SKYWARNEWS

National Weather Service State College, PA

Spring 2015

"Working Together To Save Lives"

The Winter in Review

John La Corte -- Senior Forecaster

After a long series of warm and mild winters, last year reminded us that harsh seasons where frozen pipes, huge pot holes and crippling blizzards make frequent headlines are not exactly a thing of the past. This past winter has reminded us that they can also occur in back to back years.

For the ease of meteorological record keeping, winter is considered to run from December 1 through the end of February. While we here in central Pennsylvania escaped the paralyzing record snows experienced over southeastern New England, we shivered as Arctic air masses took aim at the region again and again, though mainly during the last half of the season. After December started off warmer than normal, January saw temperatures take on a colder than normal trend that was capped off by the coldest February in history at many central Pennsylvania locations. Figure 1 shows average temperature departures for the season of anywhere between 2 and 6 degrees below normal, while February (not shown) was anywhere from 8 to more than 16 degrees below normal!

Another measure of how cold it was refers to the number of days where the low temperature bottomed out at zero or colder. As expected, many locations saw an abnormally high number of days with frigid mornings.

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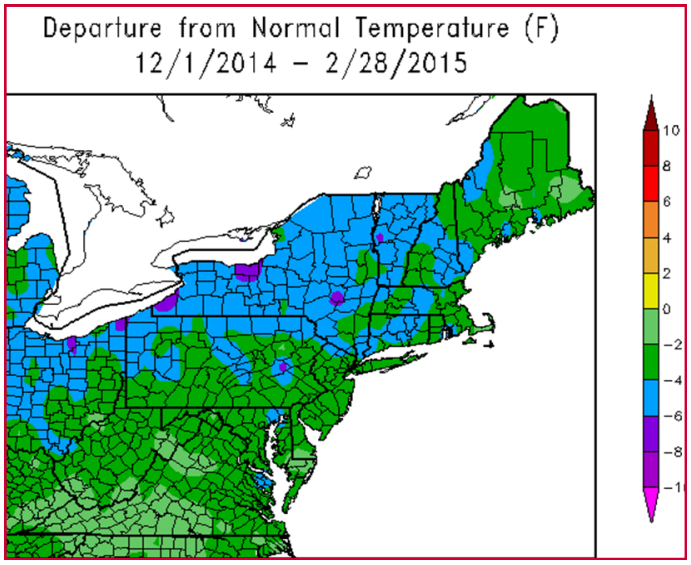
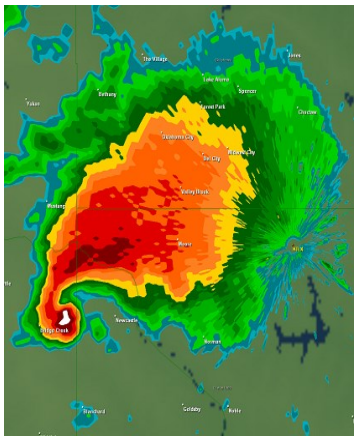
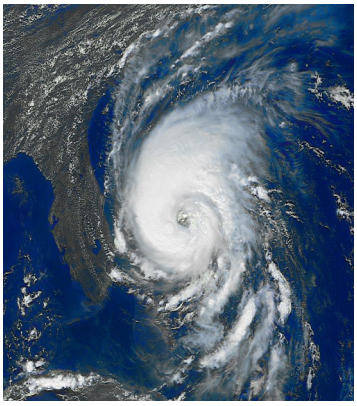


Figure 1. Winter Temperature Departures





Points of interest:

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Winter cont:

Table 1 shows the long term average number of below zero temperatures per year for each site compared to the number observed this winter. Many sites saw more than triple the normal number of below zero mornings.

	Normal	2014-15
Harrisburg	1	4
Williamsport	3	9
Altoona	2	7
Bradford	11	23
State College	3	8
Johnstown	3	11

Table 1. Number of 0 Degree Days vs. Normal

When it comes to local storminess, there were few real headline making storms. In fact at most locations in central Pennsylvania there was no single storm that dropped 6 inches or more of snow, long considered to be the "benchmark" for a heavy snow storm (Harrisburg had its first 6 inch snowfall on March 5th, technically outside of meteorological winter). Figure 2 shows melted precipitation overall was actually a little below normal with the mid February U.S. Drought Monitor page showing most of the state as being abnormally dry (not shown).

Despite most areas being a little drier than normal over the 3 month period, snowfall for the season was above normal in most locations. Table 2 summarizes the seasonal snowfall for a number of stations around the region.

Another pat on the back goes out to the Old Farmer's Almanac that predicted a hard winter with below normal temperatures and above normal snowfall.

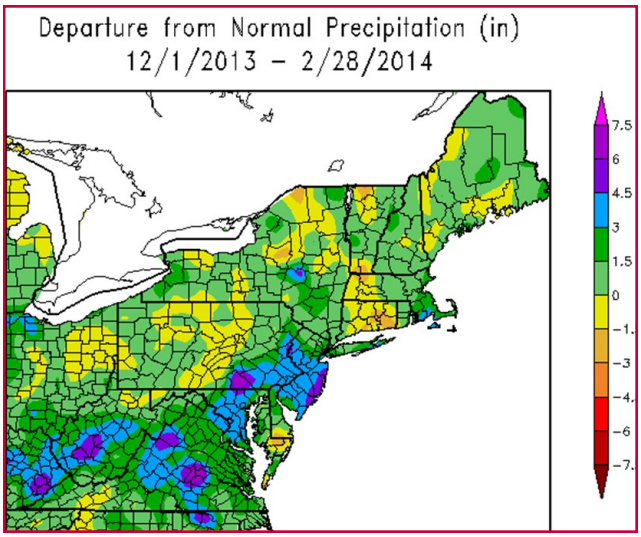


Figure 2. Winter Precipitation Departures

Location	Total	Normal	% of Normal
Harrisburg	25.0	24.4	102%
Williamsport	27.9	26.2	106%
Altoona	34.1	21.4	159%
State College	38.5	31.3	123%
Lancaster	18.5	16.3	113%
Bradford	61.2	52.5	117%
Wellsboro	43.2	37.0	117%
York	19.5	15.7	124%
Lewistown	24.9	19.4	128%
Lock Haven	30.2	20.6	147%

Table 2. Seasonal Snowfall Summary

The Big One: It can happen Again!

