Weekly Cat Report

July 10, 2020

This Week’s Natural Disaster Events

Event	Impacted Areas	Fatalities	Damaged Structures and/or Filed Claims	Preliminary Economic Loss (USD)*	Page
Flooding	Japan	60+	9,500+	100s of Millions	3
Severe Weather	United States	2+	Thousands	100s of Millions	5
Flooding	Pakistan	22+	Hundreds	Unknown	9
Flooding	Nepal	11+	Hundreds	Unknown	9
Flooding	India	711+	16,500+	10s of Millions	9
Flooding	Malaysia	0	Hundreds	10+ million	9
Flooding	Mongolia	8+	2,400+	1.7 Million	9
Flooding	Indonesia	0	1,150+	Unknown	10
Flooding	Canada	0	Thousands	Millions	10
Wildfire	Ukraine	5	140+	Millions	10
Flooding	China	114+	250,000+	6+ billion	10

**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.*

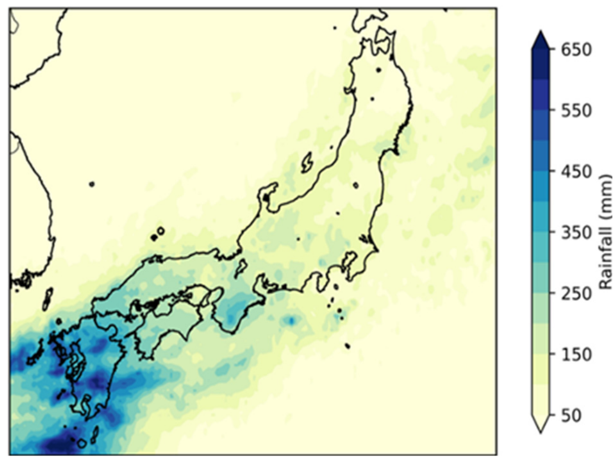
Along with this report, we continue to welcome users to access current and historical natural catastrophe data and event analysis on Impact Forecasting’s Catastrophe Insight website: http://catastropheinsight.aon.com

Heavy flooding in Japan as monsoon intensifies

Record breaking torrential rains triggered flash floods and landslides in southern and central parts of the Japanese archipelago since July 3, causing widespread damage. Heavy flooding caused Kuma and Hida Rivers along with other smaller rivers to break their banks at 60 locations, leading to inundation damage to no fewer than 9,500 houses, businesses, bridges, and roads. Government estimates noted 60 fatalities and several others were reported missing. No fewer than 400,000 people were either relocated or instructed to take refuge due to the heavy flooding, and around 3.6 million people were directly affected across southern and central Japan. Given the extensive damage in southwestern and central Japan, the financial toll was expected to reach well into the hundreds of millions (USD); if not higher.

Meteorological Recap

Source: Geospatial Information Authority of Japan



Accumulated precipitation on July 3-8

On July 3-6, heavy rains were recorded in the Kyushu Region in southern Japan. According to the Japan Meteorological Agency (JMA), more than 500 millimeters (20 inches) of rainfall at 10 stations was recorded in Kumamoto Perfecture during a 24-hour stretch ending on July 4. Around 405 millimeters (16 inches) of rainfall was noted in Kuma, Yunomae, and Amakusa between July 2–4, with rain rates approaching 95 millimeters per hour (4 inches per hour) at several instances during the event. Rain gauges at several observation station noted their highest ever hourly rain-rates. According to the JMA, Kuma Village in Kumamoto reacorded 83.5 millimeters of rainfall in one hour on July 4, while Kanoya city in Kagoshima had 109.5 millimeter per hour on July 6. Hioki City recorded 98.5 mm in just 1-hour on July 6. The landslide risk level in parts of southern Kyushu were noted from high to extreme risks, prompting the JMA to issue its highest level warnings for floods and landslides across parts of Kumamoto and Kagoshima prefectures. Another spell of heavy rains were recorded in the Gifu and Oita Prefectures on July 7-8, causing widespread indundation in the affected areas. This torrential rainfall were caused by a stationary front – Mei-yu (or Baiu) front.

The Baiu (or Mei-yu) front is quasi-persistent and near stationary baroclinicly unstable atmospheric zone near the Earth's surface. The Baiu front is east-west oriented and located near the coast of China and Taiwan at its western end, and over the western Pacific and Japan towards its eastern end. The heavy convective rain bands propagate eastward along this baroclinically unstable Baiu front which sources moisture from the Bay of Bengal and South China Sea, and bring heavy to very heavy rainfall in tadem to their movement. The entire system propagates northwards as the East Asian monsoon season evolves, in order to bring monsoon rainfall to the rest of Japanese archipelago and other east Asian countries, such as northern China and South Korea. The climatological dates of Baiu arrival and withdrawal over Kyushu islands are May 31 and July 14, respectively.

Event Details

Heavy monsoon rainfall triggered flash floods and mudslides in the Kyushu islands between July 3-5. Notable inundation damage was observed in Kumamoto, Oita, Miyazaki, and Kagoshima prefectures; additionally, the southern island of Kyushu was also hard hit. Heavy precipitation was recorded in Kumamoto Perfecture, with some stations noted almost 4 inches of rainfall per hour. As a result of extemely intense rainfall, the Kuma River swelled above the severe flood warming level at more than 11 locations, causing widespread inundation in areas along its banks. Hundreds of homes, roads, businesses, and cars were deluged in the Kumamoto's Hitoyoshi town by waters from the overflowing Kuma River.

Kumamoto Prefecture (Source: Nikkei News)

Many emergencies were reported from the severely affected area in Kumamoto and Kagoshima prefectures due to flood waters which reached up to roof level at several houses. At least 300,000 people were either relocated to relief camps by disaster authorities or instructed to take refuge. A significant proportion of residents in the Kumamoto and Kagoshima prefectures were left without electricity and drinking water, while telecommunications and internet services were also affected. At least 11 bridges were destroyed in Kyushu islands and large segments of roads were damaged to various degrees, according to infrastructure ministry, Japan. More than 6,100 homes along the banks of Kuma River were inundated. At least 60 people were confirmed dead and several others were noted missing in the wake of ongoing floods, according to Japan's Fire and Disaster Management Agency (FDMA).

Landslide in Kyoto (Source: AP)

The rain belt that caused deadly floods in Kyushu Island in southwestern Japan migrated northeast on July 6 affecting at least 20 municipalities in Nagano and Gifu Prefectures in central Japan. Torrential rains caused swelling of additional rivers in central Japan, triggered landslides, and destroyed several houses, roads, businesses, and bridges along their banks. Gero, Takayama, and Ontake towns were completely cut off due to heavy mudslides leaving thousands of residents stranded. Around 250,000 people were asked to take refuge by government officials. As of this writing, around 60 rivers were swollen above the flood warning level at several locations, and 179 mudslide events had occurred in 23 prefectures. More than 9,500 building were either flooded or sustained damage in southwestern and central Japan. According to the local media reports and FDMA, at least 4,000 buildings in Fukuoka, 309 in Kagoshima, 2,190 in Kumamoto, 914 in Gifu, and 112 in Oita Prefectures were deluged. These totals are expected to increase as assessments continue.

Financial Loss

Owing to extensive damage across southwestern and central Japan, it is anticipated that the economic losses will be significant and reach well into the hundreds of millions (USD); if not higher. Insurers were expected to receive thousands of claims associated with flood-related incidents, though the General Insurance Association of Japan (GIAJ) had yet to release preliminary claims data. With more rainfall in forecasts in coming days to weeks, further damage and losses are likely. The month of July is often one of the costliest for monsoon flooding in Japan. Most recently, a major event occurred from July 2-8, 2018 that resulted in economic damage in excess of USD10 billion. Insurers paid out more than USD2.5 billion.

Tornadoes, strong winds, and large hail impact U.S.

A slow-moving upper level pattern, and northward retreating jet-stream featuring an expanding trough over the Pacific Northwest and an anomalous high-pressure ridge building over the mid-section of the country, allowed for multiple days of unsettled weather, including heavy rains and localized severe storms which most affected the Northern and Central Plains as well as the Northern Rockies between July 2-9. Large hail, strong winds, and isolated tornadoes were the main hazards of concern. This included a notable hail event near Rapid City, South Dakota on July 6, a strong derecho which traversed from Montana to Minnesota between July 7-8, and multiple reported tornadoes in Minnesota, Colorado, and Nebraska on July 8 – leading to at least one fatality. A moist and unstable air mass associated with a weak frontal boundary across the Mid-Atlantic states was responsible for severe weather on July 5-6, with high winds being the predominant hazard. Total combined economic and insured losses during the stretch were each expected to reach into the hundreds of millions (USD).

