# SKYWARNEWS

National Weather Service State College, PA - Spring 2004

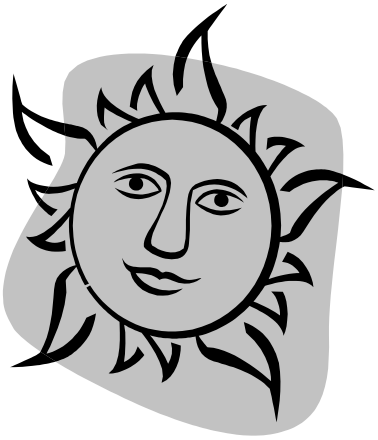
*"Working Together To Save Lives"*

## The Many Faces of the Sun

**by Joe Villani, Forecaster**

Most people in Pennsylvania are very happy when summer rolls around each year because it usually means many days of sunny skies and warm temperatures. This year, summer comes on the heels of a long and snowy winter. The sun puts us in a good mood, and naturally we want to be outside. We have all kinds of summer outdoor activities such as golfing, fishing, tending to the yard, having a picnic, or simply going for a walk. While it may be enjoyable being outdoors during the long summer days, there are a few things people should know about before spending time in the sun. Exposure to the sun can be very harmful to our skin. So here are some safety tips for when you are out having fun in the sun.

- Avoid unnecessary sun exposure, especially between 10:00 a.m. and 4:00 p.m. These are the peak hours for harmful ultraviolet (UV) radiation.
- When outdoors, use sunscreens rated SPF 15 or higher. Apply them liberally, uniformly, and frequently.



- When exposed to sunlight, wear protective clothing, such as long pants, long-sleeved shirts, broad-brimmed hats, and UV-protective sunglasses.
- Teach children good sun protection habits at an early age.

Here is some information about the sun and some of the effects it has on us:

- The sun's harmful ultraviolet (UV) radiation can penetrate many types of clothes, as well as automobile and residential windows.
- Sunlight can be damaging to eyes and contributes to cataracts.
- When you're on snow or ice, your face and eyes are at almost twice the risk of UV damage because of reflective glare.

As you can see, there are several reasons to be cautious of exposure to sunlight. While this does not mean that we have to spend all our time indoors during beautiful summer weather, we should take precautions before venturing outdoors. We can still enjoy sunny summer days and also make sure we do it safely.

## Weather or Not?

**by Greg DeVoir, Senior Forecaster**

*– A new feature designed to explain meteorological mysteries, or any subject you think is particularly "swell." Got a question to ask us? SEND IT IN to:* greg.devoir@noaa.gov

**Q - Does "heat lightning" exist, and if so, what causes it?**

A - Heat lightning is an often-repeated yet inaccurate term used to describe summer night-time light flashes in the absence of thunder. Flashes of light attributed to "heat lightning" are actually associated with lightning bolts from distant thunderstorms near or beyond the horizon. Since observers of night-time flashes can be tens to hundreds of miles away from the actual lightning-producing thunderstorm, thunder can rarely be heard, perpetuating the "heat lightning" myth. It is believed that intuitive observers noted the correlation of these thunder-less flashes to sultry summer evenings, thus coining the term "heat lightning." (Hope I didn't steal anyone's thunder!)

**Q - What is the strange greenish glow that sometimes occurs after lightning strikes the ground or other surface based utilities such as power lines and transformers?**

A - When lightning hits electrical power equipment, a fault (or short circuit) often occurs, causing a secondary flash known as an arc. By definition, an arc is a column of ionized air with electric current flowing through it. Storm chasers and weather enthusiasts often use the term 'power flash' to refer to the intense arcs which result from short circuits caused by lightning strikes on electrical power equipment.

Short circuits on power lines involve tremendous levels of current and create bright arcing, showers of sparks, loud bangs and buzzing sounds. As a result, power flashes can be extremely bright, easily lighting up the night sky for miles around. They sometimes flicker like lightning, or glow for a few seconds before the circuit breakers trip and turn off power to the line.

Power line faults are often mistaken for lightning as they light up the sky with a characteristic bluish-green glow. They can occur anywhere along power lines - at transformers, poles, towers, and substations. Arcing from flashovers can cause extensive damage to electrical equipment, even more so than the lightning that caused them.

*Special thanks to *wvlightning.com* for help with answering this question!