Kevin Lipton -- General Forecaster, Albany NY

*As we approach the 30th anniversary of the biggest tornado outbreak to affect Pennsylvania, we revisit an article written by one of our former forecasters back in 2003. * The old "F" scale has been updated to the new "EF" scale.*

Late in the afternoon on Friday, May 31 1985, a huge tornado outbreak sliced across Ohio and Pennsylvania. More than 40 tornadoes raked Pennsylvania that day, with nearly 30 exhibiting intensities of F3 or higher, based on the Fujita Scale of Tornado Intensity. One tornado in Mercer County of western Pennsylvania actually reached the F5 level of this scale, which produced "incredible" damage. This tornado was the only F5 tornado ever recorded in Pennsylvania (#4 in figure 1). The tornado developed in eastern Ohio, then traversed western Pennsylvania,

(Cont. Page 3)

The Big One cont:

sweeping right through the town of Wheatland. This tornado caused 7 deaths in Wheatland, along with 32 injuries. Many businesses were damaged, and at least 50 homes were destroyed.

Many other intense tornadoes affected central Pennsylvania that day. One tornado of F4 intensity developed just west of Pennfield in Clearfield County. This tornado traveled 69 miles to the east, crossing portions of Cameron, northern Centre, and Clinton Counties. Fortunately, the bulk of damage afflicted by this tornado was on trees, as it crossed the Moshannon State Forest. An estimated 88, 000 trees were uprooted, and the width of this tornado grew at one point up to 2 miles wide. 13 homes were destroyed when the tornado developed just west of Pennsfield.

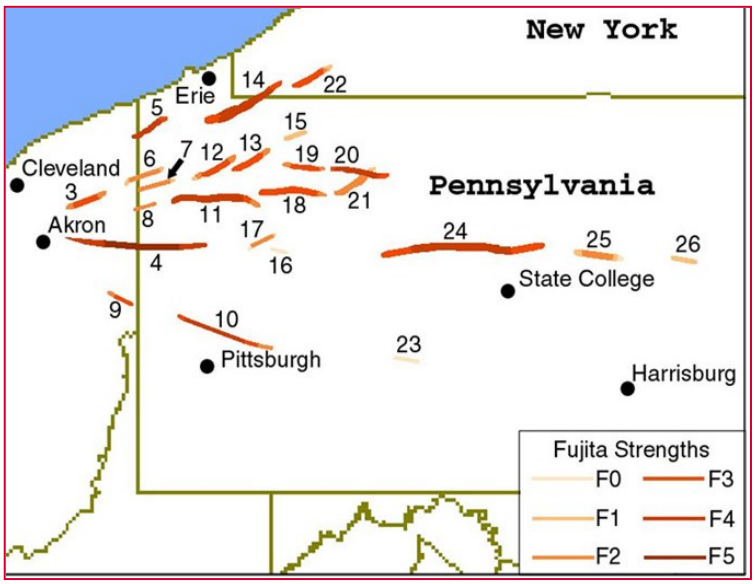


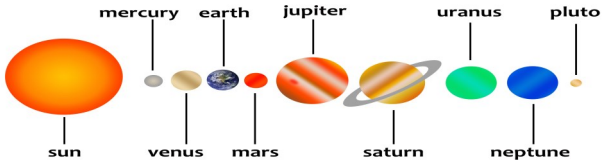
Figure 1. Map showing tornado tracks from the 31 May 10985 outbreak. The number corresponds to the count of tornadoes that day, taken from a larger map.

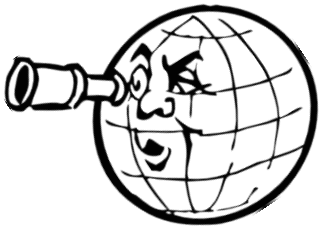
Another tornado of F4 intensity developed over southeast Warren County, and tracked toward the east southeast across McKean and Elk Counties. The most severe damage was near Kane, where the schools incurred nearly $3,000,000 damage, and at least 3 businesses and 99 homes were destroyed.

Yet another F4 tornado sliced across portions of Lycoming, Union and Northumberland Counties. The tornado swept across North White Deer Ridge, and continued to just northeast of Watsontown in Northumberland County. The tornado briefly lifted as it crossed the ridge, but then redeveloped and grew in size to 1.5 miles wide as it crossed the Susquehanna River. In Union County, a total of 48 campers, 8 homes, 3 mobile homes, and 18 vehicles were destroyed. In Northumberland County, 30 mobile homes were destroyed near Dewart, along with 77 homes and 140 mobile homes. This tornado killed 6 people, 3 of which were in mobile homes, 2 in houses and one in a camper. Damage estimate for the 3 counties was 16 million dollars.

As can be seen, strong tornadoes can and do occur in central Pennsylvania. This outbreak not only proved this, but also dispelled the myth that tornadoes do not occur near mountainous terrain. In fact, several of the tornadoes that occurred crossed areas that were between 2000 and 3000 feet in elevation (above mean sea level).

