



NCDC Climate Extremes



Questions

1. Chicago is known as the “Windy City”; is it the windiest city in the contiguous United States?
2. How expensive was the severe winter weather of 1996 to the United States?
3. Where did the greatest measured one-minute rainfall occur?
How much rain fell?
4. On fair, sunny days, I feel good. Does the weather really have any influence on my health?
5. If all the earth’s current land ice melted, what effect would the melting have on sea level?
6. What is the largest temperature change recorded in a 24 hour period?
7. What is the world’s highest temperature? Lowest temperature?
8. What is the maximum 24 hour snowfall in United States?
When and where did the maximum seasonal snowfall occur?
9. Where did the largest hail fall?
10. Where is the highest average annual precipitation in the United States?

| Highest Temperature Extremes | | | | | |
|--|------------------|------------------------------|------------------------------------|-------------------------|-------------|
| <i>Locator #</i> | <i>Continent</i> | <i>Highest Temp. (deg F)</i> | <i>Place</i> | <i>Elevation (Feet)</i> | <i>Date</i> |
| 1 | Africa | 136 | El Azizia, Libya | 367 | 13 Sep 1922 |
| 2 | North America | 134 | Death Valley, CA (Greenland Ranch) | -178 | 10 Jul 1913 |
| 3 | Asia | 129 | Tirat Tsvi, Israel | -722 | 22 Jun 1942 |
| 4 | Australia | 128 | Cloncurry, Queensland | 622 | 16 Jan 1889 |
| 5 | Europe | 122 | Seville, Spain | 26 | 4 Aug 1881 |
| 6 | South America | 120 | Rivadavia, Argentina | 676 | 11 Dec 1905 |
| 7 | Oceania | 108 | Tuguegarao, Philippines | 72 | 29 Apr 1912 |
| 8 | Antarctica | 59 | Vanda Station, Scott Coast | 49 | 5 Jan 1974 |
| Lowest Temperature Extremes | | | | | |
| <i>Locator #</i> | <i>Continent</i> | <i>Lowest Temp. (deg F)</i> | <i>Place</i> | <i>Elevation (Feet)</i> | <i>Date</i> |
| 9 | Antarctica | -129 | Vostok | 11220 | 21 Jul 1983 |
| 10a | Asia | -90 | Oimekon, Russia | 2625 | 6 Feb 1933 |
| 10b | Asia | -90 | Verkhoyansk, Russia | 350 | 7 Feb 1892 |
| 11 | Greenland | -87 | Northice | 7687 | 9 Jan 1954 |
| 12 | North America | -81.4 | Snag, Yukon, Canada | 2120 | 3 Feb 1947 |
| 13 | Europe | -67 | Ust'Shchugor, Russia | 279 | January @ |
| 14 | South America | -27 | Sarmiento, Argentina | 879 | 1 Jun 1907 |
| 15 | Africa | -11 | Ifrane, Morocco | 5364 | 11 Feb 1935 |
| 16 | Australia | -9.4 | Charlotte Pass, NSW | 5758 | 29 Jun 1994 |
| 17 | Oceania | 12 | Mauna Kea Observatory ,HI | 13,773 | 17 May 1979 |
| @ Exact date unknown, lowest in 15-year period | | | | | |

| Highest Average Annual Precipitation Extremes | | | | | |
|--|------------------|------------------------------|----------------------------------|-------------------------|------------------------|
| <i>Locator #</i> | <i>Continent</i> | <i>Highest Avg. (Inches)</i> | <i>Place</i> | <i>Elevation (Feet)</i> | <i>Years of Record</i> |
| 18a | South America | 523.6 ! ^ | Lloro, Colombia | 520 * | 29 |
| 19 | Asia | 467.4 ! | Mawsynram, India | 4597 | 38 |
| 20 | Oceania | 460.0 ! | Mt. Waialeale, Kauai, HI | 5148 | 30 |
| 21 | Africa | 405.0 | Debundscha, Cameroon | 30 | 32 |
| 18b | South America | 354.0 ^ | Quibdo, Colombia | 120 | 16 |
| 22 | Australia | 340.0 | Bellenden Ker, Queensland | 5102 | 9 |
| 23 | North America | 256.0 | Henderson Lake, British Columbia | 12 | 14 |
| 24 | Europe | 183.0 | Crkvice, Bosnia-Herzegovina | 3337 | 22 |

