The Mountain Weather Journal

Fall 2007 Edition

What's New at JKL???

By: Shawn B. Harley
Meteorologist-in-Charge

Greetings from your friends and neighbors at the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service Forecast Office in Jackson, Kentucky. In last fall's newsletter I wrote about the Kentucky Mesonet, a network of environmental observing stations that will be installed throughout Kentucky. This fall I want to bring you up to date on the latest developments with the Kentucky Mesonet, and also bring to your attention another new and exciting weather observing network which you can become involved with. This network is called CoCoRaHS.

As you may recall from the Fall 2006 Newsletter, the development of the mesonet is a collaborative effort between The Kentucky Climate Center at Western Kentucky University, the National Weather Service, and the National Climatic Data Center. The mesonet will consist of a network of weather observing stations with high quality instrumentation to measure precipitation, temperature, relative humidity, wind speed and direction, solar radiation, soil temperature, and soil moisture. Considerable work was accomplished over the past year, including the surveying of potential mesonet sites, the installation of the first few observational platforms and associated instrumentation, and the development of a website so you can access the data.

This past summer, David Stamper, of the Jackson National Weather Service Forecast Office, worked closely with local county officials, and Western Kentucky University staff, to conduct surveys of potential mesonet sites here in the eastern part of the commonwealth. As of September, site surveys had been completed in 17 eastern Kentucky counties, and more site surveys will be conducted in the future. The surveys help determine if a site is suitable for installation of weather equipment, and if so, whether the siting will allow for high quality observations and adequate electronic communication for data transmission. If a site meets all criteria and is selected as an observing site then agreements have to be worked out with the land owner before installation of equipment can begin. The entire process can take considerable time.

At this time, 3 mesonet sites are operational and routinely transmitting data on an experimental basis. The sites are located in Logan, Warren, and Rowan Counties. You can view the data from these locations at the following website: http://www.kymesonet.org/data.htm

You can also learn more about the Kentucky Mesonet by visiting: http://www.kymesonet.org/

Another new weather observing network will soon also be under development across the commonwealth. This network is CoCoRaHS, which 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 that works 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, the aim of CoCoRaHS is to provide the highest quality data for natural resource, education and research applications.

There are currently 22 states participating in the CoCoRaHS network. As a result of the overwhelming popularity of the CoCoRaHS program, and thanks to a grant from NOAA, the network will expand six to eight new states each year through 2009. Kentucky will be added to the CoCoRaHS network on November 1. In Kentucky, the development of the CoCoRaHS network will be a collaborative effort between the University of Kentucky Agricultural Weather Center, the State Climatologist/ Mesonet Director at Western Kentucky University, the National Weather Service, and the United States Department of Agriculture Farm Service Agency. Since CoCoRaHS will be a network of volunteers there will be an opportunity for you to get involved. In fact, CoCoRaHS will only be successful if there are willing volunteers. More information on CoCoRaHS in Kentucky will be available in the coming months. Until then you can learn more about the program at: http://www.cocorahs.org/

It truly is an exciting time to be a weather enthusiast in the state of Kentucky. With more data available to meteorologists in the coming years, we will be able to significantly improve the monitoring and analysis of meteorological and hydrological conditions across the state, and anyone with internet access will have the capability to do this as well.

As always, we would appreciate hearing from you. If you have any comments regarding our webpage or the services we provide please give us a call, send us an email, or drop us a note. We are constantly striving to improve our products and services and your feedback is important to us.

What is a Blizzard?

By: Brian Schoettmer
Meteorologist Intern

Blizzards are one of Mother Nature's most amazing and dangerous types of storms. Large snow totals, strong winds, and very cold temperatures are usually associated with these monstrous cyclones. However, there are some aspects of the blizzard that are misunderstood and misused by many. Frequently, the word blizzard is used to describe a storm that does not meet the definition or criteria of a real blizzard. There is a good reason why this is the case. The word "blizzard" commands attention. If a local government or media source wants the general public to be aware of a strong storm, that is not quite blizzard strength but still very dangerous, they might say "blizzard" to get people to prepare. Sometimes the general public needs to be triggered to react properly to a dangerous situation.

In reality, a winter storm has to meet some very tough standards to be awarded the classification of blizzard. According to the National Weather Service a storm must have sustained winds of 35 miles per hour along with visibilities less than a quarter of a mile for three hours or more. (**Figure 1 shows an image of what visibility might look like**.) The interesting thing about these criteria is that there is no mention of snow. A common misperception is that you need a lot of snow, usually a foot or two, to have a blizzard. However, the truth is what gives a blizzard it's name is high winds and low visibility. Obviously, you need blowing snow to make visibility drop to the needed threshold, but technically you could have a blizzard with no snowfall if there was already snow on the ground to blow around.

