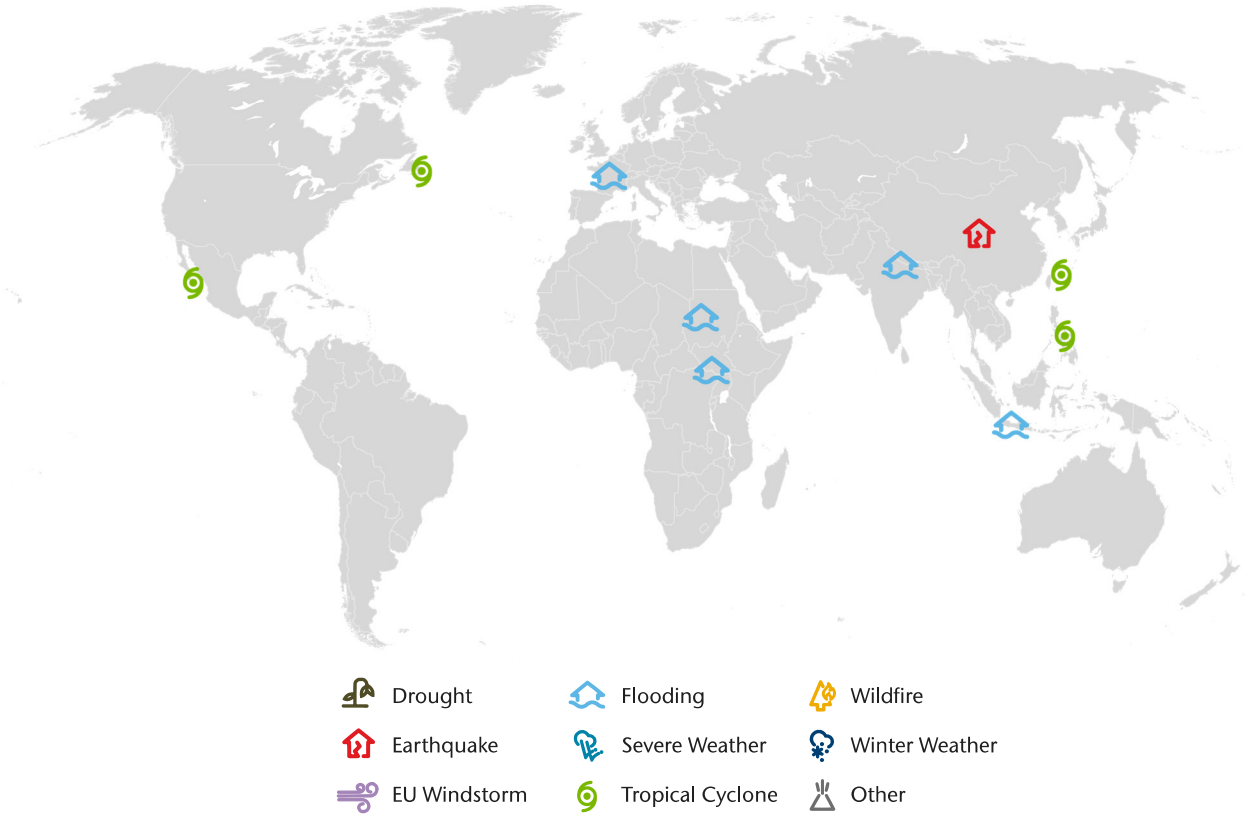
Weekly Cat Report

September 17, 2021

This Week's Natural Disaster Events



Event	Impacted Areas	Fatalities	Damaged Structures and/or Filed Claims	Preliminary Economic Loss (USD)*	Page
Hurricane Nicholas	United States	0	Thousands	100s of Millions	3
Hurricane Olaf	Mexico	1+	Thousands	10s of Millions	7
Typhoon Conson	Philippines, Vietnam	22+	25,000+	35+ million	9
Typhoon Chanthu	Philippines, China, Taiwan, Japan	0	Hundreds	Millions	9
Hurricane Larry	Canada	0	Hundreds	Millions	12
Flooding	Pakistan	20+	Hundreds	Unknown	12
Flooding	Nigeria	4+	Hundreds	Unknown	12
Flooding	India	11+	1,700+	Unknown	12
Flooding	France	0	Hundreds	Millions	12
Flooding	Indonesia	0	2,600+	Unknown	13
Earthquake	China	3+	29,700+	10s of millions	13

