



GPS & The Sun - Flares Coming - Update!

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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?", 1/2/08), the other 6 columns were about what could go wrong and what you could do about it*. Last Spring, we wrote about the upcoming solar flare activity (see SSP, "GPS & the Sun - Flares Coming", 3/10/10) 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 at the speed of light. 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 Heereeee...

After the initial blast of radiation that comprised the CME, a huge cloud of charged particles is headed toward Earth. Last week, a huge solar flare occurred

on Monday, Feb 14, and its cloud of charged particles arrived on Feb 18. The flare, the largest in years, disrupted radio communications in southern China, according to the China Meteorological Administration. NASA confirmed that Monday's solar flare was the largest in years and the event sparked predictions of heightened activity on the northern hemisphere of the sun. "X-class flares are the most powerful of all solar events that can trigger radio blackouts and long-lasting radiation storms," disrupting telecommunications and electric grids, NASA said. (Solar flares are classified as A, B, C, M or X, with each class having a peak 10 times greater than the preceding one.) NASA also said the flare caused "sudden ionospheric disturbances" in the atmosphere above China.

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 eastern-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 didn't we just turn off LORAN...? (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 help you "get in this thing..."

* The prior articles on GPS technology are:

1. The Hole in the GPS Sky, 4/29/09
2. My GPS Broke - Oh Jeez... (1 of 4) , 9/23/09
3. GPS is Out! Radio is Out! And I'm WAY Out! Home is...??? (2 of 4) , 2/03/10
4. GPS is Out! Radio is Out! And I'm WAY Out! Home is...??? (3 of 4) , 2/10/10
5. GPS is Out! Radio is Out! And I'm WAY Out! Home is...??? (4 of 4) , 2/17/10
6. GPS & the Sun - Flares Coming, 3/10/10



County Clerk Update

by SUFFOLK COUNTY CLERK JUDY PASCALE

COUNTY CLERK REVENUE OFFERS SNAPSHOT OF LOCAL ECONOMY

Suffolk County Clerk Judy Pascale released the 2010 annual revenue report which highlights a leveling off of in state, county and town revenues.

Total revenue in the County Clerk's Office increased for the first time in four years to \$249,079,178.32, representing a 9% 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, 2010 brought about a slight uptick in real estate activity, 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 \$55,869,280.16 in 2010, or 25% more than in 2009.

East End towns saw a 14% 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 46% to \$58,715,604 in 2010. Preservation Tax in East Hampton was up 75% and 61% in Shelter Island. Southold, Riverhead and Southampton all saw increases over 25%.

The largest decrease in revenue was from the New York State Mortgage Tax. Mortgage Tax, which is a 1.05% tax on mortgages, decreased by 9% to \$90,122,584.76 in 2010. 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.

All ten towns in Suffolk County saw a reduction in Mortgage Tax except East Hampton, which increased by 11% to \$3,241,738.06. Huntington, Islip, Brookhaven, Riverhead, Shelter Island and Smithtown all saw Mortgage Tax decrease by over 10% while Babylon, Southampton and Southold realized losses of less than 9%. Southampton realized the smallest decrease of only 2%.

"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 significantly, Mortgage Tax still lagged behind. The County Clerk's Office recorded 160,247 land records, 2% more than in 2009."

"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 from 50,836 to 46,754 in 2010. Foreclosure filings dropped from 12,794 in 2009

to 9,834 this past year. Foreclosure judgments also decreased by 13% to 2,438. This may be due in large part to both the backlogs in the courts as well as increased filing requirements in foreclosure cases. Judgments of divorce also decreased by 14% to 3,201 in 2010.

Additionally, Small Claim Assessment Reviews Petition filings retreated from an all time high of 36,619 in 2009 to 35,200 in 2010. Small Claim Assessment Review Petitions are filed as an appeal from local town assessment review boards.

Sole proprietorships and partnerships nearly remained the same in 2010 with 17,398. Additionally, applications for U.S. Passports dropped slightly from 608 to 553 in 2010 and over 23% the last two years, possibly an indication people are traveling less.

"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 \$16,656,120.11 to the County's general fund, which is slightly more than in 2009," stated Pascale.

"We're happy to report that the County Clerk's total revenue has realized a slight leveling off after four years on the decline. Whether this trend continues will be largely based on the real estate activity in the western portion of Suffolk County and whether it will pick-up to the East End levels of 2010," concluded Pascale.