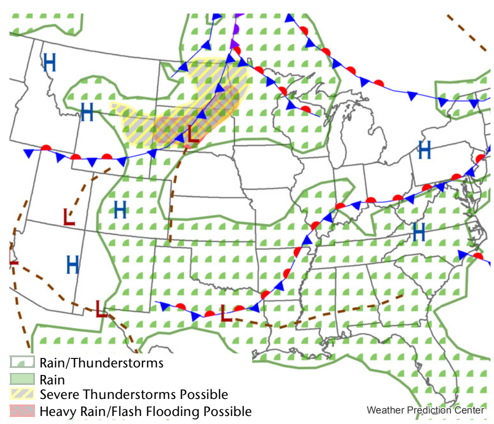
Meteorological Recap

July 2

In the Central Plains, storm development initially occurred across eastern Colorado associated with a deepening upper level short wave trough and approaching surface dry line (a boundary that separates a moist air mass from a dry air mass). Ahead of this boundary the environment was characterized by dewpoints reaching into the upper 60s (°F) and large values of Convective Available Potential Energy or CAPE, which is directly related to the updraft strength in storms. Discrete cells organized into a Mesoscale Convective System (MCS) containing severe linear segments which propagated eastward toward southwest Nebraska and northwest Kansas in the evening and overnight hours, producing wind gusts of at least 60 to 70 mph (96 to 112 kph). The greatest hazards associated with this event transitioned from isolated tornadoes and large hail, to strong and damaging winds as the storms developed. Further north, strong diurnal heating ahead of an approaching cold frontal boundary led to the development of severe storms across western Nebraska and the Dakotas, with the primary hazard being severe hail.

July 5

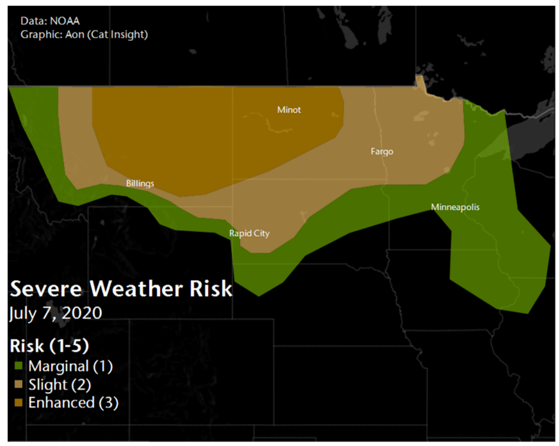
The principal focus for severe weather on July 5 occurred in the vicinity of a south-southeastward meandering cold frontal boundary along with several outflow boundaries from previous storms across portions of the Northern Plains. The Storm Prediction Center (SPC) issued a Slight Risk (level 2 out of 5) for severe weather with the greatest impacts in regions of Montana, Wyoming, South Dakota, North Dakota, and Minnesota. Severe potential in these areas was enhanced by ample surface heating and sufficient wind shear, which aided in the initial development of severe discrete storms and storm clusters. Most impactful were multiple instances of large and significant hail (greater than or equal to 2.0 inches) and strong wind gusts reported with storms traversing portions of western Wyoming into the Dakotas during the evening hours.



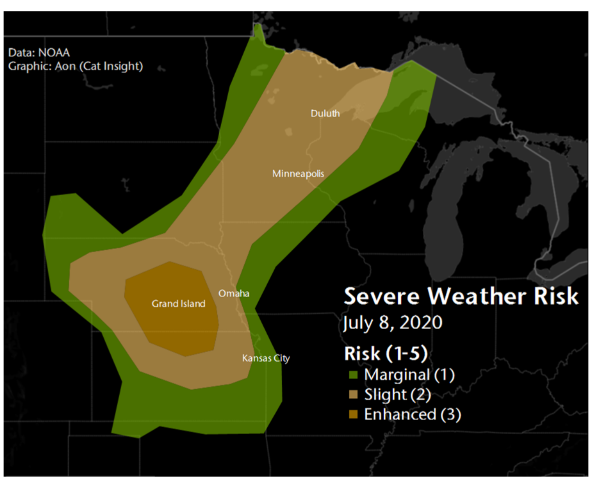
July 6

The frontal boundary across the Northern and Central plains remained a focal point for severe weather on July 6. A supercell on the southern end of a developing line of severe storms which traveled from northeastern Wyoming and southeastern Montana into South Dakota, produced a notable hail event across portions of the southern Rapid City (South Dakota) metro region, where hailstones approaching 2.75 inches (7.0 centimeters) were reported. Across the Mid-Atlantic, severe storms developed to the south of a frontal boundary in a favorably warm and moist air mass, producing multiple reports of severe winds across Pennsylvania, New Jersey, Maryland, and Delaware.

July 7-9



The SPC indicated a region across eastern Montana and northwestern North Dakota for an Enhanced Risk (level 3 out 5) of severe weather on July 7, with a broader region of Slight Risk (level 2 out of 5) extending into portions of northern South Dakota and eastward into northern Minnesota. The environment ahead of a sharp cold front progressing eastward from western Montana was characterized by steep low and mid-level lapse rates (changes in temperature with height) along with veering winds (winds turning clockwise with height). This allowed multiple discrete cells to rapidly develop into severe storm clusters and linear segments. As these storms pushed eastward a strong derecho event unfolded across portions of eastern Montana and North Dakota throughout the evening hours continuing toward Minnesota by the morning of July 8. A derecho is defined as a fast-moving cluster of thunderstorms that travels hundreds of miles and are marked by widespread straight-line wind damage. Severe weather was also reported in the extreme southern Canadian Prairies. The main hazards associated with this event were severe and straight-line winds of 75 mph (120 kph) and greater, along with large hail.



On July 8, severe storms and storm complexes continued to develop ahead of the strong southwestward extending frontal boundary associated with a low-pressure system tracking eastward across the Canadian Prairies. The SPC highlighted a region across central Nebraska and northern Kansas for an Enhanced Risk (level 3 out of 5) of severe weather, with a Slight Risk (level 2 out of 5) along an axis oriented with the cold front continuing northeastward into Minnesota. The environment ahead of the front, in the Central Plains, consisted of a very moist airmass with dewpoints approaching the lower 70s (°F). In the evening hours, initially discrete cells and supercells were responsible for producing multiple reports of strong tornadoes and large hail primarily across regions in Minnesota, Colorado and Nebraska. Severe weather in the Central Plains quickly organized into a squall line with a mature bowing structure as it continued south-southeast through Nebraska and eastern Kansas in the overnight hours and into the morning of July 9, creating strong straight-line winds approaching and exceeding 60 to 70 mph (96 to 112 kph), which became the primary hazard. Additionally, severe storms aided by daytime heating produced large hail along with strong and damaging winds across portions of New England.

Event Details

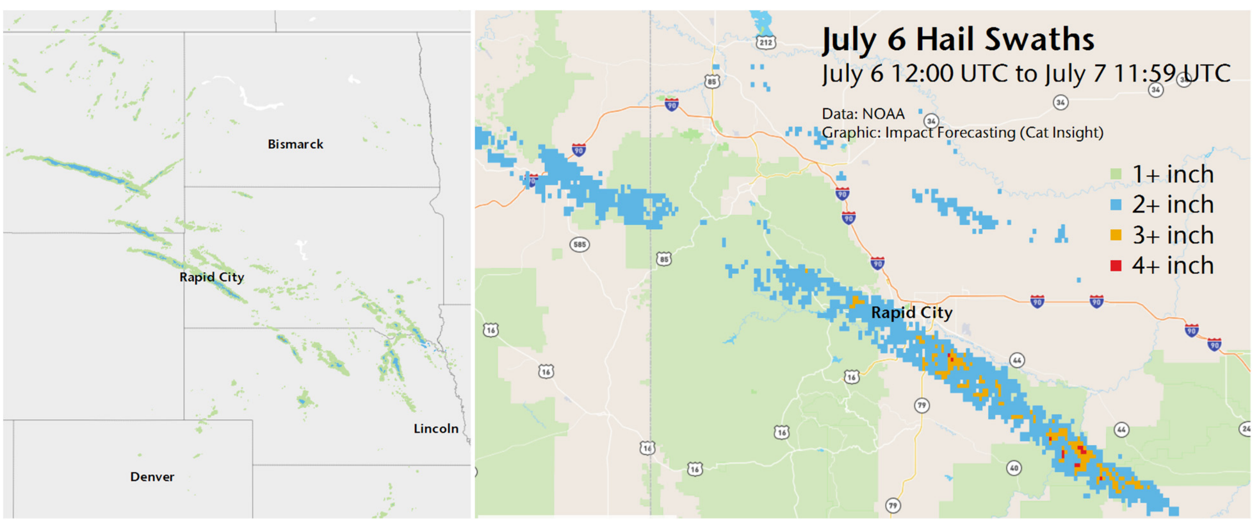
July 2

There were 173 instances of severe weather reported on July 2, of which 117 were for wind, with 4 for high winds, greater than or equal to 75 mph (120 kph). Baseball sized hail, approaching 3.0 inches (7.6 centimeters) were reported in Washington County (Colorado), while 2.0-inch (5.1-centimeter) hail were reported in Pennington County (South Dakota). In Dawes County (Nebraska), an EF-2 tornado was confirmed with maximum wind speeds between 105-115 mph (169-185 kph), along with 2.75-inch (7.0-centimeter) hail, damage to trees and farmland were noted with this event. A maximum wind gust of 93 mph (150 kph) was measured in Graham County (Kansas).