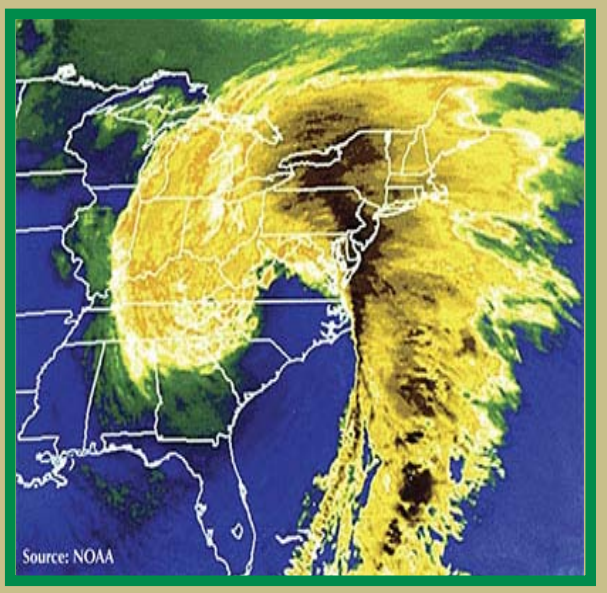
Figure 1. Blowing snow reduces visibility dramatically.

So, is there another reason the word "blizzard" is misused for heavy snow events rather than for high wind and decreased visibility? Yes- the reason most likely has to do with the fact that when you do have a storm capable of producing these kinds of winds, heavy snow is usually associated with it. It takes a very powerful low pressure system to produce the strong winds for the amount of time necessary to reach blizzard status, so naturally heavy snow is usually going to be associated with these types of storms. Therefore, when a blizzard does occur, people automatically think of gigantic snowfall totals.

Although blizzards are possible in east Kentucky, they are rare to these parts for a couple of reasons. The main reason is that the hilly terrain would make it harder to sustain a strong wind for a long period of time. Flat terrain, like in the Great Plains, is more conducive to blizzards because there are not as many hills or mountains to inhibit air flow; thus the wind can move faster. Also, east Kentucky is not a common area for rapid low pressure strengthening, although it isn't out of the question.

Despite these two factors, Ketnucky has been a part of two "official" blizzards in the past 30 years. In January of 1978, blizzard conditions were observed in Kentucky as a powerful low pressure system swept across the area. In 1993, a powerful cyclone known as the "Storm of the Century" swept across the entire eastern United States bringing blizzard conditions north of the Tennessee Valley and a severe weather outbreak to the south. The storm brought 6 to 30 inches of snow to eastern and southeastern Kentucky with snow drifts as high as 10 feet in some places. At the Jackson National Weather Service office, 19.8 inches fell in a 24 hour period. Also, a state snowfall rate record of 25 inches in 24 hours was set at Hazard. **(See Figure 2.)**

Figure 2. Satellite image of the "Storm of the Century".



With almost fifteen years since the last blizzard, climatology might suggest that our area is due for another storm sometime soon. If a similar event happens again, east Kentucky should be prepared. Always have extra food, water, and blankets in your home in case of extended power loss. Never drive in blizzard conditions, or if they are forecast within a couple of hours, because it is hard to tell exactly when conditions will worsen. Visibilities can drop very fast at the onset of a storm, and vehicles can be trapped very quickly by snow drifts. Extreme cold and deep snow could keep rescue workers away for several days, which could prove disastrous for a stranded motorist.

Aviation

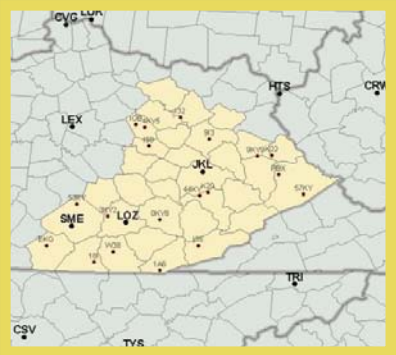
By: Dusty Harbage
Lead Forecaster

Check out the Aviation Web-site:

The new web-site for aviation on the Jackson weather office web page is a must see for anyone who has an interest in aviation weather. http://www.crh.noaa.gov/jkl/?n=aviation
New items that have been included are: The aviation portion of the Area Forecast Discussion (AFD). Here you get some insight into why the forecaster created the Terminal Area Forecast (TAF) for the three airports that get formal aviation forecasts in eastern Kentucky as well as the area weather that would impact numerous regional airports without the formal TAF. This discussion is updated four times daily.

Another new feature is the "Point and Click Terminal Forecast". With this feature, you can view specific weather elements of your choice for many of the area airports that do not have a formal TAF. These elements include temperature, dewpoint, surface wind and gusts, sky coverage, ceiling height, visibility, precipitation potential chances for rain and thunder, relative humidity and heat index. The displayed elements are user selectable so you only need to show those that are of interest. The display starts with the current hour and displays the selected weather elements for a period of 48 hours. This can become a useful planning tool but does not substitute for an official flight weather briefing.

The national weather that has been available on this site is still available for those traveling outside the local area. Even if you are not flying your own airplane, this can be a useful source of information for destination and enroute weather.



Example of Point & Click Terminal Forecast

Visit us on the web at:
www.weather.gov/jacksonky

Black Ice & Winter Driving

By: Bonnie Terrizzi
Hydrometeorological Technician

One of the most hazardous effects of winter weather driving may be encountering black ice, especially on mountainous roads. Black ice is simply a phenomenon whereby condensation of moisture, such as dew or fog, settles on the road surface or bridges, when the highway surface is at temperatures below 32 degrees. This creates a thin but dangerous layer of shiny ice. This situation is very dangerous because it is not usually obvious to motorists who may mistake it for water on the road, if they see anything at all. The other reason this phenomenon is not readily obvious is that it does not have to be snowing or raining for it to occur. The only necessary condition is that the pavement temperature has to be below freezing. For example, the source of moisture may be seepage from the cliff-side along mountainous roads, or humidity levels in the air high enough to promote the formation of dew, frost, or fog.

