

Weekly Cat Report

July 3, 2020

This Week's Natural Disaster Events



Event	Impacted Areas	Fatalities	Damaged Structures and/or Filed Claims	Preliminary Economic Loss (USD)*	Page
Wildfires	United States	1+	40+	Millions	3
Severe Weather	United States	0	Hundreds	Millions	4
Flooding	India, Bangladesh	36+	Thousands	10s of Millions	5
Flooding	China	90+	190,000+	3.9+ billion	7
Severe Weather	Central Europe	0	Hundreds	10s of Millions	7
Severe Weather	Brazil	10+	Hundreds	Millions	7

*Please note that these estimates are preliminary and subject to change. In some instances, initial estimates may be significantly adjusted as losses develop over time. This data is provided as an initial view of the potential financial impact from a recently completed or ongoing event based on early available assessments.

Along with this report, we continue to welcome users to access current and historical natural catastrophe data and event analysis on Impact Forecasting's Catastrophe Insight website: <u>http://catastropheinsight.aon.com</u>

Wildfires expand in southwestern U.S.

Strong and gusty winds, low relative humidity, and prolonged stretches of above average temperatures have contributed to enhanced fire weather conditions over large portions of the southwestern United States so far this season. As of July 2, The National Interagency Fire Center (NIFC) reported 23 large active wildfires across the continental United States which burned 579,013 acres. Arizona, Nevada, and Utah each have five ongoing large wildfires. Most impactful was a brush fire in Imperial County, California which destroyed at least 40 homes and resulted in one fatality on June 28-29.

Event Details

A brush fire in Imperial County, California near the town of Niland (east of the Salton Sea) rapidly expanded due to high winds in the evening and overnight hours on June 28. The Imperial County Fire Department reported the evacuation of the entire township of Niland, with a population of around 1,000, due to imminent danger from the encroaching fire. According to local officials, the threealarm brush fire was responsible for one death and destroyed at least 40 homes. The fire was contained by the morning of June 29, with the cause still under investigation. Earlier in June, the Nelson Fire in Northern California, which burned 95 acres in Butte County, destroyed three homes and damaged two others near the town of Thermalito on June 17.



In Arizona, the Bush Fire which began on June 13 in the Tonto National Forest, northeast of Mesa, burned 193,455 acres (78,288 hectares) and was 98 percent contained as of June 30, making it the 5th largest wildfire in state history. The human caused wildfire resulted in the closure of surrounding roadways as well recreational areas such as Sugarloaf and Four Peaks along with the Tonto National Monument. Evacuation orders were issued for several local communities; however, no structural damage has been reported as of this writing. In Utah, the 70,443-acre (28,507-hectare) Canal Fire in Millard County, initially sparked by a lightning strike, broke past fire control lines on June 28 due to erratic and gusty winds. According to local officials, the fire has impacted outbuildings and is threatening structures.

Southwesterly flow and low humidity, along with expanding drought conditions are expected to persist across the Great Basin and portions of the southwestern United States in the coming days, maintaining an enhanced risk for fire weather.

Financial Loss

Total economic losses from the Imperial County (California) brush fire are expected to reach into the millions (USD). Enhanced fire weather conditions can create rapid and erratic fire behavior and will be closely monitored in the coming weeks.

Severe weather impacts the Midwest, Great Plains

Severe weather associated with a compact area of low pressure swept across parts of the Upper Mississippi Valley and Great Lakes on June 26 and 27. Additional storms were noted on the tail end of a quasi-stationary front extending back into the Rockies. Widespread shower and thunderstorm activity resulted in hundreds of reports of straight-line winds, large hail, and isolated flash flooding. Total economic and insured losses were likely to reach into the millions (USD).