! The value given is continent's highest and possibly the world's depending on measurement practices, procedures and period of record variations.
^ The official greatest average annual precipitation for South America is 354 inches at Quibdo, Colombia. The 523.6 inches average at Lloro, Colombia [14 miles SE and at a higher elevation than Quibdo] is an estimated amount.
* Approximate elevation

| Lowest Average Annual Precipitation Extremes | | | | | |
|---|------------------|-----------------------------|---------------------------------------|-------------------------|------------------------|
| <i>Locator #</i> | <i>Continent</i> | <i>Lowest Avg. (Inches)</i> | <i>Place</i> | <i>Elevation (Feet)</i> | <i>Years of Record</i> |
| 25 | South America | 0.03 | Arica, Chile | 95 | 59 |
| 26 | Africa | <0.1 | Wadi Halfa, Sudan | 410 | 39 |
| 27 | Antarctica | 0.8 ~ | Amundsen-Scott South | 9186 | 10 |
| 28 | North America | 1.2 | Batagues, Mexico | 16 | 14 |
| 29 | Asia | 1.8 | Aden, Yemen | 22 | 50 |
| 30 | Australia | 4.05 | Mulka (Troudantinna), South Australia | 160 * | 42 |
| 31 | Europe | 6.4 | Astrakhan, Russia | 45 | 25 |
| 32 | Oceania | 8.93 | Puako, Hawaii, HI | 5 | 13 |

~ The value given is the average amount of solid snow accumulating in one year as indicated by snow markers. The liquid content of the snow is undetermined.
* Approximate elevation

Answers

1. Although known as the wind city, Chicago's average annual wind speed is 10.3 mph while Blue Hill, Mass. is 15.2 mph. Climatological data for cities throughout the U.S. is compiled by the NCDC and appears in the publication Comparative Climatic Data for the United States.
2. Approximately \$3.5 billion damage costs and 187 deaths from the Blizzard of '96 followed by flooding, January 1996. The very heavy snowstorm which dumped 1-4 feet of snow over the Appalachians, Mid-Atlantic, and Northeast, was followed by severe flooding in parts of same area due to rain and snowmelt. Assessments of Weather impacts on the economy are products of the NCDC.
3. The greatest, measured one-minute rainfall occurred at Unionville, Maryland on July 4, 1956; 1.23" of rain was measured.
4. Yes, change in atmospheric pressure, temperature, and humidity affect the body and your sense of well being. Temperature and relative humidity can be used to compute the heat index. Temperature and wind-speed can be used to calculate windchill. The Air Quality Index and UV Index are other forecasts associated with weather conditions.
5. The average sea level would rise by 77 meters (252.6 feet). Depending upon the distribution of this added water, Auburn, ME, Richmond, Va, Florence, S.C, Albany, Ga, Shreveport, La, Lufkin, Tx, and Santa Maria, Ca could become the new coastal cities if this should occur.
6. The largest temperature change of 103° F in 24 hours occurred in Loma, Montana. Temperature, wind and precipitation extremes are some examples of data available from the NCDC.
7. The world's highest recorded temperature is 58° C or 136° F, observed at El Azizia, Libya. The lowest is - 89° C or - 129° F, recorded at Vostok, Antarctica.

Answers

8. The maximum 24 hour snowfall is 75.8 inches and it occurred on April 14-15, 1921 in Silver Lake, Colorado.

9. The largest hailstone ever collected and measured is 7" in diameter and 18 3/4" in circumference. It fell on June 22, 2003 in Aurora, Nebraska.

10. The maximum annual precipitation occurred in 1982 in Ku Kui, Hawaii. The existing record is 704.83 inches.

N.C. Standard Course of Study and Grade Level Competencies

Grade K—Competency Goal 2

The learner will make observations and build an understanding of weather concepts.

Objectives

2.02 Identify different weather features including:

Precipitation

Wind

Temperature

Cloud Cover

Grade 2—Competency Goal 2

The learner will conduct investigations and use appropriate tools to build an understanding of the changes in weather.

Objectives

2.03 Describe weather using quantitative measure of:

Temperature

Wind Direction

Wind Speed

Precipitation

Grade 5—Competency Goal 3

The learner will conduct investigations and use appropriate technology to build an understanding of weather and climate.

Objectives

3.02 Discuss and determine how the following are affected by predictable patterns of weather:

Temperature

Wind Direction and Speed

Precipitation

Cloud Cover

Air Pressure

3.05 Compile and use weather data to establish a climate record and reveal any trends.

3.06 Discuss and determine the influence of geography on weather and climate:

Mountains

Sea Breezes

Water Bodies