## Thunderstorm Types in Central Pennsylvania

**By Kevin Lipton, Forecaster**

Central Pennsylvanians can attest to the fact that there are many thunderstorms during the summer months. However, some may notice that there are different types – ranging from a typical late afternoon storm on a hot and humid day,

to the particularly nasty storms heralding in a drastic changes in air mass.

Indeed, they would be correct – there are several different types of thunderstorms that typically affect central Pennsylvania during the summer months. The main types are: *air mass* (or pulse) thunderstorms, *multi-cellular*, and, the rarest yet most dangerous – the *supercell*.

**Air mass thunderstorms**, also called 'pulse' thunderstorms, are the most typical storms to affect central Pennsylvania. They tend to form on hot, humid afternoons, are usually small in size, and tend to move fairly slowly. Air mass thunderstorms feed off the low level heat and humidity that build during the day. If conditions are cold enough in the upper levels of the atmosphere, towering clouds tend to develop and may grow into individual thunderstorms.

Air mass thunderstorms tend to have relatively short life spans, usually lasting 30 minutes or less from the time they develop until they dissipate. However, before they die, they can often produce brief downpours, gusty winds and even hail. Some of these storms may even become briefly severe, and produce damaging wind gusts in highly localized areas, as well as enough rain to cause isolated flooding. On rare occasions, large hail or even brief tornadoes can result. Most tornadoes produced from pulse storms are weak and very short lived.

Overall, air mass thunderstorms tend to be the most timid thunderstorm type to affect central Pennsylvania.

**Multi-cell thunderstorms** are the larger and longer-lived cousins of air mass storms. They may initially form from individual air mass thunderstorms, but under the right conditions, they can merge or organize into clusters or even lines. Similar to air mass thunderstorms, they can also produce severe weather (high winds, hail) or flooding, but since they are larger and last longer, they can affect much larger areas than typical air mass storms.

These multi-cell thunderstorms sometimes organize and orient themselves into linear patterns, commonly known as squall lines. Squall lines often form ahead of cold fronts, can move quite fast and produce widespread strong or damaging wind gusts or brief tornadoes.

If multi-cell thunderstorms form an orientation that is nearly parallel to the upper level steering winds, a condition known as "training" can occur, in which several different thunderstorm cells can affect the same area for extended periods of time. This can lead to flooding.

**Supercell thunderstorms** are the rarest but most dangerous type of thunderstorm to affect central Pennsylvania. These storms tend to be quite organized, meaning they rotate like mini low pressure areas. At times, this rotation can work down toward the surface producing a tornado.

While only a very small number of thunderstorms that develop become supercells, and only a very small number of supercells actually produce tornadoes, something like 85% of all supercells cause some type of severe weather. Most of this severe weather occurs in the form

of damaging wind gusts and large hail (sometimes bigger than golf balls).

So be aware that whatever the type of thunderstorm, it may produce severe weather. Also remember, that **ALL** thunderstorms produce something that actually kills many more people each year than even tornadoes; lightning.

So, next time you hear the distant rumbles of thunder with a darkening sky, think about what type of thunderstorm may be approaching and remember that any storm in Pennsylvania can be severe.

## Turn Around, Don't Drown!

**By Michael Dangelo, Senior Forecaster**

Flooding is the number-one weather-related cause of death. More than half of these deaths involve motor vehicles. In a recent study, 59 out of 90 recent flooding-related fatalities in Texas were caused by vehicles caught in water.

People will drive their vehicles into water, and become caught in the fast-flowing or rapidly-rising flood. Many are carried away, and some die. In fact, in late June of last year (2003), one Central Pennsylvania 911 Center had 4 separate distress calls for water rescues in one evening, and one fatality occurred when a man attempted to cross a flooded bridge in his vehicle.

There is a simple way to keep from becoming one of these sad statistics: "Turn Around, Don't Drown!"

"Turn Around, Don't Drown" is a public-awareness campaign that the NWS has begun to highlight the dangers of driving into water of any depth. The premise is simple: **DO NOT** drive into water, just turn around and find another route to your intended destination.

Yet, as we see from our recent example, many people will continue forward, either unaware, or ignoring the dangers they face when they encounter a flooded roadway.

You may ask: Why is it dangerous for a vehicle to try to go through water?

- A vehicle will float away when the force of the water (buoyancy force) underneath it becomes greater than the weight (gravity force) of the vehicle.

Flooding in Lewisburg, PA, caused by Tropical Storm Dennis in 1999, sent cars parked in a parking lot on a wild, random trip around the neighborhood, even when the owners weren't in them.