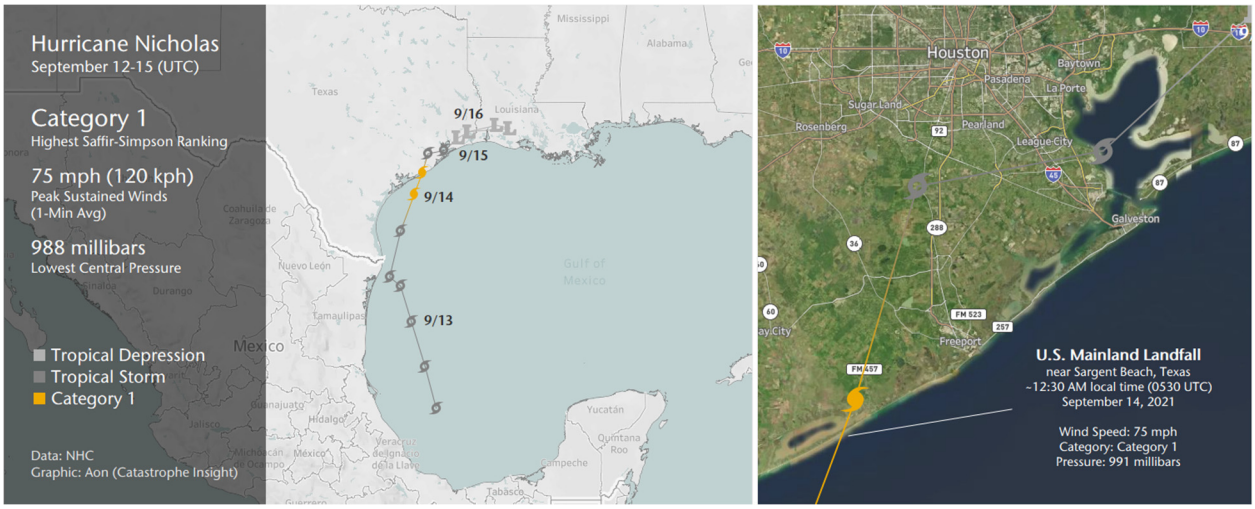
**Please note that these estimates are preliminary and subject to change. In some instances, initial estimates may be significantly adjusted as losses develop over time. This data is provided as an initial view of the potential financial impact from a recently completed or ongoing event based on early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

Hurricane Nicholas strikes Texas; prompts flooding

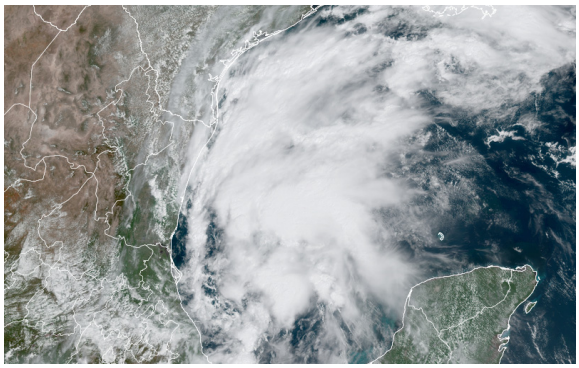
Hurricane Nicholas developed in the southern Gulf of Mexico before making landfall in Texas on September 14 as a Category 1 storm. The slow-moving storm would later spawn notable flooding across parts of Texas and Louisiana after days of heavy rainfall prompted rivers to overflow and instances of flash flooding. Hurricane-force wind gusts toppled trees, downed power lines / poles, and left widespread damage to residential and commercial structures, along with vehicles. Some areas in Louisiana recently affected by Hurricane Ida also endured further impacts from Nicholas. Total economic losses were anticipated to reach into the hundreds of millions (USD). A notable portion of the flood-related economic damage cost was not expected to be covered by insurance.

