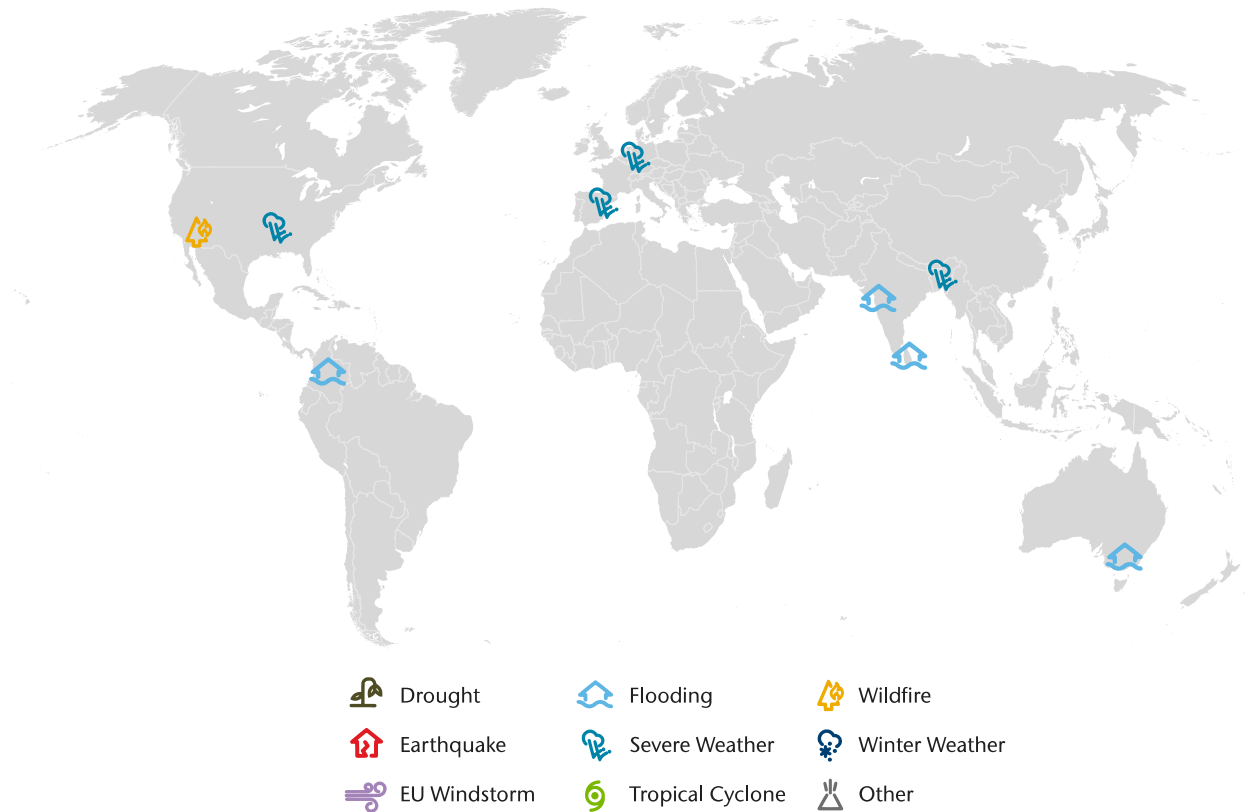




Weekly Cat Report

June 11, 2021

This Week's Natural Disaster Events



Event	Impacted Areas	Fatalities	Damaged Structures and/or Filed Claims	Preliminary Economic Loss (USD)*	Page
Severe Weather	Western & Central Europe	2	Thousands	10s of millions	3
Severe Weather	United States	0	Thousands	Millions	6
Severe Weather	Spain	0	Hundreds	Millions	11
Wildfire	United States	0	Unknown	Millions	11
Flooding	Colombia	3+	Thousands	Millions	11
Flooding	India	11+	Thousands	Millions	11
Flooding	Australia	0	Hundreds	Millions	12
Flooding	Sri Lanka	20+	1,100+	Millions	12
Severe Weather	India, Bangladesh	57+	Hundreds	Millions	12

**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: <http://catastropheinsight.aon.com>

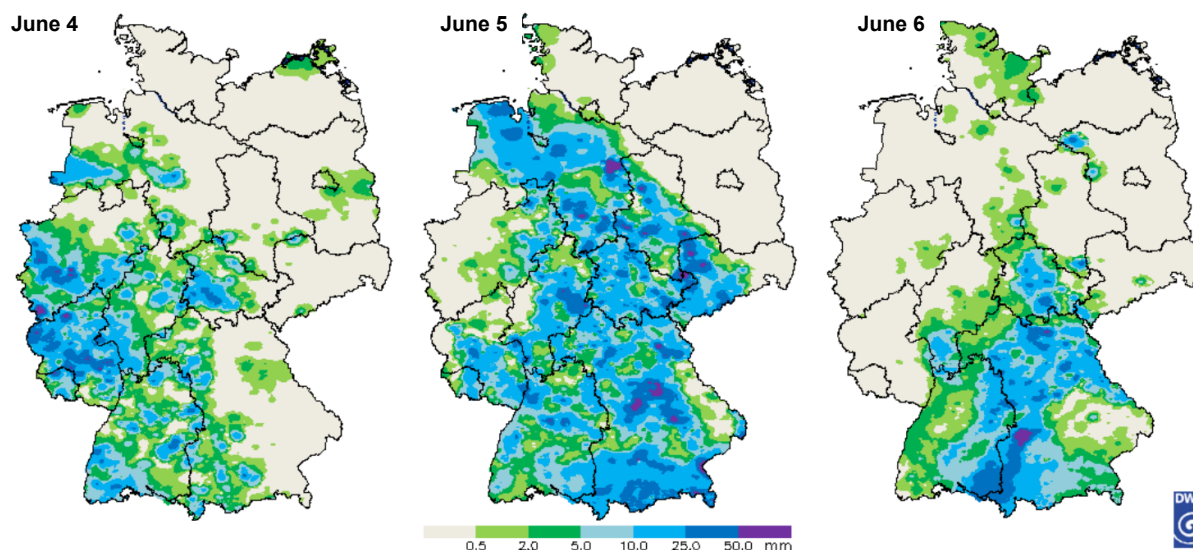
Severe convective storm outbreak in parts of Europe

On June 4-9, parts of Western and Central Europe experienced unstable weather with locally strong thunderstorms, which caused flooding in multiple locations in Germany, Belgium, Switzerland, Austria and elsewhere. The first significant convective storm outbreak of 2021 in Europe resulted in notable damage across several countries, expected to run into the tens of millions EUR.

Meteorological Recap

A period of relatively warm weather characterized by high atmospheric pressure at the beginning of June transitioned into a more unstable pattern on June 4-9, as a low-pressure area Peter (named by the FU Berlin) assumed its position over Western Europe in a warm and humid airmass, originally from Southwest Europe. A notable convergence line developed, stretching roughly from Benelux countries into the Balkans, providing a lift mechanism for thunderstorm development. Coupled with atmospheric instability and abundant moisture, locally strong storms occurred in a wide area of Germany, Benelux countries, as well as parts of France, Austria or Western Balkans, particularly in the afternoon hours.

Associated hazards were largely limited to heavy rainfall and additionally large hail, while strong winds were only temporarily locally enhanced during individual, strong thunderstorms. Due to a lack of strong current in higher altitude and nearly stationary nature of the overall pattern, multiple locations experienced notable rainfall accumulations, which locally resulted in flooding.

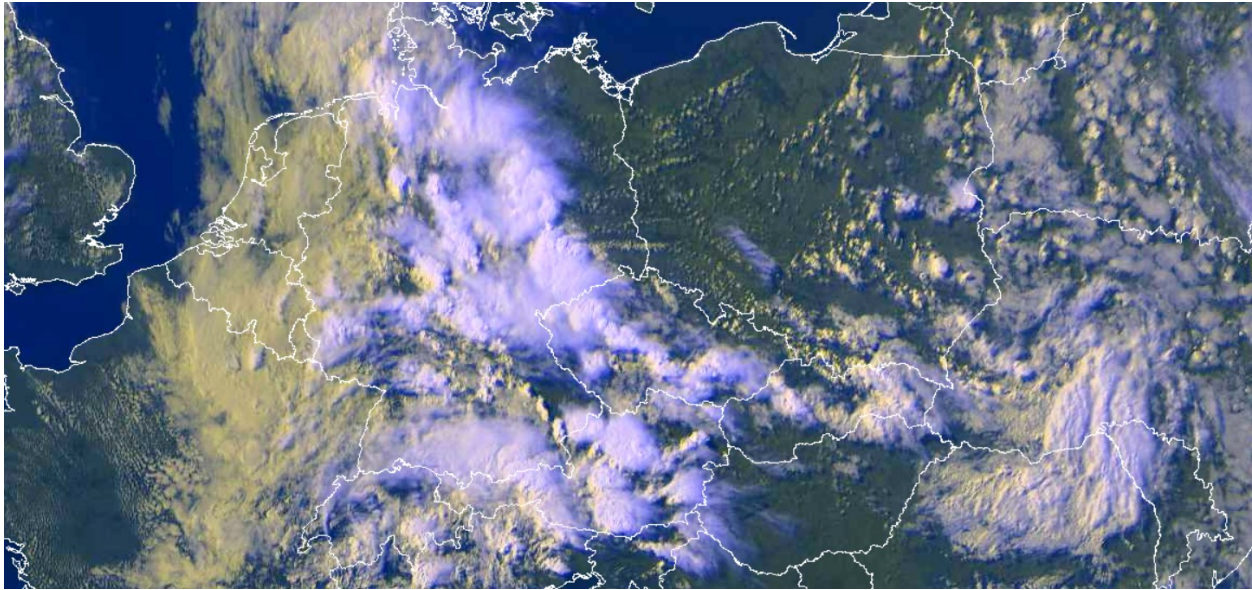


24-hour precipitation totals in Germany, June 4-6 (Source: Deutscher Wetterdienst)

Event Details

Germany

Multiple locations in Germany experienced flooding as a result of locally strong thunderstorms, virtually nationwide except the northeastern and northern federal states. Additional, minor impacts were associated with large hail, which accompanied some of the storms. Most of the damage reports were registered in the period from June 4-6, however the inclement conditions continued till June 9.



