



# AFFECT OF CLIMATE CHANGE ON PENNSYLVANIA GARDENERS

By Kevin Fitzgerald, Senior forecaster

Observations from across the globe indicate that the pace of global warming has increased significantly during the past couple of decades. Figures 1 and 2 show that the 16 warmest years have all occurred between 1990 and 2009.

survive their local climate. Perhaps the most recognized source of this information is the USDA Plant Hardiness Zone Map, prepared by the United States National Arboretum. The latest version of this map, which breaks down the United States into growing

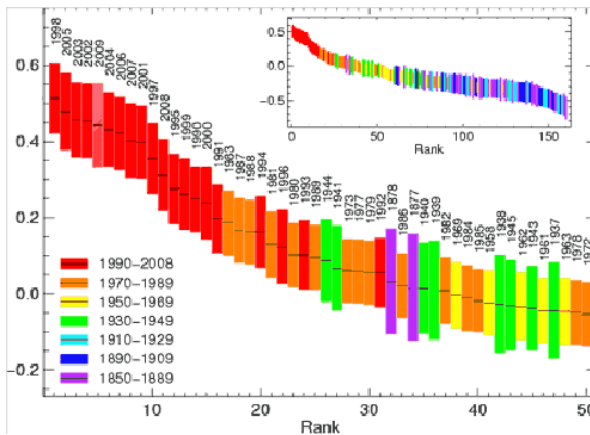


Figure 1. Top 50 warmest years since 1850

Much of the measured global warming has been the result of warmer nights, which support computer simulations of the greenhouse effect. When greenhouse gases warm the climate, the atmosphere holds more water vapor. The increased water vapor and resulting clouds can temper the effect of global warming on daytime temperatures by reducing the amount of sunlight reaching the earth. However, at night the increased water vapor and cloud cover act to keep temperatures warmer.

All of this can have a pronounced affect on gardeners, who rely on average winter minimum temperatures as a guide to what plants will

zones based on average winter minimum temperatures, centers on data collected between 1974 and 1986. However, warmer weather during the last couple of decades has brought into question the conventional wisdom regarding what plants can grow in Pennsylvania.

Figure 3 compares the older USDA map with a more recent zone map prepared by the Arbor Day Foundation, which encompasses the years 1991-2006.

Figures 3 and 4 indicate that many areas have become warmer since 1990 when the last USDA hardiness zone map was published. Significant portions of many states have shifted at least one full hardiness zone. Across Pennsylvania, zone 5, which delineates average winter minimum temperatures

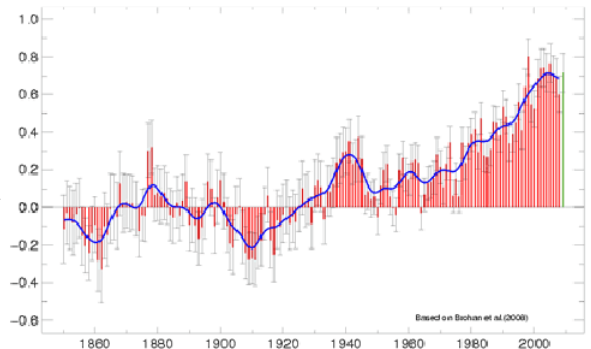


Figure 2. Global average temps relative to late 1800's

National Weather Service State College, PA Fall 2009



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between -20F and -10F, has almost entirely disappeared. Zone 7, which delineates average winter minimums between 0F and 10F, used to only exist in the Philadelphia metro area, but has now expanded to cover much of the lower elevations of Southern Pennsylvania.

Reclassifying a gardener's yard into a warmer area opens new options for plantings that would probably not have survived local winters in the 1970s or 1980s. Trees, such as the Southern Magnolia, once limited to growing zones from Florida to Virginia, now can thrive as far north as Pennsylvania. However, scientists who study climate and agriculture point out that warmer nights can stimulate the growth of harmful insects and weeds. The lack

of cold winter nights has encouraged the northward migration of the hemlock woolly adelgid, an invasive insect that has decimated stands of eastern hemlock on the east coast, including Pennsylvania. Cold winter temperatures are also important for cool-temperature crops such as apples, blueberries and grapes, which require a certain amount of winter cooling hours (between 32F and 50F).

The table below shows some locally compiled data for Pennsylvania, which mirrors the global trend of warmer nights. The first column of data corresponds to the years used in the USDA map (1974-1986). A more recent 30 year climatology (1979-2009) of average winter minimum temperatures shows a distinct warming trend, while data from the last decade is even more impressive.

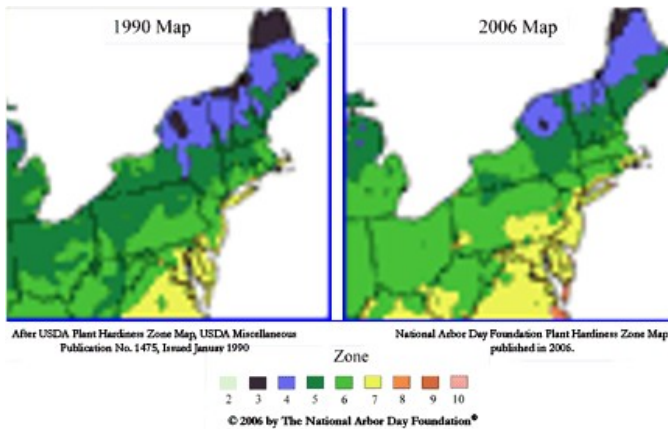


Figure 3. Hardiness zones 1990 (USDA) vs. 2006 (Arbor Day Foundation)

### AVERAGE WINTER LOWEST TEMPERATURES

(DEG F)

	1974-86	1979-09	1999-09
Harrisburg	1	3	6
Williamsport	-7	-4	0
State College	-4	-4	2
Altoona	-6	-3	0
Bradford	-19	-15	-11