Meteorological Recap



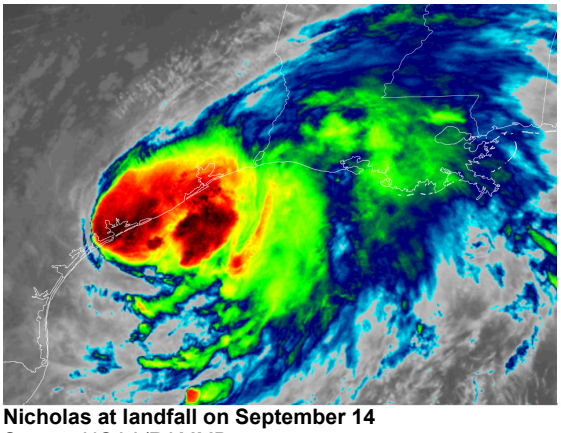
During the morning hours of September 9, the National Hurricane Center (NHC) noted a cluster of thunderstorms in the western Caribbean Sea that was forecast to track across the Yucatan Peninsula. The system did in fact cross the Yucatan Peninsula before settling into the Bay of Campeche as part of the southern Gulf of Mexico. The tropical wave began to interact with a surface trough which spawned additional disorganized thunderstorm activity. During this time, the global and hurricane forecast models began to coalesce around the likelihood of the development of a tropical system.

By September 12, the activity became more pronounced. The NHC declared that the cluster had become sufficiently organized – along with measured data from NOAA Hurricane Hunter reconnaissance aircraft – to be declared **Tropical Storm Nicholas**. The storm had 40 mph (65 kph) winds. Nicholas became the 14th named storm of the 2021 Atlantic Hurricane Season, which meant that the season had already matched the 1991-2020 climatological normal (14) with most of the peak season yet to arrive.



Nicholas on September 12 in the Gulf of Mexico
Source: NOAA/RAMMB

After being named, the core of Nicholas struggled on September 13 as the center reformed well to the north. This pushed the center of the storm closer to the Mexican coastline as it meandered northward. During the day on September 13, and Nicholas traversed very warm waters while encountering moderate wind shear, the storm became more organized. This resulted in steady intensification as it neared the Texas coastline. Forecasts from the NHC, National Weather Service, and Weather Prediction Center highlighted the risk of significant flash flooding in parts of Texas and Louisiana given the slow-moving nature of the storm. In addition to Hurricane Warnings, many areas were also declared under a High Risk for excessive rainfall from September 13-15.



Nicholas at landfall on September 14
Source: NOAA/RAMMB

In the hours prior to landfall, the NHC upgraded Nicholas to a 75 mph (120 kph) Category 1 storm. This made Nicholas the 6th hurricane of the season. At 12:30 AM local time (05:30 UTC) on September 14, Nicholas officially made landfall near Sargent Beach, Texas. It struck at peak intensity and spawned hurricane-force winds across several coastal areas, including a peak wind gust of 95 mph (153 kph) at Matagorda, Texas. Soon after coming ashore, the maximum sustained winds quickly began to weaken. However, as forecast, Nicholas spawned very heavy rainfall along coastal areas of Texas and later Louisiana as the center shifted eastward.

During the day on September 14 into September 15, the storm further weakened as continued frictional effects of land and increasing wind shear caused Nicholas to degrade to a non-tropical low while over Louisiana. Despite the lack of tropical storm-force winds, persistent heavy rainfall caused many rivers to swell to above flood level in Louisiana. Many of these same areas were affected by Hurricane Ida in the weeks prior. By September 16, the system fully dissipated over land.