July 5

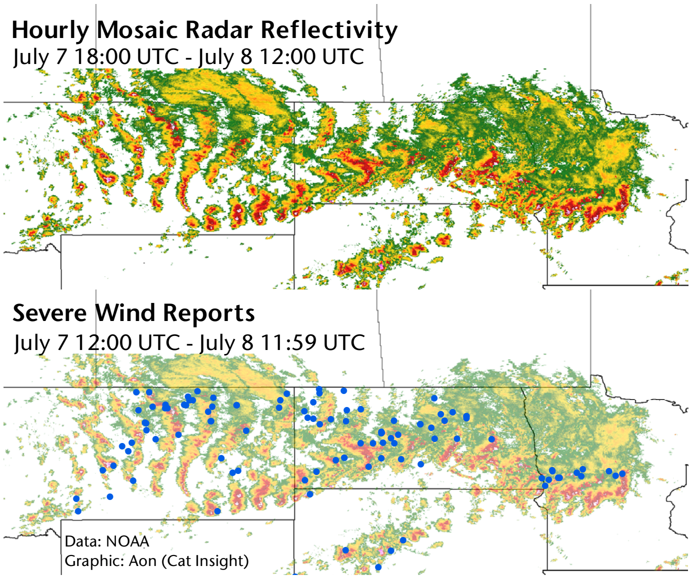
Hailstones of 3.0 inches (7.6 centimeters) in Grant County (North Dakota) were responsible for noted damage to structures, outbuildings, and crops. Significant hail of 2.0 inches (5.1 centimeters) or greater were observed in Pennington, Custer, and Harding Counties (South Dakota). A maximum wind gust of 90 mph (145 kph) was measured in Jones County (South Dakota). Severe wind gusts of at least 60 to 70 mph (96 to 112 kph) were responsible for additional damage to crops, trees, and outbuilding in the most affected counties. Widely scattered severe weather further east, resulted in 19 injuries in Maryland when a tree fell on an outbuilding being used as a shelter, and one fatality in North Carolina also resulting from a falling tree.

July 6



As of this writing there were 270 instances of severe weather on July 6, of which 71 were for hail. Most impactful, was a supercell storm producing a notable hail swath extending from northeastern Wyoming southeastward through southwestern South Dakota, including portions of the Rapid City metro region. Hailstones of 2.0 inches (5.1 centimeters) and larger associated with this cell were observed across portions of Campbell and Crook Counties (Wyoming) in addition to Pennington and Custer Counties (South Dakota), with noted damage to vehicles and windows. Across the Mid-Atlantic strong wind gusts in excess of 60 mph (96 kph) led to numerous reports of downed trees resulting in road closures, damage to utility and power lines, and impact to vehicles.

July 7-9



There were at least 196 instances of severe weather on July 7, of which 155 were for wind with 11 reports of high winds, greater than or equal to 75 mph (120 kph). Measured wind gusts of 80 mph or greater were recorded in Garfield, Valley, and Sheridan Counties (Montana), McLean County (North Dakota), and Otter Tail County (Minnesota). Extensive wind damage to trees, roofing and outbuildings, and crops were noted across the counties most affected by this event. According to authorities, a chemical warehouse in McHenry County (North Dakota) was destroyed by high winds. Hailstones approaching and exceeding 2.0 inches (5.1 centimeters) in diameter were observed in Musselshell and Yellowstone Counties (Montana), in addition to Stutsman County (North Dakota) and Harding County (South Dakota) - where hail reportedly fell for at least 10 minutes.

As of this writing, there were 327 reports of severe weather on July 8, of which 25 were for tornadoes and 241 for wind. A strong tornado in Otter Tail County (Minnesota) resulted in one fatality, and two injuries. The tornado traveled through mostly open farmland though at least three farmsteads were significantly damaged, along with other structures, homes, and outbuildings along the path. Damage assessments are currently ongoing, however based on preliminary indicators the National Weather Service (NWS) estimates the strongest tornado likely produced EF-3 or greater damage. Hailstones approaching and exceeding 2.0 inches (5.1 centimeters) in diameter were reported in Thomas County (Nebraska) as well as Hubbard and Big Stone Counties (Minnesota). In the Plains, a maximum wind gust of 94 mph (151 kph) was measured in Cheyenne County (Nebraska) - in surrounding areas high winds resulted in power losses, as well as noted damage to large trees, trailers, and homes. Further east, a wind gust of 85 mph (153 kph) was recorded in Franklin County (Maine). Straight-line winds across regions of New England caused numerous downed trees resulting in impacts to power lines, vehicles, structures, and blocked roadways.

Financial Loss

Total combined economic and insured losses during the stretch were each expected to reach into the hundreds of millions (USD).

Natural Catastrophes: In Brief

Flooding (*India*)
Monsoon convective clouds triggered torrential rains and lightning strikes in more than 25 districts of Uttar Pradesh and Bihar on July 2–4. According the National Disaster Management Agency, India, at least 62 people died due to lightning strikes related incidents while no fewer than 40 people were severely injured. According to government data and local media reports, no fewer than 315 have died due to lightning strikes in India since May 15. More than 90 percent were reported from Uttar Pradesh and Bihar. With heavy monsoon rains during the monsoon season, more than 80 percent above-normal accumulated precipitation were recorded in the states of Uttar Pradesh and Bihar. Incessant rains caused several rivers to swell above the severe flood warning level at hundreds of locations, resulting in inundation damage to thousands of houses and businesses. Heavy monsoon rains triggered landslides and flash floods in the states of Karnataka and Gujrat, India on July 5–6. According to the India Meteorological Department (IMD), rainfall totals crossed 400 millimeters mark in several districts, leading to inundation of hundreds of houses. At least five people died in rain-related instances. Since June 1, 13 states in India were affected by the monsoon rains. No fewer than 16,500 homes sustained damage or destroyed. Around 396 people died in flood-related incidents, and no fewer than 4.2 million people were affected across 5,000 villages. This is an ongoing event and according to the initial damage estimates by Indian government, the economic losses were likely to be well into the millions (USD).

Flooding (*Pakistan*)
Torrential rains coupled with strong winds hit parts of Pakistan on July 6-7. According to the local media reports, at least 22 people died, of which 12 people died in Khyber Pakhtunkhwa while four and six fatalities were noted from the Gilgit Baltistan and Karachi districts, respectively. According to the Pakistan Meteorological Department (PMD), 43 millimeters of rainfall were recorded in Karachi during a 24-hours stretch ending on July 7. Hundreds of houses, businesses, and roads were inundated during the event.

Flooding (*Nepal*)
Heavy rains caused flooding and landslides in Gulmi, Doti, and Bajhang districts of Nepal on July 2–5. According to the local media reports, at least nine people died in landslide-related incidents while no fewer than 50 people were injured. More than hundreds of homes sustained damage during the event. Landslides resulted in road blockades at various locations causing traffic interruptions and affected the rescue efforts. Further flooding in Sindhupalchowk district on July 8 claimed two lives, while 18 were missing at the time of this writing.

Flooding (*Mongolia*)
Torrential rains prompted flash floods in the capital Ulaanbaatar and Ömnögovi and Töv provinces in Mongolia on July 2-4. According to the National Emergency Management Agency (NEMA) and local media reports, at least 8 people died in the wake of this event, and around 2,400 homes were inundated. Additionally, Ulaanbaatar authorities estimated losses on infrastructure, including roads, sidewalks and railings, at MNT4.7 billion (USD1.7 million).

