

DECEMBER TO REMEMBER - UNITED STATES

By Art Horn, Meteorologist and Joseph D'Aleo CCM

The seemingly endless variety of daily weather showed itself off in spectacular fashion in December 2010. No, the weather was not shy about pulling out all the stops to impress the nation with nearly every kind of weather imaginable. About the only thing missing was a hurricane!

The action got started on December the 2nd in the famous western New York state snow belts. A storm north of the great lakes was blowing cold air into western New York State on Thursday the 2nd. The cold air literally sucks the warmth from the water and turns that warmth and moisture into streamers of clouds that produce the lake effect snows. The snow became heavy and by the time it was over two days later some areas south of Buffalo had 2 to 3 feet of new snow. What made this event notable was the traffic jam on Interstate 90. A truck jackknifed on the road Wednesday evening the 1st and cars and trucks began to back up behind it. The heavy snow set in and stranded some people in their cars for up to 24 hours. New York Thruway employees used all terrain vehicles to bring stranded motorists food, water and gas during the ordeal. Some people were brought to a local senior center where they could warm up and wait out the mess.

As if that wasn't enough another lake effect storm struck from Monday the 13th to Friday the 17th. This was a very long event with bursts of snow and then extended periods of lighter snow. When it finally came to an end on Friday Lacona, New York had 35 inches of the white stuff. Fulton NY reported 30 inches and Walworth NY was buried under 28 inches of fresh snow.



Traffic nightmare on the New York Thruway 12/2/10

The eastern Great Lakes states weren't the only region to get a big load of snow. The upper plains states of Minnesota, Wisconsin and Iowa had several cities break their monthly snowfall records for December. In southeastern Minnesota, Rochester International Airport recorded 41.3 inches of snow. This made it not only the snowiest December ever but the snowiest month ever! Waukon, Iowa picked up an impressive 36.0 inches making it the snowiest December and month in the books as well. In general the area had 2 to 4 times the usual snowfall for December and most of the winter is ahead!

A significant winter storm moved over the region on Saturday, December 11th. This storm produced 15 to 18 inches of snow across the greater Minneapolis/St. Paul area. The enormous weight of the snow caused the inflated roof of the Minneapolis Metrodome to partially collapse on Sunday the 12th at 5:00 am. A massive avalanche of snow crashed down onto a portion of the playing field. Had this collapse taken place with a game in progress, lives could have been lost. The unprecedented indoor avalanche did cause the cancellation and relocation of the Vikings/Giants football game that was to be played Sunday afternoon.



An avalanche of snow crashes onto the Metrodome Field at 5:00 am on 12/12/10

In a month of many firsts both weatherwise and otherwise, another NFL game was postponed by a snowstorm at the end of the month and remarkably the Vikings were involved once again! The game between the Minnesota Vikings and the Philadelphia Eagles to be played Sunday night December 26th in Philadelphia was postponed by the

NFL for safety reasons to Tuesday night the 28th. A massive east coast snowstorm was forecast to be in progress during the time the game was to be played and the league was concerned about the travel conditions before and after the game. This became the first NFL game to be played on a Tuesday since 1946, all due to December's wild weather.

No sooner had the action calmed down in the middle of the country when the weather went wild out west. Starting on December 17th and continuing through the 22nd a series of slow moving, moisture laden storm systems sloshed and blew their way across California depositing some remarkable amounts of rain at lower elevations and snow in the mountains. From Friday the 17th to Wednesday the 22nd downtown Los Angeles was drenched by 8.17 inches of rain, about half a years worth in 6 days! To the east in the deserts heavy rains produced life threatening flash floods and massive erosion. Palm Springs was deluged with 3.6 inches of rain between the 19th and the 22nd. Most of it fell on one day, Wednesday the 22nd when 2.24 inches flooded the area breaking the old record of 1.90 inches that fell on that date in 1945. Mount Palomar is in the high country about 40 miles north northeast of San Diego. The mountain is the home of a 200 inch telescope and sits at almost 5600 feet. During this series of storms the observatory was drenched with 14.13 inches of rain and endured hurricane force wind gusts! A massive mudslide at Colfax closed interstate 80. That road is the main highway to the Lake Tahoe ski resorts.

Milo is a small town at the foothills of the Sierra Nevada Mountains in southern California. They got dumped with 8.96 inches of rain from this series of storms. Nordhoff Ridge in the mountains east of Santa Barbara was drowned with 12.55 inches of rain. The resulting runoff from these gigantic rainfall totals in the mountains caused mudslides and flooding in the low lying coastal communities causing millions of dollars of damage and making shambles of peoples lives just before Christmas.



