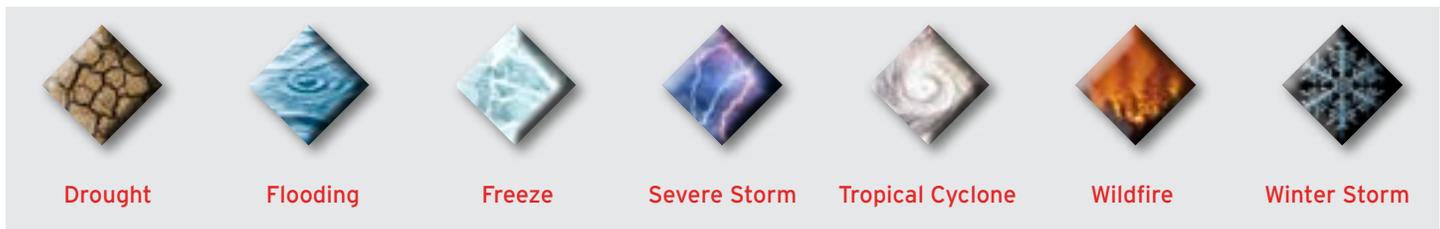


U.S. Billion-Dollar Weather & Climate Disasters 2021-2017

The U.S. has sustained 86 weather and climate disasters since 2017 in which overall damages/costs reached or exceeded \$1 billion. Values in parentheses represent the 2021 Consumer Price Index cost adjusted value (if different than original value). The total cost of these 86 events exceeds \$678 billion.

LEGEND



2021

20 Events • \$141.0B (\$145.0B) in Damages/Cost



Western Wildfires ♦ Wildfire ♦ \$10.4B (\$10.6B)

2021: Severe drought conditions and periods of extreme heat provided conditions favorable for another damaging western wildfire season most focused across California, Colorado, Oregon, Washington, Idaho, Montana and Arizona. The Dixie Fire consumed over 960,000 acres making it the second-largest wildfire on record in California while also destroying more than 1,000 structures. Other larger fires included California's Caldor Fire, the Ford Corkscrew Fire (Washington), the Bootleg Fire (Oregon), the Boundary Fire (Idaho), the Trail Creek Fire (Montana) and the Telegraph Fire (Arizona), and the Marshall Fire, which is the most destructive on record in Colorado.



Western Drought and Heat Wave ♦ Drought ♦ \$8.4B (\$8.9B)

2021: Western drought conditions were persistent throughout 2021, as the drought expanded and intensified across many Western states. This combined drought and heat rapidly dried out vegetation across the West, impacting agriculture. Low water levels also forced the hydroelectric power plant at Lake Oroville in California to shut down for the first time since it opened in 1967.



Midwest Derecho and Tornado Outbreak ♦ Severe Storm ♦ \$1.8B

December 2021: A rare, record-breaking December derecho and tornado outbreak caused widespread damage that was focused across Kansas, Nebraska, Iowa, Minnesota and Wisconsin.



Southeast, Central Tornado Outbreak ♦ Severe Storm ♦ \$3.9B

December 2021: Historic December tornado outbreak across several southeast and central states caused devastating damage across many towns and cities. This outbreak produced two long-tracked EF-4 tornadoes across Arkansas, Missouri, Tennessee and Kentucky. The longest tornado track was nearly 166 miles across Kentucky and a small portion of Tennessee. This was the longest-tracked tornado on record in Kentucky and was a U.S. record tornado track length for the month of December.



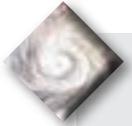
Hurricane Nicholas ♦ Tropical Cyclone ♦ \$1.0B

September 2021: Category 1 Hurricane Nicholas made landfall near Sargent Beach, Texas on September 14 and moved slowly toward Louisiana over the next several days. This slow progression helped to produce flooding rainfall across regions of the Gulf Coast that were already saturated from Hurricane Ida.



Hurricane Ida ♦ Tropical Cyclone ♦ \$73.6B (\$75.0B)

August 2021: Category 4 Hurricane Ida made landfall near Port Fourchon, Louisiana with maximum sustained winds of 150 mph (240km/h) and a minimum central pressure of 930 mb. There was heavy damage to the energy infrastructure across southern Louisiana causing widespread, long duration power outages to millions of people. Parts of New Orleans were without power for nearly a week due to the widespread damage. As the remnants of Ida moved into the Northeast it merged with a frontal system creating severe weather and flash flooding across a wide region from eastern Pennsylvania to New York. Flash flood emergencies were declared in New Jersey and New York for the first time, producing damage to homes, businesses, vehicles and infrastructure while also causing dozens of fatalities.