Flooding (Malaysia)
Heavy rains triggered flooding in parts of eastern Malaysia on June 27 – July 1, both Sabah and Sarawak states located on Borneo were hit. Sabah authorities noted that 152 villages were affected, and more than 1,000 residents were evacuated, particularly from Tenum, Kota Belud and Papar districts. Flooding and landslides also ensued in Sarawak, particularly in Baram district. Economic losses were not yet determined, although about 3,000 affected farmers in Kota Belud alone suffered at least MYR29 million (USD6.8 million) losses due to damage on 7,000 hectares (17,000 acres) of paddy fields.

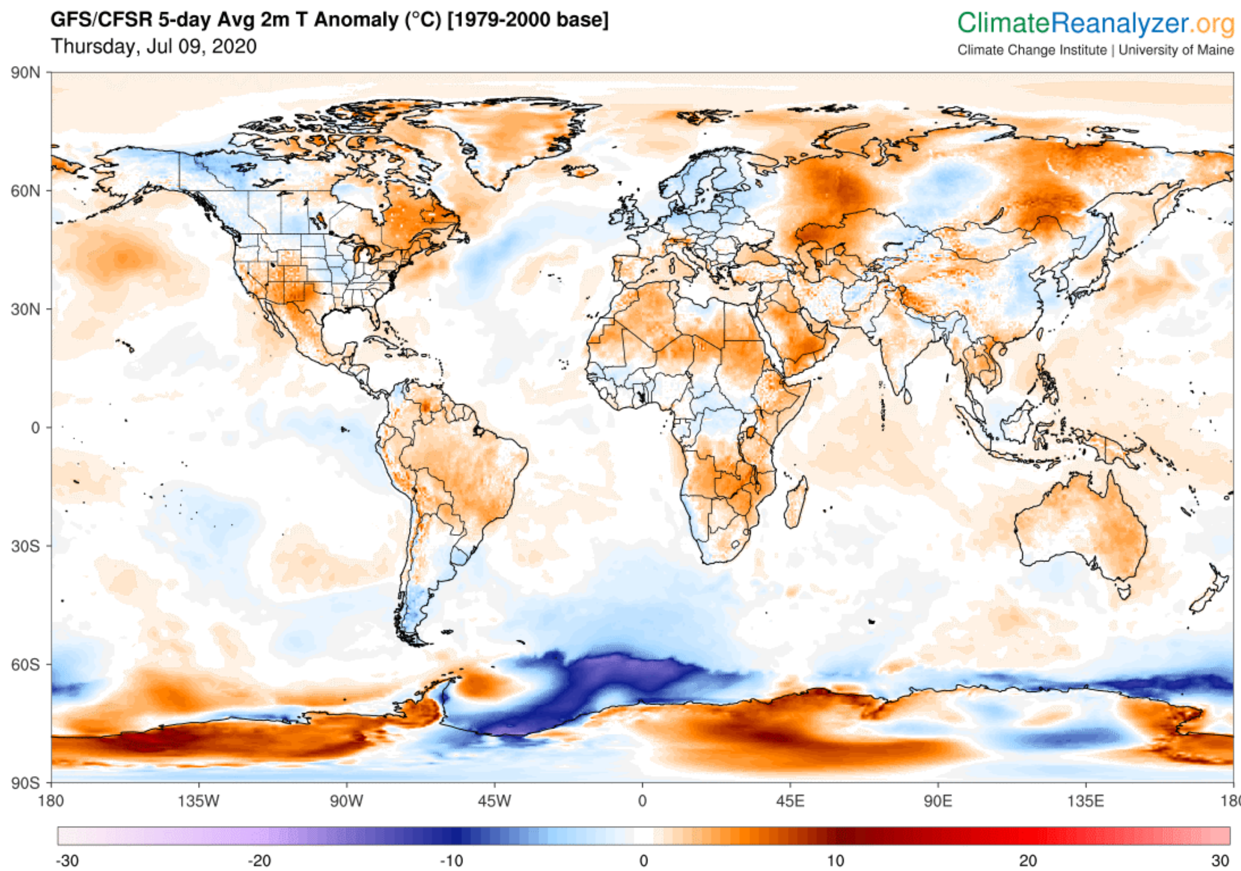
Flooding (*Indonesia*)
Torrential monsoon rains prompted flash floods in Sulawesi and Maluku Islands of Indonesia on July 3-4. According to the Asean Coordinating Centre for Humanitarian Assistance (AHA), several people were injured and around 5,000 people were affected during the event. Heavy flooding resulted in swelling of major rivers at several locations, resulting in inundation of more than 1,150 houses, businesses and roads.

Wildfire (Ukraine)
A large wildfire broke out near Oskolonivka in the Novoaidar district of the Luhansk region in eastern Ukraine on July 6 in forested areas along the Donets River and spread to about 5,000 hectares (12,300 acres) towards several settlements due to strong winds. Five people were killed and at least 34 were hospitalized, while 71 received medical treatment. According to the State Emergency Service of Ukraine, 24 homes were destroyed and 36 damaged in Smolyanynove. At least 80 structures (mostly country houses) were damaged or destroyed in the Vovche Ozero area. Nearly 1,500-strong personnel were involved in the emergency. The government announced compensations that will likely reach multiple million UAH.

Flooding (Canada)
On July 8 ample surface heating and high humidity aided in triggering severe slow-moving thunderstorms across portions of southern Ontario. One of these storms, which affected the Greater Toronto Area brought excessive rainfall and high winds, leading to a significant flash flooding event, particularly for the west end of the City. The storms resulted in downed trees affecting structures, inundated roadways, flooded homes, and power outages. Toronto Police reported marine rescue operations, while Black Creek overflowed its banks in multiple locations - rising at least 3 meters (9.8 feet) near Weston Road. As much as 50.4 millimeters (2.0 inches) of rain fell over portions of Toronto in as little as 20 minutes, with localized storm totals approaching and exceeding 60 millimeters (2.4 inches). Damage assessments are ongoing, however total economic losses are anticipated to reach into the millions (CAD).

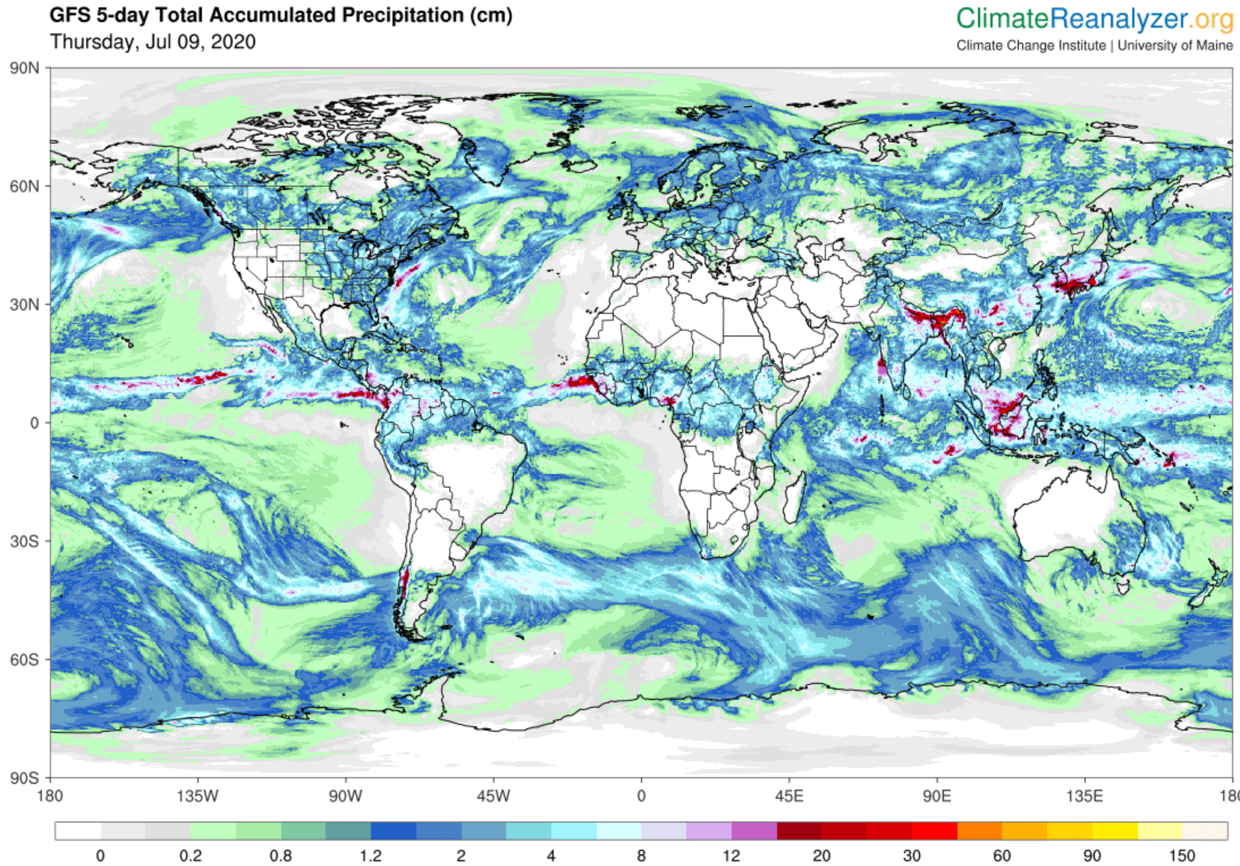
Flooding (*China*)
Heavy rains continued to affect Central China's Hubei Province on July 6-9. Monsoon rains prompted flash flooding and waterlogging in a large area of the province. Provincial capital Wuhan was worst hit during the event. More than 6 million people in the Hubei province were affected and no fewer than 68,000 people were relocated during the recent rounds of flash floods. Torrential rainfall struck the Huangmei county, with total rainfall exceeding 200 millimeters during a 24-hour stretch ending the morning of July 7. Heavy rains prompted a landslide in Huangmei County that causes at least 8 fatalities. Thousands of homes were submerged, and several thousand hectares of farmland were damaged during the event. The direct economic losses were estimated at CNY6.2 billion (USD894 million) by the Chinese government. With more rains in the forecast for coming days and weeks across central China, the financial toll is expected to rise significantly. Torrential monsoon rains on July 6-8 also affected Anhui province in east China. The observed flooding in Anhui province was the most severe since 1969, according to government officials. Several rivers swelled above the flood warning level, causing widespread damage in several counties, of which Shexian County was worst-hit. Hundreds of villages along the river banks were inundated to various degrees. Heavy rains since June 1 have prompted rivers to swell above the flood warning level at more than 300 locations, causing widespread inundation damage to around 250,000 houses. More than 114 people have died, and several others were reported missing thus far during the 2020 monsoon season. Total combined economic losses since June 1 were estimated at CNY42 billion (USD6 billion).