A mudslide severely damages a home and garage in southern California

In the high Sierra Nevada Mountains the snow totals were of record proportions! Mammoth Mountain Ski area was in snow heaven as an eye popping 15.5 feet fell from the storms in 4 days! This pushed December 2010 into the record books as the snowiest December since they started keeping track of snowfall in 1968. It's also the deepest snowpack in the California mountains for the month of December in 17 years.



Mammoth Mountain with mammoth amounts of snow

Cars were buried in parking lots and doorways were completely blocked by 10 to 12 feet of snow at the lodge. Northstar at Tahoe, another ski area was under 8 feet of new snow by storm's end. Hurricane force winds drifted the snow making travel impossible. In Southern California the ski areas were warmer and were soaked with 8 to 12 inches of rain and battered by high winds. Despite all the damage from rain, wind and flooding there is a silver lining to the storms. All that snow in the mountains will be water for the lowland populations and farms next summer. The snowpack in the mountains is twice the average for this time of year. The storms of December 17th to the 22nd will be long remembered for their record rain, snowfall and the hardship they caused just before Christmas.

As the Christmas holiday approached another storm was developing and setting its sights on the busy east coast shoppers and travelers. Actually this storm was the last in the series that had battered the west coast on the 22nd. By Christmas day the developing low pressure area was in the northern Gulf of Mexico just south of New Orleans. As the storm moved to the east it spread snow across the south. Atlanta Georgia had its first white Christmas since 1882 as 1.2 inches blanketed the city! To the north of downtown 2 to 3 inches fell and in the mountains of northern Georgia as much as 7 inches of snow blanketed the peaks. By Sunday morning the storm moved to near Cape Hatteras North Carolina. As the Nor' Easter moved up the coast it was getting much stronger and was spreading snow from eastern North Carolina to Washington D.C. all the way up to New York and Boston. Heavy snow fell overnight Sunday and into Monday morning across New Jersey, New York City and much of New England. Very strong winds were sweeping cyclonically down into the deep center of the storm. On Cape Cod Massachusetts, Wellfleet reported a wind gust of 80 miles per hour near 11:00 pm Sunday night. Nearby Orleans reported a gust to 79 miles per hour with rain falling.

Nantucket Island reported a 70 mile per hour wind gust.. Even away from the coast very strong winds were creating blizzard conditions. Just after midnight Hartford Connecticut's Brainard Field reported a gust to 48 miles per hour, severely blowing the falling snow and bringing visibility to zero. Down on the Connecticut shore New London reported a wind gust of 68 miles per hour at 1:15 am Monday morning. Wind gust of 50 to 70 miles per hour were widespread across all of south coastal New England from this impressive storm. By the time the Nor' Easter moved east into the Gulf of Maine late in the day Monday some impressive snowfall totals were piling up. The deepest snow covered northeastern New Jersey, Southeastern New York State and the greater New York City area including western Long Island. These areas had anywhere from 14 to 32 inches of snow.



The post Christmas blizzard brings travel to a halt in the northeast

Some larger totals were:

<i>New Jersey</i>	
Elizabeth	- 32 inches
Lyndhurst	- 29 inches
Union	- 27 inches
Jersey City	- 26 inches
Newark	- 24 inches
<i>New York State</i>	
Harriman	- 26.0 inches

Brooklyn	- 24.5 inches
Scarsdale	- 22.0 inches
Central Park	- 20.0 inches

Connecticut

Wilton	- 18.0 inches
New Canaan	-17.5 inches
Greenwich	-17.0 inches
Milford	-14.0 inches
Burlington	-11.0 inches
Tolland	-10.0 inches