Meteorological Recap



An eastward propagating mesoscale convective vortex (MCV), and southwestward extending surface cold frontal boundary allowed for the development of severe weather focused across the upper Mississippi Valley and Great Lakes on June 26. The Storm Prediction Center (SPC) issued an Enhanced Risk (level 3 out of 5) for severe weather along an axis spanning from east-central Iowa, through southern Wisconsin and Northern Illinois and into southern Michigan, within a broader region of Slight Risk (level 2 out of 5). The severe threat was enhanced by ample northward moisture transport from the western Gulf of Mexico that allowed relatively notable atmospheric destabilization.

Several rounds of showers and storms affected the region throughout the day, with more organized convective activity occurring as the frontal boundary approached in the evening hours. Severe storm clusters and linear segments brought reports of high winds, with gusts approaching and exceeding 60 to 70 mph (97 to 112 kph), along with prolonged periods of heavy rainfall. The greatest impacts occurred across portions of Illinois, Indiana, Michigan, and Ohio. Instances of severe weather and storms were also observed further west along the quasi-stationary frontal boundary, extending from the Great Lakes southwestward toward Colorado. Severe storms spanning portions of eastern Colorado and the Great Plains, some of which displayed superstellar characteristics, brought reports of large and significant hail (greater than or equal to 2.0 inches). On June 27, as the frontal boundary slowly drifted southeastward, heavy rainfall produced notable flash flooding across portions of eastern Illinois and northwestern Indiana.

Event Details

There were 174 instances of severe weather reported on June 26, of which 136 were for wind. A maximum wind gust of 80 mph (128 kph) was reported in Buchanan County (Missouri), while wind gusts greater than 70 mph (112 kph) were measured in DuPage, La Salle, and Grundy Counties (Illinois), as well as Graham County (Kansas). Severe wind gusts resulted in damage to utility poles and power lines as well as trees, some of which affected vehicles and structures. In Colorado, baseball sized hail (2.75 inches, 7.0 centimeters) were reported in Logan and Sedgwick Counties, with noted damage to vehicles and windshields. Training storms in eastern Illinois and northwestern Indiana produced 3 to 6 inches (7.6 to 15.2 centimeters) of rainfall between June 26-27, with a station in Benton County (Indiana) reporting a two-day total of 7.01 inches (17.8 centimeters).

Financial Loss

Total economic and insured losses from June 26 to 27 were likely to reach into the millions (USD). Most of the wind and hail-related damage will be covered by insurance. Weekly Cat Report

Flooding in India & Bangladesh as monsoon intensifies

Incessant rains which started on June 22 and continued into July 1, prompted flash floods and landslides causing widespread destruction in 25 districts of Assam and other parts of northeast India. Recent monsoon rains prompted the Brahmaputra River to swell above the severe flood warning level at several locations. Several small- and medium-sized rivers additionally broke their banks and inundated thousands of houses in 2,500 villages across Assam and downstream Bangladesh. Government estimates noted at least 36 fatalities and nearly two million people affected by flooding since June 22. This is an ongoing event, though initial reports suggest that the early economic cost will reach well into the millions (USD).



Meteorological Recap

Onset dates of monsoon over India and Bangladesh (Source: IMD)



Accumulated precipitation (millimeters) from June 22 to 30

Strong convective weather associated with the monsoon onset vortex brought heavy rainfall to northeastern India and Bangladesh on June 14-18. Initial floodwaters receded quickly, only to rise again on June 22, when the second spell of heavy monsoonal rainfall hit the region. It should be noted that the onset of the monsoon in the northeastern parts of India and Bangladesh – that climatologically occurs around June 5 – was delayed by almost a week this season. Rainfall was primarily concentrated along the rain belt in northeastern India from June 22 to July 1. At least 70 districts in the state of Assam, Bihar, Arunachal Pradesh, and Meghalaya received notable precipitation and some instances of severe weather. Heavy flooding caused Brahmaputra River – one of the largest rivers in the world – to swell above the danger mark. The associated flooding resulted in inundation of more than 2,500 villages in Assam, nearly 70 percent of the area of Kaziranga National Park as well as portions of Bangladesh.