Global Temperature Anomaly Forecast



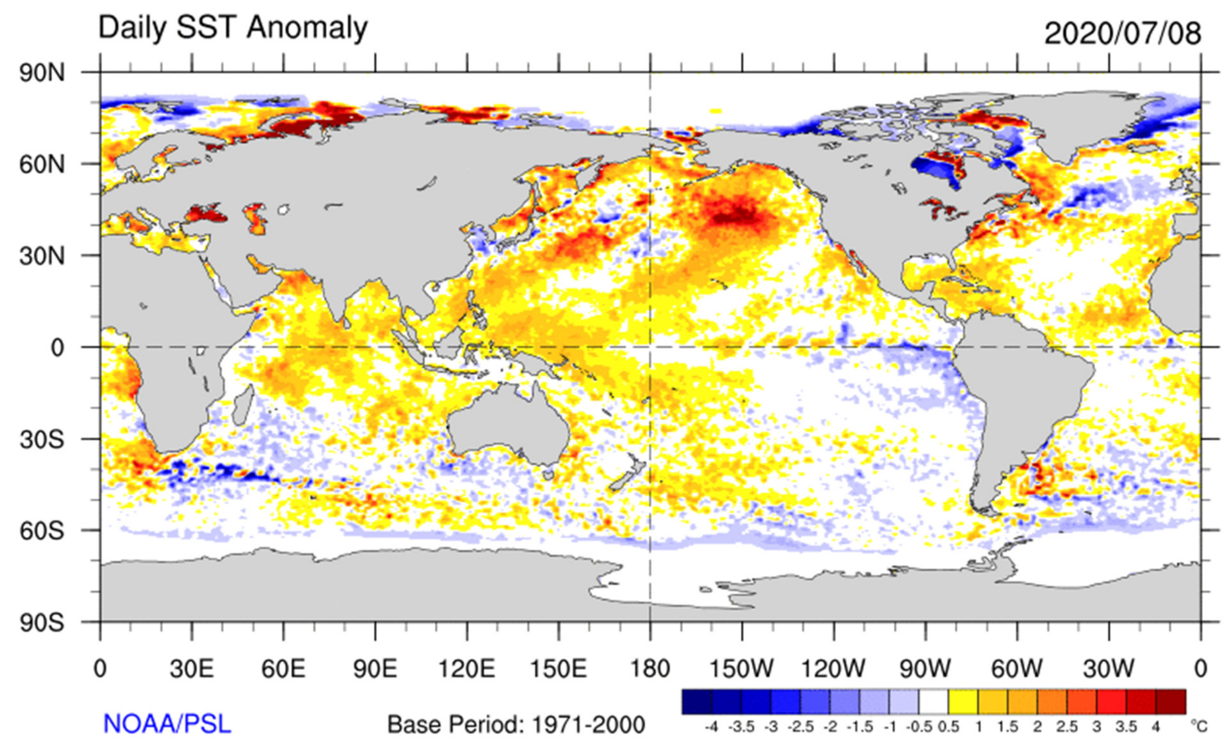
Source: Climate Reanalyzer, Climate Change Institute, University of Maine, USA

Global Precipitation Forecast



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

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



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.

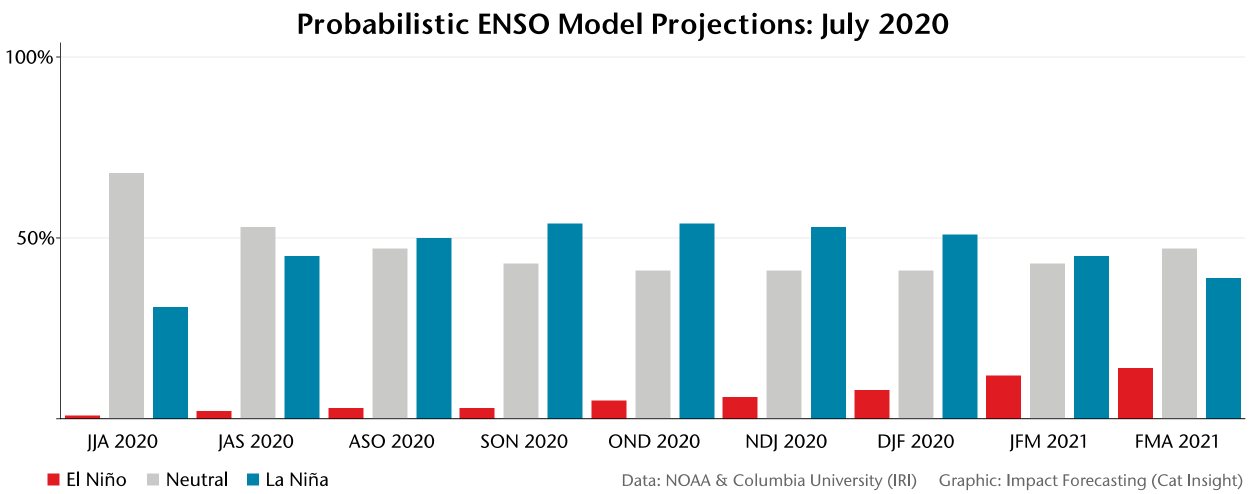
Select Current Global SSTs and Anomalies

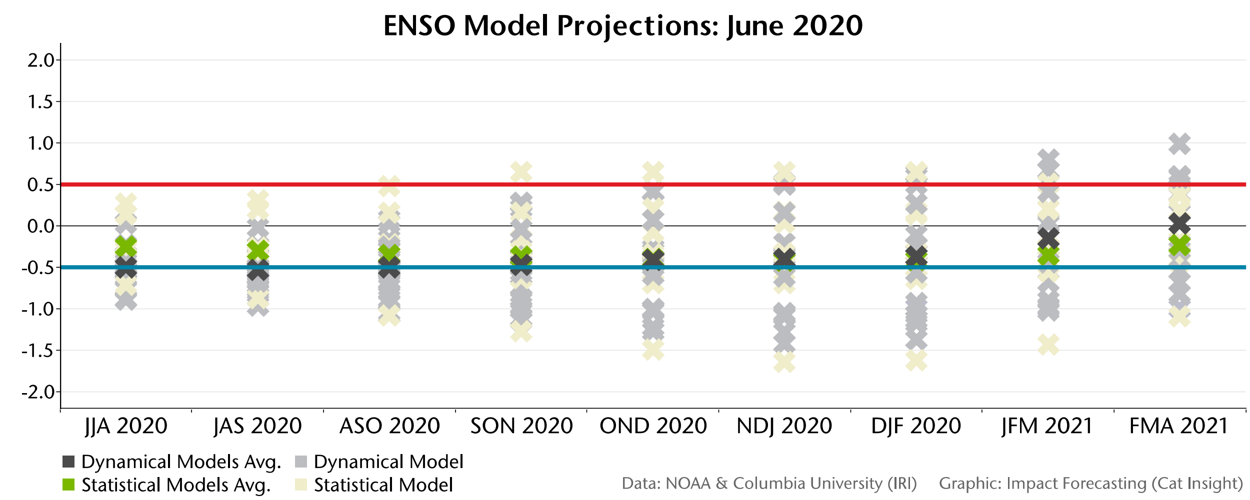
Location of Buoy	Temp (°C)	Departure from Last Year (°C)
Eastern Pacific Ocean (1,020 miles SW of San Salvador, El Salvador)	24.9	-1.6
Niño3.4 region (2°N latitude, 155°W longitude)	27.5	-1.5
Western Pacific Ocean (700 miles NNW of Honiara, Solomon Islands)	30.0	+0.2

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).