- Typically, a passenger car will float on only 8-12 inches of water – and perhaps even less if the water is flowing!

As an example: Standing in a foot of water in a wading pool is much easier than trying to cross a flowing stream of the same depth, as the force of the flowing water can knock you off your feet.

True or False: Your Truck or SUV is immune from this danger.
- False. A truck or high-profile SUV is only a little heavier, and sits only a few inches higher off the ground, than a typical passenger car. Everything will float. Think about this – a 97,000 TON Aircraft Carrier floats! It takes only a few more inches of water to float your

3000 pound Truck or SUV, than a passenger car.

So; “Turn Around, Don’t Drown!” Do not risk your safety by betting on the depth of the water you encounter. Tell your friends and neighbors this news, too. It may save their lives someday.

## Pennsylvania Winter of 2003-04 in Review

**by John La Corte, Senior Forecaster**

The days are again growing longer and flowers and trees are beginning to blossom as the world around us begins to awaken from the long winter slumber. And this year it slumbered through the second winter in a row of cold and snow.

For a period time during the mid to late 1990’s it seemed that central Pennsylvania had suddenly moved to the Carolinas, enjoying several mild and relatively snow-free winters. However, the last two years have reminded residents that snowy cold weather is not a thing of the past. Once again, we here in Pennsylvania saw below normal temperatures and above normal snowfall.

Meteorologically speaking, “traditional” winter represents the three month period from the beginning of December through the end of February. This year the entire state averaged anywhere from around 1.5 to almost 3.5 degrees below normal during the three month period. While that is cold enough for most folks, this winter was actually about a full degree warmer on average than the same period of time last year. It was also like last winter in that while we were below normal, extreme cold was rare and very few records were set.

Perhaps what will be most memorable will be the longevity of the wintry type weather. The first widespread snow fell in the first few days of December. While we lost most of the snow by the first part of January, snow began to accumulate once again by the middle of the month and in many parts of the state, snow covered the ground right into early March. Over the northern tier of the state that may not be very unusual, but for the central and southeastern portions of the region, it could easily add to the impression that we had some how been sent back to the ice age.

As for actual temperatures, Table 1 summarizes the winter time averages for a few stations around the state. The three month period saw temperatures average from 1.4 degrees below normal in Pittsburgh to 3.4 degrees below normal in Harrisburg.

| station | AVG | Departure |
|---|---|---|
| Erie | 27.3 | -1.9 |
| Scranton | 25.7 | -3.2 |
| Philadelphia | 32.8 | -2.0 |
| Pittsburgh | 28.8 | -1.4 |
| Harrisburg | 29.2 | -3.4 |
| Williamsport | 26.7 | -1.5 |

**Table 1**. Average Temperature for Dec 2003 through Feb 2004

Of course the other part of winter we often remember is the snowfall. As was mentioned above, significant snow began falling early in December and we saw several storms bring heavy snow (4 inches or more) to the state throughout the season. For those with access to the Internet, check out:
***http://www.erh.noaa.gov/er/ctp/features***

***/snowmaps.shtml*** and ***http://nws.met.psu.edu/index.jsp*** for maps summarizing some of the more significant snowfalls affecting the state. As for the stations reporting snowfall in the state, most measured above normal accumulations during the winter months. Table 2 shows amounts totaling from just a couple inches above normal in the state capital to almost a foot and a half above normal in Pittsburgh.

| station | Sum | Departure |
|---|---|---|
| Erie | 83.2 | missing |
| Pittsburgh | 43.7 | 16.0 |
| Harrisburg | 28.0 | 2.0 |
| Williamsport | 40.7 | 12.4 |

**Table 2**. Seasonal Snowfall for Dec 2003 through Feb 2004

While snowfall was above normal, overall melted precipitation was not noteworthy from the standpoint of amounts measured across the region. Table 3 shows that with the exception of Pittsburgh, most of the remaining reporting sites were generally within an inch or so of normal.

| station | AVG | Departure |
|---|---|---|
| Erie | 7.8 | -0.7 |
| Scranton | 8.0 | 0.9 |
| Philadelphia | 9.7 | 0.1 |
| Pittsburg | 10.6 | 2.6 |
| Harrisburg | 7.7 | -1.5 |
| Williamsport | 8.7 | 0.3 |

**Table 3**. Seasonal Precipitation (melted) Dec 2003 through Feb 2004

### Summer Outlook

Last winter's Sky Warn Newsletter began a new tradition and "boldly" attempted to predict the upcoming summer conditions looking back at how the winter had behaved. With tongue firmly in cheek we predicted "wait and see". We looked and saw that summer statistics do not correlate easily to a preceding snowy or cold winter. Climatology showed that the following summer is just as likely to be warm as it is cool, wet as it is dry.