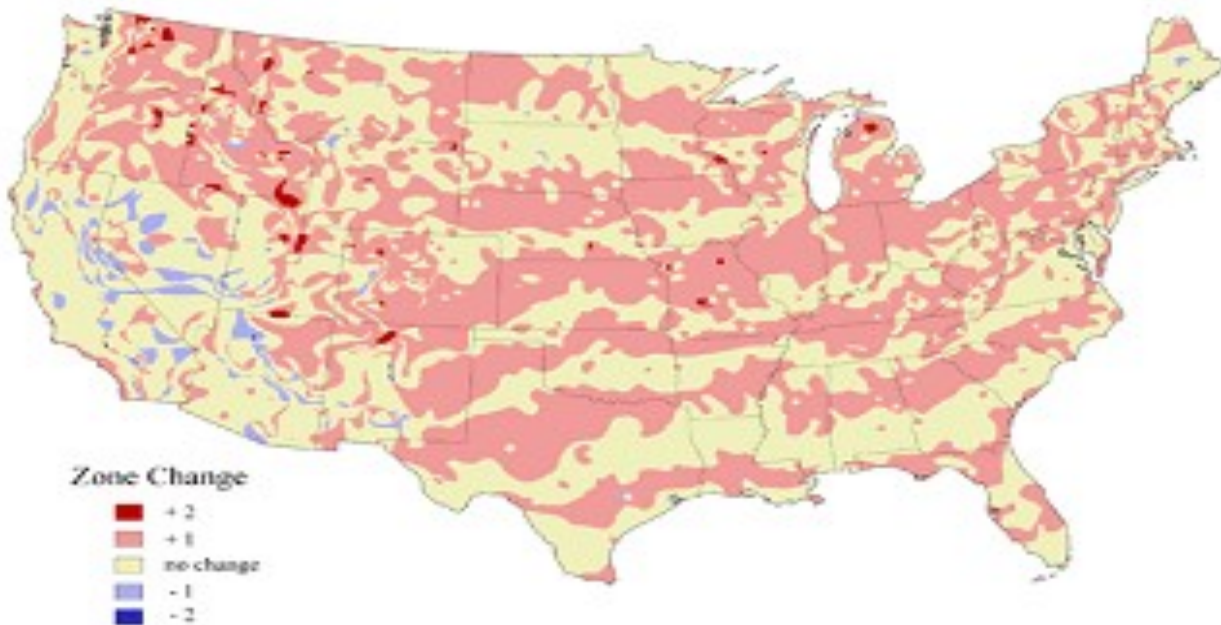


Figure 4. Differences between 1990 USDA hardiness zones and 2006 arbordays.org hardiness zones.



## *How NWS Forecasts are Produced: The Graphical Forecast Editor (GFE)*

By Mike Dangelo, Senior Forecaster

Most of the forecast information you get when visiting our web pages - indeed almost all of the forecast information we provide - is produced using a program developed for the NWS called the Graphical Forecast Editor (GFE).

GFE allows our forecasters to take the forecast they personally develop and put it into many computer (digital) files full of numbers. These raw numbers may then be plotted on maps, or obtained by other electronic means. The collection of the files containing this information is known as the National Digital Forecast Database (NDFD).

The NDFD provides a consistent base of forecast information which is used to produce various forecasts for different purposes. Some examples would be the "public" or general-use forecasts, forecasts for wild-land fire weather managers, and other customers who need point-specific information such as weather support for emergency situations.

NDFD forecasts contain many different parameters such as surface temperature, surface wind speed and direction, etc. These forecasts are done on a grid of 5km by 5km blocks (referred to as "grids" or "points"). These grids cover the nation in GIS-friendly latitude and longitude blocks.

The way we produce the digital files that make it into the NDFD is through the use of GFE. GFE is where we "draw" the forecast parameters (temperatures, winds, etc.). GFE allows us to easily share those forecasts in pictures and raw numbers. GFE is very much like a beefed-up "Microsoft Paint" program, or picture-editing software. GFE also allows us to collaborate in real-time with our neighboring forecast offices on the forecasts, and also on any weather watches, warnings or advisories that we may issue.

Your NWS forecast is exactly what our forecasters decide to draw into GFE. We use many tools to draw what we want in GFE, such as: an area-editor, a "pencil" tool, a contour tool, and editing helpers - like a base of seasonal normals, elevation-specific adjustments, bias-corrections based on recent model

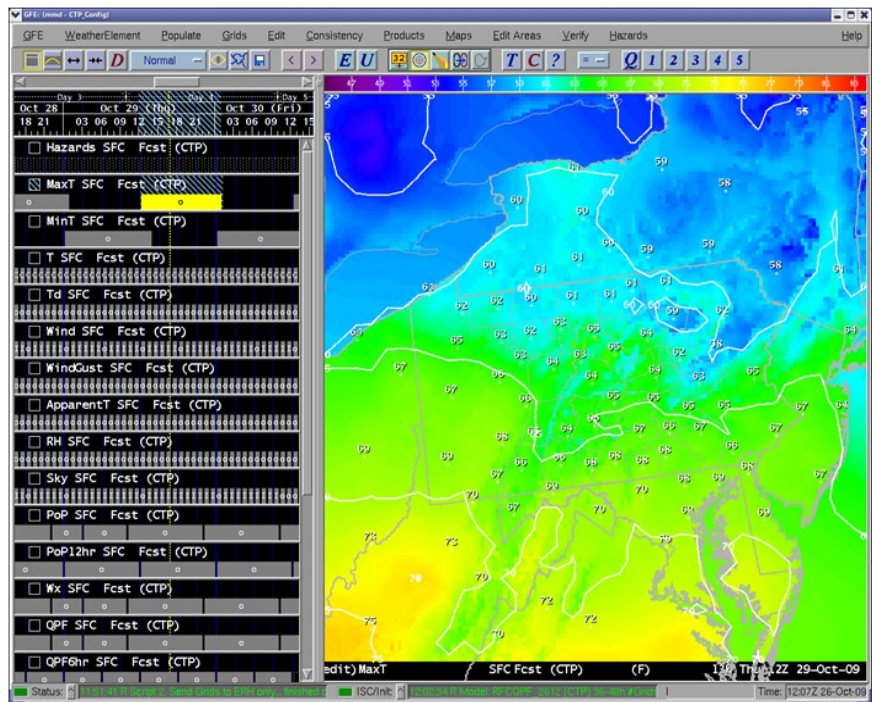
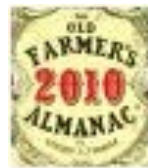


Figure 1. A snapshot of one of the GFE forecast fields

performance, and more.

The NDFD database may contain information from the leagues of numerical (model) guidance that we have access to, but the forecast is always the decision of the forecaster based on a combination of the forecasters' scientific training, personal experience, model guidance and collaboration with other forecast offices and river forecast centers. We take great effort each shift to keep the forecast up-to-date, and area-specific. We can specify changes in forecast conditions using time ranges as small as one-hour. We can choose to draw fog only in the valleys, or colder temperatures only on the ridges, etc.