Flooding in northeastern parts of India is a part of the annual cycle of precipitation associated with the southwest monsoon that occurs during a period between June 1 – September 30. Spells of heavy monsoonal rainfall regularly claim many lives and cause extensive damage to homes, businesses, infrastructure, and agriculture every year. The India Meteorological Department (IMD) declared that the rainy season had officially begun on June 1 – the climatological date of monsoon onset over India. Rainfall during this season occurs along the cyclonic vortex called "Monsoon Trough" that forms due to convergence of moist winds coming from Arabian Sea and Bay of Bengal. Most of the central, eastern and northeastern states in India have received above normal precipitation during current southwest monsoon season.

The official arrival of south Asian summer monsoon precipitation over the Indian subcontinent is known as onset of Kerala. This is caused by a northward migration of the large-scale organized convection – the Inter Tropical Convergence Zone (ITCZ) – from the Equatorial Indian Ocean to the Indian subcontinent. As the summer season evolves, this large-scale rainfall system that is generally oriented in east-west direction, brings monsoon rainfall to various parts of Indian, Bangladesh, and Pakistan as it propagates northward.

India



Source: Press Trust of India

Episodes of heavy monsoon rainfall swept across the Assam, with accumulated rainfall surpassing 450 millimeters (18 inches) across 25 districts between June 22-30, causing notable inundation damage in the affected areas. According to the Assam State Disaster Management Authority, at least 34 people died and more than 50 others injured. Several others officially remained listed as missing. Many emergencies were reported from the affected area where at least 35,000 people were evacuated to safety by the local disaster authorities. Around 1.65 million people were affected by the recent floods in Assam.

Flooding caused the Brahmaputra River to swell above the danger mark, while several other small- and medium-scale rivers broke their banks, causing widespread inundation damage in more than 2,500 villages and 80,000 hectares (200,000 acres) of crops across the state. According to the India's Central Water Commission, more than 10 river gauge locations in Assam had reached the severe flood mark. A large stretch of river embankments, roads, bridges, and other infrastructure were damaged. With more rain forecast in the coming days, the Brahmaputra River was expected to further rise. Floods submerged nearly 70 percent of the area of Kaziranga National Park, while Pobitora Wildlife Sanctuary in Morigaon and Orang National Park in Mangaldoi were also severe affected, according to the ASDMA.

Heavy rains since June 22 caused widespread flooding in the low-lying areas of the West Garo Hills district of Meghalaya. Several hectares of crops and thousands of houses were inundated while more than 100,000 people were affected in the recent floods. Jinjiram River in the Garo Hills district broke its banks and inundated houses and farmland in the affected regions. Heavy rains on June 22 – 25 triggered a landslide in Itanagar – the state capital of Arunachal Pradesh, killing at least two people.

Bangladesh

Due to heavy rains, water levels in four major rivers – Brahmaputra, Dharla, Jamuna and Ghaghat – have increased, and these rivers are currently flowing very close to or above the danger mark, according to the Flood Forecasting and Warning Centre (FFWC) in Bangladesh. Flood waters from the Indian state of Assam have contributed significantly in enhancing the ongoing flood situation in Bangladesh. As of July 1, no fewer than 14 river locations were flowing above the danger mark. Seven other locations swelled to the warning level. Thousands of people in Jamalpur, Kurigram and Gaibandha districts were displaced due to home inundation. No fewer than 275,000 people in seven districts were affected in Bangladesh and thousands of hectares of farmland submerged due to heavy flooding.

Financial Loss

The latest rounds of flooding were expected to minimally add tens of millions (USD) to the economic cost. Given the continued low insurance penetration in India, as well as in Bangladesh, most of these agricultural and infrastructural losses were expected to be uninsured. The seasonal Brahmaputra floods in the year 2019 affected around 7 million people and caused at least 44 casualties.