Thunderstorm activity over Germany and the wider region on a satellite image (June 5, 16:00 UTC)
Source: ČHMÚ & EUMETSAT

Emergency services in **Nordrhein-Westfalen** responded to hundreds of calls. The situation was particularly difficult the town of Hennef and other parts of Rhein-Sieg district on June 4 due to multiple instances of flooded property and infrastructure, and mudslides triggered in the area. Fire brigades conducted about 530 missions in the town, mostly related to flooded basements.

Parts of **Thüringen** were notably affected. Inundation of property and vehicles was noted in Gierstädt near Erfurt, which were temporarily cut off. Heavy impacts and losses in the millions EUR were reported from Mosbach in the municipality of Wutha-Farnroda near Eisenach.

Parts of Stuttgart, the capital of **Baden-Württemberg**, were inundated as well. About 30 centimeters (1 foot) of water were reported at the main train station. One person was killed at a construction site in the city. Another fatality occurred in Rot an der Rot on June 7. Severe weather continued in the following days, notably in district Waldshut in the night from June 8 to 9.

A similar situation occurred in Hochtaunus district in **Hessen** where many streets and basement were flooded, and rubble washed up on roadways. Hundreds of emergency service interventions were conducted in Fulda district.

Further impacts were noted in other federal states, including around Zwickau in **Sachsen**, Kamp-Bornhofen in **Rheinland-Pfalz**, parts of **Bayern** or **Niedersachsen** and elsewhere.

Elsewhere

Royal Meteorological Institute (IRM) of **Belgium** announced an orange weather alert on June 4. Several tunnels, underpasses and roads in Brussels were flooded and closed. Large amount of water spilled onto the first floor of a courthouse. Fire brigades conducted at least 158 interventions around the city, of which at least 100 were related to flooded property. Heavy rains resulted in flooding and mudslides in other parts of the country, including Tournai, Charleroi and Mons-Borinage in Hainaut, Namur and Dinant in Namur, or in Walloon Brabant and Liège.

On Friday 4, heavy rain also caused minor flooding in the south of the **Netherlands**. On Saturday June 6, KNMI issued further yellow code warning for north of the country. In Zeeland, Noord-Brabant, Limburg, Zuid-Holland and Gelderland, a number of streets, tunnels and cellars were flooded due to torrential rain.

Emergency services in **Luxembourg** received nearly 1,000 distress calls and conducted roughly 350 interventions, mostly due to flooded basements or road blockages. Worst affected were the capital and Hosingen and Troisvierges areas.

Thunderstorms with strong rainfall and hail caused flooding with mudslides and notable material damage in several locations across northern **France**. Among the most affected were parts of Normandy and Île-de-France, northern Burgundy, Hauts-de-France and Grand-Est. In the department Indre-et-Loire, several farmers reported 100 percent of damage due to strong hail on some plots.

In **Austria**, thunderstorms were particularly violent in Tyrol, Carinthia and Upper Austria. This led to dozens of interventions by fire brigades on Saturday, June 5. Most of the reported damage came from flooded basements, traffic routes, and smaller mudslides. Hundreds of interventions were reported in **Switzerland**, including more than 200 in Zurich canton on June 8. A notable hailstorm was reported from southern **Poland**, as a supercellular storm tracked through central Malopolskie voivodeship from north to south and caused agricultural losses on several thousands of hectares.

Financial Loss

The early June outbreak was the first notable multi-country convective weather event in Europe this year. It was expected to result in economic losses minimally in the tens of millions EUR, with vast majority of damage related to intense rainfall. The most widely affected country was Germany, as most of the federal states, with the exception of the northeast and the north, recorded some damage.

Severe weather, historic flash flooding impact U.S.

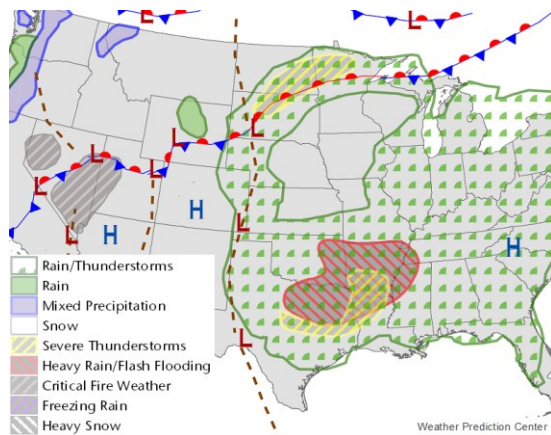
A relatively stagnant atmospheric pattern across the United States resulted in multiple days of unsettled and anomalous weather between June 7-10. A series of upper level disturbances and above average temperatures fueled multiple rounds of severe storms and heavy rainfall across the Northern Plains. Several of the storms produced damaging winds and very large hail. A nearly stationary upper level low aided in severe weather and historic flash flooding across regions of the Southern Plains and Lower Mississippi Valley – prompting multiple Flash Flooding Emergencies. Severe weather and flooding rainfall also impacted localities in the Northeast. Total economic losses were anticipated to reach well into the millions (USD).

Meteorological Recap

June 3-4

Severe weather affected portions of the **Mid-Atlantic** and **Northeast** United States between June 3-4. Multiple rounds of damaging thunderstorms were enhanced by anomalous diurnal heating and plentiful moisture advection ahead of an approaching frontal boundary and upper level disturbance. Severe straight-line wind gusts approaching and topping 60 mph (96 kph) were measured, while isolated tornadoes were confirmed in New York and Maryland.

June 7



U.S. Surface Analysis: June 7, 2021
Data: Weather Prediction Center

Several days of unsettled weather across large expanses of the United States, beginning June 7, were driven by a slowly evolving weather pattern featuring a large and weakening upper level low which meandered across the Southern Plains and Mississippi Valley, while a series of short-wave troughs and frontal systems enhanced convective activity across the Northern Plains.

On June 7, the Storm Prediction Center (SPC) issued a Slight Risk (level 2 out of 5) for severe weather across north-central **Texas** and the **ArkLaTex** region, as well as regions of the **Dakotas** into northern **Minnesota**. Throughout the day, an intensifying Mesoscale Convective System (MCS) evolved across eastern Texas and the Lower Mississippi Valley.

The MCS and additional outflow triggered convection resulted in locally heavy rainfall which fell on already saturated soils across the Southern Plains and Gulf Coast. In addition to the heavy rain, embedded robust downdrafts generated strong and damaging straight line wind gusts, particularly in the ArkLaTex region and eastern Mississippi.

In the **Northern Plains**, upper level southwesterly flow and an anomalous ridge resulted in a prolonged stretch of midsummer-like heat and an increasingly unstable environment. In the late evening and overnight hours of June 7, clusters of severe storms associated with a northward pushing warm frontal boundary and fueled by ample daytime heating impacted portions of southeastern North Dakota and

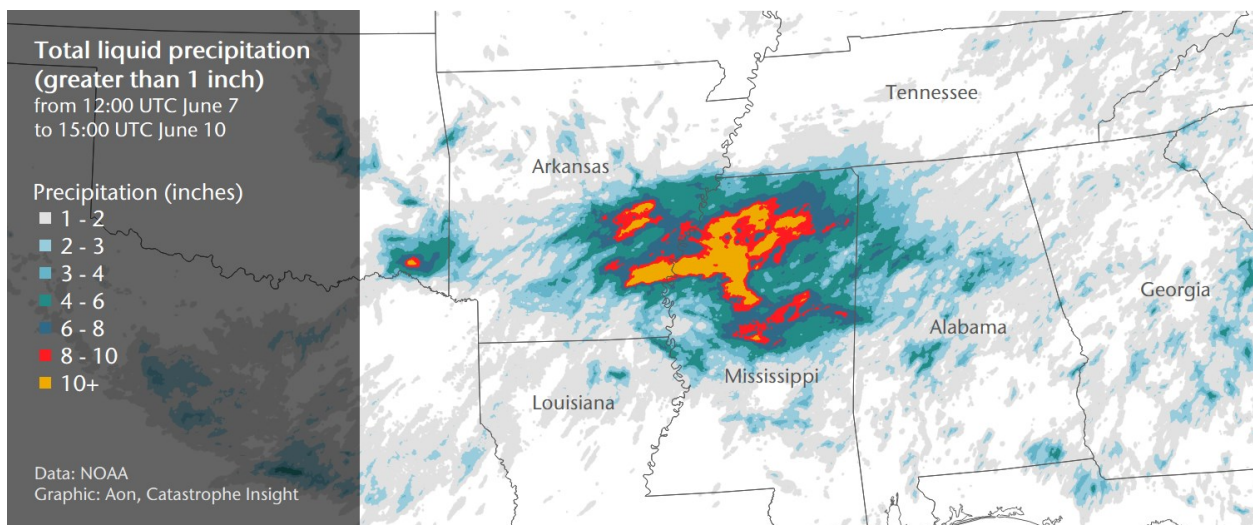
northwestern Minnesota. The storms resulted in multiple reports of large hail, greater than or equal to 2.0 inches (5.1 centimeters) and notable non-tornadic winds.