**Climate change is not a new issue.** *"...There seems to be great doubt in the minds of farmers whether the climate, so far as it affects the agricultural production of New England, has undergone an essential change or not since the settlement of the country by civilized men. Some maintain that climate changes have taken place, while others are inclined to deny that the seasons have materially varied..."*

*Old Farmers Almanac 1874*

# SKYWARNEWS *FALL 2009*

At home (or work), you can see and use this information by clicking on our web site front page ([www.weather.gov/ctp](http://www.weather.gov/ctp)) map. There are many formats of the forecast available to you. The most common is the “Point Specific Forecast” and runs through day 7 with temperature, precipitation, wind and cloud forecasts. You can also see the forecast in a time scale (“Activity Planner”). You can see the valid grid box as an overlay when you click on the front map.

Another popular way to view the forecast is by looking at the maps. These maps look identical to what we see in GFE while we develop the forecast.

This page shows the compilation of each forecast office's work (the NDFD) on national-scale graphics: <http://www.weather.gov/forecasts/graphical/sectors/> These images show our local work on the much smaller domain that our local forecasters concentrate on (Central PA): <http://www.weather.gov/forecasts/wfo/sectors/ctp.php>

## *Plotting Local Storm Reports and Warnings with Google Maps*

**By Ron Holmes, Information Technology Officer**

In recent years the NWS has started to provide latitude and longitude information on some of its more important products. The Local Storm Report (LSR) include a lat/lon pair for the location of the report. Weather warnings also include lat/lon pairs that delineate the warning polygon. In the past this information was plotted and displayed on a static map background. This served an initial purpose for quickly viewing approximately where the report or warning was located. However, more sophisticated users needed a way to drill down exactly to their location to determine the proximity of the warning or report.

The advent of Google Earth and Google Maps has increased the possibilities for rendering geographic data on a dynamic map. Using the Google Map API, storm reports and warnings are now plotted for a CWA (County Warning Area) during severe weather events (Fig.1 ). Every 5 minutes warnings and statements are downloaded and decoded for 13 offices participating in this experiment. The information is stored in a database (Mysql) and during a severe weather event this information is plotted on a Google Map background centered over each forecast area (CWA). The CWA map background is also overlaid on the Google Map and a web page is made for each participating office. The right side of the web page contains links for the storm reports and warnings in chronological order that, when clicked, pan over to the location and display the detailed information of the LSR or warning via a pop-up window. Users can also click on various icons centered on the report or warning to display this

information. In addition, current Nexrad radar imagery is overlaid on the Google Map allowing users to see how real-time radar is responsible for the storm reports and warnings. The map updates continually throughout the day and events are archived on a calendar day basis. Users can view past events via links at the bottom of the page and can also visit other participating office's web pages via links to their page. When there is no severe weather occurring a blank map with the county background and current radar imagery is plotted.

The URL to the page is: <http://www.erh.noaa.gov/ctp/lsr/ctp/>

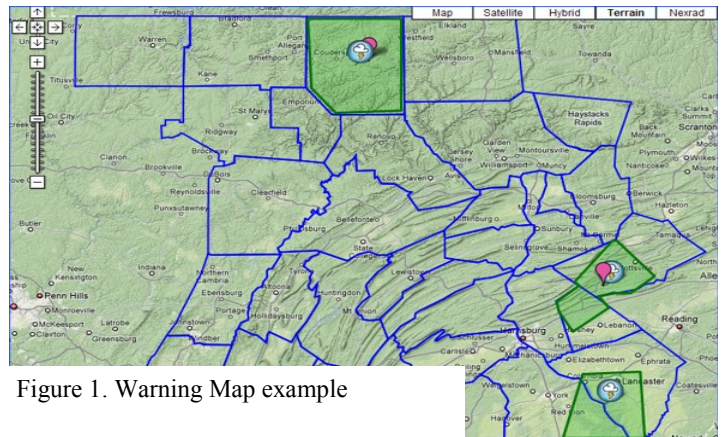


Figure 1. Warning Map example

## *2009...The Summer That Never Was...Almost*

**By John La Corte, Senior Forecaster**

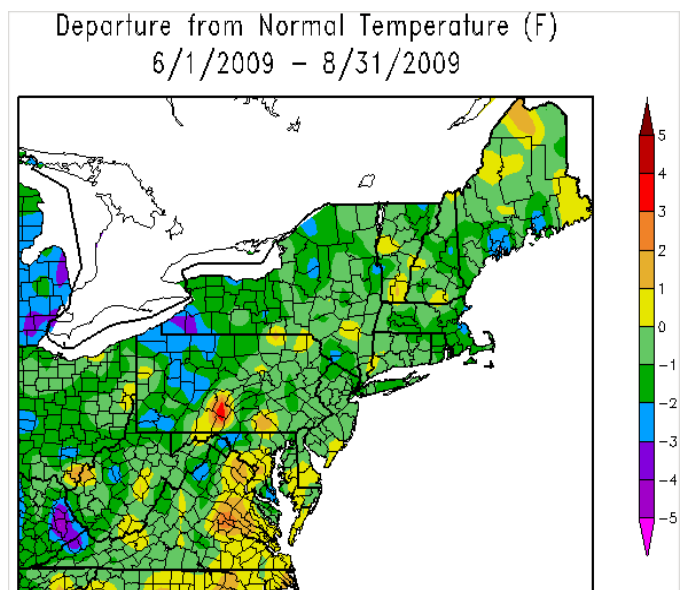


Figure 1. Summer 2009 Temperature Departures



# SKYWARNEWS *FALL 2009*

If you are like me, you suffer through the clouds and chill of Pennsylvania winters anxiously looking forward to the sunny warm days of summer. Bar-b-ques, lazing at the pool or beach, biking, hiking or whatever you enjoy, summer with it's long days is custom made for outdoor activities. This past summer however refused to cooperate. While the absence of heat and humidity may have resulted in lower cooling costs, the abnormal cool and wet weather spoiled many an outdoor activity for much of the season.

Traditional summer encompasses the months of June through August. This summer started off with a cool June (about 1 to 3 degrees below normal) that only intensified in July when temperature departures averaged in the 3 to 5 degree below normal range. August rebounded somewhat with slightly above normal temperatures, but it could not erase the damage done in the first two months of the season. Figure 1 shows summer temperature departures.

What would a cool summer be if it wasn't also wet? Precipitation averaged above normal for most of the region during the three month period. Most of the region saw anywhere from around one to more than 9 inches of rain above normal during the summer months. It was especially wet over eastern areas where several rare warm season coastal storms provided heavy rain in June and early July. Figure 2 shows most of the state with wetter than normal conditions from June through August.