Natural Catastrophes: In Brief

Flooding (China)

Heavy flooding continued this week in China, causing 3 fatalities in the Zhaotong City in Yunnan province and widespread inundation damage on June 28 – July 1. According to the Ministry of Emergency Management, at least 100,000 residents of the Yunnan province were affected while recent floods have inundated around 3,800 hectares of cropland. A large proportion of residents were left without electricity and drinking water, while telecommunications were interrupted in the severely affected areas, according to local media reports. Heavy rainfall wreaked havoc in southwest China's Sichuan Province. At least 16 people died and 10 were missing, while thousands of houses were inundated. Mianning County in Sichuan Province was worst affected. In Qijiang District of Chongging Municipality, additional spells of rainfall resulted in swollen rivers, causing inundation in downtown areas. Nearly 26,000 people were affected and dozens of homes collapsed. Heavy rains resulted in widespread inundation of the Yichang, Xiangyang, Jingmen, Xiaogan, Huanggang, Enshi, and Wuhan Cities of Hubei Province on June 27-29. According to the Hubei Provincial Emergency Management Office, around 2.4 million people were affected due to five major episodes of monsoon flooding since June 8. Episodes of flooding resulted in inundation of around 4,700 houses in the Hubei Province, while damage to 310,000 hectares (766,000 acres) of cropland were noted. Since June 1, flooding in China has affected more than 14 million people in 26 provinces. More than 220 river locations have swollen above varying degree of flood warning levels. causing inundation of 190,000 homes and 891,000 hectares (2.2 million acres) of cropland. Total combined economic losses were listed by the government at CNY27.8 billion (USD3.9 billion).

Severe Weather (Central & Western Europe)

Multiple rounds of severe thunderstorms affected various parts of Europe on June 26-29 with heavy rain, strong winds, and large hail causing moderate property, infrastructural, and agricultural losses. Notably, mudflows, flooding, and up to golf ball-sized hail in parts of Steiermark in Austria on June 29, with districts of Hartberg-Fürstenfeld and Weiz among the worst affected. The Austrian Hail Insurance Agency expected damage to 8,000 hectares (20,000 acres) and total losses of EUR8.0 million (USD9.0 million). Property losses were also reported from also in Oberösterreich, Salzburg and Kärnten. On June 26, localized storms prompted hundreds of interventions in various regions, including southeastern Poland, northern Slovakia, southern Germany, canton Luzern in Switzerland and southwestern France. Total economic losses due to the outbreak were expected to reach into the tens of millions EUR.

Severe Weather (Brazil)

A powerful extratropical cyclone rapidly intensified and brought periods of very gusty winds and heavy rainfall across parts of Brazil on June 30. At least 10 people were killed, though several other people were reported missing. The hardest-hit areas came in the states of Santa Catarina, Rio Grande do Sul, and Parana as wind gusts approached or topped 100 kph (65 mph) and led to extensive roof and tree damage. Torrential rains additionally prompted landslides and spawned some flash flooding as inundation to properties also occurred. In Santa Catarina alone, nearly 700,000 customers across 48 cities lost electricity. Total economic losses were expected to reach well into the millions (USD).



Global Temperature Anomaly Forecast

Source: Climate Reanalyzer, Climate Change Institute, University of Maine, USA

Global Precipitation Forecast

GFS 5-day Total Accumulated Precipitation (cm) Climate Reanalyzer.org Climate Change Institute | University of Maine Thursday, Jul 02, 2020 90N 60N 30N 0 30S 60S 135W 90W 45W 0 45E 90E 135E 180 0 0.2 0.8 1.2 2 8 12 20 30 60 90 150 4

Source: Climate Reanalyzer, Climate Change Institute, University of Maine, USA

Weekly Sea Surface Temperature (SST) Anomalies (°C)



NOAA Coral Reef Watch Daily 5km SST Anomalies (Version 3.1) 30 Jun 2020

The SST anomalies are produced by subtracting the long-term mean SST (for that location in that time of year) from the current value. This product with a spatial resolution of 0.5 degree (50 kilometers) is based on NOAA/NESDIS operational daily global 5 kilometer Geo-polar Blended Night-only SST Analysis. The analysis uses satellite data produced by AVHRR radiometer.