June 8-10

Southern Plains/Lower Mississippi Valley

By June 8, heavy rainfall in portions of the south-eastern United States associated with southerly flow around an upper-level low and remnant Mesoscale Convective Vortices (MCV) generated multiple instances of severe weather reports in addition to significant flash flooding - particularly across the **Southern Plains** and **Lower Mississippi Valley**. In the morning hours, a **Flash Flood Emergency** was issued by the National Weather Service (NWS) for portions of southeastern Oklahoma. Throughout the day, persistent convection consisting of back-building and training storms produced considerable flooding across southeastern Oklahoma, northeast Texas, Arkansas, and northern Mississippi. Rainfall rates associated with the strongest storms approached 2 to 3 inches per hour (50 to 75 millimeters per hour).

The prolonged period of flooding rainfall prompting the Weather Prediction Center (WPC) to issue a High Risk of 'excessive rainfall' for portions of southeastern Arkansas and northwestern Mississippi, where at least three further **Flash Flooding Emergencies** were in effect by the afternoon. On June 8, 24-hour rainfall totals across the most impacted locations approached and exceeded 10 inches (250 millimeters). As the upper-level low remained nearly stationary, rounds of storms and persistent rains along with a elevated risk of 'excessive rainfall' continued across regions of southeast Arkansas and northern Mississippi into June 9-10.

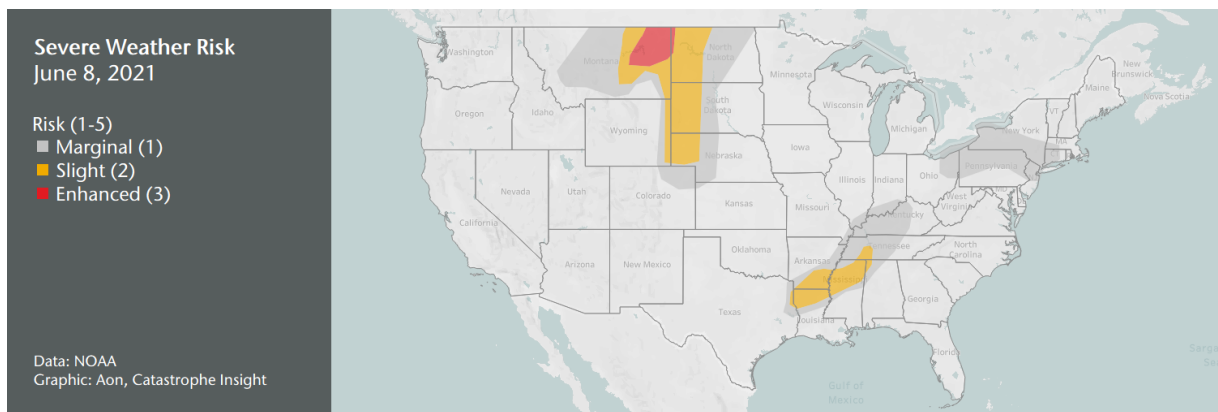


As the incessant and historic flash flooding continued June 10 across northern Mississippi and eastern Arkansas, additional **Flash Flood Emergencies** were issued in Mississippi as the upper level disturbance slowly lifted away from the region. Localized 48-hour rainfall totals ending the morning of June 10 approached and exceeded 12 to 15 inches (305 to 380 millimeters).

Northern Plains

In the **Northern Plains**, slow moving convective activity and discrete cells were reinvigorated across southeastern **North Dakota** on June 8. Throughout the day, these storm clusters built west-

southwestward bringing flooding rainfall to drought-stricken regions of the state. A Cooperative (COOP) Weather Station in Litchville (Barnes County) reported 5.76 inches (146 millimeters) of rainfall on June 8.

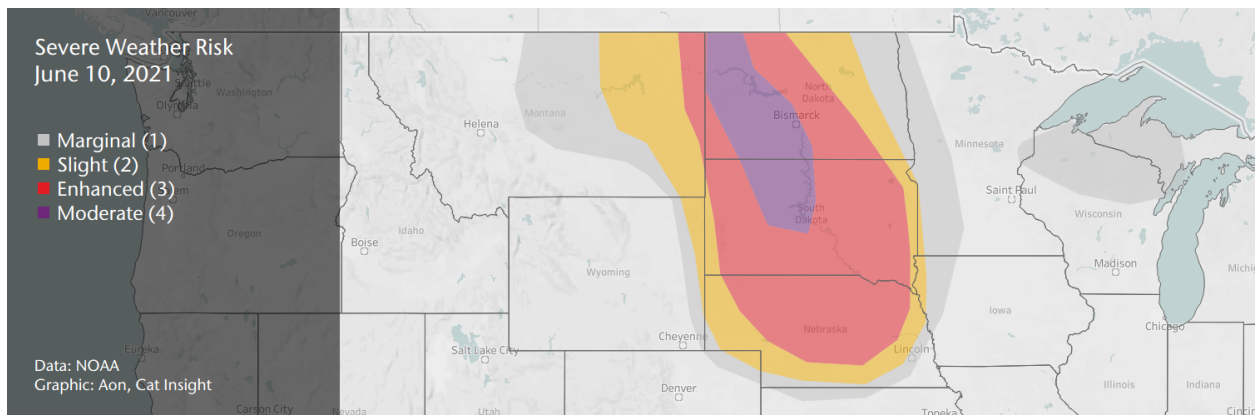


Concurrently, southerly winds advected warm and moist air toward the Northern Plains and High Plains ahead of an approaching upper level trough and deepening surface low pressure system. These conditions prompted the SPC to issue an Enhanced Risk (level 3 out of 5) for severe weather across regions of eastern Montana and western North Dakota on June 8, surrounded by a broader region of Slight Risk (level 2 out of 5). Throughout the evening and overnight hours of June 8-9, multiple cells and storm clusters organized into linear segments across eastern Montana and Wyoming into the western Dakotas. The primary hazards associated with these storms were large hail and strong straight-line winds, with maximum gusts approaching and exceeding 80 mph (130 kph). Additional severe storms developed in Montana on the evening of June 9.

Elsewhere, instances of flash flooding were generated across the **Northeast** by bouts of locally heavy convective rainfall between June 8-9 – particularly in portions of **Pennsylvanian** and **New Jersey**.

June 10

The SPC issued a Moderate Risk (level 4 out of 5) for severe weather across the western **Dakotas** on June 10, surrounded by an expansive region of Enhanced Risk (level 3 out of 5) spanning northward from Nebraska toward the Canadian border. The threat for severe weather also extended into the southern Canadian Prairies – particularly Saskatchewan.



The SPC warned all severe hazards were possible with this event, including very large hail (greater than or equal to 2.0 inches, 5.1 centimeters), gusts above 70 mph (112 kph), and tornadoes. Severe storms evolved in a region of large-scale ascent associated with a robust upper level trough and deepening surface low pressure system east of the Northern Rockies. Storm development in this region was enhanced by near record low-level moisture, favorable wind shear (changes in wind speed and/or direction with height), ample diurnal heating, and very steep mid-level lapse rates (changes in temperature with height) - particularly in localities south of the warm front and east of the surface low and approaching cold front and dry line (a boundary which separates dry air from moist air). By the mid-afternoon, discrete severe storms and storm clusters ignited near the surface low and dry line across eastern Montana and western North Dakota, with additional storm development northwest of the low. The main hazards associated with these storms were very large hail, tornadoes, and strong winds.

As of this writing, the severe weather threat is ongoing across the Northern Plains. If applicable, additional details will be provided in next week's Weekly Report.

Event Details

June 3-4

Severe weather across the Northeastern United States resulted in numerous instances of downed trees and utility lines, as well as minor property damage - particularly in regions of **New York, Pennsylvania, New Jersey, Maryland, Delaware, and Virginia**. On June 3, a tornado was confirmed in both New York and Maryland. In Maryland, an EF1 tornado in Baltimore County, with maximum estimated wind speeds approaching 95 mph (153 kph) resulted in notable vegetation damage, and instances of exterior impacts to structures.

June 7

In **North Dakota**, instances of hail reaching and exceeding 2.0 inches (5.1 centimeters) in diameter were reported in McIntosh, Logan, Stutsman, Lamoure, Barnes, and Ransom Counties. In Barnes County, 2.75-inch (7.0-centimeter) hailstones were observed near Litchville. In **Minnesota**, a wind gust of 77 mph (124 kph) was measured in Wilkin County. Winds across the region resulted in multiple instances of downed trees and power poles along with property damage.

Flooding in portions of eastern **Oklahoma** resulted in closed and washed-out roadways. In Tulsa (Tulsa County), emergency officials responded to several instances of trapped and flooded vehicles along local streets.



Flooding impacts in Oklahoma
Source: FAIC Fire-Rescue

June 8-10

At least three stream gages across the southern United States exceeded the 'Major Flooding' stage by June 9. Two stream gages were along the Little River; one near Idabel, Oklahoma and the second at Horatio, Arkansas. The third stream gage along the Little Tallahatchie River at Etta, Mississippi crested at a near historic level of 30.03 feet (9.15 meters).

In **Oklahoma**, swift water rescues were performed in McCurtain County following a period of incessant rainfall on June 8. Emergency Management officials indicated multiple roadways were washed out while possible damage was incurred to several bridges. Water was observed entering homes near Wright City.