The ultimate cause of the chilly summer may never be known, but some theorize that the transition from La Nina to El Nino conditions in the Pacific may have contributed to the change in the pattern. Figure 3 shows the negative upper air height anomalies that dominated the upper Midwest and Northeast most of the

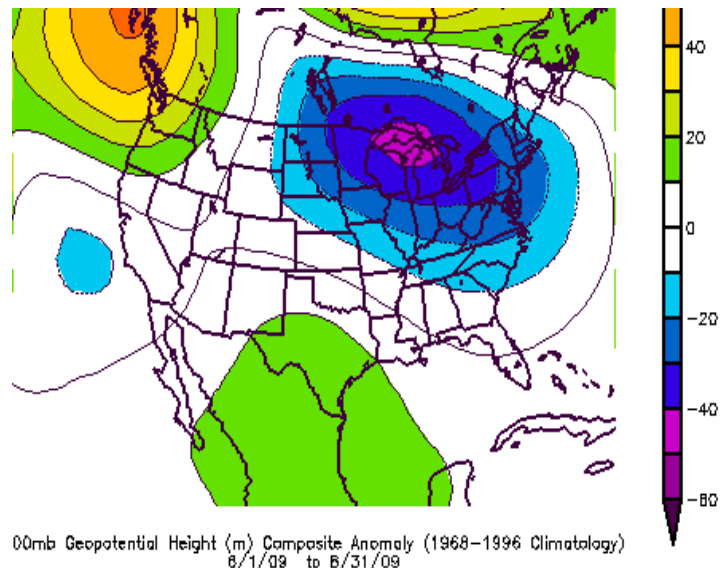


Figure 3. 500mb Height Anomalies June through August 2009

summer. What it equated to was a pool of cool air taking up residence over the area and dominating the season.

Every dark cloud must have a silver lining, right? Well it seems the silver lining was in the form of our recent gypsy moth infestation being effectively wiped out by a fungus that thrives in the chilly damp weather. The last few years had seen gypsy moths decimate thousands of acres of Pennsylvania forest despite efforts at control from spraying. Experts now think the weather may have brought the moth population down enough that there may be no need for spray controls of the insect for the next few years at least.

Lastly we like to pontificate about what the upcoming season may have in store for the region. It's been several years since we have had a truly severe winter with cold temperatures and plentiful snow, so many think "we are due." There's some validity in the idea that we can't keep enjoying mild winters indefinitely, but as meteorologists we try and examine atmospheric clues for hints at what the season may bring. The development over recent months of a weak to moderate el Nino in the tropical pacific is thought to correlate with a good chance of cooler than normal conditions along much of the eastern seaboard. Figure 4 shows the seasonal prediction from the Climate Prediction Center and it indicates a slightly elevated chance of the chilly conditions to affect the southern half of the state for the upcoming winter.

As far as precipitation is concerned, El Nino winters tend to be drier than normal locally. However we looked a little closer and considered only those years that saw a La Nina transition to El Nino during the spring and continue through the following winter. Since 1950 it has happened five times and while four of those five winters saw less precipitation overall, four of the five winters were also snowier than normal (figure 5).

The official CPC forecast does not address snowfall potential, but figure 6 shows that the western third of the state is expected

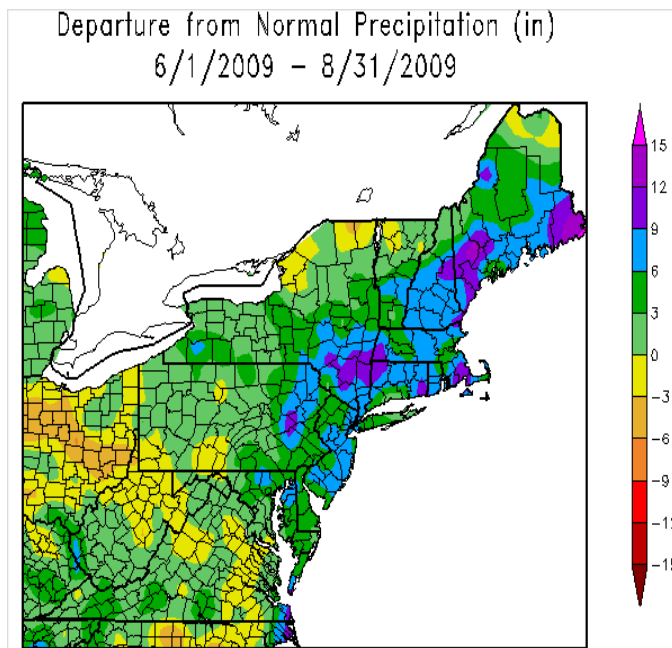


Figure 2. Summer 2009 Precipitation Departures

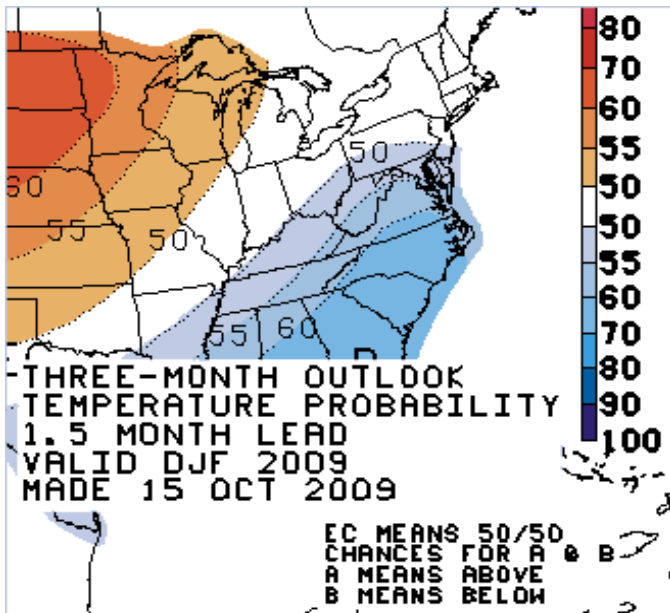


Figure 4. Winter Temperature outlook from CPC

to be drier than normal while for the rest of the state, no real signal in the pattern is seen.

Lastly, readers may recall that last year we wrote about cold snowy Octobers and how there was a high correlation to cold snowy winters to follow. Well last winter proved to be the exception to the rule. However this October was once again cooler than normal and we had a very unusual snow storm around the middle of the month. Much of the area saw several inches of heavy wet snow knock out power to thousands as it clung to trees that still

had all their leaves, causing limbs and branches to fall and snap power lines. It was a very destructive storm that set records in some areas for the earliest measurable snow of the season. So if you are a snow lover, you will hope that the rule works for this upcoming winter.