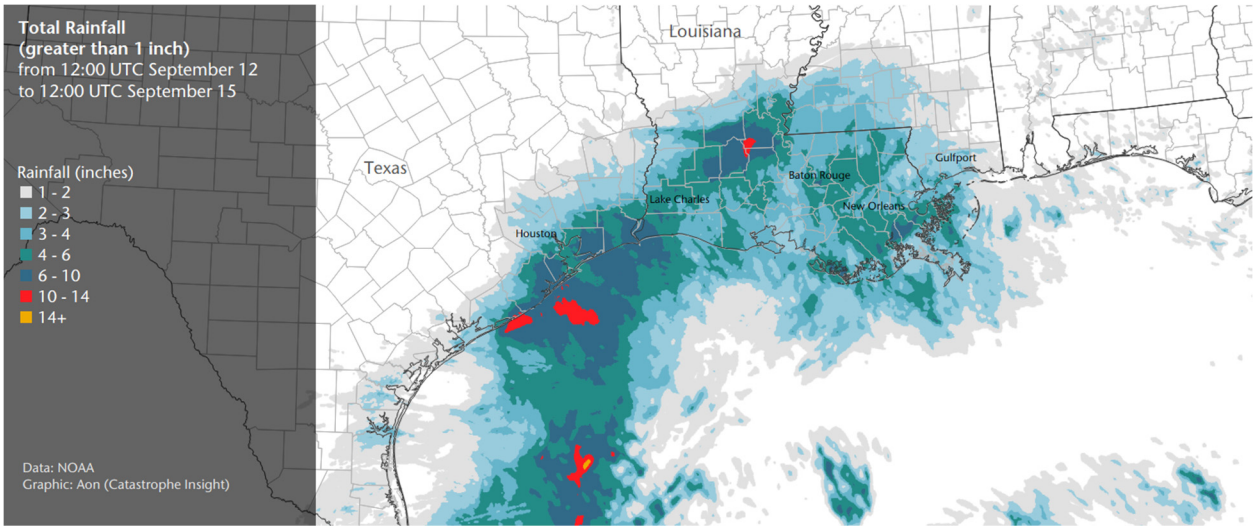
Storm Data

The tables below highlight peak wind gusts and rainfall from NOAA's Weather Prediction Center across the hardest-hit areas of Texas and Louisiana. While many areas did record notable gusts and rain, it was not as substantial as initially feared as Nicholas approached the coastline.

Location	Wind Gust
Matagorda Bay, TX	95 mph
Brazos (Oil Platform), TX	81 mph
Magnolia Beach, TX	81 mph
Palacios, TX	77 mph
Port O'Connor, TX	75 mph
Levee, TX	70 mph
San Bernard National Wildlife Center, TX	66 mph
Austwell, TX	53 mph
Calcasieu Pass, LA	49 mph
Cameron, LA	49 mph
Lake Charles, LA	41 mph