In **Arkansas**, flash flooding emergencies generated notable impacts across southeastern portions of the state. In Desha County, a particularly bad situation unfolded in Dumas on June 8 where local emergency officials preformed multiple water rescues. A nearby section of railroad tracks were washed out by the rising waters. Preliminary estimates indicated water entered no less than 50 homes in Dumas alone – as entire neighborhoods were left inundated. Thousands of acres (hectares) of cropland were affected throughout the region. A nearby weather station in Rohwer reported 9.25 inches (235 millimeters) of rainfall on June 8 – marking the 4th wettest June day in recorded state history, and the wettest June day since at least 1974.



Flooding impacts in northern Mississippi
Source: Lafayette County Fire Dept

In **Mississippi**, significant flash flooding occurred in predominantly rural regions in northern portions of the state. According to the NWS, multiple roadways became impassable and structures were impacted in Bolivar and Sunflower Counties. In Lafayette County, numerous roadways were inundated, particularly near the City of Oxford. In portions of Lee County, emergency officials went door-to-door to assist residents who became trapped in their homes. In Tallahatchie County, a weather station near Charleston reported a 48-hour rainfall total of 15.35 inches (390 millimeters) ending the morning of June 10. Nearby, levee breaches resulted in notable inundation of cropland. In Leflore County, a historic 24-hour rainfall record of 8.29 inches (210 millimeters) at the Greenwood-Leflore County Airport ending the morning of June 10 exceeded the previous record set in 1958. Additional water rescues and flooded homes were reported in Greenwood.

In **Texas**, at least three EF0 tornadoes were confirmed on June 8 in portions of Smith and Cherokee Counties. The tornadoes resulted in minor damages to outbuildings and vegetation.

In **Montana**, hail approaching 4.0 inches (10.2 centimeters), larger than a softball, were reported near Glendive in Dawson County on June 8. Further east, hailstones reaching 2.75 inches (7.0 centimeters) were observed in Wibaux County. A non-tornadic wind gust of 86 mph (138 kph) was reported in Roosevelt County. On June 9, hailstones reaching 3.0 inches (7.6 centimeters) fell in Phillips County. In **North Dakota**, 2.75-inch (7.0-centimeter) hail pelted regions of Golden Valley County on June 8. Widespread severe weather and flooding across southern portions of the state, including the Red River Valley, resulted in damages to local roadways, residences, and cropland. In **South Dakota**, a maximum wind gust of 94 mph (151 kph) was measured in Corson County on June 8, while gusts reaching and topping 80 mph (130 kph) were reported in Ziebach County.

Financial Loss

The economic cost of damage to property, infrastructure, and agriculture due to severe weather and flooding between June 7-10 was anticipated to reach well into the millions (USD). With severe weather ongoing across the Northern Plains as of this writing, a more complete view of losses will evolve in the coming days. However, a large portion of the residential flood damage was expected to be uninsured given low inland National Flood Insurance Program (NFIP) take-up.

Natural Catastrophes: In Brief

Severe Weather (Spain)

Atmospheric instability, related to a cut-off low pressure area over the Iberian Peninsula, led to a series of intense thunderstorms with large hail in eastern and central parts of Spain on June 1. National agricultural insurance entity reported notable damage in Aragon, particularly in provinces of Teruel and Zaragoza, on an expected extent of 20,000 hectares (49,000 acres). Cereals (wheat and barley) were notably affected, with some damage reported on fruit trees. Agroseguro also noted impacts on viticulture, particularly in the Ribera del Duero wine region in Valladolid and Burgos provinces of Castilla y Leon. Approximately 4,000 hectares were affected. nationwide extent of damaged agricultural land was later estimated at 80,000 hectares (198,000 acres).

Wildfire (United States)

Exceptional drought, southerly winds and low humidity enhanced fire weather conditions across southeastern Arizona throughout the first week of June. The Telegraph Fire, burning in the southern Tonto National Forest in Pinal and Gila Counties began on June 4, and has since expanded to at least 84,860 acres (34,342 hectares) – ranking as the 10th largest fire in recorded state history. As of this writing, the fire burned no less than five structures. The Mescal Fire, which ignited on June 2 in Gila County, has since burned at least 72,250 acres (29,238 hectares). Combined, the two fires prompted thousands of evacuations - which included residents near Top-of-the-World and Miami. Stretches of multiple highways have been closed by the Arizona Department of Transportation. Extreme fire weather conditions hampered efforts to control the blazes. The Governor issued two Emergency Declarations for the fires in anticipation of adverse impacts.

Flooding (Colombia)

Heavy rains since June 5, associated with the first rainy season (March-June), renewed flooding concerns across portions of northern Colombia. At least three deaths were reported between June 5-6 in Antioquia (2) and Norte de Santander (1). On June 6, severe flooding in the Arauca department impacted no less than 1,000 homes after the Banadia River and smaller tributaries overflowed their banks. Damage included seven bridges, and thousands of hectares (acres) of farmland. According to the National Unit for Disaster Risk Management (UNGRD), since March 1 at least 38,700 families have been affected by the rainy season, which claimed 55 lives and caused dozens of injuries - four people remain missing. During the same period, no less than 311 homes have been destroyed, while 14,909 were damaged to varying degrees.

Flooding (India)

An official arrival of the monsoon over India's state of Maharashtra was declared on June 6 by the Meteorological Department (IMD). Since then, strong convective weather brought heavy rainfall across western Maharashtra, with the greatest impacts noted from the Metropolitan City of Mumbai and Raigad, Thane, Raigad, Ratnagiri, Sindhudurg, and Palghar districts. According to the IMD, approximately 225 millimeters (9 inches) of precipitation accumulation in Mumbai was recorded for one 12-hour stretch on June 9; with locally much higher amounts. Widespread transportation impacts and power outages occurred in the affected localities, as the heavy rainfall quickly affected roadways and utility lines. The event resulted in at least eleven casualties and notable damage to several thousands of properties, roads, and businesses. With additional heavy rainfall in forecast for coming days, IMD issued 'Red alert' for Raigad district, while 'Orange warning' was sounded for Mumbai City.

Flooding (Australia)

Wintry conditions affected parts of southeastern Australia on June 9-10. According to Australia's Bureau of Meteorology, a slow-moving Antarctic air mass traversed across South Australia, Victoria, New South Wales and Queensland, bringing moisture from the south and causing snowfall, strong winds and heavy rain. As temperatures plummeted, several weather stations across southeastern Australia, including Metropolitan City of Sydney, registered record-breaking day- and night-time minimum temperatures. Heavy snowfall blanketed large portions of the New South Wales and Victoria, causing significant disruption of traffic. Perhaps the most notable impacts were seen in the agriculture and transportation sectors. The situation deteriorated as notable flooding occurred in Victoria; as of the time of this writing, one person was killed and thousands were told to evacuate. More than 200,000 customers were left without power.

Flooding (Sri Lanka)

With the onset of Southwest Monsoon over Sri Lanka, heavy precipitation was recorded across the country between June 3 and 8. Flash flooding and landslides were triggered in districts of Gampaha, Ratnapura, Colombo, Puttalam, Kalutara, Nuwara Eliya and Kurunegala. According to the Disaster Management Center (DMC), at least 20 people were killed, and three others were injured. In addition, a large swath of cropland was inundated, and more than 1,100 homes were damaged to various degrees. Combined economic losses were likely to be into the low-digit millions (USD).

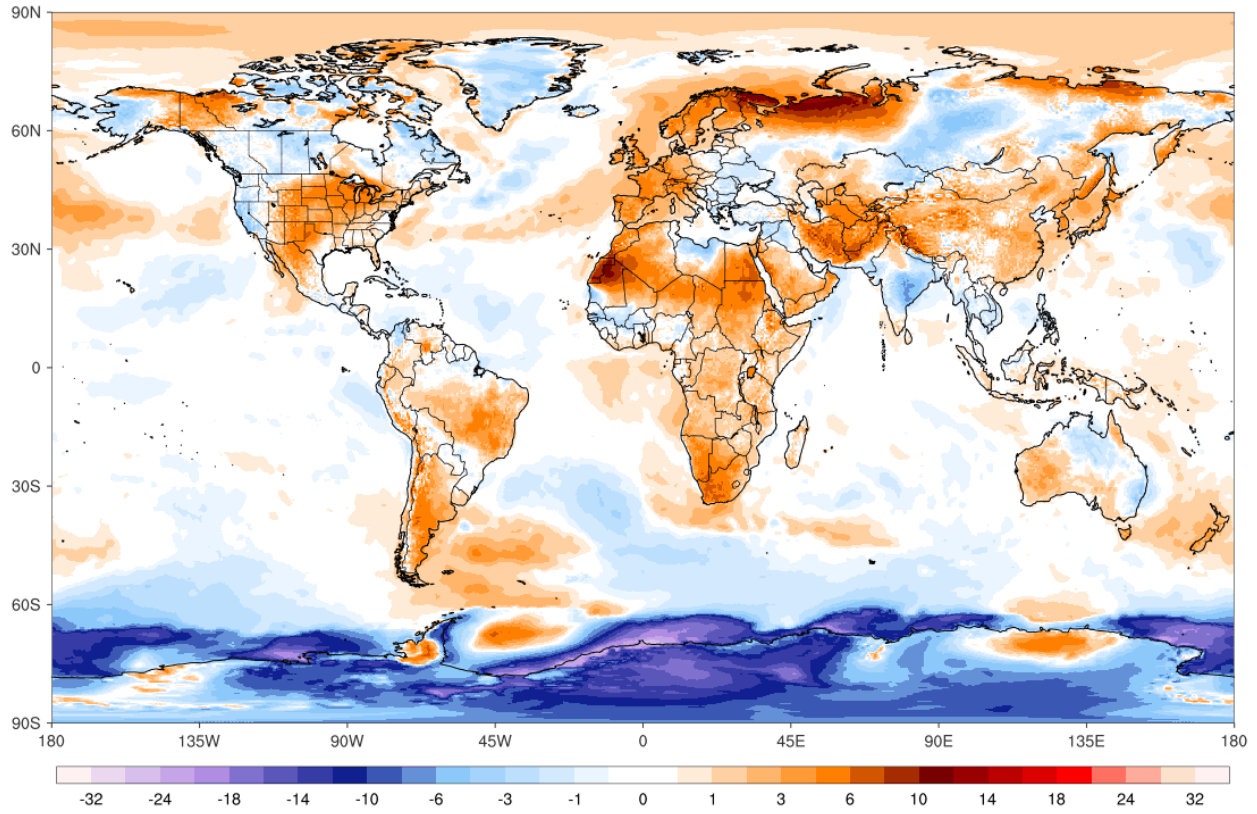
Severe Weather (India, Bangladesh)

Strong thunderstorms impacted large swaths of India's state of West Bengal and adjacent parts of Bangladesh on June 4-7. According to national governments, at least 57 people were killed in West Bengal (27) and Bangladesh (30); mostly due to lightning strikes. Hundreds of homes and other structures were damaged to various degrees. At least 66 people were already killed by lightning in Bangladesh during May. It is important to note that lightning strikes are common and result in numerous casualties in the South Asian countries during the summer monsoon season.