Black ice usually occurs when the dew point and air temperatures converge. At this point, the air can no longer hold the moisture, so it condenses onto the pavement. It is more prevalent on bridges since cold air passes under and above the bridge which can make it freeze easily.

The ice actually isn't black in color, it's actually transparent and almost invisible on asphalt. Black ice can appear to be a spot of moisture on a road, or may have a slight glisten on the black asphalt. Do not be mistaken: this thin ice layer is very slick, and your car can skid rapidly on it.

The following tips for safe winter driving tips is recommended by the US Department of Transportation and motor vehicle safety:

Adjust your speed to the Current Conditions: When driving in challenging conditions, slow down. Decreasing speed will allow more time to respond when a difficult situation arises. Factors such as the type of vehicle, the quality of snow tires, and your abilities as a driver should all be considered in the speed adjustment.

Anticipate Difficult Situations: Studies have show that 80% of all accidents could be prevented with only one more second to react. In many situations, this one second can be gained by looking far enough down the road to identify problems before becoming a part of them.

Use Grip Effectively: When roads are slippery, use all the grip from your tires that is available for one thing at a time. Brake only before the curve when the car is traveling straight. Taking your foot off the brake before you steer into the curve allows you to use all of the grip available for steering. Do not accelerate until you begin to straighten the steering wheel when exiting the turn. This technique will allow each maneuver to be 100% effective.

Maintain A Comfortable Driving Environment: A constant flow of cool air from the vent will help to keep you alert, and keep the windows clear of frost. Avoid wearing large bulky boots, gloves, or coats that will hamper your ability to react. Never drive in ski boots.

Turn on Your Lights: Whenever daytime visibility is less than ideal, turn on your headlights - not for you to see better - but for oncoming traffic to see you! Keep in mind this simple rule - Wipers on, Lights on.

Use Snow and Ice Tires in Winter Conditions: Be aware that an all-season tire is a compromise, and will not perform as well as a snow and ice tire. To maximize safety and control, use the best snow and ice tire available. Make sure you have had your car properly serviced and winterized.

Tech Tips

By: William Modzelewski
General Forecaster

There are a number of ways you can get the latest weather information. One way to get detailed information is by using the internet. National Weather Service information is available by going to our web site at www.weather.gov/jacksonky . You will find the latest forecast data, available in several different formats. If you click on the map on our homepage, it will give you a point specific forecast for the exact location you clicked on. This information comes from our graphical forecast database. You can also get hourly forecast weather graphs, and other graphical forecast products on our web site.

Any National Weather Service watches or warnings are also available on our web site. You can view these from the map that is displayed on our home page, or by clicking on the watches/warnings link.

If you are looking for current information, such as current observations, or radar and satellite data, click on the corresponding links on the left hand side of our web page. The latest data is available directly from the National Weather Service. Current river stages and forecast are also available, on our AHPS/River Info link. This area contains

Tech Tips Continued

the latest river stages for various forecast points, as well as the latest river stage forecasts.

Climate data is also available. The National Weather Service in Jackson has numerous Cooperative Weather Observers in Eastern Kentucky. These are volunteer observers, supplied with NWS equipment, who report temperature and/or precipitation data to our office every morning. This information is sent as the Regional Temperature and Precipitation Summary (RTP) each morning, usually around 10 AM. Also, the latest daily climate summaries are available for Jackson and London. These include information such as records, degree day data, and wind information.

Another important source of weather information is NOAA Weather Radio. This is a weather broadcast directly from the NWS office in Jackson that includes the latest forecasts, watches, warnings, current information, AMBER alerts for missing children, and information on other non weather hazards such as chemical spills. If you have a radio that has an alert feature, when a watch or warning is issued, these radios will sound an alarm before the hazardous weather information is broadcast. This is the fastest way of getting the latest watches and warnings from your National Weather Service office.

You can give us a call anytime to get weather information. We maintain a recording of the latest forecasts and climate data. You can also talk to someone in the office if you need further information, or have any questions or concerns. Our telephone number is 606-666-8000.

Winter Weather Safety Tips

By: Ed Ray
General Forecaster

It has been quite a while since Eastern Kentucky has seen any really significant winter weather. That being the case, all the more reason to brush up on some winter weather safety tips. Preparing for winter can seem like a monumental task. So let's try to break this topic down into a few easier steps: preparedness, awareness and actions.

There are plenty of things we can do for preparedness. We must concern ourselves with home, work, travel and recreation. For home and work, keep and check necessary material and equipment. Have your heating system serviced, and/or make sure you have enough heating fuel. For example, if you own a fireplace or woodstove, you should order wood early enough in the season so that there is time for the wood to cure properly. Have a safety kit ready with flashlights, candles (candle holders and matches), first aid supplies, extra batteries and medicine. Keep a supply of food and drink that does not require cooking, and that keeps for long periods of time, such as precooked canned food, dried fruit, jerky or even candy. Also keep a battery powered portable radio, or Weather Radio on hand. If you keep altrnate sources of heat such as kerosene heaters, make sure you are up on proper operation, and the potential dangers of using them.

