NORTHEASTERN STORM BUSTER

Winter 2014-15 - VOL. 20, NO. 1
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FEATURES

DEPARTMENTS

Northeastern StormBuster is a quarterly publication of the National Weather Service Forecast Office in Albany, New York, serving the weather spotter, emergency manager, cooperative observer, ham radio, scientific and academic communities, along with weather enthusiasts, who all have a special interest or expertise in the fields of meteorology, hydrology and/or climatology.

NOAA/NWS 2014-15 WINTER OUTLOOK

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On October 16, 2014, NOAA's National Weather Service's Climate Prediction Center issued the official 2014-15 winter outlook for the United States. The official forecast favors a higher probability of warmer than normal temperatures for much of the northeast (Figure 1). As far as precipitation goes, odds are about equal for most of the northeast having above, below or near normal amounts (Figure 2). However, the odds are skewed a bit more toward above normal precipitation amounts closer to the coast, including portions of the Mid-Hudson Valley, northwest Connecticut and the Berkshires. The winter outlook is for the months of December through February, which is also the period known as climatological winter. It should be noted that an update to this official forecast, issued on November 20, did shift the greatest odds favoring a warmer than normal winter slightly farther north into northern New England.

The main premise for this year's official winter forecast is the expectation for a weak El Niño to develop. El Niño refers to the presence of abnormally warm sea surface temperatures across the eastern and central tropical Pacific Ocean. Typical conditions across the tropical Pacific Ocean associated with this involve warmer waters across the far western Pacific Ocean, along with associated thunderstorm development, while the waters in the eastern tropical Pacific tend to remain relatively cool, with limited thunderstorm activity. The opposite is true when an El Niño is present – the warmer waters and associated thunderstorm development are shifted much farther eastward in the Pacific Ocean. This displacement of thunderstorms into the central and eastern Pacific Ocean disrupts typical wind patterns in the mid and upper levels of the atmosphere, such as where the jetstream is located, not just across the Pacific Ocean, but often well downstream across North America and the Atlantic Ocean, and even into Europe. The winter jet stream pattern and weather conditions often associated with a moderate or strong El Niño are depicted in Figure 3. As you can see, a subtropical branch of the jet stream extends eastward across the southern United States at these times, and tends to bring frequent storms and abundant precipitation. However, another key feature that often occurs with El Niño conditions is that the northern branch of the jetstream tends to be displaced farther north than normal. This also acts to limit the southward extent and frequency of cold, arctic air mass intrusions into the United States.

Of course, it is possible that if the El Niño does not develop as strongly as is currently expected, or if it fades more quickly than expected, then colder conditions could occur. In fact, it is possible that there might be numerous disturbances traveling along the subtropical branch of the jetstream which, when combined with marginally sufficient cold air, may produce several snowstorms across the region this winter. This official forecast for the winter season does not specifically forecast snowfall amounts. It is possible for overall winter temperatures to average near or even above normal, yet for there still to be plenty of snow. One potential analog winter season for this upcoming winter which also featured a weak El Niño and above normal snowfall was the winter of 1986-87. January 1987 remains the official snowiest January on record at Albany International Airport, with 47.8 inches. There are many other variables that can affect winter weather patterns. One possible variable which has been recently researched regards the areal extent of snow cover across Europe and Asia. There has been a recent study which suggests that when there is a greater than normal areal extent of snow cover across these regions by the end of October, that this may be associated with colder than normal winters across North America.

So – although the current forecast slightly favors warmer than normal temperatures for this winter season across eastern New York and adjacent western New England, occasional bouts of colder than normal temperatures will likely still occur. Despite what any long-term winter forecast may reveal, the best advice is to always be prepared for winter, which, in the northeast, involves at least some cold temperatures and snowfall. Always have a winter survival kit ready, along with a well-tuned vehicle and snow blower, and proper winter clothing.

Figure 1. NOAA/NWS Climate Prediction Center Official U.S. Temperature Outlook for Dec. 2014-Feb. 2015 (Issued Oct. 16, 2014).

Figure 2. NOAA/NWS Climate Prediction Center Official U.S. Precipitation Outlook for Dec. 2014-Feb. 2015 (Issued Oct. 16, 2014).