Tropical Storm Fred ♦ Tropical Cyclone ♦ \$1.3B

August 2021: Tropical Storm Fred made landfall near Panama City, Florida. As Fred progressed northward it caused torrential flooding across the southern Appalachian Mountains with more than a foot of rainfall reported in some locations of western North Carolina. This flash flooding caused damage to many homes, businesses, vehicles, roads and bridges, in addition to several fatalities. Fred also produced nearly a dozen tornadoes across the Northeast as it moved up the East Coast.



North Carolina Severe Weather ♦ Severe Storm ♦ \$1.3B

August 2021: Widespread high wind impacts across numerous North Central states including Illinois, Michigan, Wisconsin, Indiana, Ohio and Missouri. This multi-day event caused damage to infrastructure, homes, vehicles and businesses.



Central Severe Storms ♦ Severe Storm ♦ \$1.1B

July 2021: Severe storms caused considerable hail damage across numerous Central states including Missouri, Nebraska, Iowa, South Dakota, North Dakota, New Mexico and Texas. There was also widespread high wind damage to homes, vehicles and businesses in many other surrounding states.



Tropical Storm Elsa ♦ Tropical Cyclone ♦ \$1.2B

July 2021: Tropical Storm Elsa made landfall in Taylor County, Florida producing heavy rain, wind, flooding and tornadoes in portions of Florida, Georgia and the Carolinas, as well as flooding across parts of the Northeast. Southern New England and New York's Long Island experienced flash flooding, leading to impassable roads, stranded vehicles and disruption. Elsa was the earliest fifth-named storm on record.



Central Severe Storms ♦ Severe Storm ♦ \$1.31B

June 2021: A combination of thunderstorm high winds, hail and tornadoes affected numerous Central states. The states most affected included Michigan, Illinois, Indiana, Ohio, Missouri, Kansas and Texas with damage to homes, businesses, vehicles and agriculture.



Ohio Valley Hail Storms ♦ Severe Storm ♦ \$1.7B

June 2021: Damaging hail storm and high wind impacts across several states including Ohio, Illinois, Indiana, Michigan, Wisconsin, Minnesota, Iowa and Missouri. The hail impacts were most severe in southeastern Minnesota, southern Iowa, southeastern Indiana and southwestern Ohio, with damage to many homes, vehicles and businesses.



Louisiana Flooding ♦ Flooding ♦ \$1.3B (\$1.4B)

May 2021: Torrential rainfall from thunderstorms across Louisiana and coastal Texas caused widespread flooding and resulted in hundreds of water rescues. Baton Rouge and Lake Charles experienced flood damage to thousands of homes, vehicles and businesses, as more than 12 inches of rain fell. Lake Charles also continues to recover from the widespread damage caused by Hurricanes Laura and Delta less than 9 months before this flood event.



Southern Tornadoes and Southeast Severe Weather ♦ Severe Storm ♦ \$1.3B

May 2021: Tornadoes and severe storms with widespread high wind and large hail cause damage across many Southern and Southeastern states including Mississippi, Texas, Arkansas, Alabama, Georgia, South Carolina, North Carolina, and Tennessee. There were over 111 confirmed tornadoes largely clustered in central Mississippi and surrounding states.



Texas and Oklahoma Severe Weather ♦ Severe Storm ♦ \$3.1B (\$3.3B)

April 2021: Severe weather including tornadoes, high wind, localized flooding and large hail cause widespread impacts across central Texas and Oklahoma. There was considerable damage across Texas and Oklahoma to many homes, vehicles and businesses particularly from hail storms. Several of the more impacted areas include west of San Antonio, north of Fort Worth, and southwest of San Marcos.



Texas Hail Storms ♦ Severe Storm ♦ \$1.5B

April 2021: A series of hail storms impacted central Texas causing damage to many homes, vehicles and businesses. There was considerable hail damage northeast of Austin, west of Georgetown and southwest of The Woodlands.



