State of the Climate
National Overview
September 2012
National Oceanic and Atmospheric Administration
National Climatic Data Center

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U.S. Percentage Areas

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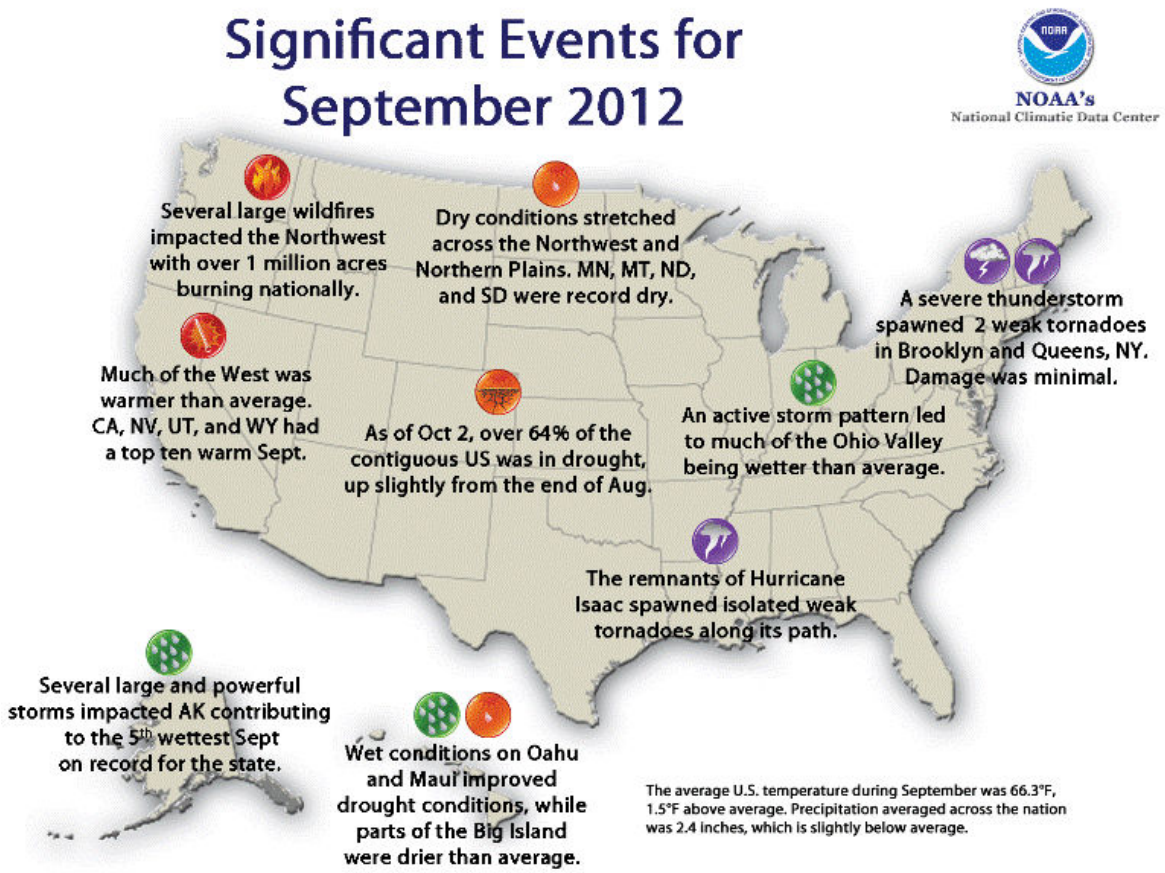

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Did You Know?

USHCN Version 2.5 Transition

Since 1987, NCDC has used observations from the U.S. Historical Climatology Network (USHCN) to quantify national- and regional-scale temperature changes in the conterminous United States (CONUS). To that end, USHCN temperature records have been "corrected" to account for various historical changes in station location, instrumentation, and observing practice. The USHCN is a designated subset of the NOAA Cooperative Observer Program (COOP) Network. USHCN sites were selected according to their spatial coverage, record length, data completeness, and historical stability. The USHCN, therefore, consists primarily of long-term COOP stations whose temperature records have been adjusted for systematic, non-climatic changes that bias temperature trends.

The National Climatic Data Center periodically improves the quality of the datasets maintained at the center and releases updated versions. Beginning with the September 2012 processing, NCDC will use USHCN version 2.5 for national temperature calculations as well as in other products, including Climate at a Glance and the Climate Extremes Index. For additional information on the improvements made to USHCN version 2.5, please visit USHCN.