For travel and outdoor recreation, have your vehicle winterized by having your antifreeze, battery, brakes, oil, tires and heating systems checked and/or repaired. Keep non-perishable food, extra blankets and dry clothes, candles and matches, and emergency kits in your vehicle, along with road maps, booster cables, and a few tools such as a snow shovel, windshield scraper and brush, and a knife on hand.

For awareness, first and foremost you should remain informed of the weather. You can get a wide range of information on the forecast from the National Weather Service by visiting our website at www.weather.gov/jacksonky, or other offices around the country at www.nws.noaa.gov. You can also get information from NOAA's ALL HAZARDS WEATHER RADIO, or call the National Weather Service office in Jackson, KY at (606) 666-8000 to hear a recording or to speak with National Weather Service personnel if you have any questions. Keep aware of travel conditions by calling 511 if in the state of Kentucky. If dialing from outside Kentucky, call 1-866-737-3767. Other sources for road condition information include www.fhwa.dot.gov/trafficinfo, for Kentucky road conditions, or www.fhwa.dot.gov/ytrafficinfo for areas across the rest of the United States.

Also, listen for these:

Outlook-- Winter storm conditions are possible in the next 2 to 5 days. Stayed tuned to local media and the National Weather Service for updates to potential winter weather.

Watch-- Winter storm conditions are possible within the next 36 to 48 hours. Prepare now!

Warning-- Life threatening, severe winter weather conditions have begun or will begin within the next 24 hours.

Advisory-- Wintry weather conditions are expected to cause significant inconveniences and may be hazardous. If you are cautious, these situations should not be life thretening.

We finally get down to actions. If traveling a long distance, plan your route and alternate routes ahead of time, keeping family, friends or co-workers informed of your time table, routes and emergency contact information. In today's high tech world, you should carry a cell phone and charger with you at all times. Try to travel during the daylight hours, and with other persons-- not alone. Slow down and allow for extra time to reach your destination. Add extra weight to your vehicle by placing a bag or bags of salt in your trunk.

You should never, ever leave children or pets unattended in vehicles, even for a short period of time. If you be-

come caught outside and stranded, try to find a dry, warm shelter. Use your vehicle or try building a lean to, snow cave, or a wind break as this can make all the difference in the world. Build a fire for heat and company -- and for attention if help or rescue is required. Placing rocks around your shelter can help keep heat in as well. Do not eat snow. Instead, melt it before consumption as eating snow directly can lead to hypothermia.

If in a vehicle, you can run the engine to get heat for about 10 minutes for each hour. Crack open the window for fresh air to avoid carbon monoxide posioning. Make sure the exhaust pipe is not blocked. Tie something, preferably red, for the purpose of visibility and rescue to your vehicle.

Summer Season 2007 Climate Summary

By: Jeff Carico
Hydrometeorological Technician

The summer season of 2007 saw warmer than normal temperatures along with much drier than normal conditions. Even though July 2007 was the 8th coolest July at Jackson, the much warmer than normal June (6th warmest June) and August (2nd warmest August) helped the summer season finish up just over two and a half degrees above normal. The London Corbin Airport saw its warmest August and the 5th warmest June this summer. This contributed to make the 2007 summer season nearly three degrees warmer than normal and also placed it as the warmest summer on record. Abnormally dry conditions continue to plague Eastern Kentucky, with Jackson ending the summer season around four and a half inches below normal, and London around four and a quarter inches drier. Both Jackson and London haven't seen a month with above normal precipitation since October of 2006.

Summer of 2007 will not only be remembered for the extended heat wave that baked Eastern Kentucky throughout August, but also for the sheer volume of records set or tied that month. There were a combination of 56 daily, monthly, and all time records set or tied at Jackson and London in August. The London-Corbin Airport saw August of 2007 make 36 entries into the record books. The most notable record was London recording their warmest temperature ever with a reading of 102 degrees on August 16th. Many days throughout the month reached or exceeded 90 degrees. Jackson saw 20 days with at least 90 degrees, while London had an incredible 28 days of the month with a 90 degree reading or higher. Furthermore, London had a run of 20 consecutive days with at least 90 degrees, easily outdistancing the previous record of 13 days in a row from August of 1993. Jackson finished August with an average high temperature of 90.3 degrees, while London ended the month with an average maximum temperature of 93.8 degrees. It was just back in 2004 that both Jackson and London didn't see the mercury hit 90 degrees the entire year.

The Jackson Weather Office ended the summer season with a maximum average temperature of 86.1 degrees and a minimum average temperature of 65.7 degrees. The mean temperature for summer 2007 was 75.9 degrees which is 2.5 degrees above the normal temperature of 73.4 degrees. The summer of 2007 was the 4th warmest on record since the Jackson Weather Office opened in 1981. There were 27 days over the summer that Jackson saw reach at least 90 degrees. This is well above the average of 12.3 days over the summer months. Jackson recorded only 8.84" of precipitation during the summer which is 4.55" below the normal of 13.39".

The London-Corbin Airport finished summer with an average temperature of 76.9 degrees which is 2.9 degrees above the normal of 74.0 degrees. London had a maximum average of 88.5 degrees with a minimum average of 65.3 degrees. London's summer of 2007 was the warmest summer on record, surpassing the 76.3 degrees from 1987. During the summer of 2007, the London-Corbin Airport tallied 39 days with temperatures of 90 degrees or higher. London averages 16.3 days with temperatures reaching at least 90 degrees during the summer. London received only 7.70" of precipitation through June, July and August which is 4.29" drier than the normal of 11.99". The summer of 2007 was the 5th driest summer at London. Climate records for London date back to 1954.