Rhode Island

Woonsocket	-13.0 inches
N Kingstown	-12.0 inches

Eastern Massachusetts

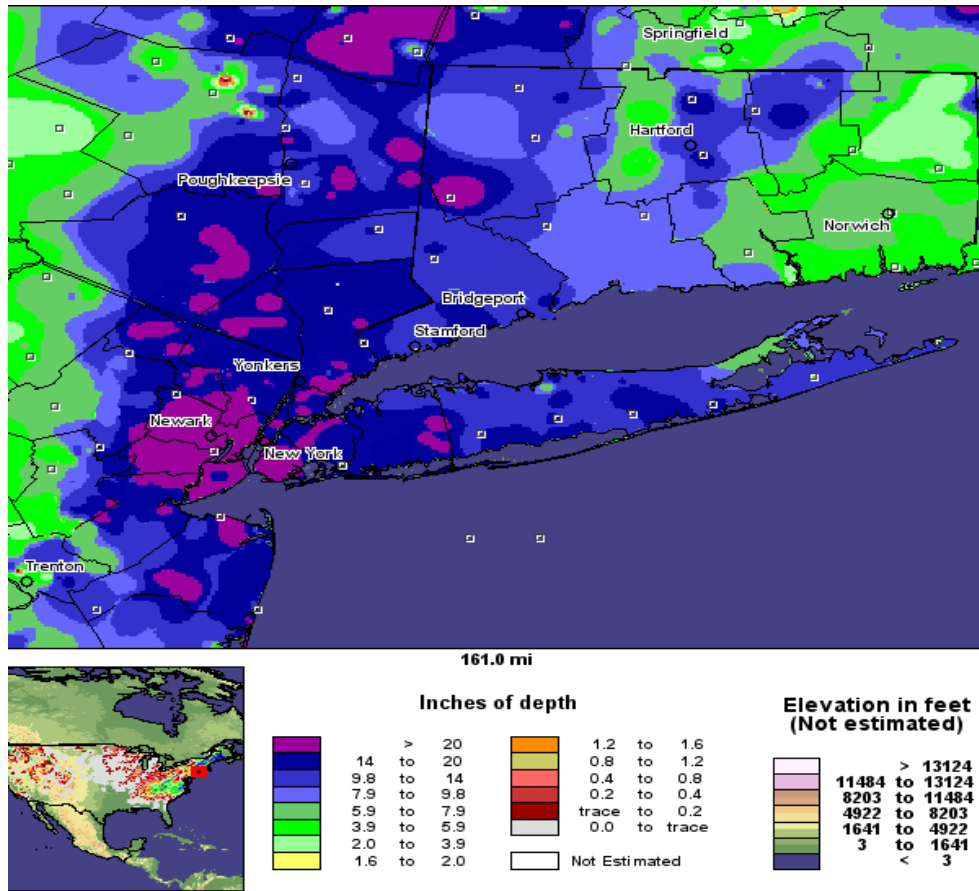
Canton	-19.0 inches
South Boston	-19.0 inches
Lynn	-18.5 inches
Taunton	-17.3 inches
Winchester	-17.3 inches

New Hampshire

Randolph	- 25.0 inches
Grafton	- 24.0 inches
Swanzey	- 13.0 inches
Goffstown	- 11.3 inches

Maine

Augusta	-15.0 inches
Bethel	-14.0 inches
Lewiston	-12.0 inches
Gray	-10.0 inches



All in all this was a major storm, a blizzard in some locations and a major Nor' Easter for all of the northeast during a very busy travel and shopping time of year. In New York City this storm had an interesting parallel with another large storm from the past. From February 8th to the 10th 1969 a major Nor' Easter battered the northeast with up to 2 feet of snow. The Mayor of New York City at the time was John Lindsay. He was blamed by the press for not cleaning up the snow in a timely manor and this caused considerable harm to his political career. The current mayor of New York, Michael Bloomberg caught the anger of residence and the media when snow removal was delayed or ignored in several areas such as Queens and Brooklyn. Interestingly the massive storm struck just days before 100 sanitation workers were scheduled to be demoted as a budget cutting measure. There were rumors and even statements from sanitation workers that an intentional work slowdown was ordered as a protest to the demotions. The situation is continuing to be investigated.