So with that intrepid prognostication under our belt, we look to see what the people in the long range forecasting business, the Climate Prediction Center (CPC) say about the upcoming summer. Their forecast calls for a warmer than normal summer with near normal precipitation. Historians of this revered publication may note that the same prediction was made last year at this time. We might recall that the summer of 2003 was almost universally interpreted as pretty miserable. About the only thing celebrating the dreary season were the insects that thrived in the cool wet conditions.

Let's hope the forecast is better this year.

## Warming up to Growing Degree Days

**by Richard Grumm, Science and Operations Officer**

What are growing degree days?

Growing degree days (GDD) are computed in a manner similar to the better know heating degree day (HDD). The heating degree days are computed using the departure of the average daily mean temperature from 65. In a similar manner, growing degree days are computed from a different reference temperature. The United States Department of Agriculture (USDA)

defines two significant threshold temperatures (40 and 50F) to compute growing degree days. Sometimes these are referred to as GDD40 and GDD50.

The general formula to compute growing heating degree days is:

Degree Day = (Tmax + Tmin)/2 – **B**

For a GDD40, **B**=40 and for GDD50, **B**=50. So, a typical day in May with a high of 70 and a low of 50, the GDD50 and GDD40 would be:

GDD50=(70 + 50)/2–50=60–50 = 10.

GDD40=(70 + 50)/2–40=60–40 = 20.

To track your local growing degree days, you need only the daily maximum and minimum temperatures. If you do not have a thermometer you can estimate your numbers from the local newspaper by using the heating degree days. In this case, the heating degree days would be listed as 5 in the local newspaper:

HDD=65–(Tmax + Tmin)/2=65–60 = 5

The heating degree day is a little different than the growing degree day formula. You would have to subtract the number of heating degree days from the base value of 65, and get the mean temperature used. Then compute GDD50 and GDD40. But on warmer days, when the mean temperature is above 65F, you can use the cooling degree day and simply add 15 or 25 to it to get the GDD50 and GDD40 respectively. The cooling degree days are computed as:

CDD = (Tmax + Tmin)/2 - 65

So if the high was 80 and the low was 60, the mean would be 70 providing 5 cooling degree days, or 20 GDD50 and 30 GD40 days. For GDD50:

GDD50 = 70 – 50 = 20
GDD40 = 70 – 40 = 30

Or you can simply add 15 and 25 to the cooling degree days in your newspaper. So what are growing degree days used for?

Growing degree-days (GDD's) help measure the accumulation of heat during a growing season. Some of this is related to plant sensitivities, but most of it is related to plant growth and insect populations. Insects require heat to hatch and grow. By knowing the number of accumulated GDD's we can better predict events such as plant growth rates, germination dates, and insect hatches and infestations.

The University of Ohio uses the GDD50 to monitor and predict the development of hybrid corn. By tracking GDD50 values, growers can monitor and predict when the corn will most likely mature. Corn, like most plants requires the accumulation of heat to grow and mature. Though GDD's are useful in monitoring plant growth, factors such as day length, soil moisture and cloudiness, can affect specific events in a plants life cycle. Therefore, different gardeners in the same area frequently observe different bloom periods, but GDD's may be more accurate than simply using the calendar to predict plant bloom dates. Unlike the calendar, these many plant events are dependent upon the accumulation of heat to occur. A long period of cool weather might delay the growth and blooming of tomato plants.

However, cool weather early in the season, followed by a prolonged period of very warm weather may accelerate plant growth as GDD's rapidly accumulate. Similarly, the accumulation of GDD's will affect the hatching of insects. The USDA and many Universities have tabulated GDD values for many insects. Not all insect development is dependent on GDD's. However, most insects need the temperatures to reach a certain threshold (40 or 50F) to begin development and they do require a minimal accumulation of heat relative to that threshold to develop or hatch.

For those who garden, tracking the GDD's and comparing the time of various insects arrival in the garden to the GDD50 and GDD40 value can lead to some improved insect management techniques. Over a few years, the savvy gardener can plan when the next infestation of specific pests is most likely to occur. Many species of Aphids require between 135 and 250 GDD50 days to mature.