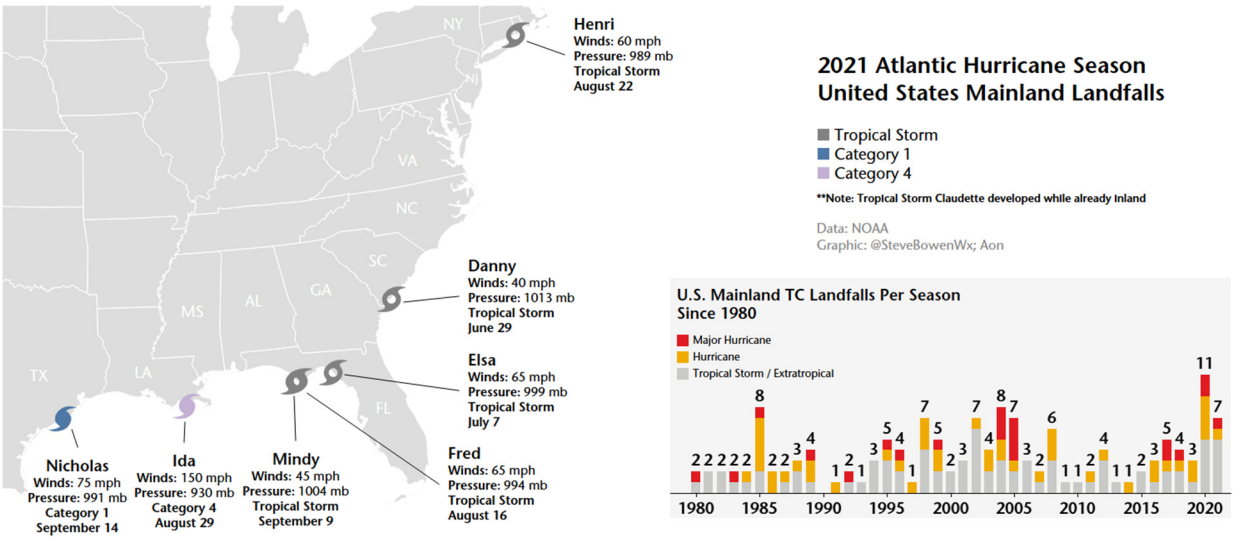
Location	Rainfall (in)
Galveston, TX	13.96 (Unofficial)
Bunkie, LA	10.58
Deer Park, TX	9.85
Sargent, TX	8.16
Webster, TX	7.77
Indian Lake, LA	7.76
League City, TX	7.68
Houston (Downtown), TX	6.69
Lake Jackson, TX	6.45
Baton Rouge, LA	5.29
New Orleans, LA	4.34

The graphic below highlights combined rainfall from September 12 to September 15 across coastal Texas, Louisiana, and southern Mississippi. This is Doppler radar estimated precipitation via NOAA. Many areas recorded at least 6.00 inches (152 millimeters), but this was below the 15 to 20 inches (381 to 508 millimeters) that had originally been feared prior to landfall.

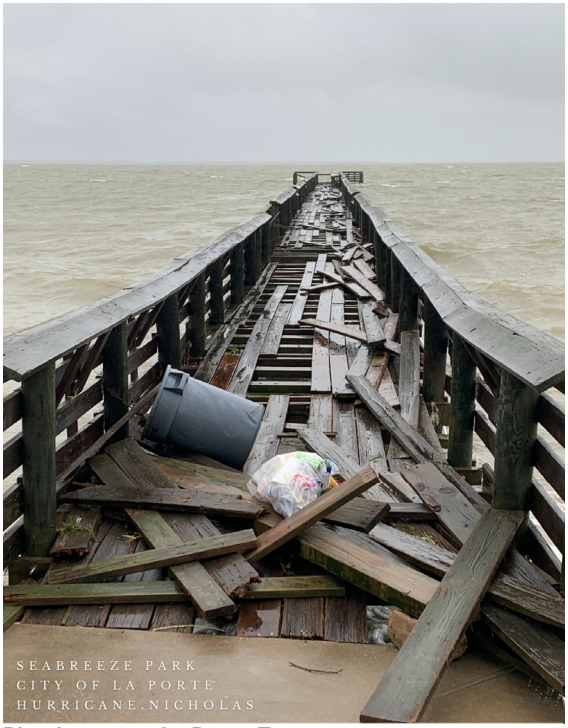


Miscellaneous

Nicholas became the seventh named storm to make landfall along the U.S. mainland coastline in 2021. It was the second hurricane – following Ida in late August 2021. There have been at least 18 named storms which have come ashore in the country in 2020 and 2021 alone. *Please note that Tropical Storm Claudette developed into a named storm after already having moved inland.*



Event Details



Pier damage at La Porte, Texas
Source: La Port Emergency Management Agency

Despite making landfall as a Category 1 hurricane in southeast **Texas**, the volume of extensive damage was not substantially widespread. Areas along the immediate Texas Gulf Coast – including **Kemah** and **Clear Lake Shores** – saw instances of commercial flood inundation at several restaurants. Drone footage showed dozens of properties with varying levels of roof damage, but no immediate examples of a total building loss. In **Galveston**, hurricane-force wind gusts did damage some homes via the wind gusts themselves or due to fallen trees onto structures. Heavy rainfall prompted instances of flash flooding in some areas. However, damage in Matagorda County was generally less than officials first anticipated. In **Houston**, winds led to some general disruption, but no major damage.