Typical January-March Weather Anomalies and Atmospheric Circulation during a Moderate to Strong El Niño

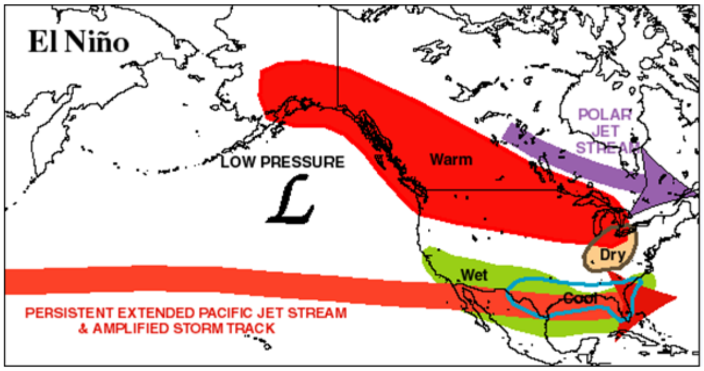


Figure 3. Graphic depicting jet stream configuration and overall weather conditions associated with a moderate to strong El Niño. Image adapted from the NOAA/NWS Climate Prediction Center.

REVIEW OF HURRICANE SEASON 2014

Brian Montgomery
Senior Meteorologist, NWS Albany

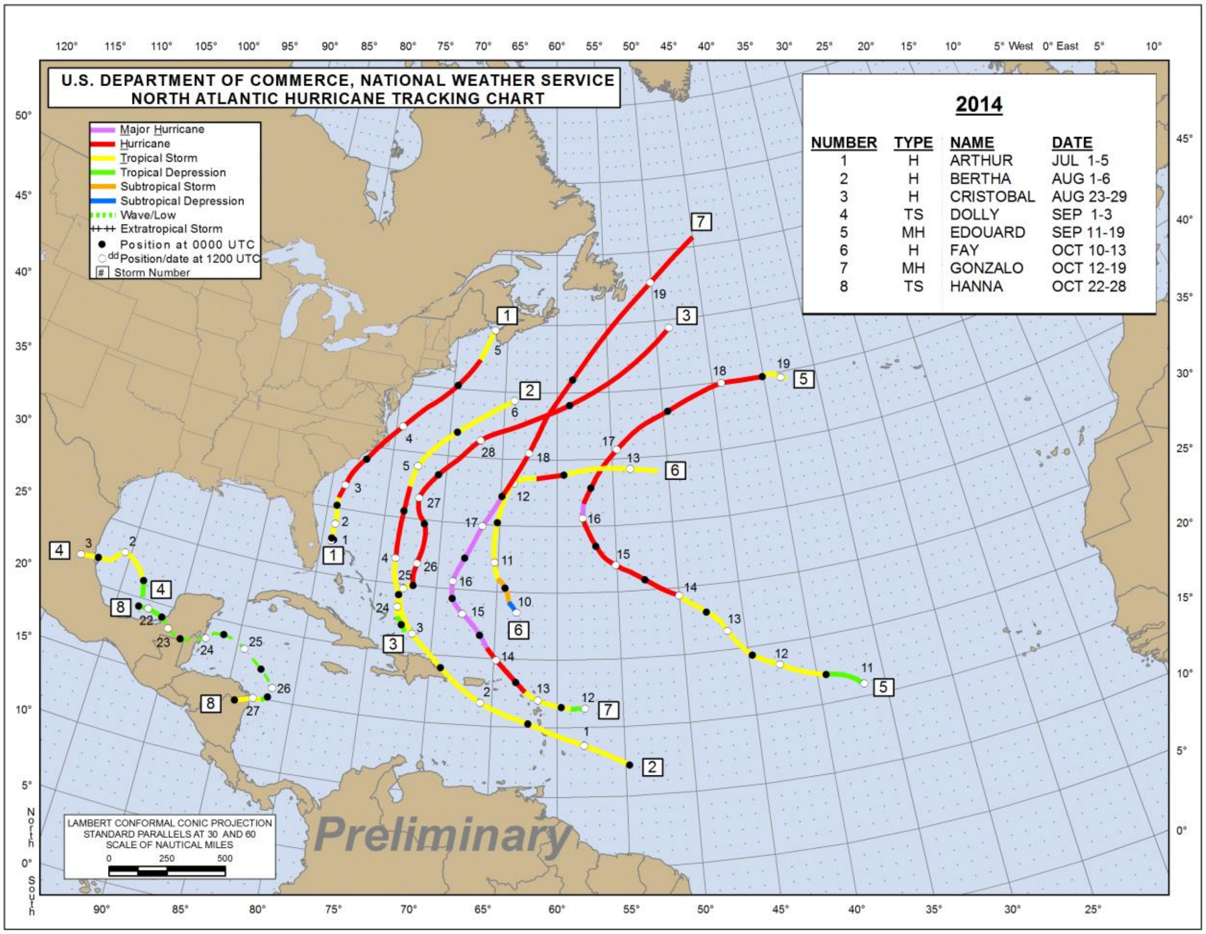
The Atlantic Hurricane season came to a quiet close on November 30th. From the beginning of this year, NOAA's Climate Prediction Center Hurricane Outlook foretold of a below normal season. Below are the final numbers, and verification, for the 2014 Hurricane Season:

	Actual	August Outlook	May Outlook
Named storms (top winds of 39 mph or higher)	8	7-12	8-13
Hurricanes (top winds of 74 mph or higher)	6	3-6	3-6
Major hurricanes (Category 3, 4, 5; winds of at least 111 mph)	2	0-2	1-2

We had one hurricane make landfall - Arthur, back on July 3rd, along the U.S. east coast of North Carolina as a category 2 storm on the Saffir-Simpson Hurricane Wind Scale. This scale ranges in category from 1 to 5. For more information on it, go to: http://www.nhc.noaa.gov/aboutsshws.php

For the remainder of the season, we observed Tropical Depression two, Hurricane Bertha, Hurricane Cristobal, Tropical Storm Dolly, Hurricane Edouard, Hurricane Fay, Hurricane Gonzalo and Tropical Storm Hanna. All previous advisories issued by the National Hurricane Center this season (and in prior years) can be viewed at: http://www.nhc.noaa.gov/archive/2014/

The preliminary tracking chart for the season is shown below, and will become finalized during this winter. As we look ahead, the 2015 hurricane season begins June 1 for the Atlantic Basin. NOAA will issue seasonal outlooks in May 2015. Learn how to prepare at: http://hurricanes.gov/prepare and FEMA's http://Ready.gov.



FALL 2014: A SNOWY START

Evan L. Heller
Climatologist, NWS Albany

The Fall of 2014 gave us a hint of what we may in store for this winter. Though the snow season didn't actually open until the first snowfall on November 7th, almost two weeks later than is normal, 12.3" of snow had managed to have fallen by the close of the season in Albany, most of it having been received during the season's first major snow event during November 26th-27th. This total is more than four times the normal for fall

(Table 1). This was enough snow to make November 2014 the 7th-snowiest November on record for Albany. Also, the 9.6" amount that fell on the 26th set a record for the date, nearly doubling the previous record, from 1888 (Table 3c).

November was also the only month of fall that was colder than normal, but the season as a whole was almost equally warmer than normal (Table 1). The warmest day of the season (not wildly unexpected) was September 1st, the coldest (ditto), November 29th. The warmest reading was 89°, recorded on September 5th, the coldest, 15°, on the 22nd of November, repeated on the 29th. There were five daily temperature records broken (or tied), with something for each month, two of which were daily maximum records (Tables 3a-3c). There were no new Top 10 or Top 200 records related to temperature.

Fall of 2014 produced a nearly three inch seasonal deficit of precipitation, with only October being slightly above normal of the three months of climatological fall (Table 1). The only records set involving moisture were for the dry side of the spectrum. September 2014 became the 6th-driest September in Albany history. It is also the 90th-driest month of all time (tied with four other years) (Table 3a).

Albany's last thunderstorm (accompanied by hail) occurred on October 26th, with the first sleet occurring on November 17th (Tables 4b and 4c). The windiest date was November 2nd; the calmest date, September 29th. The season's peak wind, 42 mph, also occurred on November 2nd. The only daily wind record for the season this time around, 34 mph, occurred on September 6th (Table 3a).

STATS

	SEP	OCT	NOV	SEASON
Average High Temperature/Departure from Normal	74.7°/+2.5°	62.9°/+3.1°	46.5°/-1.4°	61.4°/+1.4°
Average Low Temperature/Departure from Normal	51.7°/+0.1°	45.1°/+5.5°	30.0°/-1.5°	42.3°/+1.4°
Mean Temperature/ Departure From Normal	63.2°/+1.3°	54.0°/+4.3°	38.3°/-1.4°	51.8°/+1.3°
High Daily Mean Temperature/Date	79.0/1st	74.5°/15th	58.0°/24th	
Low Daily Mean Temperature /Date	52.0°/13th & 19th	42.0°/31st	23.5°/29th	
Highest Temperature reading/Date	89°/5th	79°/15th	70°/24th	
Lowest Temperature reading/Date	40°/23rd	31°/20th & 31st	15°/22nd & 29th	
Lowest Maximum Temperature reading/Date	59°/13th	49°/24th	31°/28th	
Highest Minimum Temperature reading/Date	70°/1st & 2nd	70°/15th	46°/24th	
Total Precipitation/Departure from Normal	0.89"/-2.41"	4.22"/+0.54"	2.44"/-0.85"	7.55"/-2.72"
Total Snowfall/Departure from Normal	0.0"/-	0.0"/-	12.3"/+9.5"	12.3"/+9.5"
Maximum Precipitation/Date	0.46"/13th	1.41"/23rd	0.84"/17th	
Maximum Snowfall/Date	0.0"/-	0.0"/-	9.6"/26th	