Can such an outbreak occur again? Well, merely 13 years later, two significant tornado outbreaks occurred within just a few days across central Pennsylvania. On May 31 1998, 10 tornadoes touched down in central Pennsylvania. Then just 2 days later on June 2nd , another 8 tornadoes developed. In fact, Somerset County was raked by two separate F3 tornadoes, one on the 31st, then another on the 2nd. As hot, humid air masses collide with incoming cool, dry air from the west and north, it's only a matter of time before another large outbreak of strong tornadoes affects central Pennsylvania.





The Change of Seasons

John La Corte -- Senior Forecaster

It gets hot in the summer and then it gets cold in the winter. One of the ever present truths in our lives yet how many people actually understand why?

With the approach of each new season, we inevitably get phone calls here at the office asking to explain exactly why we have seasonal changes. To begin to understand this, we need a brief astronomy lesson. The simple part is knowing that the Earth revolves around the Sun. Our orbit is an "elliptical" one, meaning as we spin around the Sun, we are closer to the Sun during parts of our orbit compared to others (figure 1). At certain times of the year we get as close as about 91.5 million miles at our closest approach to our star, and as far as 94.5 million miles when we are furthest away. This results in a paradox where the Earth actually receives about 7% more solar radiation during the northern hemispheric winter than in summer. But that's not the main reason for the changes we see from season to season.

As we orbit the Sun we are doing so on a tilted axis, which is known as the angle of inclination. This tilt from vertical is approximately 23.5 degrees (figure 1) and because of this, as we move through space, the angle at which the Sun's rays hit the Earth's surface changes. When the Sun's rays are hitting the Earth's surface at a high angle, that part of the globe is experiencing their warm season, or summer. This happens just before Christmas in the southern hemisphere and around June 21st here in the northern hemisphere.

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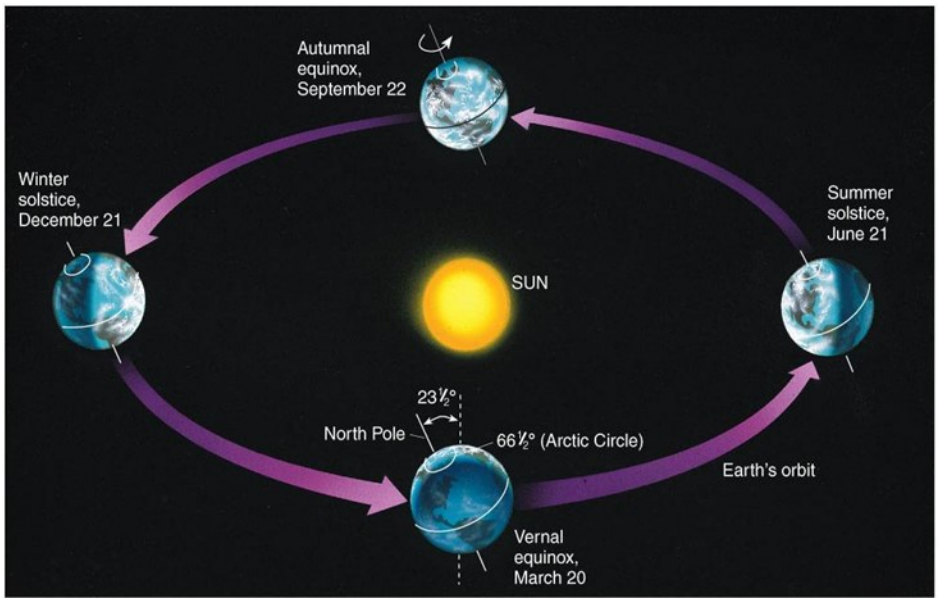
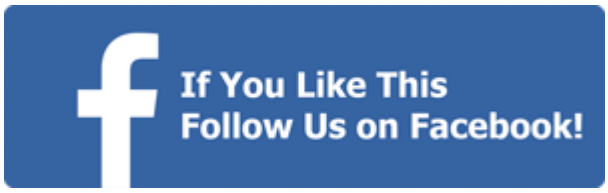
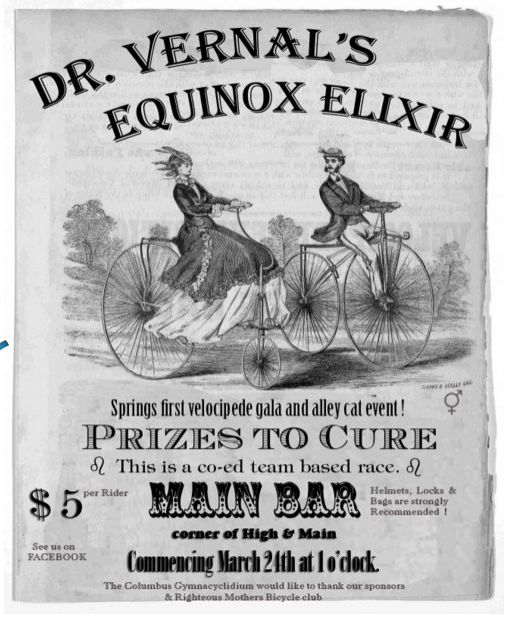


Figure 1. Illustrating both the Earth's elliptical orbit as well tilt of its rotational axis





Seasons cont:

Perhaps this is a little better illustrated with figure 2. About the time we start compiling the Spring Skywarn Newsletter, the Sun is moving higher in the sky each day so that by the Vernal (Spring) Equinox, the Sun is directly overhead the Equator. It's on this day that the amount of daylight and darkness are about equal everywhere on the globe, thus the term equinox which derives from the Latin aequinoctium : aequi - noctium = equal - night.