Global Temperature Anomaly Forecast

GFS/CFSR 5-day Avg 2m T Anomaly (°C) [1979-2000 base]
Wednesday, Jun 09, 2021

ClimateReanalyzer.org
Climate Change Institute | University of Maine

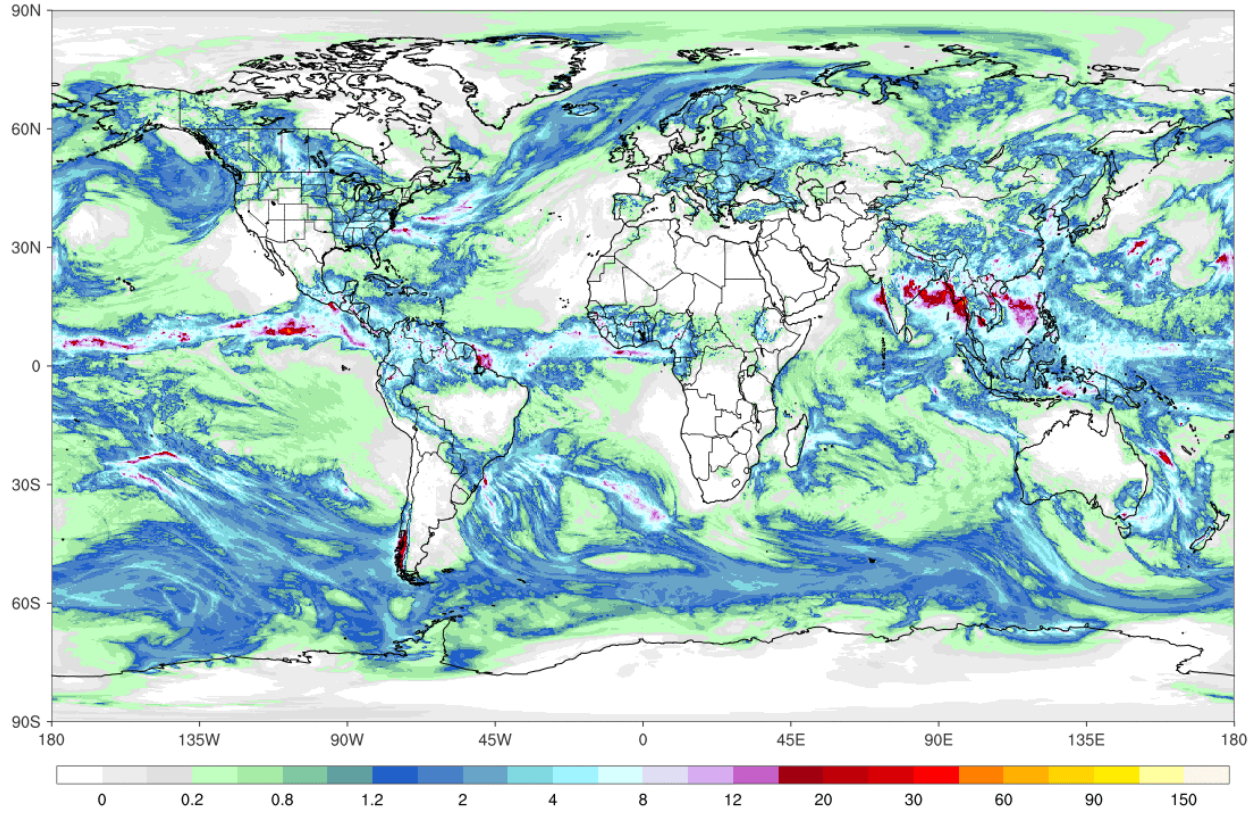


Source: Climate Reanalyzer, Climate Change Institute, University of Maine, USA

Global Precipitation Forecast

GFS 5-day Total Accumulated Precipitation (cm)
Wednesday, Jun 09, 2021

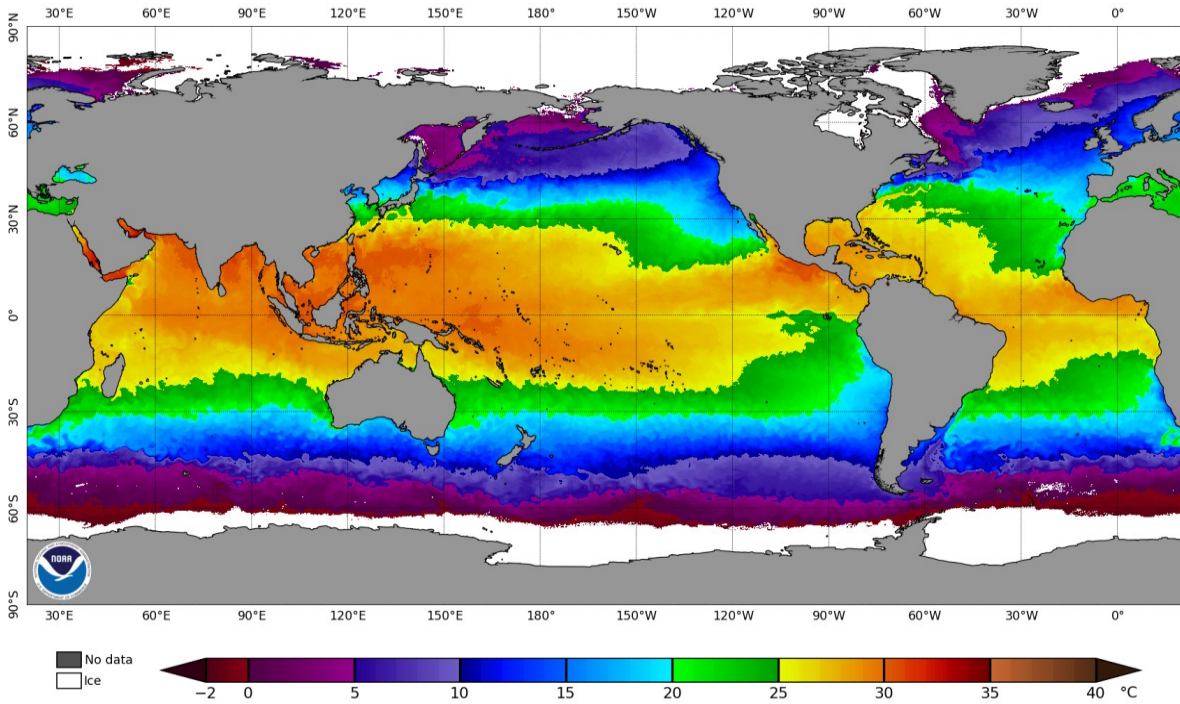
ClimateReanalyzer.org
Climate Change Institute | University of Maine



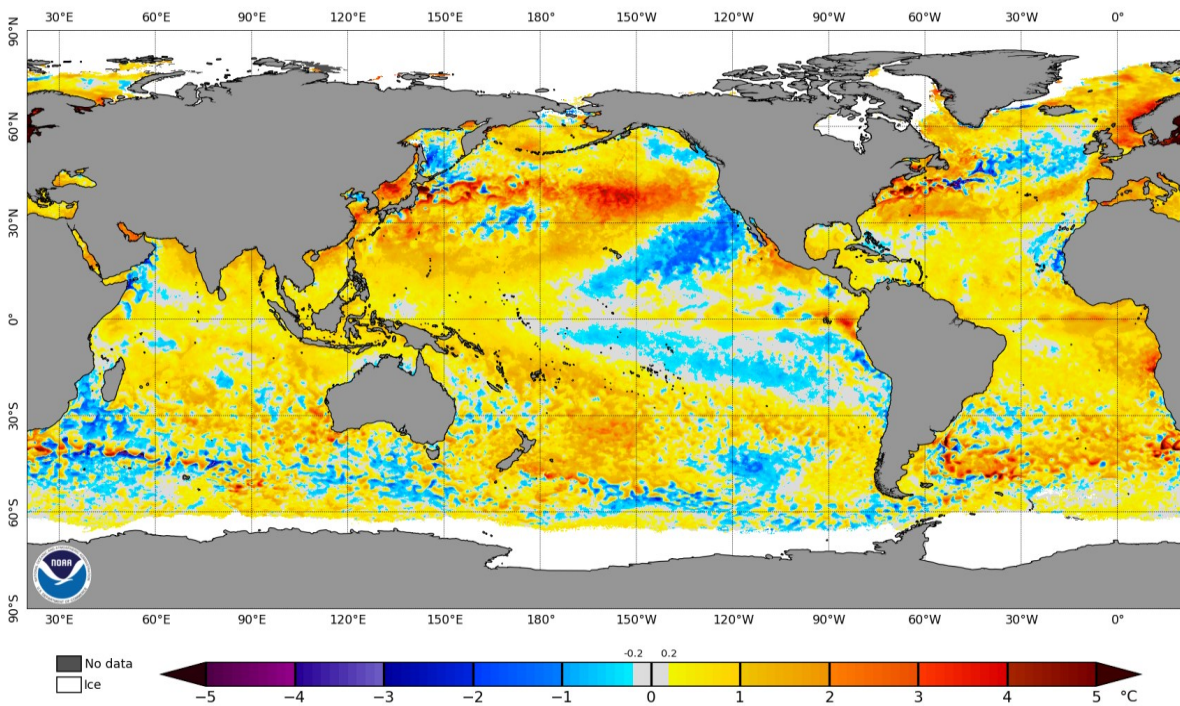
Source: Climate Reanalyzer, Climate Change Institute, University of Maine, USA