Table 1

NORMALS, OBSERVED DAYS & DATES

NORMALS & OBS. DAYS	SEP	OCT	NOV	SEASON
NORMALS				
High	72.2°	59.8°	47.9°	60.0°
Low	51.6°	39.6°	31.5°	40.9°
Mean	**61.9°**	**49.7°**	**39.7°**	**50.5°**
Precipitation	**3.30"**	**3.68"**	**3.29"**	**10.27"**
Snow	**0"**	**0"**	**2.8"**	**2.8"**
OBS TEMP. DAYS				
High 90° or above	0	0	0	0/91
Low 70° or above	2	1	0	3/91
High 32° or below	0	0	4	4/91

Low 32° or below Low 0° or below	0 0	3 0	17 0	20/91 0/91
OBS. PRECIP DAYS				
Days T+	8	21	23	52/91/57%
Days 0.01"+	6	14	11	31/91/34%
Days 0.10"+	3	9	6	18/91/20%
Days 0.25"+	1	6	2	9/91/10%
Days 0.50"+	0	3	2	5/91/5%
Days 1.00"+	0	1	0	1/91/1%

Table 2a

NOTABLE TEMP, PRECIP & SNOW DATES	SEP	OCT	NOV
First Frost/End of Growing Season	-	12th	-
Wet Spell (3 or more consecutive days meeting minimum precipitation criteria)	-	2.39"/21st-26th (6 days)	-
1.00"+ date	-	23rd	-
First Snowfall (Trace or more)	-	-	7th
Major Snow Event (6.5"+ 24-hour snowfall)	-	-	11.2"/26th-27th

Table 2b

RECORDS

ELEMENT	SEPTEMBER	
Daily Maximum Wind Speed Value/Direction/Date | Previous Record/Direction/Year	34 mph/NW/6th	31 mph/W/1994
Daily Maximum Temperature Value/Date | Previous Record/Year	83°/28th	83°/1959 (tie)
Top 10 Driest Septembers Value/Rank | Remarks	0.89"/#6	-
Top 200 Driest Months Value/Rank | Remarks	0.89"/#90	5-way tie

Table 3a

ELEMENT	OCTOBER	
Daily High Mean Temperature Value/Date | Previous Record/Year	74.5°/15th	71.5°/1954
Daily High Minimum Temperature Value/Date | Previous Record/Year	70°/15th	66°/1954
Daily High Minimum Temperature Value/Date | Previous Record/Year	61°/16th	60°/1897

Table 3b

ELEMENT	NOVEMBER	
Daily Maximum Temperature Value/Date | Previous Record/Year	70°/24th	69°/1979
Daily Maximum Snowfall Value/Date | Previous Record/Year	9.6"/26th	4.9"/1888
Top 10 Snowiest Novembers Value/Rank | Remarks	12.3"/#7	-

Table 3c

ELEMENT	FALL	
none	none	none

Table 3d

MISCELLANEOUS
SEPTEMBER

Average Wind Speed/Departure from Normal	6.0 mph/-0.5 mph
Peak Wind/Direction/Date	37 mph/SSE/11th & 37 mph/WNW/22nd
Windiest Day Average Value/Date	13.8 mph/20th
Calmest Day Average Value/Date	0.7 mph/29th
# Clear Days	8
# Partly Cloudy Days	20
# Cloudy Days	2
Dense Fog Dates (code 2)	15th, 24th, 26th & 30th
Thunder Dates (code 3)	None
Sleet Dates (code 4)	None
Hail Dates (code 5)	None
Freezing Rain Dates (code 6)	None

Table 4a

OCTOBER

Average Wind Speed/Departure from Normal	7.3 mph/+0.1 mph
Peak Wind/Direction/Date	35 mph/W/19th
Windiest Day Average Value/Date	13.6 mph/19th
Calmest Day Average Value/Date	1.6 mph/12th
# Clear Days	2
# Partly Cloudy Days	18
# Cloudy Days	11
Dense Fog Dates (code 2)	31st
Thunder Dates (code 3)	25th & 26th
Sleet Dates (code 4)	None
Hail Dates (code 5)	26th
Freezing Rain Dates (code 6)	None

Table 4b

NOVEMBER

Average Wind Speed/Departure from Normal	9.0 mph/+0.7 mph
Peak Wind/Direction/Date	42 mph/N/2nd
Windiest Day Average Value/Date	16.2 mph/2nd
Calmest Day Average Value/Date	2.7 mph/13th
# Clear Days	4
# Partly Cloudy Days	17
# Cloudy Days	9
Dense Fog Dates (code 2)	26th
Thunder Dates (code 3)	None
Sleet Dates (code 4)	17th & 22nd
Hail Dates (code 5)	None
Freezing Rain Dates (code 6)	None

Table 4c

For more climate data and records, please visit our climate page at: www.weather.gov/albany/Climate.