Whatever ends up happening, we will be here again in the spring bringing more weather information and hopefully some wisdom along the way.

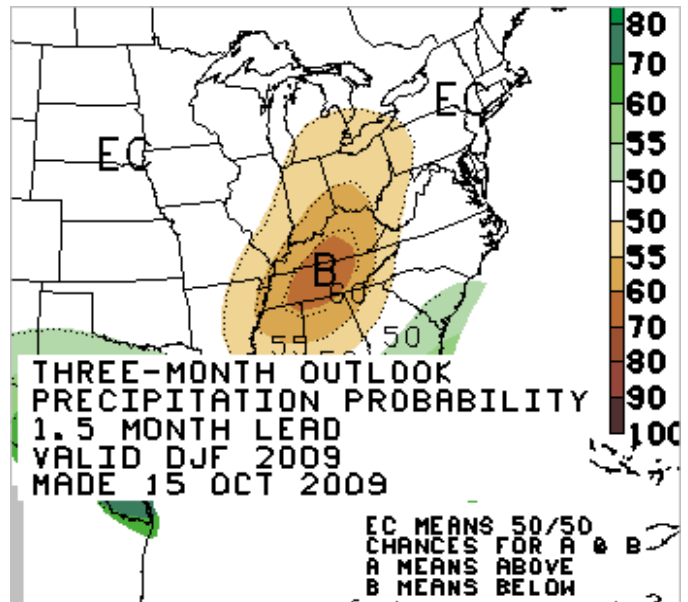


Figure 6. Winter Precip outlook from CPC

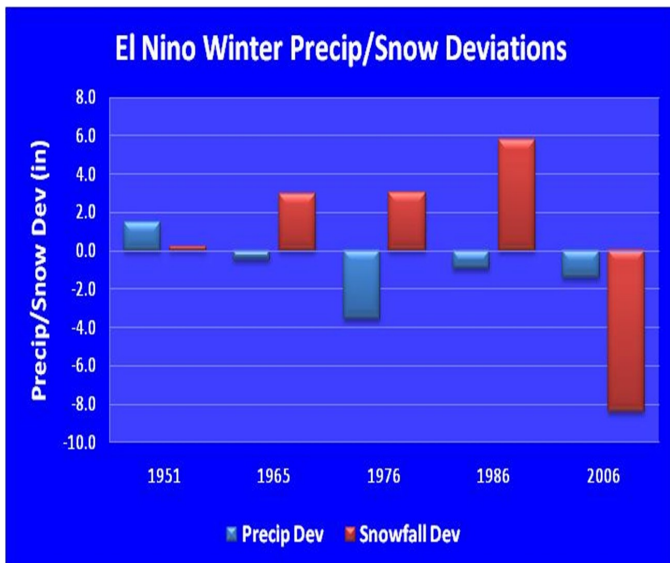


Figure 5. El Nino Winter Precipitation and Snow Deviations

## *We Need Your Winter-Time Reports*

By Bill Gartner, General Forecaster

Your spotter reports of winter weather help us to monitor ongoing winter storms, to determine the need for possible changes to advisories and warnings, and to provide real-time snowfall totals to the public, news media and other partners and other NWS offices. Your reports are also used to verify our watches and warnings, as well as to prepare storm summaries and snowfall total maps of winter events. So even if you are not able to call in reports during a storm, but can give us a post-storm total snowfall, we'd still love to hear from you when the storm is over.

### What to report:

#### Snow:

- When snow accumulation reaches 3 inches
- When snow accumulation reaches 6 inches
- Storm total after snow ends (also water equivalent if possible)

- If snow is falling at the rate of more than 1 inch per hour

## Ice:

- Any occurrence of or accumulation of freezing rain or drizzle
- Accumulation of ice of one quarter of an inch or more on trees or wires

## Other:

- When forecast winter precipitation differs significantly from observed (i.e. snowing with no snow in forecast, sleet...when only snow is forecast...)
- Any other significant weather occurrence/oddity (i.e. flooding due to snow melt/ice jam, damage from strong winds not associated with a thunderstorm)

And, remember thunderstorms that produce wind damage and flooding rains are still possible even in winter.

For your convenience, a list of reporting criteria is available on our web page, [www.weather.gov/statecollege](http://www.weather.gov/statecollege). Click on "Send Us Reports" in the left-hand column. It is the fifth selection under the Current Hazards header.

## *Major Meteor Showers for the Rest of 2009 and 2010*

By Barry Lambert – Senior Forecaster



**Geminids - December 13-14** As a prelude to Christmas, this is a multi-color meteor shower. Although most of the meteors are white, you'll also see *green, red, blue* and *yellow*. ***This is the only shower associated with an asteroid, called 3200 Phaethon.*** The possible peak time is 9 pm EST on Dec 13. The thin crescent moon will rise in the morning twilight so it won't cause much interference.

## Meteor showers for 2010

**Quadrantids - January 3-4** This meteor shower typically displays one of the highest rates of any events, or about **100-140 meteors per hour**. However, this celestial event isn't expected to make a good show in 2010. The reasons being that these meteors tend to be quite faint, and this coming year, the moon will be just past full. The parent comet is 2003 EH1, whose orbit is still being studied. The meteor shower emanates from a region near Boötes and the "Big Dipper," so only observers in the Northern Hemisphere can really enjoy the peak. Astronomer David Entwhistle issued a peak forecast of 2 pm EST on January 3 on the **Society for Popular Astronomy's** web site. Using the solar longitude provided by the International Meteor Organization, the peak would be 4 pm EST.

**April Lyrids - April 21-23** The moon will be just past first quarter for this one. Astronomer David Entwhistle's predicted peak spans a few hours: 11 pm EDT April 21 to 10 am EDT on April 22. This is not a particularly strong display. Rates typically peak around 10 per hour; however, (though unpredictable) it can offer up a few surprises. There have been several occasions when the rate has peaked at a whopping 100 per hour! The International Meteor Organization's published solar longitude for parent comet C/Thatcher would provide a peak at 6 am EDT on April 23.

**Eta Aquarids - May 5-7** This could peak at 4 pm EDT on May 7 according to the solar longitude of parent comet 1P/Halley. The moon will be at almost last quarter, allowing a view for part of the night.

**June Lyrids - June 14-16** This is one of the lesser showers, but the waxing crescent moon won't interfere with it much. June 15 at 5 pm EDT is the possible peak time. It's not known what comet trail provides the dust for this shower.