More about climate monitoring…

Supplemental September, Warm Season, and January-September Information

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Please Note: the US national ('CONUS') temperatures associated with the September 2012 release were initially incorrect. NCDC personnel used an incorrect base period as the basis of their calculation. This error was corrected on October 19, 2012. The general character of monthly temperature anomalies (departures from normal) and associated trends were not affected by this error, as it applied equally to all Septembers on the record. The slight changes in the anomalies and associated ranks with the October 19 correction are reflective of late-arriving data, and are typical. The statistics in this report were updated on October 19, 2012.

Climate Highlights — September

- The average contiguous U.S. temperature during September was 66.3°F, 1.5°F above the 20th century average, the 18th warmest such month on record. September 2012 marks the 16th consecutive month with above-average temperatures for the Lower 48.
- The average contiguous U.S. temperature during September was ~~67.0°F, 1.4°F~~ 66.25°F, 1.5°F above the 20th century average, ~~tying September 1980 as the 23rd~~, the 18th warmest such month on record. September 2012 marks the 16th consecutive month with above-average temperatures for the Lower 48.
- Higher-than-average temperatures were anchored across the West during much of September with California, Nevada, Utah, and Wyoming experiencing a top ten warm September. Monthly temperatures were below average across the Midwest and Ohio Valley.
- The September nationally-averaged precipitation total of 2.40 inches was slightly below the long-term average.
- Record and near-record dry conditions were experienced from the Pacific Northwest, across the Northern Rockies and Plains, and into the Upper Midwest. Minnesota, Montana, North Dakota, and South Dakota were record dry for September. Six additional adjacent states, from Washington to Wisconsin, had precipitation totals among their ten driest.
- The Ohio Valley was wetter than average during September, where Ohio and Kentucky both had monthly precipitation totals ranking among their ten wettest.
- Several large extra-tropical cyclones affected Alaska during September, bringing heavy precipitation to the state. The Alaskan statewide average precipitation was 48 percent above the 30-year average, and ranked as the 5th wettest September in its 95-year period of record.

- According to the October 2, 2012 U.S. Drought Monitor, 64.6 percent of the contiguous U.S. was experiencing moderate-to-exceptional drought, slightly larger than the extent of drought at the end of August. The percent area of the nation experiencing exceptional drought, the worst category of drought, remained nearly constant at about 6 percent. Exceptional drought conditions improved across the Lower-Mississippi Valley and Ohio Valley, while drought conditions deteriorated across the Central and Northern Plains.

- The warm and dry conditions across the Northwest were associated with another month of above-average wildfire activity. Nationally, nearly 1.1 million acres burned during September, the 3rd most on record for the month. Idaho, Montana, Oregon, and Washington experienced the brunt of the large wildfire activity.

- A list of select September temperature and precipitation records can be found here.

Climate Highlights — warm season (April-September)

- The contiguous U.S. warm season, defined as the six-month period from April-September, had temperatures that were record warm. The six-month average temperature of 67.6°F for the Lower 48 was 2.7°F above average. The previous warmest April-September occurred in 2006 when the nationally-averaged temperature was 67.0°F.

- The warm season brought above-average temperatures to a large portion of the country, with 33 states having six-month temperatures among their ten warmest. Colorado and Wyoming were both record warm with temperatures 4.2°F and 4.4°F above average, respectively.

- The April-September period was the 14th driest on record for the contiguous U.S. with a national precipitation total of 14.41 inches, 1.62 inches below average. Below-average precipitation was observed across the central regions of the country stretching from the Lower-Mississippi River Valley into the Northern Rockies. Nebraska and Wyoming were both record dry for the period. Nebraska's statewide precipitation total of 9.24 inches was 8.16 inches below average, while Wyoming's precipitation total of 3.98 inches was 4.5 inches below average.

- The U.S. Climate Extremes Index (USCEI), an index that tracks the highest and lowest 10 percent of extremes in temperature, precipitation, drought and tropical cyclones across the contiguous U.S., was more than twice the average value during the warm season, and marked the highest USCEI value for the six-month period. Extremes in warm daytime temperatures, warm nighttime temperatures, and the spatial extent of extreme drought contributed to the record high USCEI value, based on data from 1910-2012.

Climate Highlights — Year-to-Date (January-September)

- The January-September period was the warmest first nine months of any year on record for the contiguous United States. The national temperature of 58.9°F was 3.8°F above the 20th century average, and 1.3°F above the previous record warm January-September of 2006. During the nine-month period, 46 states had temperatures among their ten warmest, with 25 states being record warm. Only

Washington had statewide temperatures near average for the period.