For more information on pest management and GDD's see the following web site: ***http://www.cas.psu.edu/docs/CASDEPT/IPM/FldCrop/part3.htm.***

## Advances in Hydrologic Forecasting

**by Peter Jung, Service Hydrologist**

During the last few years, the National Weather Service has implemented a number of major changes and improvements to the Hydrologic forecasting services it provides to the public. Many of these changes have been rolled into a program is called AHPS – Advanced Hydrologic Prediction Service. What is this program and what does it mean to you?

First and foremost, river models have gone through an extensive recalibration process at the River Forecast Centers using the latest modeling techniques. This process should assure that today's river forecasts are more accurate than ever before. In addition, longer term probabilistic forecasts are being generated for many river gauge locations in the Susquehanna, Allegheny and Chemung basins in Pennsylvania. These forecasts now provide weekly exceedance probabilities for Stage, Flow and Volume. In addition, exceedance probabilities for an entire month are available for many river forecast points. Based on current conditions, long range forecasts, and historical precipitation, these long term outlooks attempt to quantify the likelihood of future river floods up to a month in advance.

With all these new forecast developments, a new way to deliver these products to the public was also needed and developed. Whereas a few years ago all river forecast products were only available in text format, today many are available as full color graphics on the Internet. Graphs of current and forecast river conditions exist, along with charts of all the probabilistic forecast data described above. Maps of gage locations, historical high and low water marks and flooding impacts can also be found on the Web. In addition, each National Weather Service's local web page is logically linked to adjacent offices through the river maps. In this way, a person can "navigate" up and down rivers, without regard to political or geographic boundaries.

All these advances mean several things to you. First, river forecasts should now be more accurate than ever, with a faster delivery time of Warnings and Advisories. Forecasts and observed river stages should be much easier to interpret, now that they are presented graphically rather than in text form. And finally, longer term outlooks can be integrated into the decision making process for those who need such data.

Where can this information be found? For all of Central Pennsylvania (served by the State College Weather Forecast Office), the address is: ***http://www.erh.noaa.gov/er/ctp*** Click on the Rivers and Lakes AHPS link in the left menu and you'll be there. Check out the web page – explore and enjoy! Use the AHPS Feedback link to tell us what you do or do not like about the site.

## When Lightning Strikes

**by Barry Lambert, Senior Forecaster and Dave Ondrejik, Warning Coordination Meteorologist**

Lightning is the #2 weather killer in the U.S. (leading to about 100 deaths per year, and injuring 1000 annually). In Pennsylvania alone, 120 lightning fatalities occurred during the period 1959-2001, ranking our state #9 in lightning deaths, and #4 in injuries behind only Florida, Michigan and North Carolina. Since anywhere from 3% to 10% of lightning incidents result in death, it is estimated that up to 1200 people were struck by lightning in the Commonwealth during this approximate 40-year period. Pennsylvania actually ranks as #1 in lightning damage annually, and contributes to a scorching 5 billion dollar yearly bill related to the economic impact of lightning.

Casualties peak in July between noon and 6 pm, with 4 pm on Sunday followed closely by the same time Saturday being the deadliest instances. Greater than 50% of lightning fatalities occur after the thunderstorm has passed and rain has ended (up to 30 minutes following the last clap of thunder). Men comprise about 80% of all lightning related deaths. Approximately 25% of lightning deaths occur while seeking shelter under trees, with 6% occurring while golfing and 4% from corded telephone use. You don't have to be directly struck when lightning contacts the ground to be seriously injured or killed. A lightning bolt can spread out horizontally along the ground for up to 60 feet from where it strikes.

Last year (2003) six people were struck by lightning at a local amusement park. Two of them refused medical treatment, but four were taken to the hospital and were lucky to survive. Just a few days ago (May 7, 2004) two children were struck by lightning in Lancaster County. Luckily both were revived, but were apparently "clinically dead" for several minutes. Tragedies like this can be avoided by seeking shelter quickly.

Did you know?
1) 25 million cloud-to-ground lightning strikes occur in the U.S. each year.
2) Lightning heats the air within its path to 50,000 degrees F, or 5 times hotter than the surface of the sun.