Eastern Severe Weather ♦ Severe Storm ♦ \$1.3B (\$1.4B)

March 2021: Severe weather producing hail, high wind and more than two dozen tornadoes impacted numerous states including Arkansas, Alabama, Georgia, Mississippi, South Carolina, North Carolina and Virginia. Tennessee was also affected with significant flooding in Nashville and surrounding areas that damaged businesses, homes and vehicles. There were also many high wind damage reports across Pennsylvania, Maryland and New Jersey.



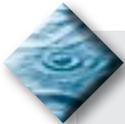
Southeast Tornadoes and Severe Weather ♦ Severe Storm ♦ \$1.7B (\$1.8B)

March 2021: At least 41 tornadoes impact several states including Kentucky, Tennessee, Mississippi, Alabama and Georgia. These included one EF-4, four EF-3s, ten EF-2s and approximately two-dozen EF-1 or EF-0 tornadoes. The strongest of these tornadoes were focused across central Alabama and western Georgia with tracks across the entire width of Alabama. There was widespread damage to homes, businesses, vehicles and infrastructure.



Northwest, Central, Eastern Winter Storm and Cold Wave ♦ Winter Storm ♦ \$22.7B (\$24.0B)

February 2021: Historic cold wave and winter storm impacts many northwest, central and eastern states. Temperature departures exceeding 40.0 degrees F (22.2 degrees C) below normal occurred from Nebraska southward to Texas. The prolonged arctic air caused widespread power outages in Texas, as well as other southern states, with multiple days of sustained below-freezing temperatures. At the peak of the outage, nearly 10 million people were without power. Additional impacts were frozen water pipes, which burst upon thawing causing water damage to buildings. There were also snow and ice impacts across numerous states including Oklahoma, Arkansas, Missouri, Illinois, Kentucky, Tennessee, Louisiana, Mississippi, Colorado, Oregon and Washington. This is now the costliest U.S. winter storm event on record, more than doubling the inflation-adjusted cost of the 'Storm of the Century' that occurred in March 1993.



California Flooding and Severe Weather ♦ Flooding ♦ \$1.1B (\$1.2B)

January 2021: California was impacted by an atmospheric river in late-January, in which more than 7 inches of rain fell from southern California to the central California coast. Rainfall totals exceeded 15 inches in Monterey and San Luis Obispo counties. These heavy rains caused flooding and mudslides in some of the same areas burned by wildfires in late-2020.

2020

22 Events • \$95.3B (\$102.0B) in Damages/Cost



Western Wildfires - California, Oregon, Washington Firestorms

Wildfire
\$16.5B (\$17.6B)



Western/Central Drought and Heat Wave

Drought
\$4.5B (\$4.8B)



Tropical Storm Eta

Tropical Cyclone
\$1.5B (\$1.6B)



Hurricane Zeta

Tropical Cyclone
\$4.4B (\$4.7B)



Hurricane Delta

Tropical Cyclone
\$2.9B (\$3.1B)



Hurricane Sally

Tropical Cyclone
Damages/Cost: \$7.3B (\$7.8B)



Hurricane Laura

Tropical Cyclone
\$19.0B (\$20.3B)



Central Severe Weather - Derecho

Severe Storm
\$11.0B (\$11.8B)



Hurricane Isaias

Tropical Cyclone
\$4.8B (\$5.1B)



Hurricane Hanna

Tropical Cyclone
\$1.1B (\$1.2B)



Central Severe Weather

Severe Storm
\$1.2B (\$1.3B)



South Texas Hail Storms

Severe Storm
\$1.4B (\$1.5B)



South, Central and Eastern Severe Weather

Severe Storm
\$1.6B (\$1.7B)



Central and Eastern Severe Weather

Severe Storm
\$2.1B (\$2.3B)



Central, Southern and Eastern Severe Weather

Severe Storm
\$1.0B (\$1.1B)



Southern Severe Weather

Severe Storm
\$1.4B (\$1.5B)



Southeast and Eastern Tornado Outbreak

Severe Storm
\$3.4B (\$3.7B)



North Central and Ohio Valley Hail Storms and Severe Weather

Severe Storm
\$2.9B (\$3.1B)



Midwest and Ohio Valley Severe Weather

Severe Storm
\$2.6B (\$2.8B)



Tennessee Tornadoes and Southeast Severe Weather

Severe Storm
\$2.3B (\$2.5B)



South, East and Northeast Severe Weather

Severe Storm
\$1.3B



Southeast Tornadoes and Northern Storms and Flooding

Severe Storm
\$1.1B (\$1.2B)