The latter half of July ramps up to one of the most enjoyable times of the year to view a meteor display. This is because of several minor meteor showers that mostly emanate from the constellations of Capricornus and Aquarius – thus the names of the showers (the Capricornids and Delta Aquarids). On almost any day during the last half of July (especially the several hours after midnight), it is possible to see anywhere from 15 to 30 meteors per hour, depending on the moon phase and level of darkness at your observing site.

**Capricornids - July 28-30** These meteors are also bright and yellow, making it possible to see a few of them despite the full moon. It's easy to confuse them with the Delta Aquarids mentioned above. But the Capricornids are a little slower and, of course, come from a different part of the sky. July 28 at 4 am EDT is the possible peak time. The parent comet is unknown.

**Delta Aquarids - July 28-30** The full moon will wash out some of the yellow meteors, but maybe not all as many of them will be quite bright. July 30 at 6 am EDT is the possible peak time this year. Which comet trail this shower comes from isn't known.

The increased frequency of meteor activity in late July continues right into August and gets a boost from one of the strongest

meteor displays of the year. Under relatively dark skies the **Perseids** can produce rates between 50 and 80 meteors per hour on the night of August 12/13. Add this rate to the minor displays already coming from the constellations Aquarius and Cygnus, and you can be treated to an exceptionally nice evening, with usually warm weather and lots of meteors sailing through the sky!

**Perseids - August 12-13** The likely peak will be August 12 at 7 pm EDT, during a new moon. There's about *one meteor per minute*. This could be a good introductory meteor shower in 2010. The parent comet is 109P/Swift-Tuttle.

**Draconids - October 8-9** This one also happens during a new moon in 2010. It's a longer wait between meteors than with the Perseids though. Comet 21P/Giacobini-Zinner is the parent. The likely peak time is October 8 at 11 am EDT.

**Orionids - October 21-22** These are somewhat infrequent, but noticeable because they are green and yellow. Some are especially bright. And they tend to be very fast. This is a meteor shower produced by "very old" particles shed by Comet 1P/Halley. Visual rates can reach 20 per hour for Northern Hemisphere observers (and 40 per hour for Southern Hemisphere observers). Unfortunately, the moon will be full for them in 2010. So you may not be able to see as many as you'd view in some years. October 21 at around noon EDT is the possible peak.

**Leonids - November 17-18** 2010 isn't a forecast peak year for them. And the moon will be full. If you want to try your luck, the peak is possibly going to be November 18 at 12 noon EST. The parent comet is 55P/Tempel-Tuttle.

Our recent, 2009 event contained "a bit of excitement" for some U.S. residents as described below.

Video clips of the bolide meteor (or fireball) that exploded high in the sky over Utah shortly after midnight local time on Nov 17, 2009 can be found via the links below. The "shock-wave" (sonic boom) from the meteor took an amazing 5 minutes to occur, placing the meteor disintegration 300 km or more away in the earth's upper atmosphere.

<http://www.ksl.com/?nid=148&sid=8714738>

<http://www.ksl.com/?nid=148&sid=8714738>

**Geminids - December 13-14** The only meteor shower known to stem from an asteroid, the Geminids are also the most colorful shower. The peak on December 14 at 3 am EST comes during a first quarter moon. So viewing would be best after about midnight. The asteroid they come from is 3200/Phaethon.

References:

[http://meteorshoweronline.com/major\\_meteor\\_showers.html](http://meteorshoweronline.com/major_meteor_showers.html)

<http://www.almanako.com/meteors.shtml>

## *Stormy Week Gnaws at Outer Cape Beaches*

By Peter Schworm

Courtesy of the Boston Globe / June 27, 2009

*Summer saw not only unusual cold conditions over much of the Great lakes and northeastern US, there were also several coastal storms that are very unusual during the summer months. The following article was published in the Boston Globe and describes some beach erosion issues.*

Battering the Outer Cape's fragile beaches with sustained gusts and powerful waves, this week's swirling, unseasonable northeaster radically reshaped the coastal landscape, leveling dunes, washing away plover and tern nests, and engulfing coveted coastal swaths.

As they grimly surveyed the aftermath yesterday, coastal specialists said they were stunned by the scope and severity of the damage, which forced the closure of some ocean beaches and in some cases wiped away years of painstaking restoration efforts.

"In terms of changes on the beach, this is the biggest storm I've ever seen," said Carrie Phillips, chief of natural resource management at Cape Cod National Seashore, which stretches from Chatham to Provincetown. "It totally reshaped all of our beaches."

Some sections of the seashore were closed because high tides left little to no dry sand, while several popular beaches, including Marconi Beach in Wellfleet, were noticeably smaller.

In Truro Thursday morning, when the sun finally broke through several days of gloom, Cape-goers celebrated with a visit to Ballston Beach, a generous, gently sloped stretch of sand nestled along Truro's rolling dunes.

But the ocean had other ideas.

"The beach was just gone," said Hannah Gonsalves, the town's assistant beach supervisor. "Wiped out. People were asking where it went. I told them, 'I guess someone stole it.' Hope they bring it back."

In Wellfleet and Eastham, parts of the coast were closed this week because of the high tides. In Chatham, two summer cottages on the southern tip of Nauset Beach were knocked off their foundations by an onrushing ocean that stole 40 feet of beach-front in a matter of days.

The storm also eroded beaches' summer slopes, flattening sandy stretches up and down Cape Cod to levels more familiar in winter.

"In some places, the toe of the dune is just a vertical scarp," or steep slope, Phillips said. "The tide goes right up against it."



The surf also swept away some 15 plover nests and nearly all tern nests, which will delay the birthing season and give chicks less time to grow before their grueling migration south, Phillips said. In Dennis, on Cape Cod Bay, the storm badly damaged Chapin Beach, washing away protective barriers and part of the entrance ramp.

“What a storm, what a storm,” said Alan Marcy, the Dennis shellfish constable, with equal parts admiration and frustration. “Dunes got cut back anywhere from 15 to 30 feet. She certainly did her job.”

The beach, a popular spot for four-wheel-drive vehicles, was closed to cars and dogs because of erosion concerns and to protect a nest of plovers that hatched during the storm. “They’ll need about a month” until they can fly, Marcy said. “Right now they are nothing but cottonballs on stilts.”

At the Monomoy National Wildlife Refuge in Chatham, the storm knocked down electric fencing installed to protect birds against predators and destroyed a number of nests.

“We’ve had very high tides, very strong winds,” said Monica Williams, wildlife biologist at the refuge. “Hopefully the birds will re-nest before it’s too late.”