Select Current Global SSTs and Anomalies

Location of Buoy	Temp (°C)	Departure from Last Year (°C)
Eastern Pacific Ocean (1,020 miles SW of San Salvador, El Salvador)	30.4	+0.2
Niño3.4 region (2°N latitude, 155°W longitude)	27.4	-1.1
Western Pacific Ocean (700 miles NNW of Honiara, Solomon Islands)	23.0	-2.5

Sources: ESRL, NOAA, NEIS, National Data Buoy Center

El Niño-Southern Oscillation (ENSO)

ENSO-neutral conditions are currently present. NOAA notes that there is a roughly 60 percent chance of neutral conditions lingering through the Northern Hemisphere (boreal) summer months. The agency further states that there is a nearly equal chance (~40 to 50 percent) of a weak La Niña or ENSO neutral into the boreal autumn and winter (2020/21).



Probabilistic ENSO Model Projections: June 2020



ENSO Model Projections: June 2020

EI Niño refers to the above-average sea-surface temperatures (+0.5°C) that periodically develop across the east-central equatorial Pacific. It represents the warm phase of the ENSO cycle.

La Niña refers to the periodic cooling of sea-surface temperatures (-0.5°C) across the east-central equatorial Pacific. It represents the cold phase of the ENSO cycle.

El Niño and La Niña episodes typically last nine to 12 months, but some prolonged events may last for years. While their frequency can be quite irregular, El Niño and La Niña events occur on average every two to seven years. Typically, El Niño occurs more frequently than La Niña.

ENSO-neutral refers to those periods when neither El Niño nor La Niña conditions are present. These periods often coincide with the transition between El Niño and La Niña events. During ENSO-neutral periods the ocean temperatures, tropical rainfall patterns, and atmospheric winds over the equatorial Pacific Ocean are near the long-term average.

El Niño (La Niña) is a phenomenon in the equatorial Pacific Ocean characterized by a five consecutive 3-month running mean of sea surface temperature (SST) anomalies in the Niño 3.4 region that is above the threshold of +0.5°C (-0.5°C). This is known as the Oceanic Niño Index (ONI).

Global Tropics Outlook



Source: Climate Prediction Center

Current Tropical Systems



🖕 Tropical Depression 🖕 Tropical Storm 🖕 Category 1 🖕 Category 2 🖕 Category 3 🖕 Category 4 🖕 Category 5

Location and Intensity Information

Name*	Location	Winds	Storm Reference from Land	Motion**

* TD = Tropical Depression, TS = Tropical Storm, HU = Hurricane, TY = Typhoon, STY = Super Typhoon, CY = Cyclone ** N = North, S = South, E = East, W = West, NW = Northwest, NE = Northeast, SE = Southeast, SW = Southwest

Sources: National Hurricane Center, Joint Typhoon Warning Center, Central Pacific Hurricane Center



Global Earthquake Activity (≥M4.0): June 26 – July 2

Significant EQ Location and Magnitude (≥M6.0) Information

Date (UTC)	Location	Magnitude	Depth	Epicenter
06/21/20	66.39°N, 18.69°W	6.0	10 km	28 kilometers (17 miles) NNE of Siglufjordur, Iceland
06/23/20	16.03°N, 95.90°W	7.4	26 km	20 kilometers (12 miles) ENE of Santa Maria Xadani, Mexico

Source: United States Geological Survey

U.S. Weather Threat Outlook



Made: 07/02/2020 3PM EDT

www.wpc.ncep.noaa.gov

Potential Threats

- Excessive heat and elevated dewpoints are anticipated to be the greatest threat across portions of the United States during the next week. A building ridge of high pressure will be responsible for much above normal temperatures expanding westward from the Upper Mississippi Valley and Great Lakes toward the Northeast between July 4-9. Excessive heat is forecasted for southern Arizona and California as well as southern Florida from July 4-10.
- A series of upper level disturbances have the potential to bring heavy rain to portions of the Northern Plains and Upper Midwest between July 7-9, while a series of frontal boundaries interacting with Gulf ad Atlantic moisture are expected to bring heavy rains to regions in the Southeast between July 4-8.
- Continued warm temperatures coupled with prolonged severe drought conditions across the Central and Southern Plains as well as portions of the Rockies will continue to produce enhanced fire weather risks across the region.