***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.*

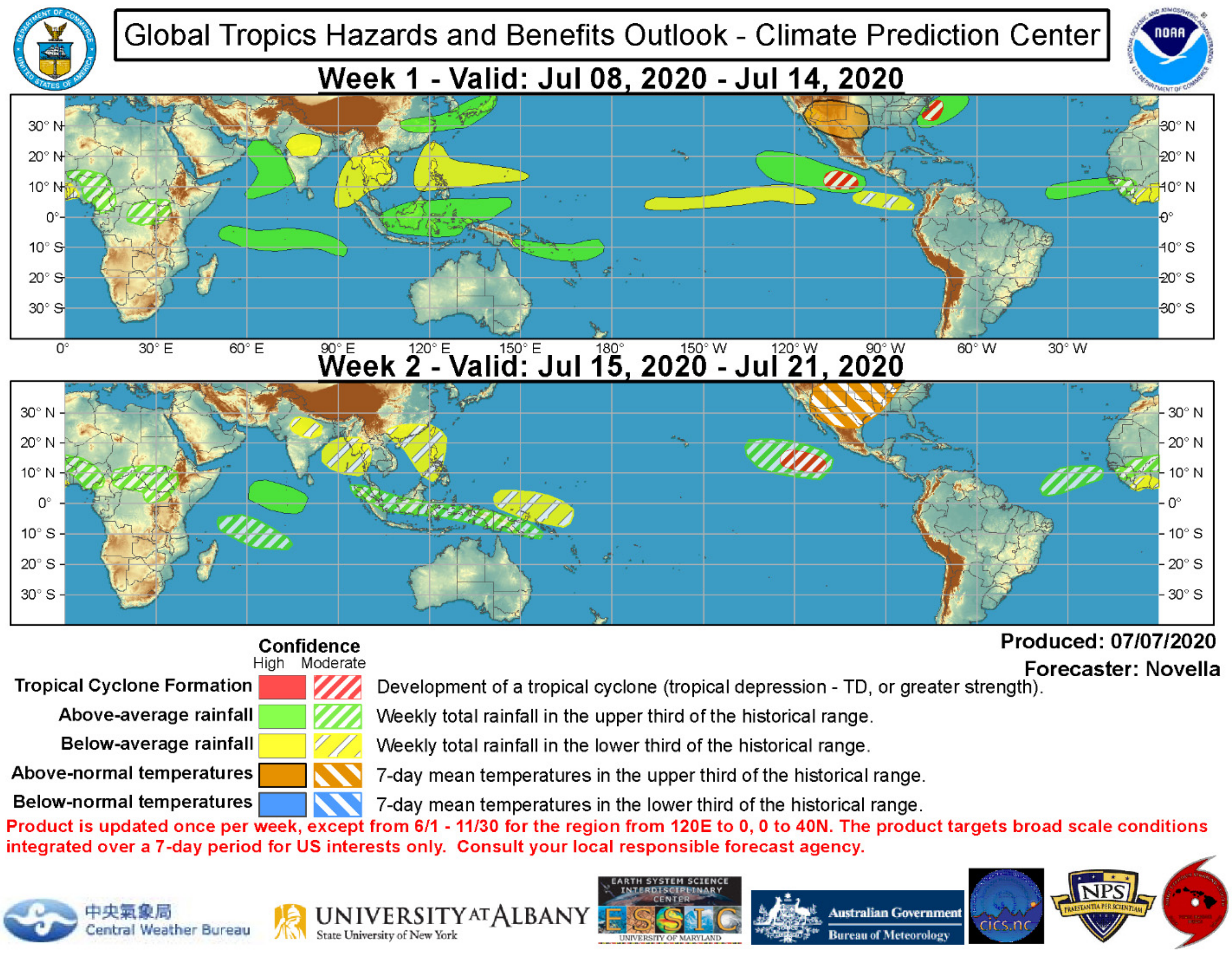
***La Niña** refers to the periodic cooling of sea-surface temperatures (-0.5°C) across the east-central equatorial Pacific. It represents the cold phase of the ENSO cycle.*

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.*

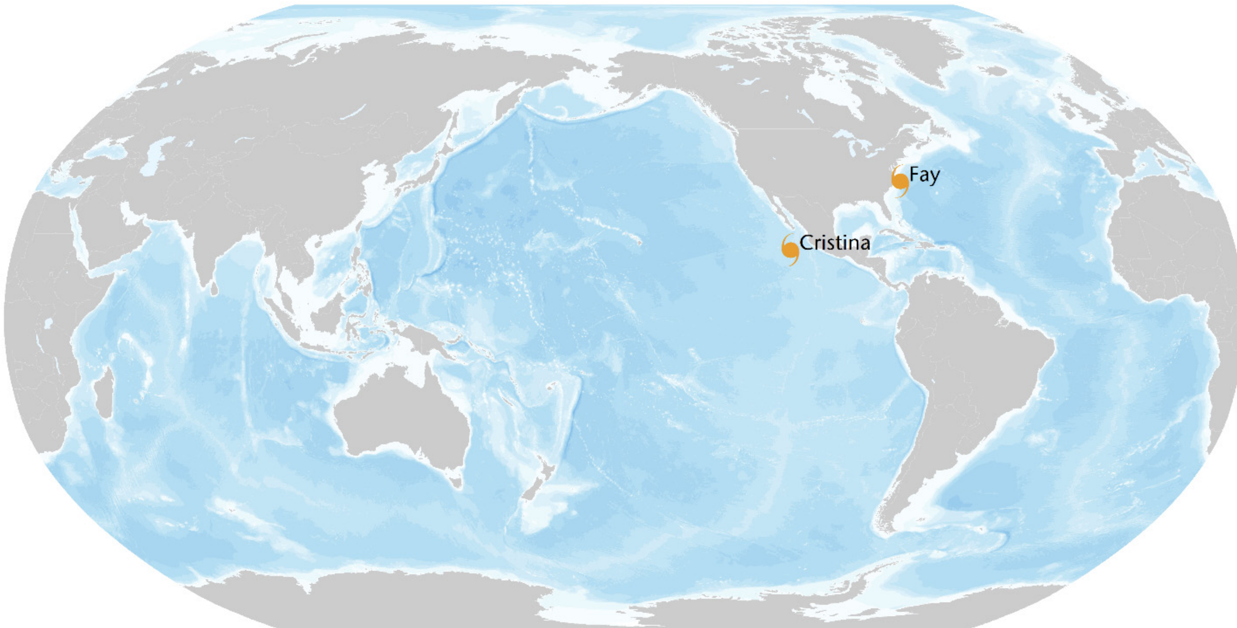
El Niño (La Niña) is a phenomenon in the equatorial Pacific Ocean characterized by a five consecutive 3-month running mean of sea surface temperature (SST) anomalies in the Niño 3.4 region that is above the threshold of +0.5°C (-0.5°C). This is known as the Oceanic Niño Index (ONI).