- January-September 2012 was the 11th driest such period on record for the contiguous U.S. with a precipitation total 1.98 inches below the average of 22.67 inches. The central portion of the country, from the Ohio Valley to the Rocky Mountains, was drier than average. Wetter-than-average conditions were observed along the Gulf Coast and in the Pacific Northwest.

- The USCEI was more than twice the average value during the January-September period, and marked the highest USCEI value for the period. Extremes in warm daytime temperatures and warm nighttime temperatures contributed to the record high USCEI value.

Climate Highlights — 12-month period (October 2011-September 2012)

- The October 2011-September 2012 period was the warmest such 12-month period on record for the contiguous U.S., with an average temperature of 55.3°F, 3.3°F above average. This 12-month temperature average was the 3rd warmest of any 12-month period on record for the contiguous United States. The six warmest 12-month periods have all ended during 2012.

Alaska Temperature and Precipitation:

- Alaska had its 46th coolest September since records began in 1918, with a temperature 0.2°F (0.1°C) below the 1971–2000 average.
- Alaska had its 36th coolest July-September since records began in 1918, with a temperature 0.9°F (0.5°C) below the 1971–2000 average.
- Alaska had its 18th coolest January-September since records began in 1918, with a temperature 2.0°F (1.1°C) below the 1971–2000 average.
- Alaska had its 5th wettest September since records began in 1918, with an anomaly that was 48.1 percent below the 1971–2000 average.
- Alaska had its 6th wettest July-September since records began in 1918, with an anomaly that was 31.0 percent above the 1971–2000 average.
- Alaska had its 19th wettest January-September since records began in 1918, with an anomaly that was 17.0 percent above the 1971–2000 average.

For additional details about recent temperatures and precipitation across the U.S., see the Regional Highlights section below and visit the Climate Summary page. For information on local temperature and precipitation records during the month, please visit NCDC's Records page. For details and graphics on weather *events* across the U.S. and the globe please visit NCDC's Global Hazards page.

Regional Highlights:

These regional summaries were provided by the six Regional Climate Centers and reflect conditions in their respective regions. These six regions differ spatially from the nine climatic regions of the National Climatic Data Center.

Northeast | Midwest | Southeast | High Plains | Southern | Western

Northeast Region: *(Information provided by the Northeast Regional Climate Center)*

- September's average temperature of 61.2 degrees F (16.2 degrees C) was 0.4 degrees F (0.2 degrees C) above normal. This is the third month in a row to average warmer than normal (final data have June 2012 0.1 degree F, 0.1 degrees C below normal). State departures did not stray too far from normal; departures ranged from 0.7 degrees F (0.4 degrees C) below normal in Rhode Island to 1.1 degrees F (0.6 degrees C) above normal in Delaware. January through September averages remain above normal, with the Northeast seeing its warmest January through September since 1895. Among the states, Maine was ranked third warmest, Pennsylvania and West Virginia, 2nd warmest and the rest of the states joined the region in first place.

- Overall, the Northeast averaged wetter-than-normal during September,. The monthly total of 5.02 inches (127 mm) was 128 percent of the normal precipitation amount. This placed September 2012 as the 18th wettest September in 118 years. Totals in Delaware and New Jersey were just below normal, or 97 percent, while rainfall departures in the rest of the region ranged from 101 percent in Maryland to 157 percent in West Virginia. It was the 11th wettest September since 1895 in West Virginia.

- Above normal rainfall during September alleviated drought conditions in much of the Northeast. According to the US Drought Monitor issued on October 2, 2012, southern Delaware was still experiencing moderate (D1) and severe (D2) drought. Conditions in southern Maryland improved to a mix of D0 and D1, with only a very small D2 area along the border with Delaware. Portions of upstate New York, mainly east of Lakes Erie and Ontario, were still experiencing moderate drought (D1) at month's end.