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

NOAA Coral Reef Watch Daily 5km Sea Surface Temperatures (v3.1) 9 Jun 2021

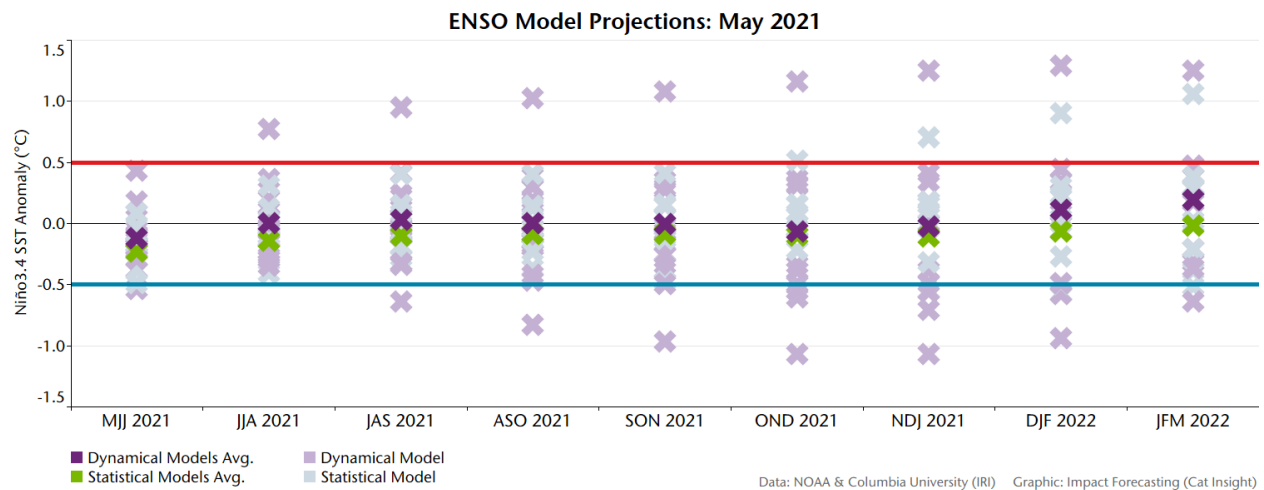
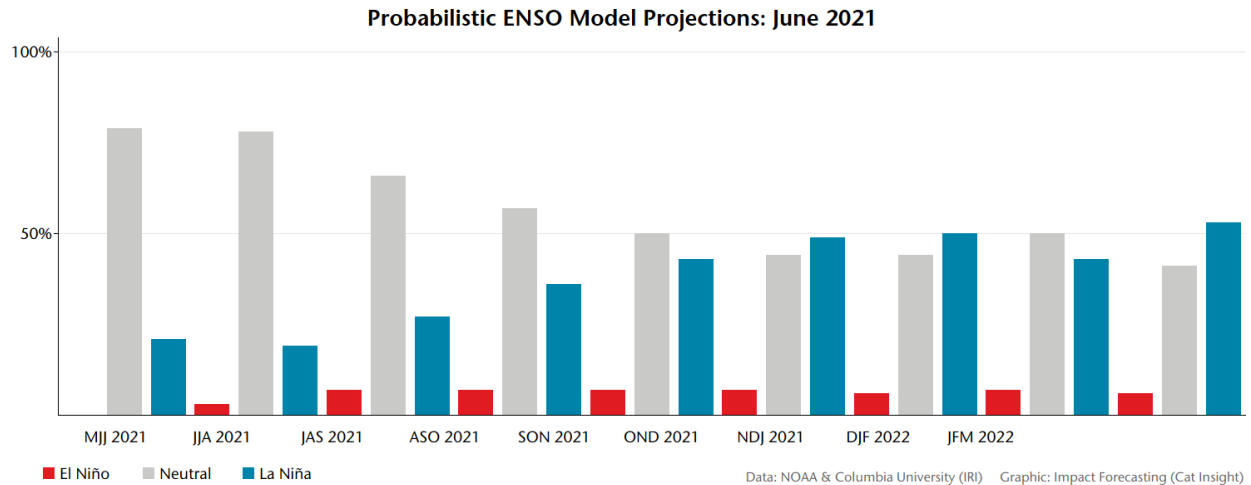


NOAA Coral Reef Watch Daily 5km SST Anomalies (v3.1) 9 Jun 2021



El Niño-Southern Oscillation (ENSO)

ENSO-neutral conditions are currently present. NOAA notes a 78 percent chance that these neutral conditions will persist through the Northern Hemisphere summer (June-August).



El 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).

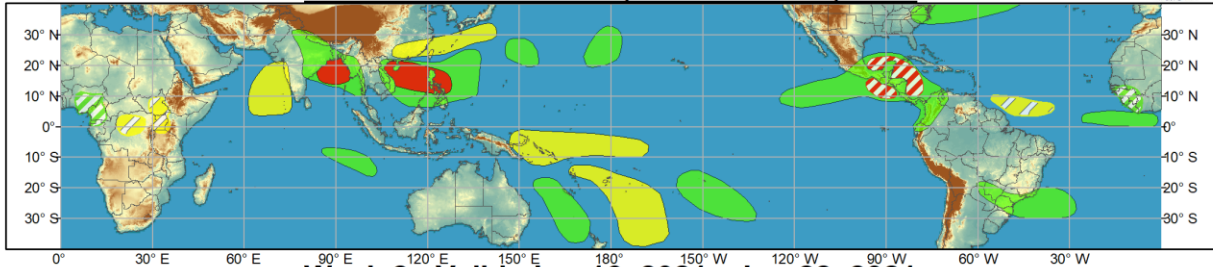
Global Tropics Outlook



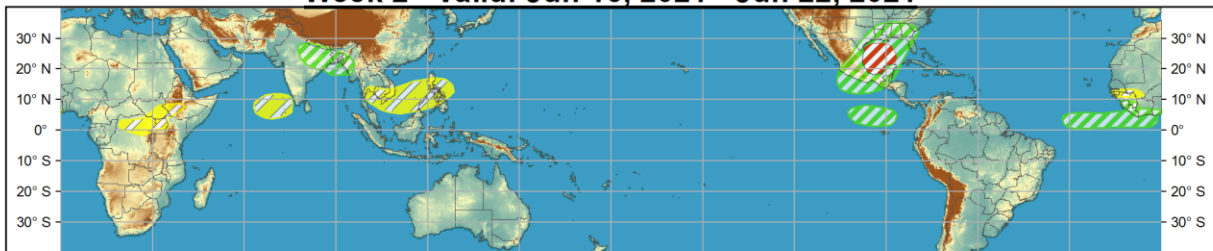
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Jun 09, 2021 - Jun 15, 2021



Week 2 - Valid: Jun 16, 2021 - Jun 22, 2021



Confidence
High Moderate

- Tropical Cyclone Formation** ■ ▨ Development of a tropical cyclone (tropical depression - TD, or greater strength).
- Above-average rainfall** ■ ▨ Weekly total rainfall in the upper third of the historical range.
- Below-average rainfall** ■ ▨ Weekly total rainfall in the lower third of the historical range.
- Above-normal temperatures** ■ ▨ 7-day mean temperatures in the upper third of the historical range.
- Below-normal temperatures** ■ ▨ 7-day mean temperatures in the lower third of the historical range.

Product is updated once per week, except from 6/1 - 11/30 for the region from 120E to 0, 0 to 40N. The product targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.