Looking ahead towards fall 2007, the Climate Prediction Center has indicated that near normal temperatures and near normal precipitation can be expected over September, October and November.

Did You Know???

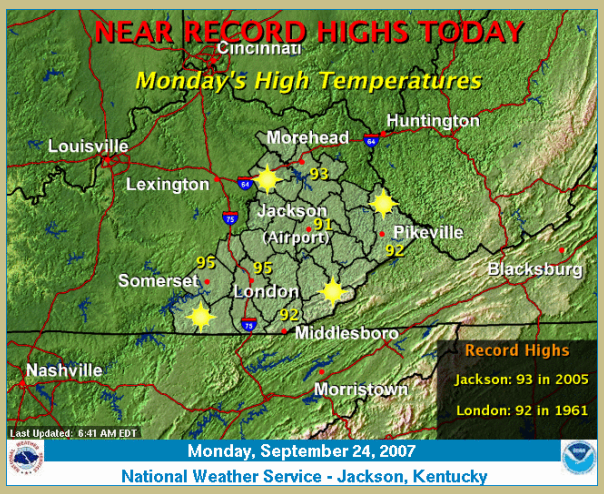
The forecast, as written by the National Weather Service, always contains the sky condition such as "clear" or "mostly cloudy" as one of the required weather elements. The sky condition term is based on the number of tenths of opaque cloud cover expected during the forecast period (e.g. "today" or "tomorrow night"). A forecast of "cloudy" expects the sky, on aveage, to be covered with 9/10 to 10/10 of opaque cloud clover. "Opaque" clouds block the sun, unlike thin cirrus clouds, which lets most of the sun, and its heat, through to the ground. A forecast of "clear", however, expects the sky to be covered with 0/10 to 1/10 of opaque clouds. A forecast of "partly cloudy" or "partly sunny", is made when between 3/10 and 6/10 of the sky is to be covered with clouds. A forecast of mostly cloudly is made when 7/10 or 8/10 of the sky is to be covered with clouds. The difference between these terms is based on the forecst period itself--during the day, either term could be used. However, for the night time forecast periods, a forecast of "partly cloudy" would be the only appropriate term, as there is no sunshine at night.

Graphi-cast

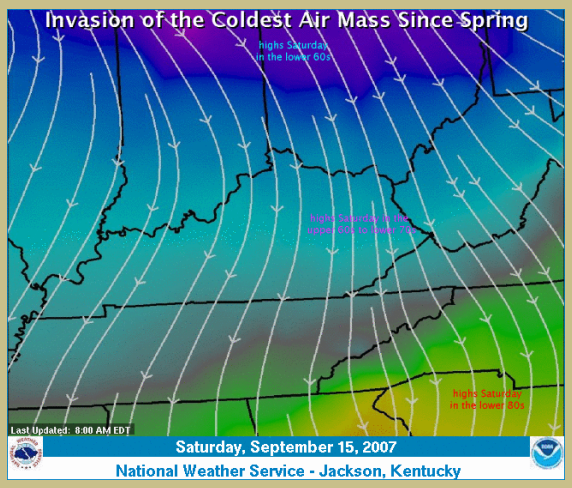
By: Tom Johnstone
Warning Coordination Meteorologist

They say a picture is worth a thousand words. Well that is certainly what we at the National Weather Service are hoping for with our new "Graphi-cast" product.

"Graphi-cast" is short for "Graphical Forecast". Each day we will try to capture what our meteorologists determine to be the big weather story of the day in a simple web graphic. The graphic will contain a headline at the top, the image in the middle, and a narrative below the image providing additional details. You can find each day's Graphi-cast under the "Top News of the Day" tab on the NWS Jackson Internet Homepage. Here are a couple of examples:



Example 1



Example 2

Example 1 highlights the sunny skies and near record warm temperatures expected on Monday. Example 2 depicts cool northerly flow behind a front ushering in the chilliest temperatures of the early fall season. Thunderstorms, strong winds, snowfall accumulations, dense valley fog...you name it, it's fair game for the graphi-cast. Most of the time we'll be focusing on today, tonight, or tomorrow, but if the big weather story is 7 days away, then that's what you will see.

Beginning January 1, 2008, an enhanced "Graphical Short Term Forecast" product will become available on our website. Unlike the Graphi-cast which is designed to provide a snapshot of each day's big weather story, the Graphical Short Term Forecast will be a weather driven and frequently updated picture highlighting the weather forecast for the next couple of hours. Things like a line of thunderstorms, changing precipitation type, or even hourly snowfall accumulations will be depicted.

We'd love to hear your opinions of our new Graphi-cast and Graphical Short Term Forecast products. Drop us a line and let us know any ideas you have for making the images more useful.

Did You Know???

When the National Weather Service anticipates a threat for weather (such as showers or thunderstorms) in the forecast, it must choose an appropriate term to express the degree of the threat. The Probability of Precipitation (POP) is defined as the likelihood of occurrence of a measurable amount of liquid precipitation during a specified period of time at any given point in the forecast area. Measurable precipitation is equal to or greater than 0.01. Unless specified otherwise, the time period is normally 12 hours. The forecast area, or zone, is generally considered to be a county. NWS forecasters use such categorical terms as ***occasional***, ***intermittent***, or ***periods of*** to describe a precipitation event that has a high probablity of occurrence (80%+) but is expected to be of an "on and off" nature.