- The Northeast saw its share of severe weather during September, including at least five confirmed tornados, several waterspouts and funnel clouds, damaging winds, and flash flooding. The first week of the month saw an EF0 tornado in Delaware on the 3rd, and two tornados, an EF0 and EF1 in the New York City metro area on the 8th. The main impact from these tornados was downed trees and power lines along with minor structural damage along with a few minor injuries. In addition to the tornados, hundreds of wind damage reports were received from spotters throughout the region. Passage of a strong cold front on the 18th resulted in blustery conditions and intense rainfall, primarily focused on the eastern part of the region from Massachusetts to Maryland. Strong southerly winds ahead of the front gusted up to 61 mph (27 m/s) with sustained winds as high as 33 mph (15 m/s) at the higher elevations. Downpours of 2-4 inches (50-100 mm) closed roads throughout the region, while downed trees injured one person in Camden County, NJ and two in Delaware County, PA. Interstate 95 in Connecticut was closed in Cos Cob by downed trees and in Norwalk, CT due to flash floods. An unstable airmass on the 27th led to the formation of two weak tornados in southwestern Pennsylvania. A day later, another intense rain event flooded roads in southeastern New York and southwestern Connecticut, including I-95 and the Hutchinson River Parkway.

For more information, please go to the Northeast Regional Climate Center Home Page.

Midwest Region: *(Information provided by the Midwest Regional Climate Center)*

- The Midwest regional temperature was slightly below normal in September, breaking a string of 11 straight months above normal from October 2011 to August 2012. For the first time since January 2011, none of the nine Midwest states had an above normal statewide temperature. September temperatures ranged from near normal to 3 degrees F (2 C) above normal near Lake Superior. Temperatures were above normal early in the month but the latter part of the month was cooler than normal. Despite the cool September, statewide year-to-date temperatures rank as the warmest or second warmest in the 118-year history for each Midwest state.

- September precipitation varied drastically from dry in the north to wet in the south. Minnesota recorded its driest September on record (118 years) with many stations recording less than a half inch (13 mm) of rain while precipitation totals in southern Illinois topped 14 inches (356 mm) at several stations. As a percentage of normal, the totals ranged from less than 10 percent to more than five times normal. Heavy September rains in Ohio (4th wettest) and Kentucky (7th wettest) were in contrast to the drier conditions to the north where Minnesota recorded its driest September and Wisconsin had its 9th driest. June to September was the driest on record in Iowa and May to September was the third driest in Missouri. Year-to-date precipitation totals rank among the top 12 driest years since 1895 in five states: Iowa (4th), Illinois (7th), Missouri (8th), Indiana (12th), and Wisconsin (12th).

- Early freezes hit Minnesota, Wisconsin, and Iowa with the most widespread event on the 23rd and 24th. The freeze was weeks ahead of normal with many locations in Iowa recording their earliest freeze since 1983. Early crop maturity helped to limit the damages.

- Drought conditions eased in the southern half of the region but further north there was both expansion and intensification of drought. Overall, the Midwest saw an increase from 82 percent to 91 percent of the region in drought during September but severe drought dropped from 50 to 42 percent and extreme drought dropped from 33 to 15 percent. Missouri saw the biggest improvements going from 97 to just 17 percent areal coverage of extreme drought, though the entire state remained in drought. Minnesota saw the biggest expansion and intensification with drought areas increasing from 38 to 96 percent of the state and extreme drought increasing from 0 to 20 percent. Improvements in the southern parts of the Midwest came too late in the year to help the corn crop.

- Harvest was on pace or ahead of normal for major crops in the Midwest. Corn harvest was ahead of normal across the region. Soybean harvest was near normal in the southeast but well ahead of normal in the northwest.

For details on the weather and climate events of the Midwest, see the weekly summaries in the Midwest Climate Watch page.

Southeast Region: *(Information provided by the Southeast Regional Climate Center)*

- For the second straight month, mean temperatures were near normal across much of the Southeast region. The greatest departures were found across parts of Alabama, North Carolina, and southern Florida, where monthly temperatures were between 1 and 2 degrees F (0.5 and 1.1 degrees C) below normal. In contrast, monthly temperatures were 1 degree F (0.5 degrees C) above normal across northern Florida, central parts of Georgia and South Carolina, and northern Virginia. Monthly

temperatures were also above normal across Puerto Rico and the U.S. Virgin Islands. San Juan, PR, tied its warmest September on record (1898-2012) with a mean temperature of 84.9 degrees F (29.4 degrees C). The warmest weather of the month occurred during the first week, as temperatures reached 95 degrees F (35 degrees C) as far north as central Virginia. The coolest weather of the month occurred in the days following the passage of a cold front on the 19th. Temperatures dropped below freezing for the first time this fall across many of the higher elevations of western North Carolina, while temperatures dipped below 50 degrees F (10 degrees C) as far south as the Tampa Bay, FL area.