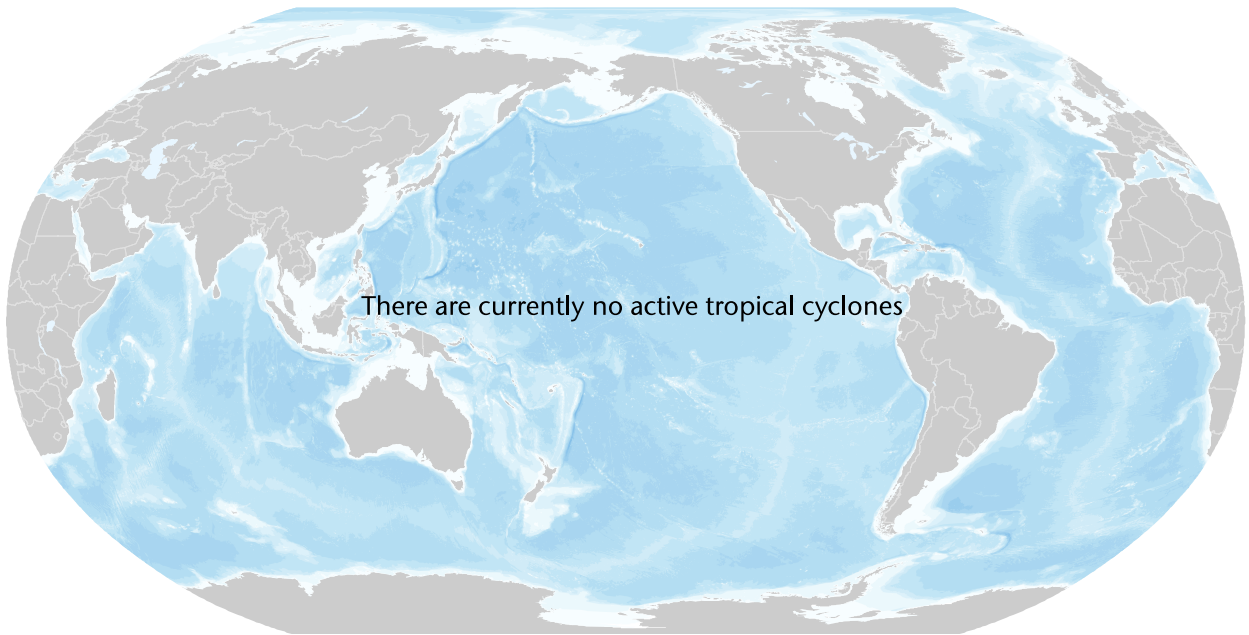
Produced: 06/08/2021

Forecaster: Novella



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

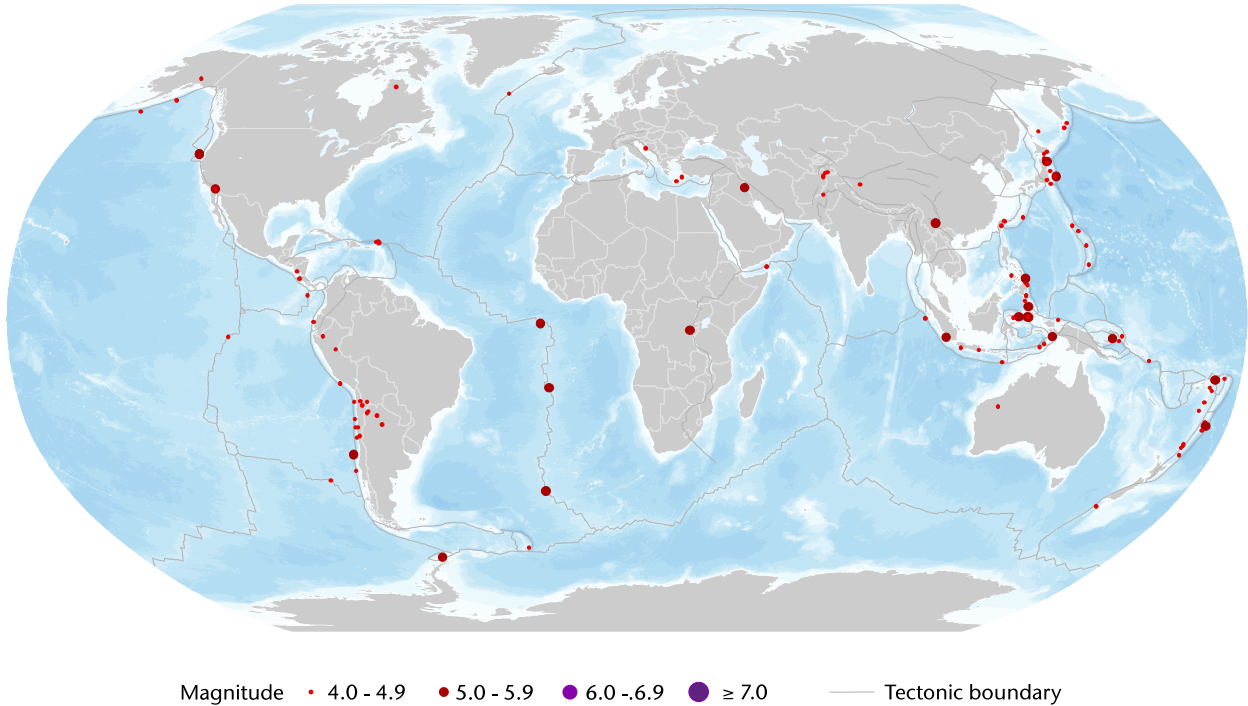
Name*	Location	Winds	Storm Reference from Land	Motion**
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* TD = Tropical Depression, TS = Tropical Storm, HU = Hurricane, TY = Typhoon, STY = Super Typhoon, CY = Cyclone

** 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 ($\geq M4.0$): Jun 4 – 10

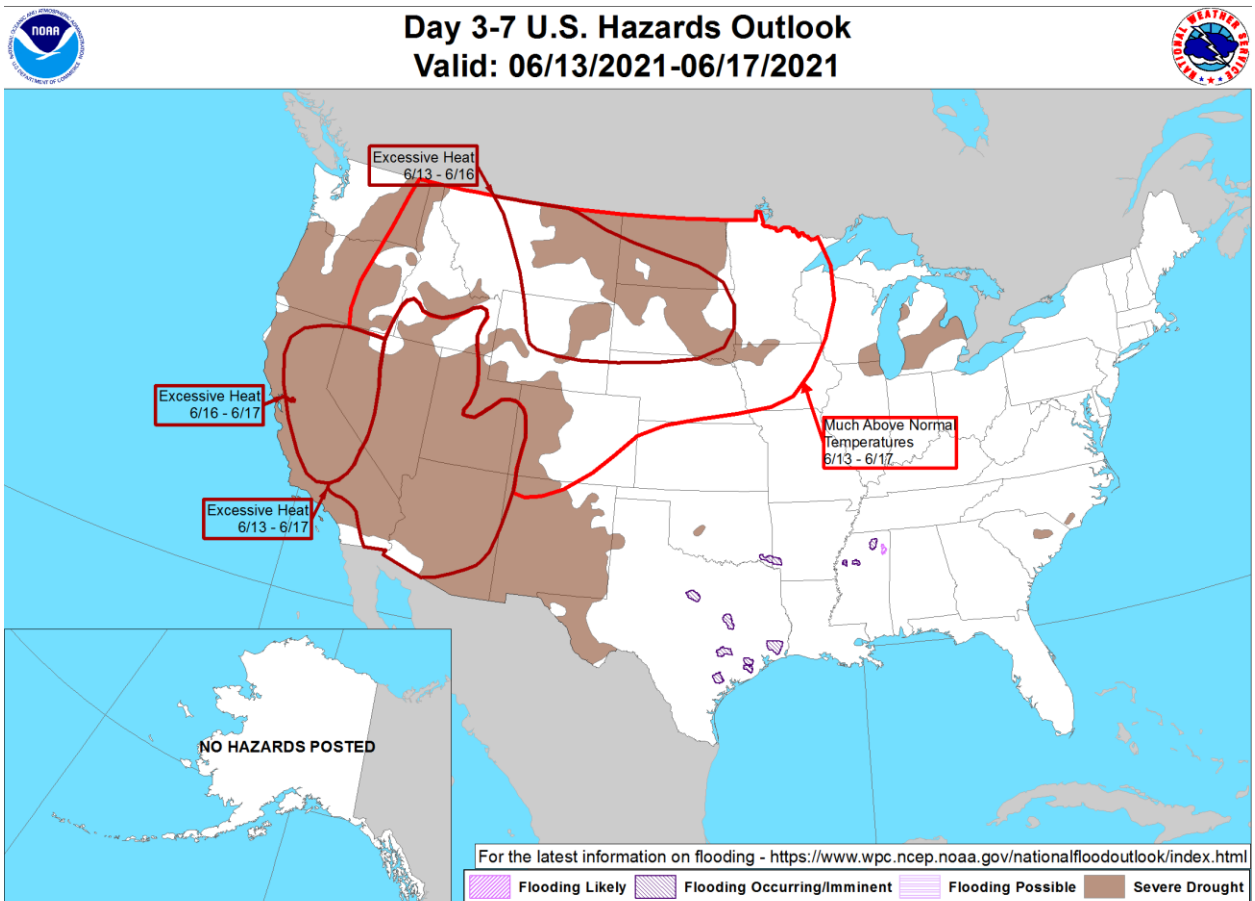


Significant EQ Location and Magnitude ($\geq M6.0$) Information

Date (UTC)	Location	Magnitude	Depth	Epicenter
05/31/2021	62.45°N, 148.25°W	6.1	44 km	73 kilometers (45 miles) N of Chickaloon, Alaska
06/03/2021	0.31°N, 126.34°E	6.1	10 km	12 kilometers (7 miles) WSW of Ternate, Indonesia