SUMMER 2014 ARCTIC SEA ICE EXTENT

George J. Maglaras
Senior Meteorologist, NWS Albany

Trends in Arctic sea ice extent are frequently used as a measure of climate change, especially the summer minimum extent. While changes in weather patterns and ocean currents from one season to the next can cause large variations from year to year, a multi-year trend of increasing sea ice extent is seen as evidence of a cooling climate, while a trend of decreasing sea ice extent is taken as evidence of a warming climate. This article will present the latest Arctic sea ice extent statistics.

Arctic sea ice extent is defined as an area of sea water where ice covers 15 percent or more of that area. Thus, for any square mile of sea water to be included in the ice extent total, at least 15 percent of that square mile must be covered with ice.

Based on satellite measurements of Arctic sea ice extent which began in 1979, the average summer minimum Arctic sea ice extent for the period from 1981 to 2010 is 2.40 million square miles. For 2014, the summer minimum extent was reached on September

13, and was 1.94 million square miles, the sixth-lowest extent ever measured by satellite since 1979. The 2014 minimum extent was 19.2 percent below the 1981-2010 average, but only slightly lower than the 1.97 million square mile minimum extent that occurred during the summer of 2013.

The ice extent has remained relatively stable during the past two summers. Although ice extent is important in terms of Arctic sea ice "health", even more important is the volume of sea ice. The volume of ice is estimated by taking the ice area and the ice thickness into account. Data from the European satellite CRYOSAT indicated that the volume of Arctic sea at the 2014 summer minimum had also remained stable compared to 2013, and was about 50% higher compared to the record low in 2012. Overall, the volume of Arctic sea ice still remains below normal.

There has been a noticeable trend of decreasing ice extent since satellites began measuring Arctic sea ice extent in 1979, especially the summer minimum extent. There continues to be concern that global warming may be accelerating the decline of Arctic sea ice, and that the Arctic could be ice-free during the summer months within a relatively short period of time, thereby further accelerating the impacts of global warming.

Although this series of articles does not usually discuss Antarctic sea ice, it is interesting to note that yet another record high maximum Antarctic sea ice extent occurred during this past Antarctic winter. The record coverage of 20.11 million square kilometers occurred on September 22, the highest ever measured by satellite since 1979. The previous record high was 19.47 million square kilometers, which occurred the previous year (2013), and the third-highest was 19.44 million square kilometers, which occurred the year before that, in 2012. Thus, record high values of Antarctic sea ice have now occurred three years in a row, continuing a trend.

WEATHER *ESSENTIALS*

With Kevin S. Lipton

INTERPRETING BASIC SURFACE WEATHER MAPS

In previous editions of "Weather Essentials," we discussed some of the meteorological concepts which can be used to interpret basic surface weather maps. Some of these included: air pressure; fronts; high and low pressure systems, and; the air flow at the surface around these systems in the Northern Hemisphere. This article will tie these ideas together to allow for basic interpretation of weather maps.

Most surface weather maps start out with a plot of air pressure as measured at the surface (where the pressure is adjusted to sea level, for consistency). These pressures are plotted for many weather observing stations across a given geographical area. Once the pressures are plotted, lines of equal pressure, known as isobars, are then drawn on the maps. Most standard surface weather maps plot these lines at 4-millibar (mb) intervals. However, for a more detailed analysis, even smaller intervals may be used (such as 2- or 1-mb). By plotting the pressure, features can be revealed, such as areas of low and high pressure, as well as the pattern of general wind flow around them. In Figure 1, isobars were drawn by connecting lines of equal air pressure (in 4-mb intervals). This revealed one area of low pressure near Chicago, Illinois, with another just west of southern California. Meanwhile, areas of high pressure were noted over Maine, Florida, and stretching from south central Canada into the central Plains and eastern Rocky Mountains. By assessing the pressure and isobar patterns on the map, the general wind flow can also be deduced. Wind flow at the surface generally rotates counterclockwise, and slightly into, a low pressure system, while air flow around high pressure generally flows clockwise and slightly outward from the center of the high. So, based on this knowledge, it can be deduced that the air flow around these pressure systems should be similar to what is shown by the black arrows in Figure 2. Also, where the isobars are closer together, the air pressure difference is greater over a given distance. This area of tightened gradient causes the wind to be stronger. So, it can be expected that winds will be relatively strong across Minnesota and Iowa, just west of the low center near Chicago. This area is shown by the yellow-encircled area in Figure 2.