- Precipitation in September was highly variable across the Southeast region. The wettest locations were found across Alabama and northwest Florida, where monthly rainfall totals were between 150 and 300 percent of normal. Much of the rainfall in these areas came from the remnants of Hurricane Isaac, which dropped over 6 inches (152.4 mm) of rain locally between the 3rd and 5th of the month. Some locations in central North Carolina also received above normal rainfall in September. Raleigh-Durham, NC, recorded 7.83 inches (198.9 mm) for the month, which was more than 3 inches (76.2 mm) above normal. Much of this rainfall was tied to a low pressure system that moved north out of the Gulf of Mexico on the 18th of the month, resulting in locally heavy rainfall and some severe weather across the Southeast. Strong storms also brought heavy rain to the area on the 28th and 29th of the month. In contrast, the driest locations were found along coastal sections of Virginia and South Carolina, where monthly rainfall totals were less than 50 percent of normal. Charleston, SC, recorded 2.02 inches (51.3 mm) for the month, which was over 4 inches (101.6 mm) below normal, while North Myrtle Beach recorded just 0.87 inches (22.1 mm) for the month, or 14 percent of normal. Precipitation in September was generally below average across Puerto Rico and the U.S. Virgin Islands. Charlotte Amalie Airport in St. Thomas recorded its driest September on record with 0.92 inches (23.4 mm) of rain (period of record 1953-2012). Elsewhere across the region, monthly precipitation was between 50 and 100 percent of normal.

- There were 208 reports of severe weather across the Southeast in September, with at least one report on half of the days. Most of these reports were for damaging winds. The remnants of Hurricane Isaac contributed to flash flooding, high winds, and small hail across parts of the Florida Panhandle from the 3rd to the 5th of the month. The low pressure system that moved out of the Gulf of Mexico on the 18th contributed to high winds, water spouts, and rip currents (including one fatality) along the Florida Gulf Coast. In addition, two EF-0 tornadoes were confirmed in eastern North Carolina on the 18th of the month. The first touched down near the town of Zebulon in Wake County. No damage was reported. The second tornado touched down three separate times along a five-mile (8.0 km) path near the town of Trenton in Jones County. Most of the damage was limited to large trees and branches, except for a greenhouse and shed that were damaged by flying debris.

- Drought conditions remained fairly stable across the Southeast in September, with approximately one-third of the region classified in drought (D0 and greater) according to the U.S. Drought Monitor by the end of the month. Wet weather and saturated ground impeded the harvesting of hay, cotton, and peanuts across parts of Alabama, Georgia, and Florida. The planting of sugarcane and winter vegetables was also delayed across parts of Florida due to wet conditions over the past several months. The persistence of wet conditions also contributed to fungal diseases as well as

outbreaks of mold and mildew in several different crops across parts of Florida and North Carolina. In contrast, the persistence of dry conditions across central Georgia continued to limit pasture growth.

For more information, please go to the Southeast Regional Climate Center Home Page.

High Plains Region: *(Information provided by the High Plains Regional Climate Center)*

- While most the High Plains Region had near normal average temperatures, September 2012 continued to be dry. Most locations in the Region had average temperatures which were within 1.0-2.0 degrees F (0.6-1.1 degrees C) of normal. The largest temperature departures occurred in a few areas of Wyoming, where average temperatures were over 4.0 degrees F (2.2 degrees C) above normal, and an area along the border of northeastern Kansas and southeastern Nebraska where average temperatures were 2.0-3.0 degrees F (1.1-1.7 degrees C) below normal. Unlike the majority of this year, the temperatures this month were not record setting; however a small number of locations did break into the top 10 warmest Septembers on record. Lander, Wyoming had its 6th warmest September on record with an average temperature of 63.2 degrees F (17.3 degrees C). In 1990, Lander had its warmest September with an average temperature of 64.8 degrees F (18.2 degrees C) (period of record 1891-2012). Even with some below normal temperatures this month, 2012, as a whole, has continued to be one of the warmest on record for much of the Region. For instance, the average temperature in Topeka, Kansas was 0.5 degrees F (0.3 degrees C) below normal this month, but this year's January 1-September 30 time period still ranked as the warmest. The average temperature in Topeka for that time period was 64.4 degrees F (18.0 degrees C), which easily beat the 1934 record of 62.3 degrees F (16.8 degrees C) (period of record 1887-2012).