Source: United States Geological Survey

U.S. Weather Threat Outlook



Weather Prediction Center

Made: 06/10/2021 3PM EDT

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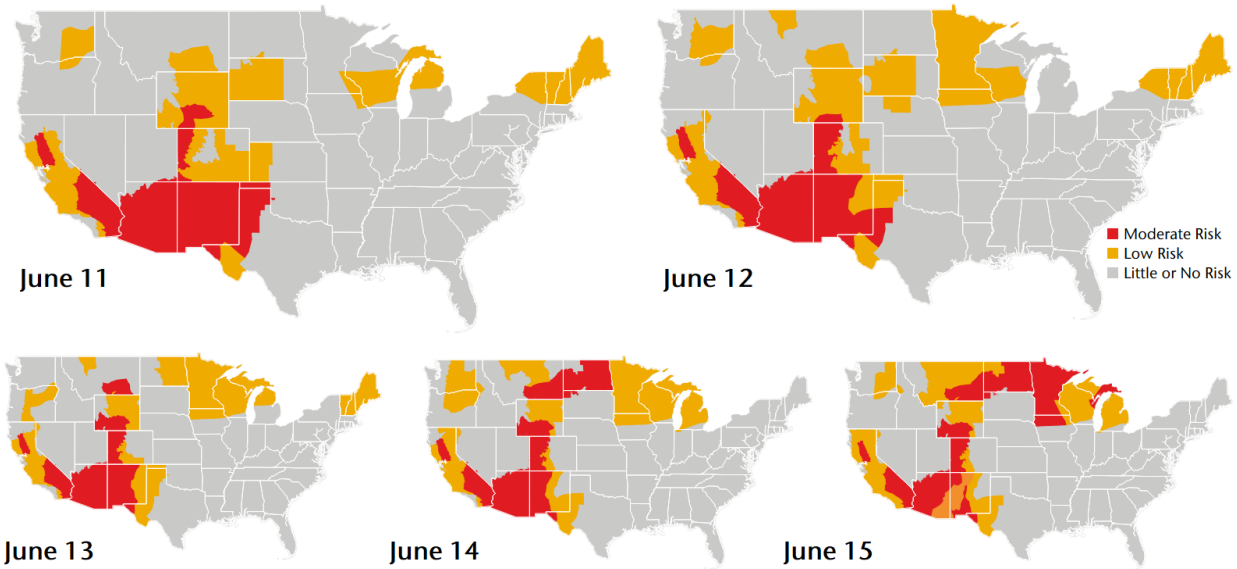
www.wpc.ncep.noaa.gov

Potential Threats

- The greatest threat over the medium range period will be excessive heat and much above normal temperatures between June 13-17 across large expanses of the Southwest and North-Central United States, associated with a persistent and anomalous upper-level ridge. Extreme heat will expand westward into California by June 16-17.
- Severe drought persists across vast regions in western and northern portions of the country. As of this writing, moderate to exceptional drought conditions covered 45 percent of the continental United States.
- Following recent bouts of heavy and historic rainfall, flooding remains a concern across localities of the Southern Plains and Lower Mississippi Valley.

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

The National Interagency Fire Center has highlighted large expanses of the country facing potential fire risk during the next week, particularly across drought-stricken regions of the Southwest and north-central U.S. In the coming days, a period of excessive heat will affect a broad portion of the country spanning from the Southwest into the Northern Plains. Record setting high temperatures over recent weeks have enhanced wildfire risk across the Northern Plains and Desert Southwest.



Data: National Interagency Fire Center Graphic: Impact Forecasting (Cat Insight)

Annual YTD Wildfire Comparison: June 10*

Year	Number of Fires	Acres Burned	Acres Burned Per Fire
2017	26,333	2,393,021	90.88
2018	25,437	1,845,444	72.55
2019	16,516	360,227	19.44
2020	20,541	597,262	29.08
2021	26,833	833,479	31.06
10-Year Average (2011-2020)	22,760	1,289,668	56.66

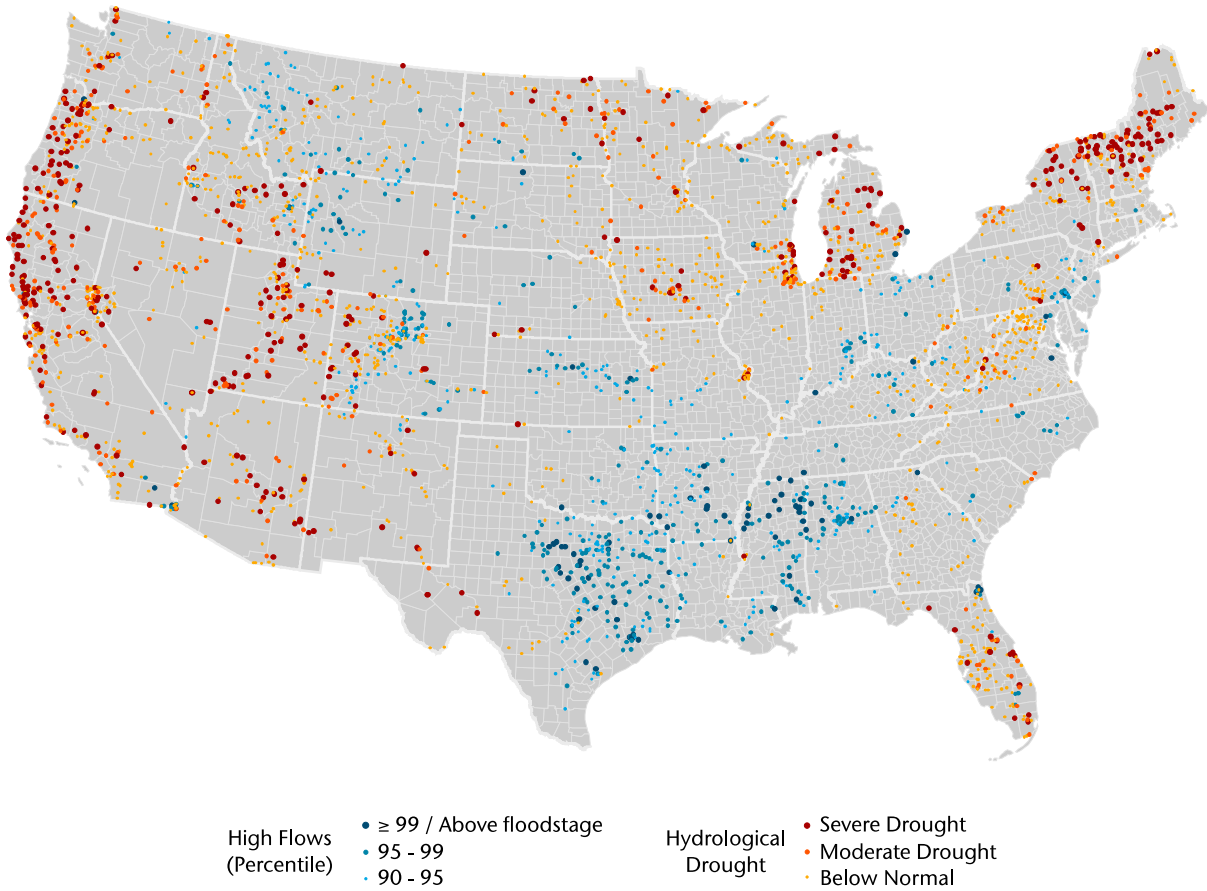
Source: National Interagency Fire Center

Top 5 Most Acres Burned by State: June 10

State	Number of Fires	Acres Burned	Acres Burned Per Fire
Arizona	828	137,064	165.54
Oklahoma	1,008	83,930	83.26
New Mexico	330	73,173	22.17
Florida	1,538	70,309	45.71
Texas	2,173	65,076	29.95

Source: National Interagency Fire Center

Current U.S. Streamflow Status



A $\geq 99^{\text{th}}$ 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 stream 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
Pearl River at Edinburg, Mississippi	19.65	98.91
Tombigbee River at Demopolis L&D near Coatopa, Alabama	78.70	98.90
Noxubee River at Macon, Mississippi	28.16	98.82
Saline River near Rye, Arkansas	23.71	98.80
Little Juniata River at Spruce Creek, Pennsylvania	4.57	98.78

Source: United States Geological Survey

Source Information

Severe convective storm outbreak in parts of Europe

Storm balance from the weekend. WetterOnline
Thunderstorms caused chaotic Friday in Luxembourg. RTL
Deutscher Wetterdienst
Royal Meteorological Institute, Belgium
Royal Dutch Meteorological Institute
European Severe Weather Database

Severe weather, historic flash flooding impact U.S.

U.S. National Weather Service
U.S. Storm Prediction Center
U.S. Weather Prediction Center
Floodwaters cause issues for multiple vehicles in Green Country, ABC 8 Northeast Oklahoma
Torrential rain and severe wind lead to widespread flooding, KFVR TV
Residents experience major flooding, water rescues in southeast Arkansas, ABC 7 KATV
Flash flooding in McCurtain Co. leads to swift-water rescues, submerged cars, News 4 Oklahoma

Natural Catastrophes: In Brief

Agroseguro predicts that 20,000 hectares will be damaged by hail. *El Periodico de Aragon*
Bangladesh warns of more thunderstorms as lightning strikes kill 17 in a day, BDNews
Lightning kills 27, injures several in West Bengal, Economic Times
Lightning strikes kill 7 in 3 districts, Dhaka Tribune
Incident Information System (InciWeb)
'Incredibly scary': Arizona wildfires scorch more than 138,000 acres, The Guardian
Arizona wildfires force more evacuations, highway closures, The Associated Press
Arizona Wildfires Grow But Some Residents Allowed to Return Home, The Weather Channel
Telegraph Fire now ranked in top 10 largest Arizona wildfires, ABC 15
National Unit for Disaster Risk Management (UNGRD),
Colombia – Deadly Landslide in Antioquia, Hundreds of Homes Flooded in Arauca, Floodlist
Agroseguro
Disaster Management Centre, Sri Lanka
Disaster Management Division, Ministry of Home Affairs, India
India Meteorological Department
Building collapse toll rises to 11; 15 NDRF teams deployed in Maharashtra for heavy rains forecast, CNBC
Red Alert in Raigad; Over 1,000 People Shifted to Safer Places, News 18
Bureau of Meteorology, Australia
The New South Wales Rural Fire Service
Cold spell in south-eastern Australia breaks temperature records for May, The Guardian
Sydney shivers through coldest day since 1984 as snow blankets NSW, The Sydney Morning Herald
Snow and winter rain to bite in the east while it's wet in the west, ABC News

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