Snow covered cars and street in Brooklyn

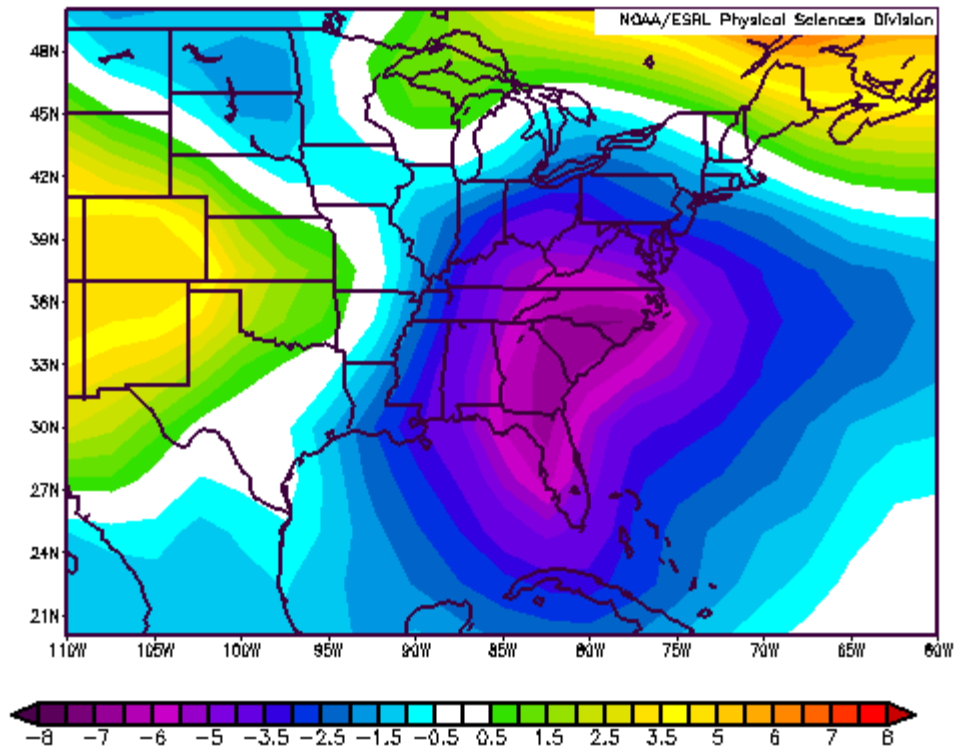
As I said at the beginning of this story December 2010 had an amazing variety of weather and that even included a significant tornado outbreak on the last day of the month. An estimated 38 tornadoes ripped through the states of Mississippi, Arkansas, Missouri and Illinois on December 31st. Eight people were killed and dozens were injured. This was the deadliest December tornado outbreak since 2000. Some of these tornadoes were quite strong. In Illinois the area around Petersburg was hit on the 31st by an EF3 tornado with winds of around 145 miles per hour. This was the strongest tornado of the year in Illinois! Cincinnati, Arkansas was hit by a tornado just before sunrise on the 31st. Four people were killed in the small town. A sign from the town's general store was found 20 miles away!

The line of thunderstorms that spawned the tornadoes produced damage just to the west of downtown St. Louis. The towns of Sunset Hill, Fenton and Ballwin reported damage from a tornado. Some news outlets reported that December tornadoes are rare, they are not. Tornadoes hit the United States every month of the year, they're just not as common during December which ranks 10th out of the 12 months for tornado frequency. In December of 1982 there were 96 tornadoes, the most for any December in the record books. Some stories even tried to relate this tornado outbreak to climate change. Those media outlets obviously don't know much about the history of December tornadoes.



Tornado rips through Fort Leonard Wood Air Force base, Missouri 12/31/10

Last but not least was the bone chilling (at least to them) cold that dominated the month of December in Florida. From top to bottom it was the coldest December on record. In some locations the cold didn't just break the old records, it shattered them. The daily average temperature was below normal at most locations every day of the month except for the 30th and the 31st. Tallahassee had its coldest December on record with an average temperature of 44.6 degrees, 9.1 degrees below the long term average. In fact it was the third coldest month since the weather records started in 1885! Only January of 1981 (44.3) and January of 1977 (43.9) were colder. There were even some reports of snow flurries on the 26th. Jacksonville had 18 days when the temperature fell to 32 degrees or colder. That number smashed the old record of 12 days set in 2000.



December anomalies (Degrees C)

At Tampa it was the coldest December since the weather records began in 1890. The average temperature was 53.2 degrees beating out December of 1935's average of 54.8 by 1.6 degrees. In the middle of the state Orlando froze along with the many visitors hoping for some relief from winter in the north. The average temperature was 52.0 degrees, 3.5 degrees colder than the previous coldest December in 1989. On the east coast Daytona Beach was not much fun for vacationers either. The city had its coldest December ever with an average temperature of 50.1 degrees beating the old mark of 52.7 set in 1935. To the south Melbourne had an average temperature of 52.0 smashing the old record of 55.5 for December by 3.5 degrees.