2019

14 Events • \$44.7B (\$48.9B) in Damages/Cost



California and Alaska Wildfires

Wildfire
\$4.5B (\$4.9B)



Texas Tornadoes and Central Severe Weather

Severe Storm
\$1.7B (\$1.9B)



Tropical Storm Imelda

Tropical Cyclone
\$5.0B (\$5.4B)



Hurricane Dorian

Tropical Cyclone
\$1.6B (\$1.7B)



Mississippi River, Midwest and Southern Flooding

Flooding
\$6.2B (\$6.7B)



Colorado Hail Storms

Severe Storm
\$1.0B (\$1.1B)



Arkansas River Flooding

Flooding
\$3.0B (\$3.3B)



Rockies, Central and Northeast Tornadoes and Severe Weather

Severe Storm
\$4.5B (\$4.9B)



Central Severe Weather

Severe Storm
\$1.0B (\$1.1B)



South and Southeast Severe Weather

Severe Storm
\$1.5B (\$1.7B)



Southern and Eastern Tornadoes and Severe Weather

Severe Storm
\$1.3B (\$1.4B)



Missouri River and North Central Flooding

Flooding
\$10.7B (\$11.7B)



Texas Hail Storm

Severe Storm
\$1.5B (\$1.7B)



Southeast, Ohio Valley and Northeast Severe Weather

Severe Storm
\$1.2B (\$1.4B)

2018

14 Events • \$90.9B (\$100.1B) in Damages/Cost



Western Wildfires, California Firestorm

Wildfire
\$24.0B (\$26.4B)



Southwest/Southern Plains Drought

Drought
\$3.0B (\$3.3B)



Hurricane Michael

Tropical Cyclone
\$25.0B (\$27.5B)



Hurricane Florence

Tropical Cyclone
\$24.0B (\$26.4B)



Rockies and Plains Hail Storms

Severe Storm
\$1.0B (\$1.1B)



Central and Eastern Tornadoes and Severe Weather

Severe Storm
\$1.6B (\$1.7B)



Colorado Hail Storm

Severe Storm
\$2.2B (\$2.4B)



Texas Hail Storm

Severe Storm
\$1.3B (\$1.4B)



Central and Eastern Severe Weather

Severe Storm
\$1.4B (\$1.5B)



Central and Northeastern Severe Weather

Severe Storm
\$1.4B (\$1.6B)



Southern and Eastern Tornadoes and Severe Weather

Severe Storm
\$1.3B (\$1.5B)



Southeastern Tornadoes and Severe Weather

Severe Storm
\$1.5B (\$1.6B)



Northeast Winter Storm

Winter Storm
\$2.2B (\$2.5B)



Central and Eastern Winter Storm

Winter Storm
\$1.0B (\$1.2B)

2017

16 Events • \$306.2B (\$346.1B) in Damages/Cost



Western Wildfires, California Firestorm

Wildfire
\$18.0B (\$20.3B)



North Dakota, South Dakota and Montana Drought

Drought
\$2.5B (\$2.8B)



Hurricane Maria

Tropical Cyclone
\$90.0B (\$101.7B)



Hurricane Irma

Tropical Cyclone
\$50.0B (\$56.5B)



Hurricane Harvey

Tropical Cyclone
\$125.0B (\$141.3B)



Midwest Severe Weather

Severe Storm
\$1.4B (\$1.6B)



Midwest Severe Weather

Severe Storm
\$1.5B (\$1.7B)



Minnesota Hail Storm and Upper Midwest Severe Weather

Severe Storm
\$2.4B (\$2.7B)



Colorado Hail Storm and Central Severe Weather

Severe Storm
\$3.4B (\$3.8B)



Missouri and Arkansas Flooding and Central Severe Weather

Flooding
\$1.7B (\$1.9B)



South/Southeast Severe Weather

Severe Storm
\$2.7B (\$3.1B)



Southeast Freeze

Freeze
\$1.0B (\$1.1B)



Midwest Tornado Outbreak

Severe Storm
\$2.2B (\$2.5B)



Central/Southeast Tornado Outbreak

Severe Storm
\$1.8B (\$2.1B)



California Flooding

Flooding
\$1.5B (\$1.7B)



Southern Tornado Outbreak and Western Storms

Severe Storm
\$1.1B (\$1.3B)