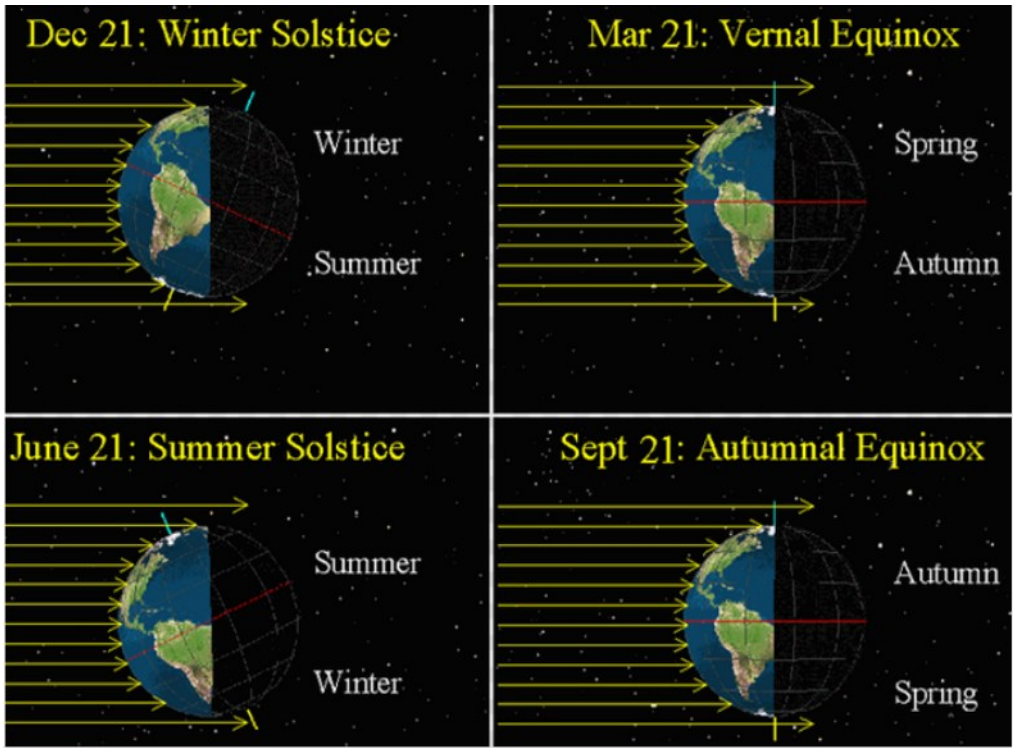


Figure 2. Solar angles at different times of the year

The Sun will continue to climb higher in the sky until around June 21st (northern hemisphere) when the rays from the Sun will directly overhead at about 23.5 degrees north latitude (about the latitude of the southern Bahamas). This is the Summer Solstice. The derivation of solstice from its Latin origin isn't as elegant as equinox. The term derives from solstitium : sol + stitium = sun – standing. This day is bittersweet for summer lovers. While it marks the beginning of the warmest part of the year, it's at this point the Sun begins its journey south again. The days gradually grow shorter and the process of course continues on through the Autumnal Equinox into the Winter Solstice and on and on it goes.

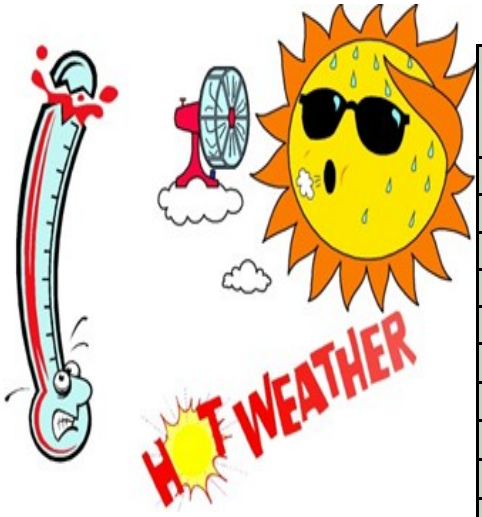
A little bit about why the angle of the Sun's rays hitting the Earth's surface is important. In the summer when the sun is highest in the sky, the rays pass through the least amount of atmosphere. This allows most of the energy to reach the surface and heat the Earth up. This in turn warms the lower layers of the atmosphere leading to the warm weather we have grown accustomed to. On the other hand, when the Sun's rays strike the Earth at a low angle, they have to pass through more of the atmosphere, losing more energy in the process before reaching the surface. Thus, during the winter in Pennsylvania with the sun being low on the horizon, we get diffuse sunlight at the surface as the energy passes through a considerably larger volume of atmosphere. Combined with intrusions of cold air masses from the north, winter is characteristically cold.

So, while we are closest to the sun during December and January, the angle of inclination has the effect of wiping out the increase in solar radiation. The result is that we are colder at a time of year when we are actually closest to the sun and receiving its maximum energy.

A word on solstice and equinox dates. Because the Earth's orbit is elliptical and varies a tiny bit year by year, the dates can vary slightly. While most of the time, the 21st of December, March, June and September mark the changes of the seasons, this year spring actually started on March 20. Because it's an astronomical and not a meteorological event, even we have to consult that great oracle Google to answer queries as to exactly when the seasons will change.

High Temperature Records

Mike Dangelo, Senior Forecaster

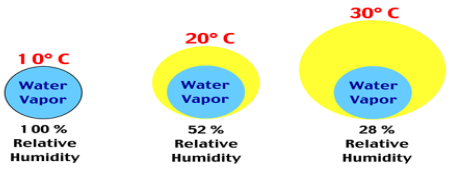


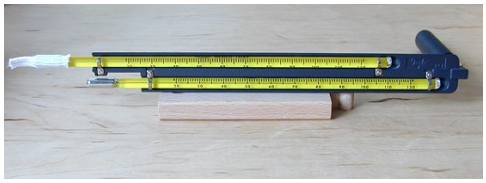
As cold as it has been, it may be hard to believe that warmer weather is lurking in our not too distant future. With that in mind, the table presents ***Record High*** temperatures for some larger cities and selected locations across Central Pennsylvania where records have been kept the longest (period of record or **POR**). When considering records we prefer a POR of at least 40 years. The longer records have been kept at a location, the better. The record high temperature for the entire Commonwealth of Pennsylvania is 111^{0}F which was set just outside of Philadelphia in Phoenixville, Chester County back on July 10, 1936.