Record-Low December Average Temperature (°F)

<u>Location</u>	<u>Avg</u>	<u>Dep</u>	<u>Previous Record</u>
Wilmington, NC	38.0	-11.0	38.0 in 1917
Florence, SC	38.3	- 9.2	39.4 in 1980
Alma, GA	43.8	- 9.8	44.0 in 1963
Tallahassee, FL	44.6	- 9.1	45.2 in 1963
Jacksonville, FL	46.1	- 8.9	47.7 in 1989
Inverness, FL	47.7	-11.2	49.2 in 1989
Gainesville, FL	47.8	- 8.5	47.8 in 1989
Daytona Beach, FL	50.1	-10.7	52.7 in 1935
Avon Park, FL	51.0	-11.6	55.2 in 1935
Brooksville, FL	52.0	- 9.4	54.1 in 1935
Orlando, FL	52.0	-11.0	55.5 in 1989
Sarasota-Bradenton, FL	53.0	-10.5	55.0 in 1935
Tampa, FL	53.2	-10.1	54.5 in 1935
Lakeland, FL	53.2	-10.7	54.8 in 1935
Vero Beach, FL	53.9	-10.8	58.1 in 1989
Melbourne, FL	54.0	- 9.3	56.2 in 1989
Punta Gorda, FL	54.4	-10.6	60.1 in 1989
St. Petersburg, FL	56.3	- 7.4	56.9 in 1935
Fort Myers, FL	56.7	- 9.7	58.4 in 1935
Naples, FL	57.6	- 8.7	60.9 in 1963
W. Palm Beach, FL	58.9	- 9.4	61.1 in 1935
Ft. Lauderdale, FL	60.4	- 9.0	62.2 in 1935
Miami, FL	61.4	- 8.5	62.1 in 1935
Key West, FL	63.1	- 8.9	65.1 in 1885

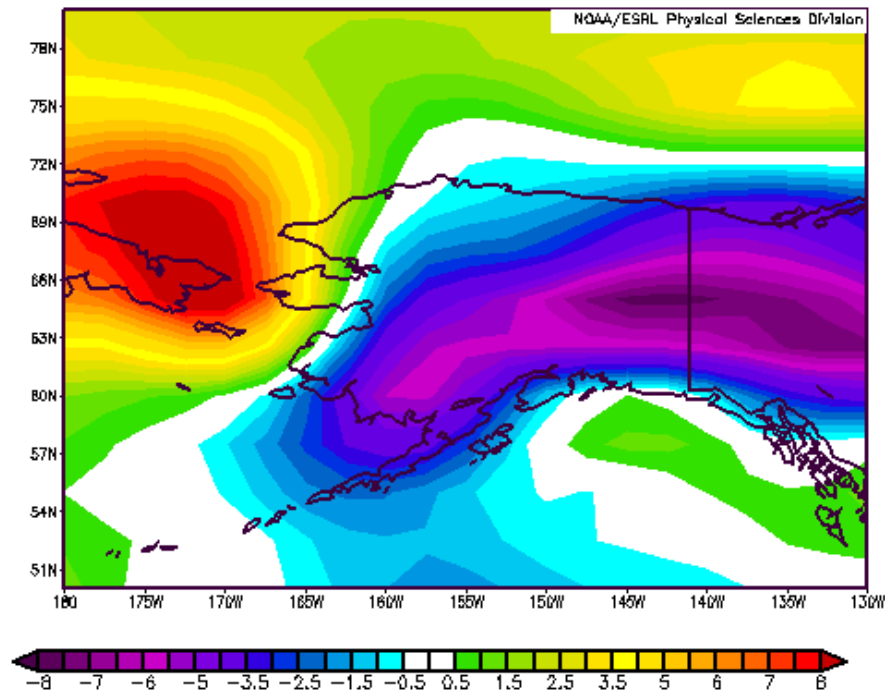
A little farther down the east coast Vero Beach had an average December temperature of 53.9 degrees shattering the old record of 58.1 degrees set in 1989 by 4.2 degrees. On the southwest coast even normally warm Naples set a new December record with an average of 57.6 degrees besting the 60.9 degrees set in 1963 by a whopping 3.3 degrees. The outdoor heaters were working overtime at the many open air restaurants in Naples. Despite all the wealth in the Palm Beach area there was no amount of money that could spare the region from record cold. West Palm Beach had its coldest December ever with an average of 58.9 degrees, colder by 2.2 degrees than December of 1935. It was the same story for Fort Lauderdale. The previous coldest December was in 1935 with an average of 62.2 but 2010 was 1.8 degrees colder at 60.4 degrees.

