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ZOOM in on america

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Weather Extremes

In this issue: Weather Extremes Zoom in on America

Icicles cling to strawberries at Parkesdale Farms in Plant City, Florida, Monday, January 24, 2005, as temperatures overnight in the area dipped into the upper 20's. (photo AP Images)

Weather Across the U.S.

One of the greatest assets of the state of Florida is its mild and sunny climate. These are average annual temperatures which range from 65° to 70°F (18° to 21°C) in the north, and from 74° to 77°F (23° to 25°C) in the southern peninsula that make Florida a major tourist center and a retirement home for millions of Americans from across the country. High humidity and abundant rainfall in addition to high temperatures create a good climate for growing citrus fruits such oranges (orange juice is the official state beverage), tangerines, and grapefruit, as well as tomatoes and strawberries. Agriculture is one of the pillars of the state's economy. Every now and then, however, freezing jeopardizes this economy (see the cover photo). What can farmers do? To protect their fruit they spray water on them to keep their temperature as close to 32°F (0°C) as possible and prevent the fruit from being damaged.

Weather extremes can occur in every climate zone and extreme temperatures are just one example of weather abnormalities. Spring 2011 was a spring to remember, with America pummeled by tornadoes, floods, wildfire, snowmelt, thunderstorms and drought. Weather researchers said that, while similar extremes have occurred throughout modern American history, never before had they occurred in a single month.

Extreme Heat

The highest temperature ever recorded, not only in the United States but in the entire Western Hemisphere, was in Death Valley in California. On July 10, 1913, the temperature rose to an unbelievable 134°F (58°C). This measurement was taken at Greenland Ranch (now Furnace Creek) by caretaker and weather observer Oscar Denton, who reported the event in these words:

It was so hot that swallows in full flight fell to the earth dead. When I went out to read the thermometer with a wet Turkish towel on my head, it was dry before I returned.

Temperatures of 128 and 129°F (53,8 and 53,9°C) were recorded in Death Valley on other occasions, usually during the month of June or July. Generally, the region most susceptible to extreme heat in the United States stretches from Palm Springs to Phoenix and includes lower elevations of the Mojave Desert. The cities located in the area include Phoenix, Yuma, Palmdale, and Palm Springs.

The places above are hot as well as dry, but they are not among the cities in the United States with the highest year-round average temperature. Florida and Hawaii are the two states that divide between them the 17 American cities with average annual temperatures exceeding 77°F (25°C).

Extreme Cold

On the other end of the temperature spectrum, the reading of -80°F (-62°C) recorded on January 23, 1971 at Prospect Creek Camp near the Arctic Circle in Alaska is the lowest temperature ever recorded in the United States. The lowest temperature ever recorded in the lower 48 states of the US is 10°F warmer, which still is very, very cold. The coldest temperature recorded in the lower states was -70°F (-56.7°C) on January 20, 1954 at Rogers Pass, Montana. States such as Utah, Wyoming, Colorado, Idaho, Minnesota, North Dakota, South Dakota, Wisconsin, Oregon, New York, Michigan, Vermont, Maine, New Mexico, New Hampshire, and Nevada have all recorded temperatures of at least -50°F (-45°C).

It is not surprising that the place in the U.S. with the coldest average annual temperature is in Alaska. Its north coast, along the Beaufort Sea, has an average annual temperature of around 12°F (-11°C). Outside of Alaska, the peak of Mount Washington in New Hampshire has the coldest climate over the year with average temperature of 27.4°F (-2.6°C). Colorado, Wyoming, Utah and Montana also are home to some of the other places with the lowest average annual temperatures.

The place in the United States where the temperatures most often drop below freezing happens to be in one of the warmest states of the country, California. This is the former mining town, Bodie.

Windstorms

Hurricanes, tornadoes and thunderstorms are all related but different weather phenomena. Hurricanes occur when a wet mass of air over the sea evaporates. The central part of a hurricane is called the eye, which can measure 20-30 miles (32-48 km) in width, and around which large, tropical low pressure systems spin counterclockwise (in the Northern Hemisphere). A hurricane may extend over an area of 400 miles (644 km) and must have maximum sustained winds of at least 74 mph (119 kph). Common effects of hurricanes are thunderstorms which in turn offer an occasion for tornadoes to form as thunderstorms cause instability in the atmosphere. Hurricanes can last over two weeks over open water.

In addition to thunderstorms, hurricanes also frequently produce floods. While the hurricane can smash everything that lies in its path, the wind can also cause ocean waves to rise over the land, resulting in coastal flooding.

While tornadoes can occur in practically any place, hurricanes most often hit areas located on the shores of the Atlantic and Pacific Oceans, the Caribbean Sea and the Gulf of Mexico. The hurricane season runs from the beginning of June to the end of November. While traveling in storm-prone regions, tourists should monitor local radio and other sources of information such as the National Hurricane Center to know of a possible danger in time. Recent years have seen an increase in the quantity and intensity of hurricanes. In 2005, for instance, there were 28 named storms of which 15 became hurricanes.