The analysis of the isobars shows "kinks" extending from the low pressure near Chicago into the southeast states, as well as just north of this low into eastern Canada. These "kinks" in the isobars extending from the centers of low pressure on a weather map indicate the location of fronts. Of course, analysis of temperature, wind and dewpoint further delineates the location of fronts. And – based on previous Weather Essentials – we can see that the front moving through the southeast states (denoted by the blue triangles) represents a cold front, which is moving toward the east (the direction that the blue triangles are pointing TOWARD indicates the direction the front is moving TOWARD). In addition, we see a warm front extending from Kentucky to just northeast of Atlanta, Georgia. This is shown by the red line with semicircles, with the semicircles pointing in the direction that the warm front is moving TOWARD. Now, what about the strange-looking front extending from the low center near Chicago into southern Indiana? Well, that is an occluded front – where the colder air has caught up to the warm front, as described in a previous article. Finally, what about the front extending from northwest of Chicago into eastern Canada, which has alternating red and blue symbols on both sides of the front? That is a stationary front.

By learning a bit about a surface weather map, you can get an indication of what kinds of weather might be associated with it. For instance, one can infer that windy and cold weather, perhaps with snow, might be occurring across portions of the Great Lakes and Upper Midwest. Milder weather with showers might be occurring from the Ohio Valley into portions of the southeast states. And generally fair conditions might be expected across Maine.

Now, you may wonder what all the numbers and symbols are that are associated with each of the weather stations on the map. While we will go over the very basics here, a much more detailed explanation can be found at NWS Jetstream, which can be found at the following link: http://www.srh.noaa.gov/jetstream/synoptic/wxmaps.htm. Let's use the Atlanta, Georgia surface observation – a close-up of which is depicted in Figure 3. To start, the 3-digit number at the upper right represents the atmospheric pressure reduced to mean sea level, in millibars (mb) to the nearest tenth, with the leading 9 or 10 omitted. For example, in Figure 3, in Atlanta, GA, the number 144 would represent 1014.4 mb. On the other hand, if the number was 995, then the pressure would be 999.5 mb. When trying to determine whether to add a 9 or 10, use the number that will give you a value closest to 1000 mb. The number in the upper left is simply the air temperature in degrees Fahrenheit (°F). Thus, at Atlanta, GA, the temperature is 57 degrees F. The number in the lower left indicates the dewpoint temperature in degrees Fahrenheit, which again, in Atlanta's case, is 53 degrees F.

An important symbol for our discussion is the wind barb, a line or series of lines extending out of the small circles. This points in the direction from which the wind is blowing. So, in Atlanta's case, the wind is blowing FROM the south. The barbs attached toward the end of this line indicate the speed of the wind rounded to the nearest 5 knots. A shorter line represents 5 knots, while longer lines indicate 10 knots. The long and short lines are added together along the line to determine the wind speed. So, at Atlanta, the wind speed is 10 knots. Other possibilities (amongst many)…two long lines and one short line would represent 25 knots, and a triangle would be 50 knots. There are additional symbols pertaining to surface weather conditions – please refer to the link listed above for more details.

Surface weather maps are drawn by the Weather Prediction Center every 3 hours, starting at 0000 UTC (Universal Coordinated Time, also known as either Greenwich Mean Time (GMT) or Zulu Time (Z)). They are taken at these universally-coordinated times so that all observations represent the state of the atmosphere at the same time. What exactly is UTC/GMT/Z time? It is the time it is along the prime meridian, or zero degrees longitude – which happens to also pass through the Old Royal Observatory in Greenwich, England. The Eastern Time Zone is 5 hours BEFORE that time in Eastern Standard Time (EST), and 4 hours before in Eastern Daylight Time (EDT). So, for example, the map shown in Figures 1 and 2 was analyzed at 0900Z, or 0900 UTC, or 0900 GMT. This would correspond to 0400 EST, or 4 a.m. EST in Albany, New York (0500 EDT/5 a.m. EDT (in spring/summer)). In another example, 1800Z, would correspond to 1300, or 1 p.m. EST (2 p.m. EDT (in spring/summer)). The latest surface weather maps can be viewed via the Weather Prediction Center at the following link: http:/www.wpc.ncep.noaa.gov/html/sfc2.shtml.