Most of the coastal damage was the result of high waves and storm surge that severely affected several piers or docks. High water levels also swept away some stretches of coastal roads in Texas. The combination of high winds and saturated soils resulted in more than 500,000 customers losing electricity as power lines and power poles were downed.

In **Louisiana**, the prospect of additional heavy rainfall led to many communities preparing for further flood damage as clean-up continues following Hurricane Ida's devastating impacts a few weeks prior. Tarps were placed onto exposed roofs and other personal belongings sitting outside as several inches of rain prompted renewed flooding. Some areas, including in Covington and Houma, saw flooding due to debris from Ida clogging drainage pipes. The New Orleans metro area cited some isolated flooding but was largely unscathed. Other inland areas noted some flood-related damage to roads and agriculture. As Nicholas affected the state, it left more than 100,000 customers without electricity, though many of those outages were still tied to Ida.

The Nicholas impacts across southern **Mississippi** were directly tied to heavy rainfall and fallen trees due to oversaturated soils.

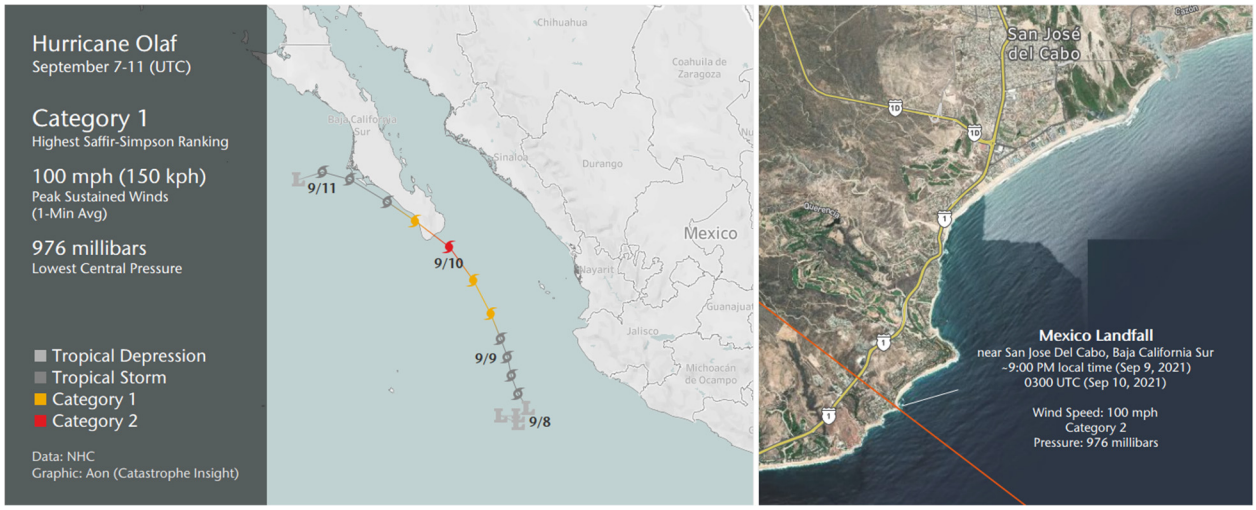
Financial Loss

While the remnants of Nicholas continue to bring additional rainfall across the Southeast as of this writing, the initial damage assessments near the landfall location in Texas and southern Louisiana suggest that while impacts are notable in some areas, the overall scope of damage is much less than originally feared. The total economic impact to residential and commercial property, vehicles, infrastructure, and agriculture is likely to reach into the hundreds of millions (USD). This will result in a negligible impact for the insurance industry.