POP Percent	Expression of Uncertainity	Equivalent Areal Qualifier (convective only)
10 Percent	(None Used)	Isolated
20 Percent	Slight Chance	Isolated
30, 40, & 50 Percent	Chance	Scattered
60 & 70 Percent	Likely	Numerous
80, 90, & 100 Percent	(None Used)	(None Used)

Indian Summer

By: Bonnie Terrizzi
Hydrometeorological Technician

Leaves have changed, often past their peak color, when the warm, hazy southern air blankets the region, sometimes lasting for as much as a week. Indian Summer has arrived. But just what is Indian Summer, and where did the name come from? Blackberry Winter which usually occurs in mid spring, and Indian Summer usually in mid fall, are weather phenomena that are common enough to have acquired a nick-name. It can be defined as "*any spell of warm, quiet, hazy weather that may occur in October or even early November.*" The term "Indian Summer" is generally associated with a period of considerably above normal temperatures, accompanied by dry and hazy conditions ushered in on a south or southwesterly breeze. Several historical references make note of the fact that a true Indian Summer can not occur until there has been a killing frost or freeze.

Writing about life in America, an early American writer well described Indian Summer when he wrote, "The air is perfectly quiescent and all is stillness, as if Nature, after her exertions during the Summer, were now at rest." Although written in 1817, this passage belongs to the writer John Bradbury, this rather flowery description is still relevant today.

The usage of the term of "Indian Summer" dates far back in American history. According to the research of the Detroit Michigan National Weather Service employee Bill Deedler, who describes himself as a "Weather Historian", the term "Indian Summer" dates back to the 18th century in the United States. Credit for the first usage of the term was mistakenly given to a man by the name of Major Ebenezer Denny, who used it in his "Journal", dated October 13th, 1794. The journal was kept at a town called Le Boeuf, which was near the present day city of Erie, Pennsylvania. But an earlier usage of the term was discovered in a letter written by a Frenchman named St. John de Crevecoeur, dated "German-flats, 17 Janvier, 1778." The following is a translation of a portion of the letter:

> "Sometimes the rain is followed by an interval of calm and warmth which is called the "Indian Summer"; its characteristics are a tranquil atmosphere and general smokiness. Up to this epoch the approaches of winter are doubtful; it arrives about the middle of November, although snows and brief freezes often occur long before that date."

Since Monsieur Crevecoeur says, "it is called the 'Indian Summer'", obviously one could argue that term would have had to been used before him and became popular, but by whom? It is a question of weather lore lost to history.

There is debate over the origin of the term itself, "Indian Summer". One explanation of the term "Indian Summer" might be that the early native Indians chose that time of year as their hunting season. This seems reasonable seeing the fall months are still considered the main hunting season for several animals. Also, the mild and hazy weather encourages the animals out, and the haziness of the air gives the hunter the advantage to sneak up on its prey without being detected. Taking this idea one step further, Indians at that time were known to have set fires to prairie grass, underbrush and woods to accentuate the hazy, smoky conditions. There are some rather derogatory explanations as to the origin of the Indian Summer terminology which did not come about until the early 1900s. Those theories are discounted today by linguists who track the history of word origins.

Another hypothesis, having nothing at all to do with the Native Americans, was put forward by an author by the name of H. E. Ware, who noted that ships at that time traversing the Indian Ocean loaded up their cargo the most during the "Indian Summer", or fair weather season. Several ships actually had an "I.S." on their hull at the load level thought to be safe during the Indian Summer. In any event, there are several theories or possibilities of the explanation and origin of the term "Indian Summer", yet no one theory has actually been proven.

A typical weather map that reflects "Indian Summer" weather involves a large area of high pressure along or just off the East Coast. Occasionally, it will be this same high pressure that produced the frost or freeze conditions only a few nights before, as it moved out of Canada across the Plains, Midwest and Great Lakes and then finally, to the East Coast. Much warmer temperatures, from the deep South and southwest, are then pulled north on southerly breezes resulting from the clockwise rotation of wind around the high pressure. It is characteristic for these conditions to last for at least a few days to well over a week and there may be several cases before winter sets in.

Such a mild spell is usually broken when a strong low pressure system and attending cold front pushes across the region. This dramatic change results from a sharp shift in the upper winds or "jet stream" from the south or southwest to northwest or north. Of course, there can be some modifications to the above weather map scenario, but for simplicity and common occurrence sake, this will be the general weather map.

All in all, even with the variety of opinions on this weather (or seasonal) phenomenon, the most popular belief of Indian Summer is as follows: It is an abnormally warm and dry weather period, varying in length, that comes in the autumn time of the year, usually in October or November, and only after the first killing frost or freeze. There may be several occurrences of Indian Summer in a fall season or none at all. Enjoy Indian Summer while it's around, because one thing is for certain, it never lasts!