So, as you can see, a surface weather map analysis helps provide meteorologists with a good snapshot of the state of the atmosphere at a given time, and also allows for, in combination with other real-time observational sources such as satellite and radar data, insight into what might happen in the near-term portion of the forecast. Also, a good surface analysis can help forecasters assess whether the computer simulations of the atmosphere – or computer models – are accurately representing the atmosphere at a given time. We will discuss a bit more about these computer models in a future edition of Weather Essentials.

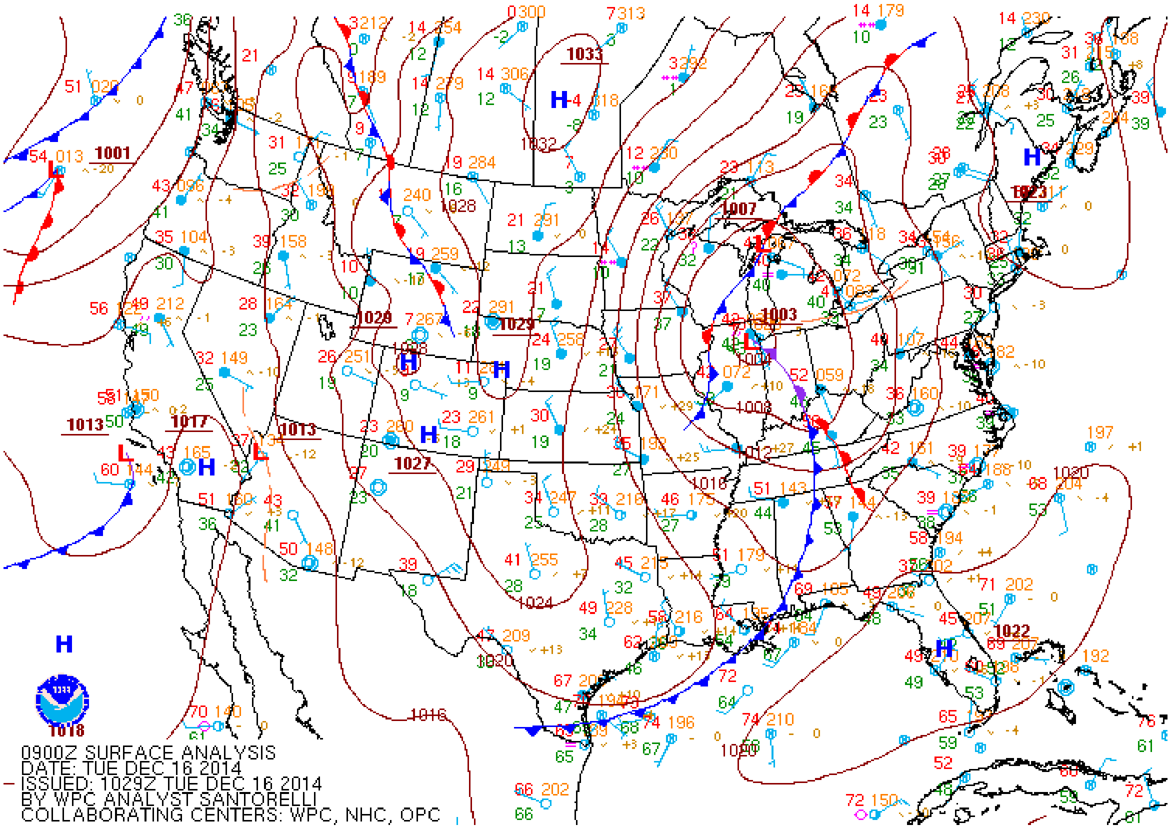


Figure 1. NOAA/NWS Weather Prediction Center Surface Observations and Analysis from 0900Z Tuesday, December 16, 2014.