As you can see in the table to the right, July 22nd and 23rd of 2011 were the hottest days ever at many of the sites. July of 1936 and 1966 were also all-time hottest in many places that have long enough periods of record.

Location/City/COOP ID	Record High (^{0}F)	Latest Date of Occurrence	Period of Record (year to present)
Harrisburg	107	July 3, 1966	1888
Williamsport	106	July 9, 1936	1895
State College	102	July 17, 1988	1893
Altoona (Blair County Airport)	103	July 22, 2011	1948
Bradford Regional Airport	97	July 22, 2011	1957
Johnstown (Cambria County Aprt)	94	July 22, 2011	2000
Carlisle (Water Plant)	103	July 23, 2011	1873
Chambersburg 1ESE	107	July 10, 1936	1894
York (Pump Station)	107	July 2, 1901	1894
Selinsgrove 2S	105	July 17,1988	1894
Kane 1NNE	98	July 23, 2011	1894
Warren	102	July 23, 2011	1896
Renovo	105	July 23, 2011	1896
Everett	108	July 2, 1966	1897
Shippensburg	105	July 22, 2011	1911
Ridgway	110	July 13, 1927	1913
Wellsboro 4SW	104	July 9, 1936	1926
Lewistown	106	July 23, 2011	1938
Bear Gap	100	July 22, 2011	1948
South Mountain	100	Aug 10, 2001	1948
Lancaster 2NE Filter Plant	103	July 22, 2011	1949
Landisville 2NW	102	Aug 9, 2001	1952
Glen Hazel 2NE Dam	100	July 23, 2011	1955
Sunbury	102	July 4, 1966	1957
Ebensburg Sewage Plant	99	July 3, 1966	1964
Lebanon 2W	103	July 4, 1966	1965
Altoona 3W	99	July 22, 2011	1967
Port Allegany	99	July 23, 2011	1969
Stevenson Dam	106	July 23, 2011	1969
Biglerville	102	July 17, 1988	1972
Lock Haven Sewage Plant	105	July 23, 2011	1973
Tioga-Hammond Dam	103	July 23, 2011	1973
Raystown Lake 2	104	July 23, 2011	1973

Table 1. Record high temperatures and dates





Relative Humidity or Dewpoint?

John La Corte, Senior Forecaster

One of the mainstays of the daily weather report besides temperature is something referred to as the **Relative Humidity**. Most people see or hear it but really do not understand it. Most may understand that if the humidity is high, the air is moist, but sometimes it can feel downright humid even with the relative humidity being reported as pretty low. What is going on?

Well let's start by trying to understand what comprises the relative humidity. It is the ratio of the *water vapor* in the air compared the maximum amount the air can actually hold (saturation). What is this water vapor we speak of? It is an invisible gas that makes up a part of our atmosphere. Water vapor is not the same as steam or clouds. When we boil water we see the water turn first to steam then disappear altogether. The water isn't gone; it has merely been converted to a gas which we call water vapor.

Water vapor un-disappears if you will, once the air reaches saturation. We all understand saturation, which is what is occurring when we see rain, snow, dew, fog or clouds. It means that the air can hold no more water vapor, and it must start to condense out in the form of visible moisture. If we didn't reach saturation, we wouldn't have precipitation.

All this is complicated enough, but consider that the air can hold much more water vapor at warm temperatures than it can when it's cold. This explains why it feels so much more humid on a typical day in July than it does in January, even when the relative humidity can be near 100% at either of those times.

Because of this, meteorologists tend to look at the **dewpoint**. The dewpoint is a more accurate representation of the actual amount of moisture in the air and is represented as a temperature. It literally is the temperature which the air would have to be cooled to in order to condense the moisture (water vapor) out of it. So the dewpoint is really what it sounds like, the point at which dew will form.

Let us look at a typical summer day. By midafternoon the temperature may be about 88 degrees with a typical mid-summer dewpoint being about 65 degrees. If you were to see that report on television, the relative humidity would only be 47%, yet rest assured, you would feel uncomfortable. In fact the forecast may sound something like "…Hazy…very warm and humid with highs around 90." Why is that? It is because the dewpoint is so high.

Table 1 (page 8) summarizes a rough estimation of dewpoints and what most people perceive when they are reached. If you have ever been to Florida in summer, you know it usually feels oppressively humid. This is because dewpoints are typically in the mid to upper 70s all summer long. So even though temperatures rarely reach 100 in Florida, the humidity is why most people complain that it is so hot. A corresponding day in the desert southwest may reach 100, but if one manages to stay in the shade it may feel relatively comfortable because dewpoints are generally well below 50.

Why doesn't it get humid in winter? Well actually it does…and it doesn't. Since the laws of physics dictate that the dewpoint can never be higher than the temperature, we usually do not "feel humid" in winter because it's usually cold, and from table 1 you can see that for most people to even begin noticing the humidity, the dewpoint needs to be around 60 degrees or higher. In this part of the world 60 degree air temperatures in winter are rare meaning 60 degree or higher dewpoints are similarly rare. Yet remember I also mentioned it does get humid? Well technically anytime the temperature and dewpoint are close to each other, it's humid.