Fire Weather

By: John Jacobson
Lead Forecaster

Jackson Forecasters Travel the Country to Help Put Out Wildland Forest Fires

When you turn on the local news and see reports about forest fires raging in different parts of the country, someone from the Jackson National Weather Service (NWS) Office may be out there providing weather forecasts to the fire fighters. The Jackson Weather Office happens to have three forecasters who are certified as Incident Meteorologists (IMETS). This is the only NWS office east of the Rockies that has three IMETs. The IMETs assigned to the Jackson office are John Jacobson, Jon Pelton, and Tony Edwards. In the 5 NWS offices surrounding Jackson, there are only a total of 3 IMETs assigned to those five offices. An IMET is meteorologist specially training to respond to many different types of emergencies. The most common emergency an IMET responds to is a large forest fire, but they also might be called upon to respond to oil spills, toxic releases or a variety of natural disasters. Jon Pelton has deployed in the past to help with the Space Shuttle Recovery as well as the aftermath of hurricane Katrina.

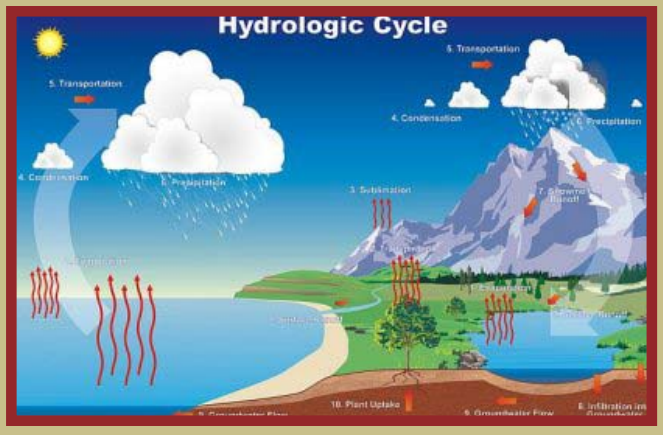
This has been a busy year for the IMETs at the Jackson Weather Office. Tony Edwards and Jon Pelton both deployed to fires in the Okie Fanokie swamp in May and June. The Okie Fanokie swamp is located in southern Georgia and northern Florida. Tony then deployed to fires in central Idaho and at Yellowstone in July. John Jacobson was sent to the Sleeper Lake Fire on the Upper Peninsula of Michigan in July, while Jon Pelton deployed to the Sawmill Complex Fire in Phillipsburg, Montana in late July/early August. Deployments usually last for two weeks and the IMETs typically are working 15-16 hour days in order to provide the weather support required for decision makers to decide how to fight the fires and to protect the lives of the fire fighters. Looking at the drought conditions in the Appalachians this year, this is probably not the last deployment for the Jackson IMETs.

Hydrology

By: Pete Geogerian
General Forecaster

Ever wonder how water is recycled on earth? This amazing process is referred to as the water or hydrologic cycle. There are multiple mechanisms that support the water cycle. These include evaporation, sublimation, transpiration, condesation, precipitation, infiltration, surface runoff and percolation. Evaporation is the process by which water changes from a liquid to a gas. Sublimation is the process by which ice or snow changes to gas. Transpiration is the process by which moisture is carried through plants from roots to leaves, where it changes to vapor and is released into the atmosphere. Condensation is the process why which water changes from a gas to a liquid. Precipitation is the process by which water molecules condense to form drops heavy enough to fall to the earther's surface. Surface runoff is the flowing of water over land from higher to lower ground. Infiltration is the process of water filling the porous spaces of soil. Percolation is the process by which groundwater moves in the saturated zone below the earth's surface.

The atmosphere receives most of its water contribution from the oceans; although plants also contribute through transpiration. The water is evaporated into the atmosphere where it cools and condenses into clouds and precipitation, and is transported around the globe from prevailing winds. The precipitation then falls to the earth and infiltrates the soil, which percolates down to groundwater flow and eventually flows through creeks, streams, rivers and finally ends up in the oceans.



News From the COOP

By: David Stamper
Operational Program Leader

2007 John Campanious Holm Award.

Pictured L-R, Bonnie Terrizzi, Tom Johnstone, Dave Stamper, Mrs. Eula Skidmore, Gary Votaw, Chuck Greif, Tabitha Brewer, Shawn Harley.

MRS. EULA SKIDMORE HONORED FOR CONTRIBUTIONS TO NATIONAL WEATHER SERVICE VOLUNTEER OBSERVER PROGRAM

Several staff members joined about 30 of Eula's family and friends to present her the 2007 Holm Award. The award was presented at Hemlock Lodge at Natural Bridge State Park. The Holm award is our agency's second most prestigious and only 25 are presented each year to cooperative weather observers from around the country.

Eula and her late husband Seldon, began reporting duties at the Slade 5NE observing site June 1, 1984. The Skidmores have provided more than 8,400 reports over the past 23 years. The Skidmores have kept the NWS and local residents informed on the conditions along Kentucky's Red River.

We cannot thank Eula Skidmore enough for her years of service to America, and the outstanding service provided to the Cooperative Weather Observer Program

40 Year Length of Service Award

WCM, Tom Johnston presented a 40 Year LOS award to Mrs. Romona Bowen. Mrs Bowen and here late husband Philmore have provided outstanding serverice from the Whitesburg Kentucky area for over 40 years.