U.S. Wildfire: Significant Fire Risk Outlook & Activity

The National Interagency Fire Center has highlighted an extended risk of elevated wildfire conditions across parts of the West, Desert Southwest, southern Plains, Midwest, and Northeast during the first week of July. Hot and dry conditions have become more prevalent in recent weeks, along with dry lightning, which has enhanced fire conditions and severe drought in the Desert Southwest. Expected extreme heat across the central and eastern U.S. during the first half of July will further increase drought and fire risks.



Annual YTD Wildfire Comparison: July 2*

	Year Number of Fires	Acres Burned	Acres Burned Per Fire
2016	25,940	2,140,425	82.51
2017	30,247	2,855,889	94.42
2018	29,111	2,534,701	87.07
2019	19,667	1,068,210	54.31
2020	24,533	1,457,463	59.41
10-Year Average (2010-2019)	27,533	2,237,505	81.27

*Last available update from NIFC Source: National Interagency Fire Center

Top 5 Most Acres Burned by State: July 2

	State	Number of Fires	Acres Burned	Acres Burned Per Fire
Arizona		1,087	544,113	500.56
Alaska		276	169,953	615.77
Utah		519	136,451	262.91
Oklahoma		629	90,790	144.34
Texas		1,874	89,214	47.61

Source: National Interagency Fire Center

Current U.S. Streamflow Status



 $A \ge 99^{th}$ percentile indicates that estimated streamflow is greater than the 99th percentile for all days of the year. This methodology also applies for the other two categories. A steam in a state of severe drought has 7-day average streamflow of less than or equal to the 5th percentile for this day of the year. Moderate drought indicates that estimated 7-day streamflow is between the 6th and 9th percentile for this day of the year and 'below normal' state is between 10th and 24th percentile.

Top 5 Rivers Currently Nearing or Exceeding Flood Stage

Location	Current Stage (ft)	Flood Percentile
Tar River at Tarboro, North Carolina	22.66	98.91
Contentnea at Hookerton, North Carolina	13.51	98.90
Cedar River at Cedar Rapids, Iowa	15.56	98.87
Cedar River at Waterloo, Iowa	13.99	98.73
Cypress Ck nr Westfield, Texas	74.86	98.67

Source: United States Geological Survey

Source Information

Wildfires expand in southwestern U.S. National Interagency Fire Center (NIFC) Imperial County Fire Department CAL FIRE/Butte Unit Arizona Central West Zone Incident Management Team 1 person killed and dozens of homes destroyed in Imperial County brush fire, Los Angeles Times

Severe weather impacts the Midwest, Great Plains U.S. National Weather Service U.S Storm Prediction Center

Flooding in India & Bangladesh as monsoon intensifies India Meteorological Department Assam State Disaster Management Authority Declaration of flood in WGH's plain belt sought, The Silong Times Bangladesh braces for more floods, Dhaka Tribune Department of Agricultural Extension (DAE), Bangladesh All India Radio News Millions at risk in Bangladesh as monsoon floods add to coronavirus worries, WION Ministry of Home Affairs, Disaster Management Division, India Assam flood: Death toll reaches 34; over one lakh more affected in 24 hours, Deccan Herald China makes all-out relief efforts as heavy downpours wreak havoc, Xinhua

Natural Catastrophes: In Brief

Violent storms again, ORF Austrian Hail Insurance European Severe Weather Database Ministry of Emergency Management, China Downpours continue to lash Chinese provinces, Xinhua News Agency Rare bomb cyclone leaves 10 dead in south Brazil, Xinhua News Agency Floodlist Millions affected as downpours continue, Xinhua

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