Global Tropics Outlook



Source: Climate Prediction Center

Current Tropical Systems



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

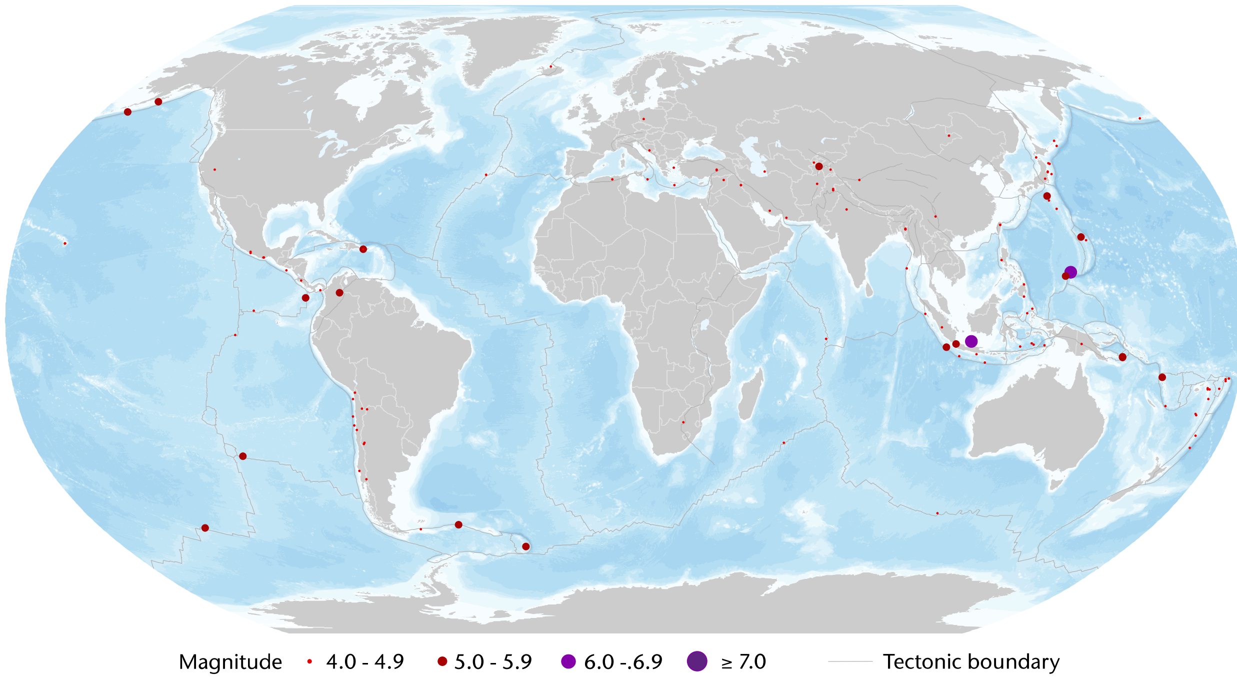
Location and Intensity Information

Name*	Location	Winds	Storm Reference from Land	Motion**
TS Cristina	17.9°N, 111.1 °W	70 mph	355 miles (570 kilometers) SSW of Baja California	WNW at 13 mph
TS Fay	35.5°N, 74.9 °W	45 mph	195 miles (310 kilometers) S of Ocean City, Maryland	N at 7 mph

* TD = Tropical Depression, TS = Tropical Storm, HU = Hurricane, TY = Typhoon, STY = Super Typhoon, CY = Cyclone
01 ** 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): July 3 – 9

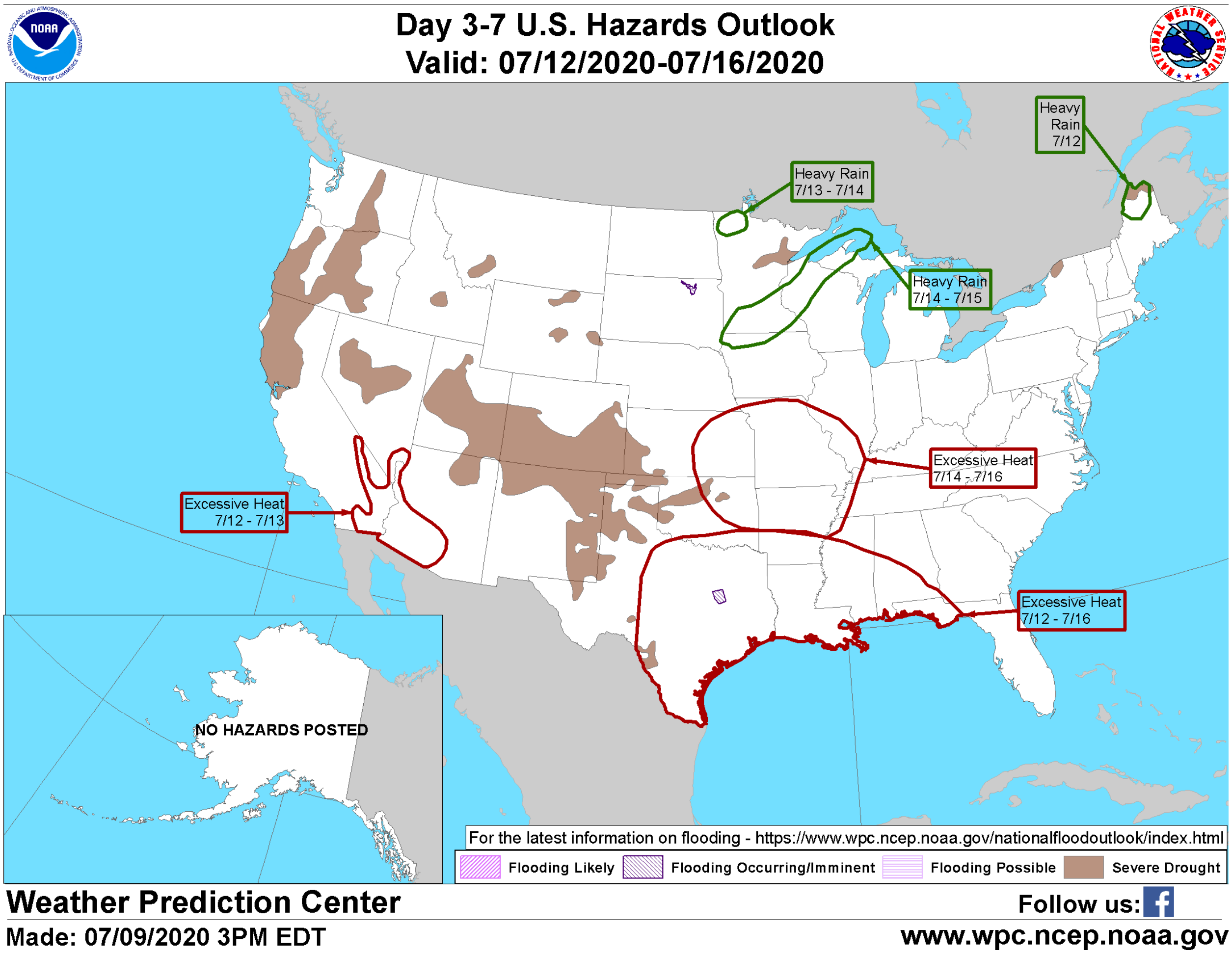


Significant EQ Location and Magnitude (≥M6.0) Information

Date (UTC)	Location	Magnitude	Depth	Epicenter
07/06/2020	12.06°N, 140.23°E	6.2	10 km	25 kilometers (16 miles) N of Fais, Micronesia
07/06/2020	5.64°S, 110.68°E	6.6	529 km	93 kilometers (58 miles) N of Batang, Indonesia

Source: United States Geological Survey

U.S. Weather Threat Outlook



Potential Threats

- The greatest threat impacting the United States in the short term will be expanding excessive heat across the Southeast, Southern and Central Plains, and Southwest due to a building ridge of high pressure. Numerous localities are expected to see high temperatures nearing or exceeding the 100-degree mark, with nighttime lows only dropping into the 70s and low 80s (°F).