In Orleans, the storm reversed a months-long, natural influx of sand in a matter of days. “We got beat up pretty good,” said Paul Fulcher, the mid-Cape town’s parks and beaches superintendent. “The good thing is that this time of year, the summer shelf bounces back pretty quick” because of the prevailing winds.

At the same time, the season makes the beaches particularly susceptible to erosion, specialists said. Fairer weather tends to move sediment landward, giving beaches a more pronounced slope in the summer. For powerful gusts and surf, those slopes are inviting targets.

“The protective topography that is there in the winter was not in place,” said Graham Giese, of the Land & Sea Interaction Program at the Provincetown Center for Coastal Studies. “The storm rolled back the clock.”

S. Jeffress Williams, a coastal marine geologist with the US Geological Survey in Woods Hole, said coastal erosion will only accelerate as sea levels rise. “We can expect to see much more of this in the future,” he said.

That’s not good news for those who spend years watching and worrying over beaches, trying their best to protect them from harm, only to see all their hard work gone with the wind.

“Mother nature can take it all away, in an instant,” said Marcy, of Dennis.

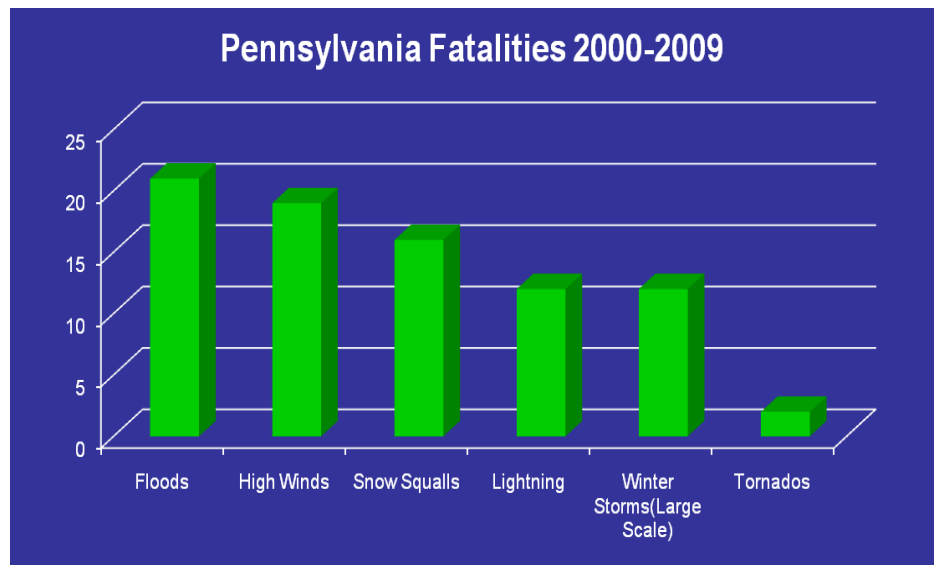
And as thousands of people prepare to descend on beaches in the coming weeks, specialists wonder whether the besieged stretches can rebound in time.

“It’s so late in the season, it’s really hard to tell,” Phillips said. “But we’ll be watching.”

## *Notes from the former Editor’s Cuff....*

**By Dave Ondrejik, Warning Coordination Meteorologist**

As the former sole editor of this publication, and for a time the co-editor with our distinguished Senior Forecaster, Mr. John La Corte, I always find myself wanting to contribute an article to these newsletters. My esteemed colleague and current editor usually finds a way to persuade me into writing an article, and this version of the newsletter is no different. The one thing I enjoy is I usually find my article on the last few pages of the publication....sort of the anchor position. Now, I am not suggesting that John has placed my articles there due to my girth and what would be my natural position in a tug-of-war battle, but I choose to see the brighter side. Mr. La Corte enjoys ending his masterpiece with a variety of timely topics. This month is no different. I have several sub-topics of importance to share with you that have immediate influence on your Skywarn duties. So, without further ado, let’s get started.



### **New Procedures for protecting the public in wintertime driving.**

Over the last 10 years, fatalities in Pennsylvania directly due to winter weather have risen tremendously. In fact, these fatalities rank third in that period and behind flooding and high wind related deaths. During a couple of the individual years, snow

# SKYWARNEWS *FALL 2009*

squalls were the leading cause of weather fatalities in Pennsylvania.

The good news about this information is we are aware of the type of weather systems that produce these deadly storms and can forecast them. Since the last major accident on Interstate-80 back in January, 2004 we have taken steps with our partners to alert the public to dangerous road conditions as well as instantaneous reductions in visibility to near zero...or more commonly known as “white out” conditions. When these conditions occur, we contact the Pennsylvania State Police (PSP), who in turn begin a “calling tree” of other PSP Barracks, PennDOT, local road crews, etc. PennDOT can quickly adjust wording on those large electronic display signs to inform motorists of impending weather they will be encountering. We can also direct PennDOT and PSP to specific locations along I-80 in order to maximize their effectiveness. This is accomplished by informing them at what mile marker the leading edge of the storm is, and then where we expect it to be in the next 30 minutes or so. PSP will sit near the beginning of the snow squall with their vehicle lights flashing to signal vehicles to slow down. In addition to PennDOT providing extra attention to those areas where the snow squall is coming, and changing the wording on their electronic signs, they also either play safety messages on their radio frequencies or provide a live feed of the National Weather Service’s NOAA Weather Radio. This will allow you to get the most up to date weather information available in your vehicle.

In addition, this year...the State College, PA and the Binghamton, NY forecast offices are testing an “experimental” project whereby we are going to issue the S.A.M.E (Specific Area Message Encoder) tones along with our Special Weather Statement (SPS) product. In today’s society, more and more automobile manufactures are placing NOAA Weather Radio (NWR) alert chips into their vehicles. Additionally, many NWR’s are portable and run on a battery, or a power supply that plugs into the cigarette lighter of your vehicle. These radios can easily be made part of your routine packing supplies when you may drive through poor weather conditions. For those of you who are interested in this service, you must program your radio to accept the S.A.M.E. tones (only) for our Special Weather Statements (SPS). Do NOT program it to accept the 1050 MHz tones, as we will not be issuing those tones with this product.

For those of you who own SAME NWRs and do NOT want to get this information, you will need to ensure your programming is also set properly and ensure that the S.A.M.E. tones are turned “off” for the Special Weather Statements (SPS).