OK, that's sort of playing word games but let's consider a typical winter storm when it may be snowing or raining outside. The temperature may only be around 32 with a dewpoint very near that, say 30 or 31. If we were to go back to that old relative humidity thing again, we would see the relative humidity would be close to 100% meaning the air was very near saturation (of course, it's raining or snowing). So while we may not feel it the same as if were mid-summer, it does technically get humid in winter.

The ultimate reason why it "feels" humid has to do with the body's ability to evaporate moisture from our skin, which is our natural cooling mechanism. Simply put, when there is a lot of humidity in the air (think Florida in summer), it's harder for the body to evaporate moisture from our skin. We sweat and "feel humid." In winter when there is usually less humidity in the air, this is not a problem. We actually still sweat but it evaporates more efficiently into the drier winter air and we don't feel humid. In fact our problem is usually staying warm.

So the science lesson is over, hopefully you have a better understanding why it feels humid in July when the relative humidity may be less than 50% while you don't feel humid in January when it may be near 100%. Hopefully wherever you get your weather information, they will display the dewpoint so you can use table 1 and get an idea when it will begin to feel a little muggy or downright oppressive.

(Cont: Page 8)

Dewpoint cont:

Dew Point °F	Human Perception
75°+	Extremely uncomfortable, oppressive
70° - 74°	Very Humid, quite uncomfortable
65° - 69°	Uncomfortable for most people
60° - 64°	Becoming noticeable to most even "muggy" to some
55° - 59°	Comfortable, but some may start to notice
50° - 54°	Very comfortable
49° or lower	Feels like the western US...a bit dry to some

Table 1. Dewpoint and comfort level

Warm Season Hazards

Dave Martin, General Forecaster

As warm season approaches and we venture out, many of the things we take for granted can be dangerous such as insects, plants, weather, and animals. A few of these are described below.

LIGHTNING

- Lightning is the #2 weather killer in the U.S.. While Florida leads the country in deaths and injuries, Pennsylvania also sees its share (we do rank number one in lightning damage however).
- It is estimated that upwards of 10% of lightning incidents result in death with the most deaths being observed in July.
- Men comprise about 80% of lightning related deaths. It is thought this is so because men are more often outside working and engaging in sports than women.
- Lightning can spread out horizontally along the ground more than 60 feet from where it strikes.
- Even after a storm has moved out of the area, lightning can strike from as far as 20 miles away.
- Seeking shelter under trees or using a corded phone put folks at risk.

BEES — SPIDERS and SNAKES

Some people can get a reaction from bee stings. Sensitive folks should be alert for a reaction and seek medical attention as needed. Beware of nests that are on the ground.

Many types of spiders live in Pennsylvania but few actually sting or bite. The Black Widow spider would be one that does (though the bite is seldom fatal).

Upwards of 22 different kinds of snakes live in the Keystone State. Three of these species are venomous. These include the Timber Rattlesnake, the Eastern Massasauga Rattler and the Copperhead. Use caution and try to avoid areas where these snakes live. These creatures are more beneficial than dangerous and should not be killed. If need be, relocate them.

TICKS

Ticks represent a growing problem, especially deer ticks. These are small and can be hard to see. If you must be outside, be sure to wear protective clothing and use insect repellent that deters ticks. Check yourself thoroughly when you are done outside. If necessary, have someone check you for ticks in hard to see places such as the hairline behind your head. Lyme disease is the big threat from deer ticks.

MOSQUITOES

While most mosquito bites are more of a nuisance than dangerous, West Nile virus has been observed in Pennsylvania in recent years. The same as with ticks, if you must be outside, dress accordingly and use a mosquito repellent.

Recent changes in weather patterns can have a large influence. One such example was March 2012. Mosquitoes came out early, given the lack of a hard winter and temperatures in the 70s and 80s during the second half of March. (Cont Page 9)

Hazards cont:

PLANTS AND OTHER HAZARDS

One should also be alert for poison ivy, poison oak, and poison sumac. Avoid contact with these plants. If you do come into contact, immediately wash the area with warm soapy water and avoid touching your eyes. If you are trying to clear your property of these plants, keep in mind that even burning them can cause problems as the smoke can spread the toxins that are in the plant. In addition to the leaves, the stems and other parts of these plants can cause an adverse reaction.

If you are out hiking, use caution if you want to drink water for streams and lakes. What looks to be clear and clean water may very well be contaminated. One such organism that can be found is Giardia Lamblia (first discovered in 1681). The number of cases illness from this organism started to increase in the 1980s across the country though the cause is not clear. Proper water treatment including filtration or boiling is needed to make the water safe to drink.

In addition to Giardia, several areas of the country have seen outbreaks of Cryptosporidium.

SUN

Each year the potential for sunburn becomes a concern. To protect yourself, wear protective clothing and use a high SPF sun screen. Heat stroke and heat exhaustion are other problems that can occur with extensive exposure to the sun in hot and humid conditions. Drink plenty of fluids and limit outdoor exposure during hot and humid conditions.

After our long cold winter, most of us are looking forward to spending more time outside. Taking a few precautions to avoid bites, stings, exposure to toxic plants or too much sun will go a long way toward not spoiling those hours spent outdoors.

Near Earth Objects 2015-16

Barry Lambert, Senior Forecaster

Hazardous weather such as tornadoes, large hail, lightning, winter storms and floods certainly pose a threat to life and property, but typically damage and personal harm from one of these events is quite limited in time and space. Landscapes and buildings usually recover or are rebuilt rather quickly. In contrast, an impact from a Near Earth Object (NEO) of significant size (asteroid or comet) can not only ruin our day, but perhaps destroy large areas on the Earth's surface and cause a tremendous number of human fatalities. A comet or asteroid becomes classified as a NEO when its trajectory carries it to within 1.3 AU (Astronomical Units) from the Sun, or similarly 0.3 AU of Earth's orbit. An NEO is highlighted as "Potentially Hazardous" when its orbit brings it to within 0.05 AU (or 19.5 Lunar Distance) which is equivalent to 7.5 million KM.