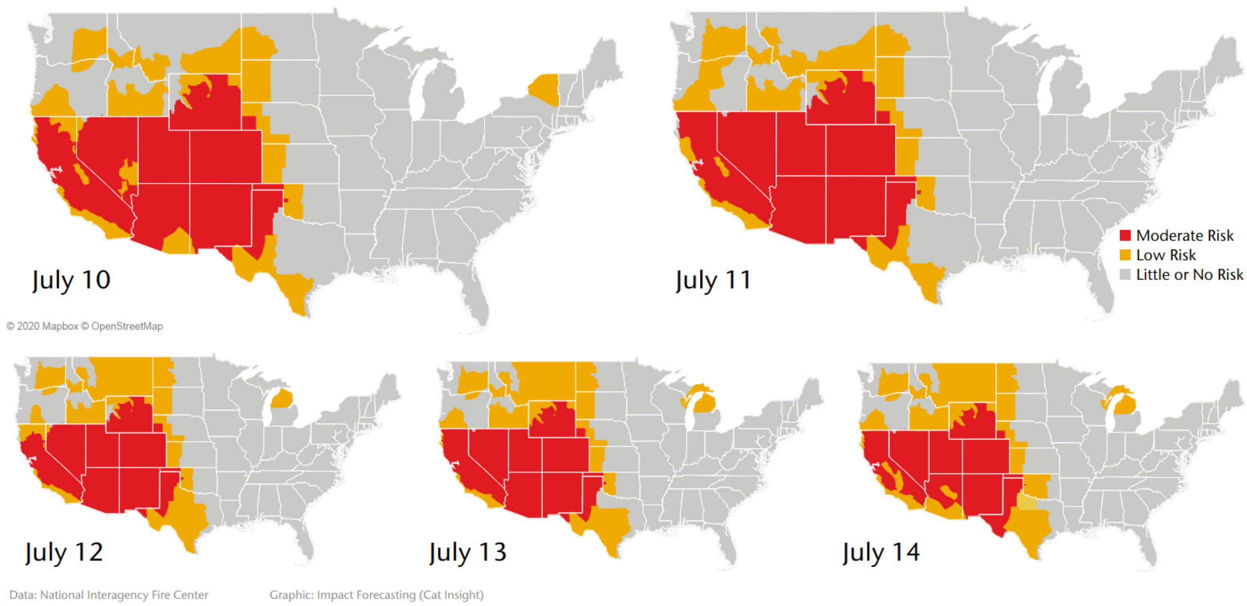
- Severe drought conditions persist across portions of the Central and Southern Plains extending into the Rockies, in addition to northern California and regions in the interior Northwest.

- A frontal system anticipated to impact the Northern Plains and Upper Midwest between July 13-15 will interact with a humid and warm airmass creating the potential for heavy rainfall and rounds of localized severe weather.

- A tropical like low pressure system currently off the coast of the Carolinas will progress northward and is forecast to bring heavy rain to portions of the Northeast and New England between July 11-12.

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 middle portion of July. An extended extreme heat wave is likely to establish across much of the United States. Such conditions will make the chance of wildfire ignition elevated, including due to dry lightning, as drought conditions will also become more expansive.



Annual YTD Wildfire Comparison: July 9*

Year	Number of Fires	Acres Burned	Acres Burned Per Fire
2016	27,927	2,328,793	83.39
2017	32,494	3,372,927	103.80
2018	31,219	3,270,089	104.75
2019	21,433	1,530,905	71.43
2020	26,527	1,525,632	57.51
10-Year Average (2010-2019)	**29,400**	**2,539,314**	86.37

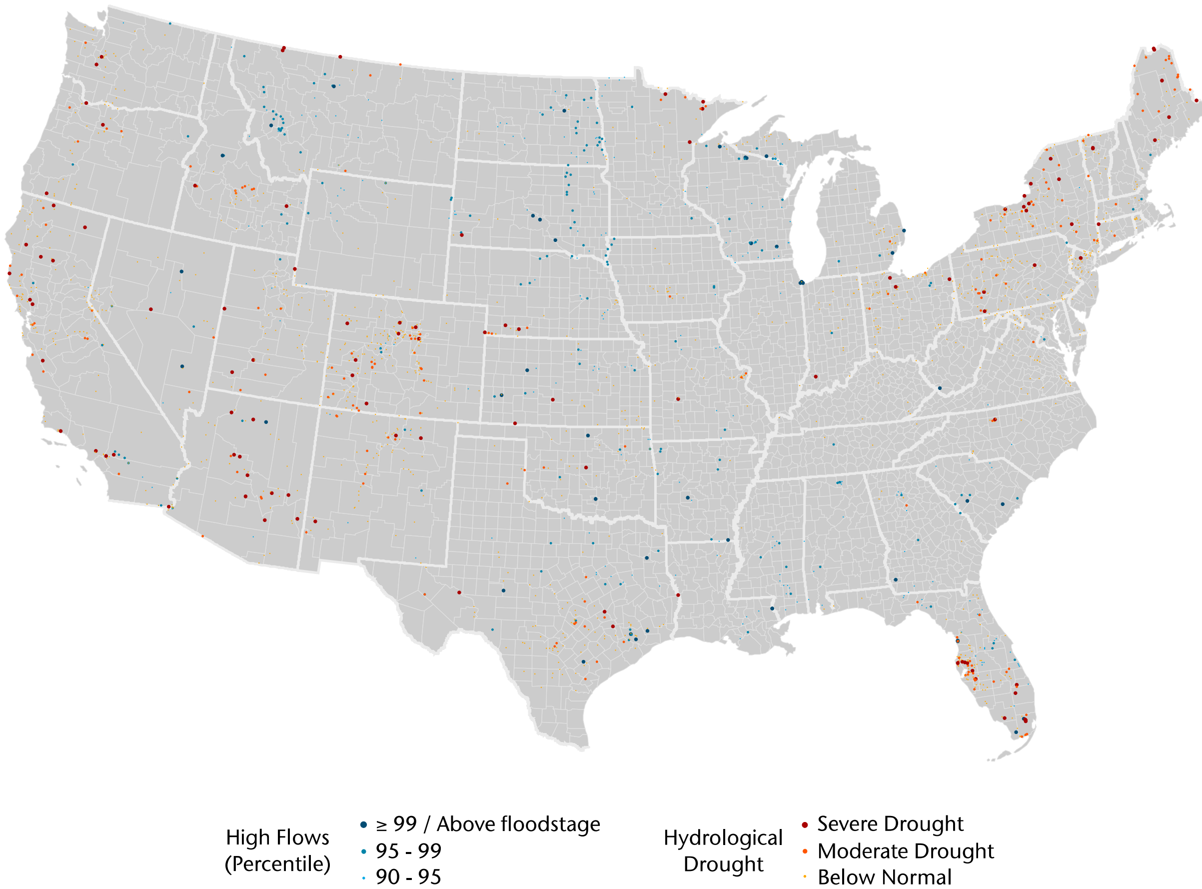
**Last available update from NIFC*
Source: National Interagency Fire Center

Top 5 Most Acres Burned by State: July 9

State	Number of Fires	Acres Burned	Acres Burned Per Fire
Arizona	1,182	547,078	462.84
Alaska	290	173,380	597.86
Utah	626	149,209	238.35
Nevada	307	102,694	334.51
Texas	2,154	100,156	46.50

Source: National Interagency Fire Center

Current U.S. Streamflow Status



A ≥99th 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
Ouachita River at Jones Mill, Arkansas	8.74	98.83
Saline River near Rye, Arkansas	17.44	98.80
Waterman Canyon Creek near Arrowhead Springs, California	2.07	98.78
Mill Creek at Walla Walla, Washington	2.10	98.75
Yockanookany River near Kosciusko, Mississippi	11.80	98.73

Source: United States Geological Survey

Source Information

Heavy flooding in Japan as monsoon intensifies

Japan's devastating rains move north as millions told to evacuate, The Guardian
Torrential rains lash southwestern and central Japan, 870,000 instructed to evacuate, Japan Times
Japan is reeling from devastating rains and flooding, with more on the way, The Washington Post
Torrential rain lashes Japan, 870,000 urged to evacuate, Kyodo News
Death toll rises to 56 as rain damage widens in southwest Japan, Kyodo News
Nearly 60 dead as Japan battered by more heavy rain, floods, CBC
Southwestern Japan hit by more heavy rain as death toll rises to 49, Kyodo News
Japan Meteorological Agency
Fire and Disaster Management Authority, Japan

Tornadoes, strong winds, and large hail impact U.S.

U.S. National Weather Service
U.S Storm Prediction Center
Storms bring strong winds, cause damage, power outages across North Dakota, Bismarck Tribune
One person dead after tornado in Otter Tail County, KVRR

Natural Catastrophes: In Brief

Sabah district suffers RM29 million losses after paddy crop destroyed in floods. Free Malaysia Today
Latest updates: Response level upgraded as heavy rain batters China, CGTN
China's Hubei activates disaster relief emergency response, Xinhua
Torrential rain causes severe flooding in Anhui, Xinhua
Ministry of Emergency Management, China
Provincial Disaster Management Authority, Hubei
India Meteorological Department (IMD)
National Disaster Management Agency, India
Pakistan Meteorological Department (PMD)
National Emergency Management Agency (NEMA), Mongolia
Capital City Road Development Agency, Mongolia
ASEAN Coordinating Centre for Humanitarian Assistance (AHA)
State Emergency Service of Ukraine
Flooding, trees down after intense storms slam GTA, The Weather Network
Flash flooding, hydro outages reported as severe weather hits Toronto, CP24

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