Hurricane Olaf makes landfall in Mexico's Baja California

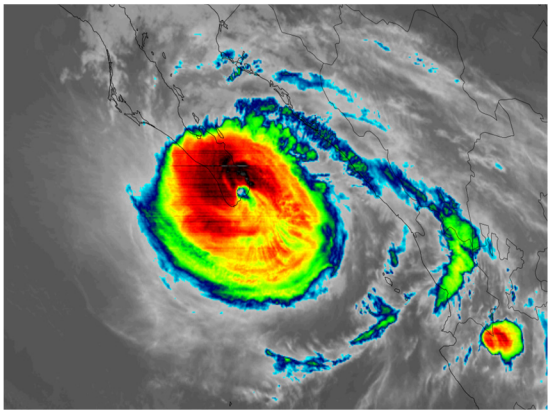
Hurricane Olaf developed and made landfall along Mexico's Baja California on September 9 local time as a borderline Category 1/2 storm. At least one person was killed. The storm prompted high seas, heavy rainfall, and subsequent flooding and landslides across the Baja California Peninsula. Prior to officially becoming a tropical system, the precursor to Olaf led to flooding in the Mexican states of Jalisco and Colima. Total economic losses were anticipated into the tens of millions (USD).

Meteorological Recap



The National Hurricane Center (NHC) began monitoring for the formation of an area of low pressure several hundred miles off the southwestern Mexican coast on September 2. By September 5-6, the elongated area of low pressure was exhibiting increasingly organizing shower and thunderstorm activity, while advancing west-northwestern in an environment favorable for additional development. Tropical Depression Fifteen was officially recognized by 3:00 PM MDT (21:00 UTC) on September 7. During this period, gradual intensification of the depression was aided by abundant moisture, warm sea-surface temperatures, and relatively low wind-shear.

The depression strengthened into Tropical Storm Olaf by 9:00 AM MDT (15:00 UTC) on September 8, with maximum sustained winds reaching 40 mph (65 kph). Influenced by a strong high-pressure ridge over the western United States, Olaf continued to progress north-northwest toward southern Baja California Sur. By September 9, a well-defined eye-feature was observed on radar imagery as Olaf reached hurricane status by 9:00 AM MDT (15:00 UTC), with maximum sustained wind speeds of 75 mph (120 kph) – equivalent to a Category 1 storm on the Saffir-Simpson Hurricane Wind Scale (SSHWS). As landfall in Baja California Sur became imminent, Hurricane Warnings were already in effect from Los Barriles to Cabo San Lazaro.



Olaf making landfall in Baja California Sur on Sept 9
Source: NOAA/RAMMB

Olaf underwent rapid intensification in the 24-hours prior to landfall, with maximum sustained wind speeds increasing by 50 mph (80 kph). NHC defines rapid intensification as an increase in the maximum sustained winds of a tropical cyclone of at least 35 mph (55 kph) in a 24-hour period.

Hurricane Olaf made landfall in southern Baja California Sur near San José del Cabo at approximately 9:20 PM MDT on September 9 (3:20 UTC on September 10) with maximum estimated wind speeds of 100 mph (155 kph), and a minimum central pressure of 976 millibars – equivalent to a Category 2 hurricane on the SSHWS.

Olaf spread hurricane force wind gusts and torrential rains across localities in southern Baja Calfironia Sur – which included popular tourist destinantions. The hurricane crossed the peninsula and re-emegered off the coast several hours later. On Septmerber 10, Olaf weakened into a tropical storm by 9:00 AM MDT (15:00 UTC) while meandering along the coast before eventually turning westward.

Olaf was the 15th named storm and 6th hurricane of the 2021 Eastern Pacific Hurricane Season.

Event Details

In **Baja California Sur**, Hurricane Olaf brought damaging winds, rough seas and heavy rainfall, particularly to southern municipalities of the state. According to preliminary data from the Comisión Federal de Electricidad (CFE), approximately 192,000 customers in the state lost electricity due to the hurricane - which accounts for at least 57 percent of customers statewide. Thousands of people were evacuated to shelters during the storm, a majority of which were in the cities of San José del Cabo and Cabo San Lucas. The hurricane prompted the closure of multiple seaports and air terminals in both Los Cabos and La Paz.