I also realize that many of you have the older models that are very reliable and haven’t had a need to upgrade. That is great, and you certainly got your money’s worth out of these units. Keep in mind, that these units do not allow you to program individual products and thus will NEVER activate for the SPS product mentioned above. This is also true due to the fact that we will not be issuing the 1050 MHz tones with this product. For these older models, they are limited in the flexibility of personal programming and only alert when we send the 1050 MHz tones.

The summer melt of Arctic sea ice wasn’t quite as bad this year as the last two years. But it still ranked as the third biggest melt on record.

The National Snow and Ice Data Center announced that the Arctic sea ice reached its annual low last in early September of this year. Ice extended just shy of 2 million square miles. That’s 620,000 square miles less than the 30-year average.

But there was more ice this September than the record low set in 2007 -- about one-third of a million square miles more. Last year ranked No. 2.

Arctic sea ice is important because it helps moderate warmer temperatures elsewhere. Experts blame global warming for the increased melting of sea ice and fear that eventually no sea ice will survive the summer.

This action is reserved for Severe Thunderstorm Warnings, Tornado Warnings, Blizzard Warnings, Flood Warnings, etc.

Our program since 2004 has seemed to be quite successful, and we hope that these changes will continue our progression in saving lives and property.

## **Workshop Attendance, Brookhaven, NY (Long Island) – Nov 18-19, 2009:**

During the week of November 17, 2009, I along with State College forecaster Matt Steinbugl attended a conference at the NWS, New York City office located in Brookhaven, NY. The focus of this workshop was for the NWS to show off some of our latest technology and for the County and State Emergency Managers to speak about the services provided to them by the NWS. The Emergency Management Community also had the opportunity to provide a “wish list” as to what would be helpful to them in doing their job more efficiently and effectively. The speakers were limited to Emergency Managers and NWS offices that have responsibilities along the heavily populated and heavily traveled I-95 corridor from Washington D.C., through the Philadelphia and New York areas and northward into the Boston area. Matt and I attended to collect information in hopes of conducting a similar workshop in Pennsylvania next year.

One of the main re-occurring themes from the County and State Emergency Management Officials was that they desperately needed “real-time” snowfall reports displayed on a map as soon as they were reported to the NWS.

In Central Pennsylvania, we cherish every report we get from the qualified and highly trained Skywarn Spotters. Unfortunately the majority of reports come in the summer time, and we rarely get snowfall reports from our Skywarn observers during the winter months. Refer to page 6 of this newsletter for an article by Bill Gartner soliciting your ice and snowfall reports. He also details the criteria for doing so.

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Based on what was said at this conference...I have even more reason to believe that your snowfall reports are important to not only the NWS, but also to the County and State Emergency Management Agencies. So, I strongly encourage you...**ok, beg you**...to send us your reports. We use those reports and send them out in a text product, but also plot them on a map. Currently, our Information Technology Officer (ITO) is working on a project to plot those values on a Google Map program as he has done this past summer with Severe Thunderstorms/Tornado warnings and other reports received by Skywarn spotters.

To check out some of the work produced by our ITO for the summer convective season, see his article on page 4 of this document, or point your web browser to:

<http://www.erh.noaa.gov/ctp/lsr/ctp/index.php>

## Reporting

As a Skywarn Observer, you can call in your reports with your spotter ID number and this will help us ensure we plot the correct location of your report. This also helps as we can obtain important details related to your report. And, if you call back to update your report, we can know that you have already called.

Another way to report snow fall reports is through our "eSpotter" system. You can only gain access to this system if you are an official Skywarn Spotter for the NWS. Here is how it works. First, point your browser to:

<http://www.erh.noaa.gov/ctp/safety/skywarn/report.php>

On this page, you will see a reference to call in via an automated 877 toll free number, but we prefer you call the 800 number contained on your Skywarn card. You will also see a link to the eSpotter "Web Entry" form. If you are new to this, you will need a couple of pieces of information in order to register.

First, on the left side, there is a link that says "New to eSpotter? Register Here". If you have never registered with eSpotter before, you must click here first. However, if you have...you can go directly to the login screen just to the right. There you will be asked a variety of simple questions, name, location, e-mail address, etc. But the most important questions are: Where and When was the last time you were trained as a Skywarn Spotter? Once you hit submit, that automatically generates an e-mail to me for your approval into the system. I look at your name, date of training and location of training to ensure we conducted a training course in your area. If so, I approve you and you now have access to sending reports for all types of weather via the internet.

This is a great tool for winter events and slowly rising streams and rivers, but during convective season when a downburst or tornado hits just down the street, we would rather have you call us with that report!!!



# eSpotter



If you are REALLY interested in becoming part of a very special program that not only provides weather reports to the local NWS offices, but it also uses your reports for research methods to help us better predict all types of weather, I would suggest you join the "CoCoRaHS" group – wow...that's a mouthful! Anyway, CoCoRaHS is an acronym for the **Community Collaborative Rain, Hail and Snow Network**. CoCoRaHS is a unique, non-profit, community-based network of volunteers of all ages and backgrounds working together to measure and map precipitation (rain, hail and snow). By using low-cost measurement tools, stressing training and education, and utilizing an interactive Web -site, our aim is to provide the highest quality data for natural resource, education and research applications.

**COLLABORATIVE RAIN, HAIL & SNOW NETWORK**  
"Because every drop counts"

To link to their site, point your browser to:

<http://www.cocorahs.org/Application.aspx>

Locally, The Pennsylvania State Climatologist (also Penn State instructor), Paul Knight is leading the effort to register people into this program. You can read more about the program at the link above before you decide if you would like to join.

However, if you do join...you will experience and learn a lot about weather observing. So, if this is a hobby of yours, the Co-CoRaHS project may be just what you are looking for. Additionally, we at the NWS do get those reports in real-time when you send them, and are able to plot them for use by the Emergency Management Community and the general public.

The bottom line is...no matter what method you use to report, **PLEASE** send us your valuable reports!! These reports will help us improve our forecast services to you and the Emergency Management community.

And as always...we urge you to use the appropriate safety precautions to obtain and relay your report!!

## Editor's Note:

**For your convenience and viewing pleasure, in recent years we have begun posting a full color version of the newsletter on our web page. To obtain it, point your browser to: <http://www.erh.noaa.gov/er/ctp/>**

**And click the link about 2/3 of the way down the left hand blue column that says:**

## SkyWarn™ Spotters

**You will need to have software that can read an Adobe Acrobat document. If you do not, you can download it free from:**



<http://get.adobe.com/reader/>

Online Weather Reporting System





**Check our web page : <http://www.erh.noaa.gov/er/ctp/>**

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