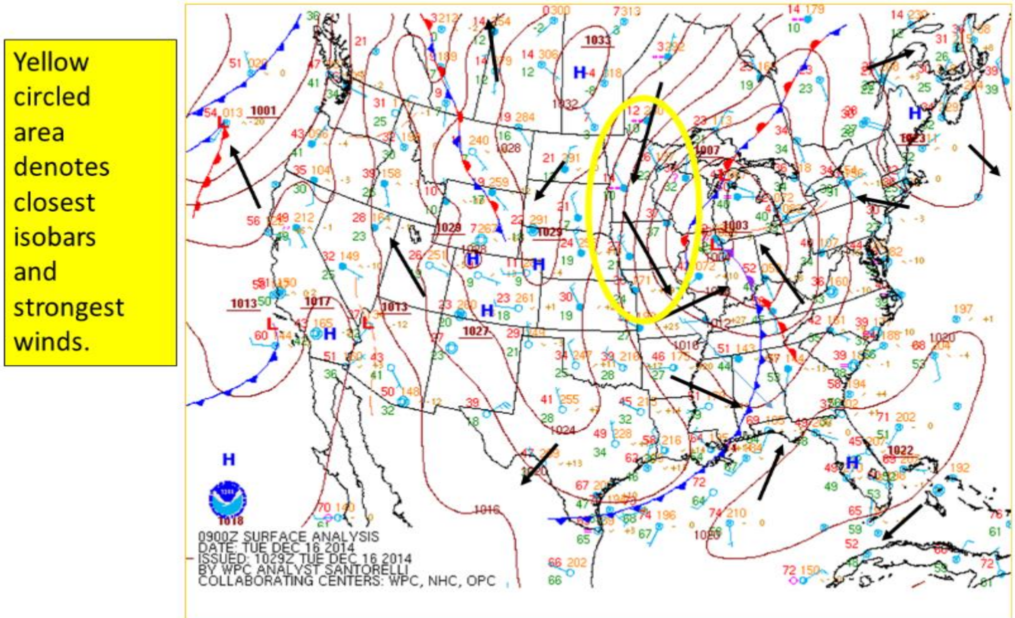


Figure 2. NOAA/NWS Weather Prediction Center Surface Observations and Analysis from 0900Z Tuesday, December 16, 2014. Black arrows indicate surface wind flow, and the yellow circle denotes where isobars are close together, suggesting where the strongest surface winds would be located.

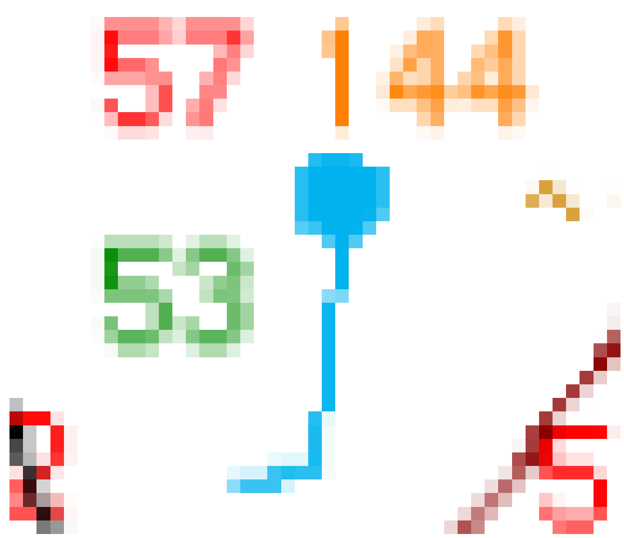


Figure 3. Zoomed-in Surface Observation Station Model of Atlanta, GA from Figures 1 and 2.

From the Editor's Desk

As we hunker down for what feels to be a very long winter ahead, our first feature article provides a detailed winter outlook, and it doesn't really look particularly bad. Our other three features provide recaps of our past season on different levels. Lastly, Kevin Lipton's Weather Essentials shows you how to interpret surface weather maps.

We here at Northeastern StormBuster wish you a happy holiday and a way to keep warm during the forthcoming months. Enjoy the reading!

WCM Words

Steve DiRienzo
Warning Coordination Meteorologist, NWS Albany

For the past couple of years, the National Weather Service (NWS) has been active on social media. This is for a number of reasons, including the following:

Although television is still the primary source of information during emergencies, when television is unavailable, the number one source of information is Facebook.

Research has shown that we have to build a social network before an emergency occurs. Alerting and warning is a process, not a single act. Although our automatically transmitted alerts are useful, the best results come through a dialog with the public.

Social media is an opportunity for a dialog. This dialog can help correct misinformation and also provide a chance to explain warning information.

Social media gives the NWS a chance to educate the public about the warning system before an event.

People seek social confirmation of warnings before taking protective action.

You can share in the conversation with us on both Facebook and Twitter. On Facebook you can find us at: US.NationalWeatherService.Albany.gov, and; on Twitter, our handle is @NWSAlbany**.**

Here at the National Weather Service, we strive to be the source of unbiased, reliable and consistent weather information. We're here to answer your weather and water questions 24 hours a day, 7 days a week. If you have concerns, please call us. If you have comments on Northeastern StormBuster, or any of the operations of the National Weather Service, please let me know at Stephen.Dirienzo@noaa.gov. Happy Holidays!