It wasn't much better down at Miami. It was the coldest December ever with an average temperature of 61.4 degrees. Maybe vacationer could escape the cold down in the normally tropical Florida Keys. No luck here either. Key West had its coldest December ever and second coldest month ever with an average temperature of 63.1 degrees. That is an impressive 8.9 degrees below the long term average. Even Jimmy Buffet had to drink his margaritas inside with the space heater on.

With monthly averages of 38.3°F in Atlanta, 37.2°F in Athens, 42.8°F in Columbus, and 40.9°F in Macon, these ranked as the 6th, 3rd, 5th, and 4th coldest Decembers in each city, respectively. In each case, it was the coldest December since 2000.

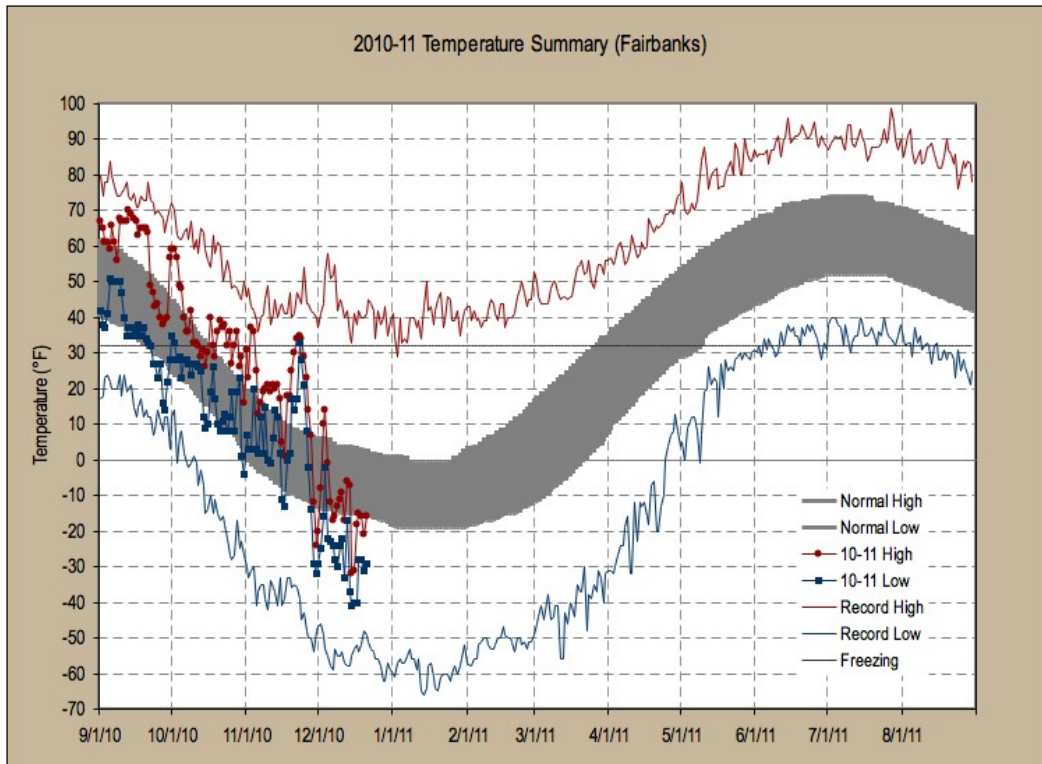
ALASKA FRIGID

It was bitterly cold across much of Alaska in December. The average temperature was 12F below normal in Fairbanks, that is a very large departure. The low temperature at Fairbanks was 40 degrees below zero 4 times including three days in a row with -41 on the 15th, -40 on the 16th and -40 on the 17th. Amazingly the high temperature was at or below zero every day of the month except for the last 2. On the 15th the “high” was -32 degrees! The city had 4 inches of light, dusty snow for the month. That’s typical for such a cold place. There’s very little moisture to make much snow there.



Temperature (Degrees C) Departure from Normal December 2010 Alaska

The cold in December was in sharp contrast with November which was over 9F above normal thanks to an unusually mild third week.



Across the nation December 2010 was a month of extreme weather, most of it extreme on the cold and snowy side. The strong La Nina along the equatorial pacific ocean combined with massive areas of high pressure in the high latitudes teamed up to generate a historic stormy and cold month. I guess 'mother nature' never got the "it should be getting warmer" global warming memo.