The largest ***PHA*** (Potentially Hazardous Asteroid) is 4179 Toutatis which has dimensions of 4.6 x 2.4 x 1.9 KM and an orbital period around the sun of 4.03 years.

NASA is taking significant steps to catalog the threat from a growing number of observed Near Earth Objects, and has plans in place to try to prevent future impacts. At the JPL (Jet Propulsion Laboratory), NASA scientists involved in the "***Asteroid Watch Project***" work diligently to share the latest asteroid discoveries and potential threats with the public.

The Asteroid Watch is part of NASA's Near -Earth Object Program that studies asteroids and comets, as well as their potential impact threats to the Earth and other planets. A complete listing of recent and future close approaches can be found in this table - http://neo.jpl.nasa.gov/ca/

The following Sentry Risk Table http://neo.jpl.nasa.gov/risks/ lists various characteristics of each NEO. Frankly, the most important ones to me are:

1.If the NEO will hit Earth (or at least how close to earth will it pass)

2.When will the impact occur

3.The size of the Asteroid or Comet

A summary table for each NEO is "Clickable", and includes basic information about the hazard for this particular object.

NASA believes that they (through collaboration with other scientists and astronomers around the world) have found 95 percent of the large asteroids that could endanger Earth (those that are at least 0.6 miles or 1 km in diameter). However, NASA states, "We need to find ***all*** those that might be a threat to Earth."

NASA sends us a bit of comforting news that, "Being classified as a PHA does not mean that an asteroid will impact the Earth." Furthermore, none of these PHAs is a worrisome threat over the next 100 years. As NASA's JPL continues to observe and track these asteroids, their orbits can be refined and more precise predictions can be made of their future close approaches and impact probabilities."

In 2014, NASA actually ran a contest for "Citizen Scientists" to try to find and help track undiscovered Asteroids. Prize money of $35, 000 was offered to those who could improve algorithms that help NASA find and identify asteroids in our solar system.

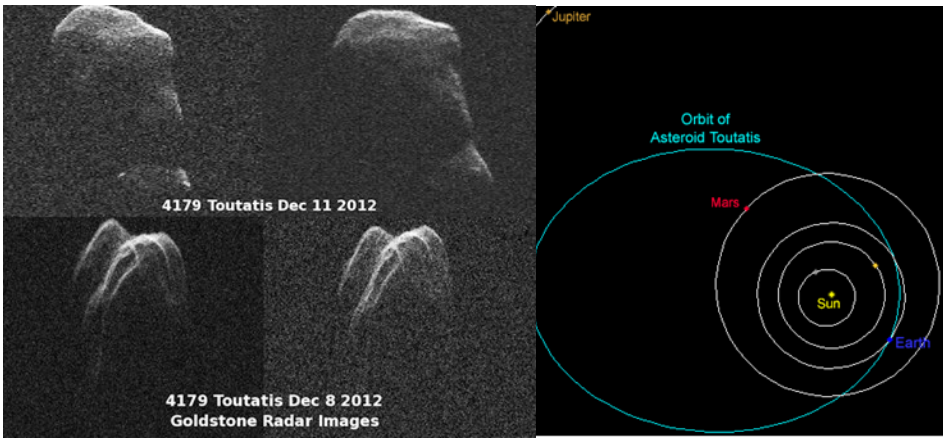


Figure 1. Goldstone radar images of 4179 Toutatis obtained during the asteroid's Dec. 2012 earth flyby (left), and the orbital path of Toutatis (right).

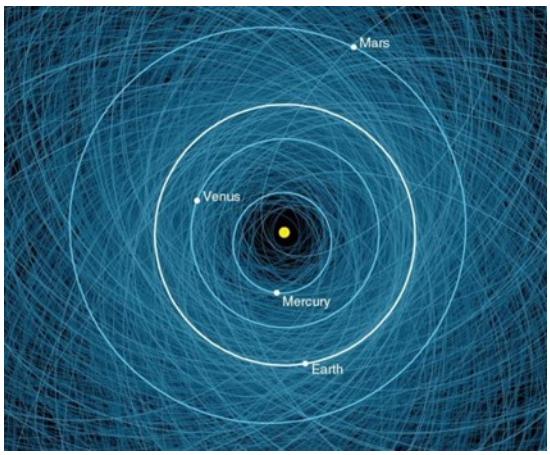


Figure 2. This NASA graphic shows the orbits of all the known Potentially Hazardous Asteroids (PHAs), numbering over 1,400 as of early 2013. Shown here is a close-up of the orbits overlaid on the orbits of Earth and other inner planets.

Although the thought of an impact by a large Asteroid or Comets sparks fear in many people, their collisions with Earth likely held the key to the formation of life here on our planet.

