the saying goes, is a bad day.

This rips the surrounding atoms to pieces and sends electrons, protons and heavier ions shooting into space... This wave of atomic carnage, called the coronal mass ejection (CME), spans the



entire electromagnetic spectrum at all wavelengths, from simple radio waves to extremely high energy gamma waves. This, as scientists are fond of saying, is the problem.

### Solar Flares - They're Heeereee...

After the initial blast of radiation that comprised the CME, a huge cloud of charged particles is headed toward Earth. Solar flares are classified as A, B, C, M or X, with each class having a peak 10 times greater than the preceding one. Scientists have pointed out that activity on the sun is now ramping up ahead of an expected solar maximum around 2013.

### More Coming - Now What?

A magnetic storm caused by a solar eruption in 1973 plunged six million people into darkness in Canada's east-

ern-central Quebec province. Even ten to twelve years ago, during the last solar flare peak, GPS technology was expensive and far less common than it is today. Now, GPS is virtually everywhere - boats, cars, integrated into EPIRBs, pocket-sized for hikers, etc. As the Fates would have it, we now know that, based on recent studies, GPS receivers are unexpectedly vulnerable to bursts of radio noise produced by solar flares. When we were at the last peak, GPS was just much less common and the problems were thus minor in relative scope and attention.

The intense bursts of radio noise, caused by the charged particles shooting out from the solar flare at the speed of light, appear to peak in the 1.2 and 1.6 gigahertz bands used by GPS.

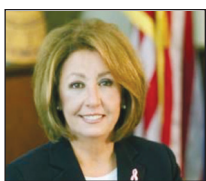
Normally, radio noise in these bands is very low, so receivers can easily pick up weak signals from orbiting satellites.

This may also be a problem for aircraft navigation as the FAA uses reference GPS receivers on the ground for air traffic control. Although planes can and do fly without GPS, outages will force the FAA to increase the distance and timing between aircraft, delaying flights. GPS is also used to synchronize power grids and cell phone networks. And, of course, we use GPS in our boats (and cars.) We could increase the strength of GPS signals but that would require redesigning GPS satellite hardware and software. I think solving the "Y2K" software problem was easier.

And we turned off LORAN just over three years ago - so there goes back-up (see SSP, "LORAN-C Going Off The Air - Gone but Not Forgotten", 1/27/10.)

So, what DO we do? I think it is what we DON'T do. Don't throw out your paper charts, your handheld compass and parallel rulers. And practice your pen-and-pencil piloting techniques.

BTW, if you are interested in being part of USCG Forces, email me at JoinUSCGAux@aol.com or go direct to the D1SR Human Resources department, who are in charge of new members matters, at DSO-HR and we will



## County Clerk Update

by SUFFOLK COUNTY CLERK  
**JUDY PASCALE**

### COUNTY CLERK REVENUE OFFERS SNAPSHOT OF LOCAL ECONOMY

Suffolk County Clerk Judy Pascale released the 2012 annual revenue report which details slight increases in state, county and town revenues.

Total revenue overall in the County Clerk's Office increased to \$260,316,415.42, representing a 7% increase.

"Since the peak in 2005, revenue in the County Clerk's Office has steadily decreased and this can be directly correlated to the decline in the real estate market. However, real estate activity has increased slightly since 2010, particularly on the East End of Long Island," stated Pascale.

New York State Transfer Tax, a .25% tax on the sale price of homes, increased to \$57,116,560.78 in 2012, or 6% more than in 2011.

East End towns saw an increase in real estate sales and a substantial increase in Peconic Bay Community Preservation Tax, suggesting a stronger real estate market on the East End than western Suffolk County. Peconic Bay Community Preservation Tax, a 2% tax on the sale price of homes in Suffolk's five east end towns, increased by 13% to \$66,848,089.4 in 2012.

Mortgage Tax, which is a 1.05% tax on mortgages, remained nearly the same as in 2011 at \$89,160,693.84. The impact is felt both locally and in Albany, since nearly half of the collected Mortgage Tax is distributed to Suffolk's towns and villages, and the other half to Albany.

"The increase in land record revenue seems to be attributed to an increase in East End activity, particularly for houses in the higher price ranges which

are often purchased without a traditional mortgage. While the Transfer Tax and Peconic Bay Community Preservation Tax both increased, Mortgage Tax still lagged behind. The County Clerk's Office recorded 168,273 land records, 4% more than in 2011 due mostly to low interest rates and mortgage refinancing".

"While the real estate market has seemed to level off compared to previous years, my office has seen a slight decrease in Supreme Court lawsuits as well as foreclosure related filings, easing off what had been record years in terms of filings," commented Pascale.

Index numbers associated with filed lawsuits decreased slightly to 38,163 in 2012. Foreclosure filings remained nearly the same this past year at 8,706. Foreclosure judgments decreased by 18% to 589. This may be due in large part to both the backlogs in the courts as well as increased filing requirements in foreclosure cases.

Small Claim Assessment Reviews Petition filings, however, reached an all-time high of 40,473 in 2012. Small Claim Assessment Review Petitions are filed as an appeal from local town assessment review boards.

"While overall revenue in the Clerk's Office has increased slightly, my office continues to be one of the top revenue producers for the County. At a time when the economy is struggling, the Clerk's Office still turned over \$17,801,469.72 to the County's general fund in 2012, which is 4% more than in 2011," stated Pascale.

## JV Kavanaugh K Of C Council #5293 1st Annual Ash Wednesday Fish Fry

Wednesday, February 13th 2013  
 176 Madison Street, Mastic NY 11950  
 6 P.M. until 8:30 P.M.



**Menu**  
**ALL PLATTERS**  
**INCLUDE**  
**FRENCH FRIES**  
**& COLE SLAW**  
 (SWEET POTATO FRIES  
 50 cents additional)

**1 PIECE PLATTER \$8.00**  
**2 PIECE PLATTER \$9.00**  
**3 PIECE PLATTER \$10.00**  
**2 PIECE PLATTER & 5 SHRIMP \$11.00**  
**3 PIECE PLATTER & 5 SHRIMP \$12.00**  
 (ADDITIONAL \$5.00 CHARGE FOR SHARING)

**\$1.00 BEER, WINE & SODA**

**PROCEEDS WILL BE DONATED TO  
 LOCAL CHARITABLE ORGANIZATIONS.**

*LOOKING FORWARD TO SEEING YOU THERE.*