Remember, all thunderstorms contain dangerous and potentially deadly lightning. Information on the ordinary, weaker variety of thunderstorm (common in our area on a hazy/hot summer afternoon) is contained in the

National Weather Service's "Short Term Forecasts". Storms that contain frequent lightning, small hail and possible wind gusts of 40 to 50 mph, or are producing frequent lightning are described in "Special Weather Statements". A "Severe Thunderstorm Warning" is used for highlighting the location, movement, and cities/towns to be affected by storms that produce large hail (penny-size or greater in diameter) and/or wind gusts of 58 mph or higher.

Here are some safety tips that will help protect you and your family or friends from the danger of lightning.

- Postpone outdoor plans such as golf, fishing or other outdoor activities ahead of time to avoid being caught off guard and placing yourself in danger.

- Have a lightning safety plan and a designated place of shelter before you venture outdoors during potentially threatening weather.

- Keep an eye on the sky, and be on the lookout for darkening skies and increasing wind, which can be signs of an approaching thunderstorm.

- Avoid being in open areas, especially on high ground. Since lightning has an affinity for tall objects, remain far away from trees, towers and utility poles.

- If you are close enough to hear thunder, you are close enough to get hit by lightning. Move inside and stay there until 30 minutes after the last clap of thunder.

Other objects to stay away from include metal bleachers, backstops and fences since lightning can travel long distances through metal. The author can personally attest to this last safety tip, after witnessing lightning strike an outfield fence during a teener league baseball game. The thunderstorm was 5 to 10 miles away to the north, with frequent thunder. Rain never fell at the field, and it was actually mostly sunny when the lightning struck. Luckily, the lightning stayed along the fence line and nobody was injured. Just some yells from the players and rapid heartbeats after jumping from the loud bang!

If no shelter in a sturdy building is available, take cover in a hard-topped metal vehicle with the windows closed (however, don't touch any of the metal while inside).

Finally, have a convenient and reliable source of real time weather information, such as NOAA Weather Radio – All Hazards with a tone alert feature programmed specifically to receive warnings for your county. Short Term Forecast and Special Weather Statements found on such broadcasts will highlight areas of less severe, though still dangerous thunderstorms along with their movement. Also consider wireless internet access to your favorite National Weather Service site and radar, or at the least a handheld radio tuned into a station that has emergency activation when severe weather is in the area.

While indoors stay off telephones (corded and wireless – believe it or not, both are dangerous), and keep away from any wiring or plumbing (this means don't take a shower when it's thundering out).

This year marks the 4th Annual National Lightning Safety Awareness Week in the U.S. – June 20-26, 2004. Be sure to tune into NOAA Weather Radio – All Hazards or visit the multimedia page linked to the site ***www.weather..gov*** Additional information on protection from the dangers of lightning can be found at ***www.lightningsafety.noaa.gov***.

## Odds and ends.

**by Dave Ondrejik, Warning Coordination Meteorologist**

Hello spotters…and thanks again for your great service in providing real time weather reports to the NWS from your location. As we have stated many times, your reports are extremely valuable and we **WANT** to hear from you whenever significant weather is happening. As a reminder…we don't advocate anyone chasing storms. This is a dangerous hobby and a proposed afternoon of fun can quickly turn you into a statistic!!

Thanks to all of you who signed up for the volunteer program that allows us to call you if/when we are seeking weather information in your local area. Statistically speaking, chances are we will never call you but it is comforting for us to know you are available and willing to participate.

If anyone else would like to participate in the program, I need the following information:

* Your spotter id number
* Your phone number
* Times when we can call you (i.e. Mon-Fri 8 am to 10 pm, Sat/Sun 10 am to 10 pm). If you work night and don't want to be disturbed during the day, please state so. You can send this information to me via e-mail at david.ondrejik@noaa.gov or drop me a quick letter at:

David Ondrejik
National Weather Service
227 West Beaver Ave
Suite #402
State College, PA 16801

Please DO NOT call the spotter phone line to sign up.

As a point of interest, our office will be hosting a booth at this year Agricultural Progress Day in Rock Springs, PA (just outside State College) on Aug 17-19. If you are in the area, stop by and say hello.

You can tell from the article above, we are placing an additional emphasis on lightning safety this year. June 20-26 is lightning Safety Awareness (LSA) week, but awareness should continue year round whenever thunderstorms occur. More about LSA can be found at: http://www.lightningsafety.noaa.gov/week.htm

Please be aware of all types of weather that will undoubtedly be sent our way this summer. Your safety and the safety of the public is our #1 concern.

## SKYWARNEWS

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**TO:**