Bombardment of the Earth by comet and asteroid impacts 4 billion years ago likely made the surface and atmosphere too hot and void of oxygen, water, and carbon-based molecules, which prevented the formation of life. However, as the frequency of comet and asteroid impacts decreased over the next few hundred million years (3.5 to 3.8 billion years ago), life developed relatively quickly. The lower rate of impacts delivered the right amount of water and carbon-based molecules to serve as the building blocks of life itself (without killing off all life), allowing the most adaptable species to gradually evolve and flourish. There is high confidence that the extensive and diverse population of dinosaurs worldwide (and perhaps even more than 75% of

NEOs cont:

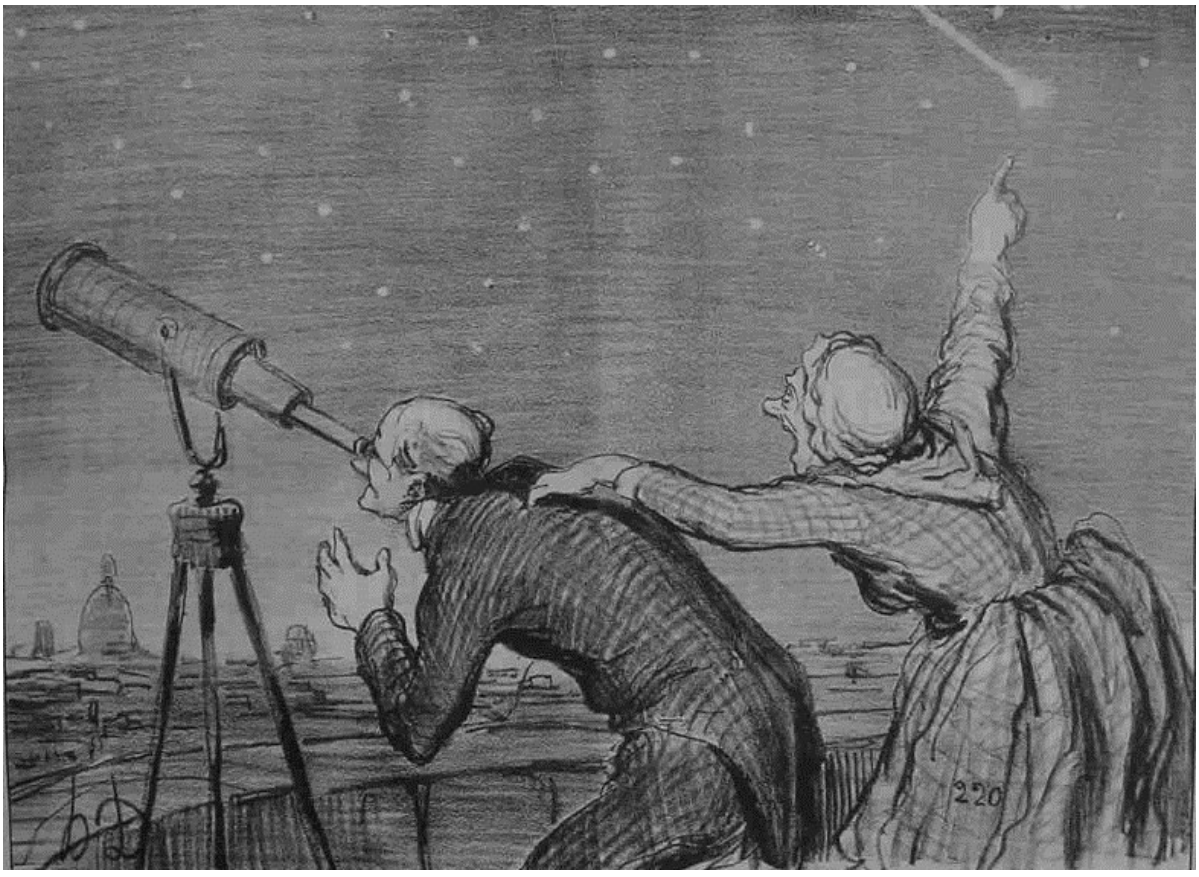
the living organisms on the planet) was brought to extinction over a very brief period after the impact of a large asteroid on the Yucatan peninsula about 65 million years ago. Smaller mammals lower on the food chain did survive and humans eventually evolved from these primitive mammals.

Can we do anything to help mankind avoid extinction (similar to the Dinosaurs) from a large asteroid? Well, the scientists and astronomers at NASA think so, and are working on a long term, feasible plan.

Hopefully, we won't need to call on Bruce Willis (aka Harry Stamper) and his team of oil drillers anytime soon to save us from *Armageddon*!

Check out the video link here -

https://www.youtube.com/watch?v=7Z4GdGwu9dM&feature=player_embedded



Believe it or not, we have been on Facebook now for nearly 4 years and on Twitter for about 3 years. During that time we have seen our following grow and we have received countless valuable reports of snow, rain and severe weather. We even received a video of a very rare local tornado!

With the increasing popularity of smart phones, social media apps provide an easy way for you to interact with us and keep us apprised of what is happening in as close to real time as possible. These social media posts may pique your interest or even help you avoid the kind of hazardous weather that often affects central Pennsylvania.

So we encourage you to share your reports with us. Please be sure to tell us where the report is from and if it's not current, when it happened.

Facebook allows for posts of varying lengths and is very friendly to sharing graphics and videos. Twitter also has the capability of sharing graphics but is limited to text posts that are no more than 140 characters in length.

Using either platform, we look forward to hearing from you!

Remember when using Twitter keep messages short and concise (140 character limit). Because of this, abbreviations and punctuation may be used in such a way to keep the messages brief but still decipherable. A key characteristic of Twitter is the use of "hash tags". While not necessary, they are encouraged as they allow for easy categorizing and searching. Hash tags start off with the "#" (pound sign) character and help other Twitter users to find and procreate (re-Tweet) your information. An example we use here at the State College is #ctpwx. ***CTP*** is the "call sign" for our office and "**wx**" is the abbreviation for ***weather***. So a report may look something like **#ctpwx 4 inches of snow in Mytown and it's still snowing hard**. Another hash tag we search for is **#pawx** but these aren't the only ones. If you have a severe thunderstorm you may want to tweet something like **#ctpwx #severethunderstorm in Mytown at the time**. The idea is to fit as much information into that 140 character limit as possible and still be descriptive enough to convey what is happening and where!