- September was yet another dry month for the majority of the High Plains Region. Precipitation totals which were less than 50 percent of normal were widespread. In addition, a large area of central and northern South Dakota and pockets of North Dakota, Nebraska, and Wyoming received at most 5 percent of normal precipitation. This dearth of precipitation caused many new records to be set this month. Aberdeen, South Dakota had its driest September on record with only 0.01 inches (0 mm) of precipitation which was 2.18 inches (55 mm) below normal. The old record of 0.05 inches (1 mm) was set back in 1979 (period of record 1893-2012). Interestingly there were numerous stations across South Dakota that received no measurable precipitation this month. One of these locations was Pierre, South Dakota which tied with 1893 for its driest September on record (period of record 1893-2012). The dry weather continued to have an impact across the Region. According to the U.S. Army Corps of Engineers, the Missouri River had record low inflows this month of just 0.3 million acre feet. The previous record occurred in 1919 with 0.4 million acre feet (period of record 1898-2012). In addition, water and feed shortages for livestock were common and many producers continued to cull livestock. The dry weather did help with crop dry down and by the end of the month, the corn harvest was well ahead of average in Nebraska and the Dakotas. The only areas of the Region which received above normal precipitation were central and southeastern Colorado, and southwestern and eastern Kansas. These areas had precipitation totals ranging from 110 percent of normal to 300 percent of normal. Denver, Colorado had its 5th wettest September on record with 2.95 inches (75 mm). The record held at 4.67 inches (119 mm), set back in 1961 (period of record 1872-2012). Heavy rainfall in Colorado

actually caused problems in areas that had been affected by the wildfires this summer. According to InciWeb, rain caused rock and mud slides in the High Park Fire burn area, west of Fort Collins, Colorado. In addition, numerous trees had also fallen and this combination of rock, mud, and trees caused multiple closures of roads in that area. Luckily, according to The Coloradoan, no property damage or injuries were reported.

- According to the U.S. Drought Monitor, there have been significant changes in drought conditions over the last month in the High Plains Region. By the end of September, about 99 percent of the Region was under moderate (D1) to exceptional (D4) drought, with nearly 24 percent of the Region in the D4 designation. In contrast, at the end of last month, only 15 percent of the Region was in D4. D4 areas expanded to include most of the state of Nebraska, a small portion of eastern Wyoming, southeastern South Dakota, northeastern Colorado and much of the western and central parts of Kansas. By the end of the month, just over 75 percent of Nebraska was in D4 drought. Extreme drought conditions (D3) also expanded in Nebraska, North Dakota, South Dakota, and Wyoming. In addition, every part of the Region had at least some sort of drought designation or either abnormally dry conditions (D0). About the only improvements occurred in eastern Kansas, where the remnants of Hurricane Isaac helped downgrade drought conditions there. According to the U.S. Seasonal Drought Outlook released September 20th, drought conditions were expected to improve in the far southeastern corner of Kansas and develop in central North Dakota and northern South Dakota. All other areas of drought in the Region were expected to persist through the end of the year.

For more information, please go to the High Plains Regional Climate Center Home Page.

Southern Region: *(Information provided by the Southern Regional Climate Center)*

- September temperatures in the Southern Region were generally at or above normal. In Tennessee and Mississippi, temperatures averaged near normal, with Tennessee averaging 69.00 degrees F (20.56 degrees C) for the month, while Mississippi reported an average temperature of 74.20 degrees F (23.44 degrees C). Elsewhere, temperatures averaged higher than normal, with the warmest areas occurring in Oklahoma and northern Texas. Temperatures in that region ranged from 2 to 4 degrees F (1.11 to 2.22 degrees C) above normal. Texas averaged 76.70 degrees F (24.83 degrees C) for the month. Other state average temperatures include Louisiana with 77.20 degrees F (25.11 degrees C), Oklahoma with 74.10 degrees F (23.39 degrees C), and Arkansas with 73.10 degrees F (22.83 degrees C). Though all state averages rank within the middle two quartiles, Oklahoma and Louisiana are on pace to having one of the warmest years on record. In the case of Oklahoma, the year to date (January to September) average temperature there is 66.89 degrees F (19.38 degrees C). This is their warmest January to September period on record (1895-2012). For Louisiana, it is their second warmest year to date on record (1895-2012). The January to September average for the Louisiana is 71.74 degrees F (22.08 degrees C), second only to the value of 72.11 degrees F (22.28 degrees C), which occurred in 1911. The Southern Region as a whole is also on pace for its warmest year on record. The January to September average for the region is 69.14 degrees F (20.63 degrees C), and it is the warmest January to September period on record (1895-2012).