Droughts and Wildfires

Drought is caused by below normal precipitation, which in turn results from the persistence of high pressure systems over the drought area. Even though droughts do not produce the instant devastation brought about by tornadoes, tropical storms, or flooding, they can be more damaging than all of the above. Drought is one of



In this August 30, 2005 photo, the Louisiana Superdome in New Orleans is seen in this aerial view, which was damaged by Hurricane Katrina, sits surrounded by floodwaters. (photo AP Images)



Empty shells rest on the cracked bed of a dried lake, the outcome of severe drought, in Waterloo, Nebraska, Tuesday, November 20, 2012. (photo AP Images)

the most costly natural disasters. The American south, including parts of Texas, Oklahoma, Kansas, Colorado, New Mexico, Arizona, Louisiana, Arkansas, Mississippi, Alabama, Georgia, South Carolina, and North Carolina are the areas of the U.S. most susceptible to drought. The main cost of droughts is the loss of crops and livestock. Droughts may also result in wildfires such as

those which have plagued Texas, Arizona, New Mexico and Colorado since 2011.

Drought conditions and hot temperatures may be the cause of wildfires, but, unfortunately, in many cases it is human behavior that is to blame.



Children play and soak in specially designed sprinklers on Avenue L in Council Bluffs, Iowa, Wednesday, June 29, 2005. (photo AP Images)



Pedestrian tries to control his umbrella from the heavy wind in Baltimore downtown as Hurricane Sandy approach in the coast of Maryland, October 29, 2012. (photo AP Images)



Lenny Rose pours water over his head in an effort to cool off from the extreme high temperatures, Thursday, July 5, 2012 in Springfield, Illinois. (photo AP Images)



Fred Wilborn is covered in a blanket of snow as he walks on the south side of Chicago, Tuesday, February 6, 2007. Thousands of youngsters got a second day off from school Tuesday in the midst of a bitter cold snap that combined with heavy snow several feet deep along the Great Lakes. (photo AP Images)



Pedestrians reach for the misters as they walk down the main shopping area of Palm Springs, California, Thursday, July 5, 2007. Southern California's farming areas and deserts baked in triple-digit heat on Thursday as authorities opened cooling shelters for the elderly. (photo AP Images)



People walk through sand that washed up from the beach and onto Route 35 during superstorm Sandy, Wednesday, October 31, 2012, in Lavallette, New Jersey. Sandy, the storm that made landfall Monday, caused multiple fatalities, halted mass transit and cut power to more than 6 million homes and businesses. (photo AP Images)



A few dozen people take refuge from Hurricane Sandy at a Red Cross shelter, Monday, October 29, 2012, in Deer Park, New York. (photo AP Images)



A vehicle drives on a flooded street in the wake of superstorm Sandy on Tuesday, October 30, 2012, in Little Ferry, New Jersey. (photo AP Images)



In this April 27, 2011 file photo, a tornado moves through Tuscaloosa, Alabama. (photo AP Images)

How to Get an Early Warning

FEMA (the Federal Emergency Management Agency) coordinates the federal government's role in preparing for, preventing, mitigating the effects of, responding to, and recovering from all domestic disasters, whether natural or man-made. It traces its beginnings to the Congressional Act of 1803. This Act provided assistance to a New Hampshire town following an extensive fire. In the 20th century legislation was passed more than 100 times in response to hurricanes, earthquakes, floods and other natural disasters. FEMA was established in response to a number of massive natural disasters in the 1960s and early 1970s: Hurricane Carla in 1962, Hurricane Betsy in 1965, Hurricane Camille in 1969 and Hurricane Agnes in 1972, as well as the Alaskan Earthquake which hit in 1964 and the San Fernando Earthquake in Southern California in 1971.

Early Warning Systems were established to help people prepare and cope with natural disasters

and extreme weather.

The National Integrated Drought Information System (NIDIS) established in 2006 aims at informing society about the potential impact of droughts, the risks they bring, and ways to prepare and mitigate their effects.

Flood Watches and Warnings are compiled by the National Oceanic and Atmospheric Administration (NOAA). This information is used to try to respond not only to the most typical type of slowly developing floods but to the so called flash floods which can occur within a few minutes, sometimes a long way away from their source.

It is of great importance for the inhabitants of the hurricane states as well as for tourists who visit these areas in hurricane season to receive a timely warning. That is where FEMA and NOAA come in to service.



An unidentified person is all bundled up in Lincoln, Nebraska, Thursday, January 15, 2009, as extreme cold weather blanketed the region. (photo AP Images)



Ali pants after coming indoors Wednesday August 3, 2011 in Fort Smith, Arkansas. Fort Smith reached 115 degrees, breaking its all-time high. (photo AP Images)



Angelika Szygula tries to control her umbrella from strong winds as she walks to work at City Hall, Wednesday, December 9, 2009, in Racine, Wisconsin. Winds were reported gusting to 25 mph. (photo AP Images)



A family is cooling off on Monday, July 11, 2011, at Attucks Splash Park in Carbondale, Illinois. (photo AP Images)



An ice climber takes advantage of the extreme cold snap to climb in Harts Location, New Hampshire, Tuesday, February 6, 2007. (photo AP Images)