We would like to welcome some new observers: Megan Turpin in Smilax Kentucky (Leslie County), John Salyer in Stanton Kentucky (Powell county), William Mosley in Hyden Kentucky (Leslie County), Russel Poyntner in Brodhead Kentucky (RockCastle County), Sally and Richard Ramsdell in Cressy Kentucky (Estill County), Theodore Wagoner in Gimlet Kentucky (Elliott County), Gene Lewis in Draffin Kentucky (Pike County) and Beverly Vibe in Hillsboro, KY (Fleming County).

Kid's Korner

By: Anthony Richey
General Forecaster

The Weather Vane

The earliest weather vane of which we have a record was the one on the Tower of the Winds built by Andronicus in Athens during the first century, B.C. We know from contemporary descriptions that this vane took the form of Triton, a sea god of Greek mythology, who had the head and upper body of a man and the tail of a fish. A pointed wand in the sea god's hand indicated the direction from which the wind was blowing. This vane was cast in bronze.

What is a weather vane and what is it used for? A weathervane is an instrument used to tell which direction the wind is blowing from. Weather vanes are usually mounted on top of buildings so they will catch an open breeze. Look for them on top of barns, houses, weather stations, hardware stores, and other places that sell or use weather instruments. The part of the vane that turns into the winds is usually shaped liked an arrow. The one end is much wider than the other end so it will catch the slightest breeze. Sometimes a metal rooster or other animal sits on top of the weather vane. However, weather vanes come in all shapes and sizes as figures 1-3 illustrate very nicely. The weather vane shown in figure 2 is 48 feet tall, 14 feet long and weighs 4,300 pounds! Figure 3 is a picture of the more common cockerel weathervane or weather cock as they are sometimes called. The word cockerel is another name for the common rooster or "cock", which is where the phrase cock-a-doodle-doo comes from!

Balloon Weathervane

World's Largest Weathervane

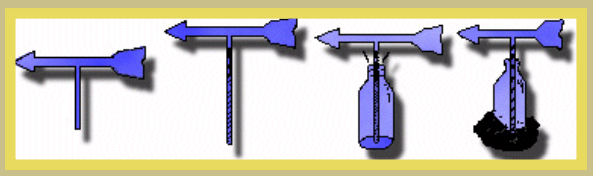
Traditional Weathervane

How do weathervanes work? First, one end of the weathervane must be larger than the other end. If you look closely at all three figures above you will notice that one end of each arrow is longer and wider than end with the arrowhead. As the wind comes into contact with the larger end of the weathervane pointer, the entire weathervane will begin to turn into the direction the wind is blowing from. When the arrowhead is pointing directly into the wind, the weathervane will stop moving, revealing the wind direction!

Want to make your very own weathervane to use at home or school? Follow the simple set of instructions below and you will be able to create your own weathervane. The diagram below is only a guideline to get you started. Use your imagination and come up with your own shape and design for your weathervane. You will need the following materials to build your weathervane: paper and pencil, scissors, cardboard, a compass, a plastic soft drink bottle, plastic drinking straw, a shallow pan filled with rocks, a felt tip marking pen.

Kid's Corner continued

With the scissors, carefully cut an arrow with a tab as shown. Remember that scissors are sharp, so handle them carefully. Bend the tab slightly so the arrow turns easily when you put it in one end of the straw. Put the other end of the straw in the bottle. Remove enough rocks from the pan to make room for the bottle. Pile the rocks back around the bottle so it won't be blown over. (See illustrations below.)



A compass always point north. Use your compass to find north, and then mark the four sides of the bottle E, W, N, and S with a felt pen. Set your weather vane in a high place such as the top of a playhouse or a slide. Make sure it does not wobble or tilt, and that it catches the slightest breeze. Watch your weather vane closely and then describe how it works. Test it on windy days and again when there is just a light breeze. Be sure to also keep track of what the weather is doing when the wind is blowing from directions. Different types of weather will occur depending on which direction the wind is blowing from. When the wind is from the north the weather usually becomes cooler and drier. When the wind is from the south the weather usually becomes warmer and muggier. When the wind begins to blow harder it is an indication that a change is about to occur in the weather. For example, the wind will increse when a strong cold front or low pressure system is moving toward you; or right before a thunderstorm moves over your house. Before the invention of computers, modern weather instruments and weather radar, people learned that changes in wind direction meant a change in the weather, and this was how most people tried to predict changes in weather for a very long time; simply by watching the wind.

Weather Word Search Puzzle

Z	E	I	G	A	S	F	D	I	C	E	D	H
E	Z	E	E	R	F	E	R	Y	G	R	O	C
H	S	N	S	T	F	G	N	O	A	Z	O	L
F	G	Y	E	L	O	N	T	Z	S	L	B	C
C	N	D	R	E	U	R	Z	E	D	T	A	D
G	I	N	T	S	B	I	N	I	E	C	D	R
O	N	I	I	R	L	N	S	A	L	L	T	I
F	T	W	M	B	L	S	E	O	D	E	S	Z
F	H	A	T	O	L	T	U	R	O	O	D	Z
N	G	T	H	U	N	D	E	R	R	S	N	L
I	I	M	L	O	S	T	O	R	M	N	T	E
L	L	A	L	Y	Z	O	L	N	L	O	G	D
F	A	N	R	L	I	A	H	L	H	W	O	T

Blizzard
Clouds
Cold
Drizzle
Fog
Freeze

Hail
Hot
Ice
Lightning
Rain
Sleet

Snow
Storm
Sunny
Thunder
Tornado
Windy