- September precipitation in the Southern region varied spatially. Most regions received either anomalously high or anomalously low amounts of precipitation. In Oklahoma, for example, conditions were quite dry in the northeast and in the southeast, with most stations reporting less than half the expected precipitation for the month. This was also the case for the southern tip of Texas and in northwestern Arkansas. Conversely, many areas reported over 150 percent of normal precipitation. This includes most of eastern Tennessee, northern Louisiana, central Texas, and eastern Arkansas. The wettest areas of the region occurred in central Texas and in northwestern Louisiana, where stations reported over twice the normal allotment. In the case of Texas, it was their wettest month in two years. The state reported an average precipitation total of 4.01 inches (101.85 mm), which makes it the twenty-seventh wettest September there on record (1895-2012). It also marks the first time since September of 2010, that the state reported an average precipitation value that was equal to or greater than 4 inches (101.60 mm). Tennessee reported its twelfth wettest September on record with an average precipitation total of 6.02 inches (152.91 mm). Both Louisiana and Arkansas reported their twenty-first wettest September on record (1895-2012), with Louisiana averaging 6.01 inches (152.65 mm), and Arkansas averaging 5.19 inches (131.83 mm). Other state average precipitation totals include Oklahoma with 2.90 inches (73.66 mm), and Mississippi with 4.15 inches (105.41 mm). Over the past three months (July to September), Mississippi has accumulated 19.76 inches (501.90 mm), making it the wettest July to September there on record (1895-2012).

- Heavy rainfall amounts in the Southern Region has led to some improvements to drought conditions. In Arkansas, the northeastern counties have been improved from extreme and exceptional drought to severe drought conditions. Conditions are also improved for much of western Tennessee. Moderate to severe drought conditions were also scaled back in northern Louisiana and southern Arkansas. Elsewhere, drought conditions did not significantly change. Much of Oklahoma and southern Texas remain in extreme drought or worse, while moderate drought conditions are still prevalent in central and western Texas.

- Dozens of wind and hail events occurred on September 7, 2012. Most of these occurred in Oklahoma and Arkansas. Baseball-sized hail was reported in Nowata County, Oklahoma, while two hangars were destroyed by heavy wind in Independence County, Arkansas

- Dozens of hail events occurred in western Oklahoma on September 26, 2012.

- In Texas, widespread flooding as a result of exceptionally high 24-hour accumulations occurred in Jonestown, San Antonio, and Midland, with further damage from lightning and winds in Lubbock and Montgomery County; hundreds of people lost power as a direct result, and hundreds more required high water rescue (Information Provided by the Texas State Climate Office).

- Texas rainfall has helped mitigate many of the short-term drought effects, as seen in central Texas, where cotton farmers are expecting a 75% higher yield than last year and ranchers were provided relief as livestock overhead has been increasing due to rising feed prices. Hydrological improvements of these rains are limited, however; while San Angelo is expected 50,000+ acre-feet to be recovered to O. H. Ivie Reservoir, Jonestown's lake and reservoir levels are still so low that their revenues from water-sport related purchases are down and have been put in a budget crunch to

the tune of $363,000. Jonestown has had to remove its head librarian and police chief positions and repurpose them to city administrators. Ecological impacts are also still being felt, as Longview's forestry service has gone far above budget removing trees killed by lasting drought conditions. The service has already spent nearly $90,000 on tree removal, with an estimated 301 million dead trees still requiring removal (Information Provided by the Texas State Climate Office).

- Corpus Christi, already in a large rainfall deficit, saw soil shrinkage damaging building foundations as unseasonably high temperatures evaporated soil moisture. Old building infrastructure in Abilene has been having problems mitigating heat. Outdoorsmen in west Texas suffered heat exhaustion during the warmest days of the month, and wildfires as a result of drying grasses in southeast Texas broke out. By the end of the month, however; temperatures dropped for much of the state and impacts associated with it have slightly subsided (Information Provided by the Texas State Climate Office).

For more information, please go to the Southern Regional Climate Center Home Page.

Western Region: *(Information provided by the Western Regional Climate Center)*

- Continuing this summer's theme of record heat and dry conditions, September 2012 saw above normal temperatures and below normal precipitation for much of the West. Late season monsoon activity over the southern Great Basin and Mojave Desert and a duo of storms hitting south-central Alaska brought locally heavy precipitation, while other locations remained parched.

- Following its warmest August on record, Reno, Nevada experienced its warmest September as well with a monthly average temperature of 70.7 F (21.5 C). This value narrowly eclipses the previous record of 70.6 F (21.4 C) set in 2011. Reno's record began in 1888. In California's Central Valley, Fresno also saw consecutive August-September record average monthly temperatures. Fresno's temperature this month averaged to 81.3 F (27.4 C), the highest September mean on a record began in 1878. Further south, Needles and Death Valley, California also logged their warmest average September temperatures at 91.3 F (32.9 C) and 96.3 F (35.7 C), respectively.

- In southern Alaska, cool and wet conditions dominated the month. Two strong storms brought heavy precipitation, cool temperatures, and high winds to the region. An impressive 26.16 in (664.5 mm) of rain fell in Valdez this month, 16.54 in (420.1 mm) above average. This total sets both the September record and the record for wettest calendar month in Valdez. The previous wettest month was 20.59 in (523 mm) in November, 1976; records at Valdez began in 1949. The two storms resulted in widespread flooding throughout south-central Alaska. The Nenana river reached its highest level on record, reducing the Parks Highway to one lane. Sustained winds of 40-50 mph (64-80 kph) were observed around Anchorage, with gusts up to 70-80 mph (112-129 kph). Due to full foliage and moist soil, the strong winds downed trees throughout the region causing power outages, closed roads, and structure damage.

- The North American monsoon season (June 15-Sept 30) wrapped up this month, with many locations receiving near or above their normal monsoon precipitation totals. Las Vegas, Nevada received 1.18 in (30 mm) on September 11th, the location's wettest September day on record. The downpours resulted in extensive flooding in the Las Vegas area. The month ranks as the 5th wettest in a record that began in 1937. In

northern Arizona, Bagdad received 10 in (254 mm) for the monsoon season, 187% of normal for the station. Elsewhere in the region, Prescott and Flagstaff received 76% and 100% of their average Monsoon precipitation. Albuquerque, New Mexico finished the season at 72% of normal. September 2012 was the 5th wettest at Denver, Colorado, with a total of 2.95 in (74.9 mm) of rainfall. It was also the 12th consecutive September with no snowfall in Denver. The other 12-year stretch of no September snowfall occurred from 1914-1926.

- Precipitation was lacking elsewhere in the West, with many Pacific Northwest locations noting their driest Septembers on record and extended periods with no measurable precipitation. Both Billings and Missoula, Montana received only trace precipitation, their driest Septembers on records beginning in 1934 and 1893, respectively. At Missoula, it was only the second time in the station's history that any month in the year received no measurable precipitation. Sheridan, Wyoming also recorded only trace precipitation in September tying the driest on record. Beginning the 11th of August, 51 consecutive days passed at Sheridan without measurable precipitation, the longest dry period in a record beginning in 1920. In Washington, Spokane, Bellingham, and Olympia all set or tied their driest September on record. Dry conditions also dominated Hawaii, where Lihue, Kauai, received only 35% of its normal September rainfall. Precipitation at Lihue has been below average nine of eleven months of the current water year.

- Northwest Fires: With dry fuels, high temperatures, and low relative humidity prevailing throughout the month, many large wildfires ignited or grew throughout September. Smoke from the fires lead to poor air quality in eastern Washington and Oregon, northern Idaho, western Montana, and Northern California. One of the largest, at 339,110 acres (137,233 hectares) by month's end, was the Mustang Fire on the Idaho-Montana border. The North Pass Fire, 10 miles northeast of Covelo, CA has burned 41,983 acres (16,990 hectares) and consumed 26 structures. The national average of large fire events for 2012 remains at 77% of the 10-year average, while acreage burned this year is at 129% of the recent average.

- September 11: Las Vegas area flooding: A band of thunderstorms brought heavy precipitation to the Las Vegas Valley and surrounding areas. Flooding closed roads, swamped cars, damaged homes and businesses, and resulted in one fatality. Flood damages in Las Vegas are estimated at $75 million. Southwest Utah, northeastern Arizona, and southeastern California also experienced heavy precipitation and damaging flash floods.

For more information, please go to the Western Regional Climate Center Home Page.

See NCDC's Monthly Records web-page for weather and climate records for the most recent month. For additional national, regional, and statewide data and graphics from 1895-present, for any period, please visit the Climate at a Glance page.

PLEASE NOTE: All of the temperature and precipitation ranks and values are based on preliminary data. The ranks will change when the final data are processed, but will not be replaced on these pages. Graphics based on final data are provided on the Temperature and Precipitation Maps page and the Climate at a Glance page as they become available.

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