In the **Los Cabos** municipality, impacts included fallen trees and light poles, blocked and flooded roadways, and structural and property damages. In multiple instances, telecommunication services were temporarily disrupted. In San José del Cabo, notable impacts were incurred across the city center and tourist areas. The Los Cabos Hotel Association reported minimal damage to tourist infrastructure across the region. Dozens of flights at local airports were also cancelled.

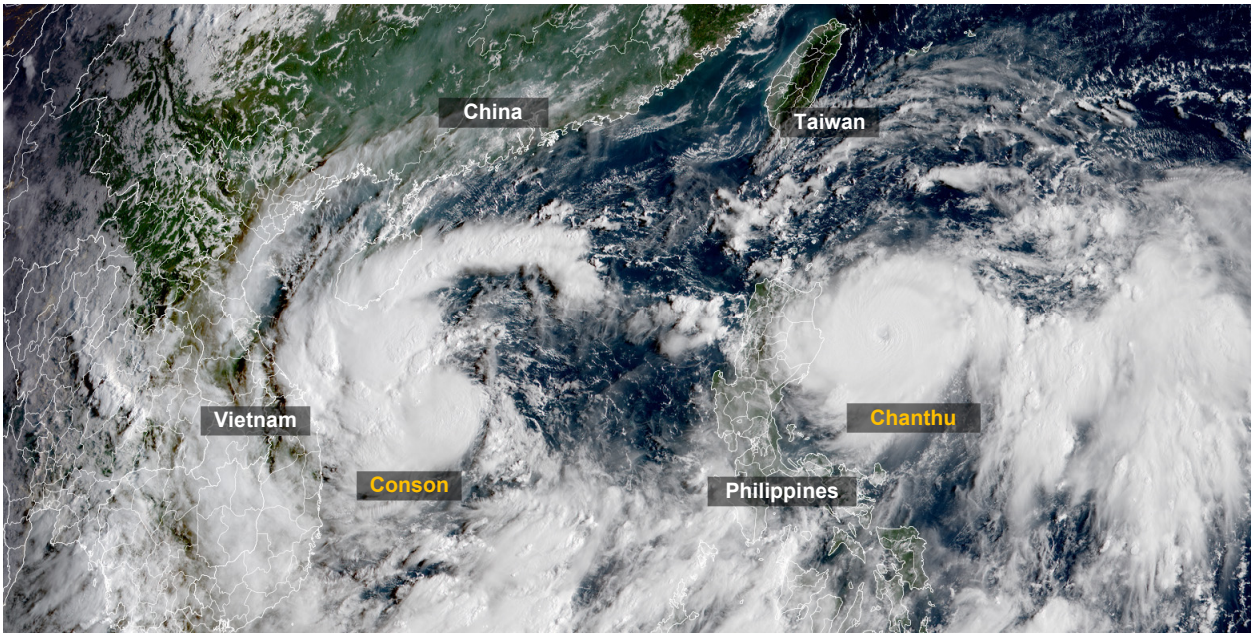
Financial Loss

Total economic losses in Baja California Sur and elsewhere in Jalisco and Colima states were likely to combine into the tens of millions (USD). This includes physical damage to property and infrastructure.

Storms Conson & Chanthu affect East Asian countries

Typhoon Chanthu, at one point a Category 5-equivalent Super Typhoon, developed in the Western Pacific Ocean this week and eventually tracked very closely to the mainland coastlines of the Philippines, Taiwan, and China. As of this writing, Chanthu was a tropical storm and poised to cross Japan as a weakening system. The most notable physical damage was reported in Taiwan, where Chanthu grazed the island while at Category 3-equivalent intensity. Thousands of homes were damaged. Total economic losses, thus far, were expected to reach into the millions (USD). Also this week, assessments continued following Tropical Storm Conson's impacts in the Philippines and Vietnam. Conson left at least 50 people dead or missing along its track.

Meteorological Recap

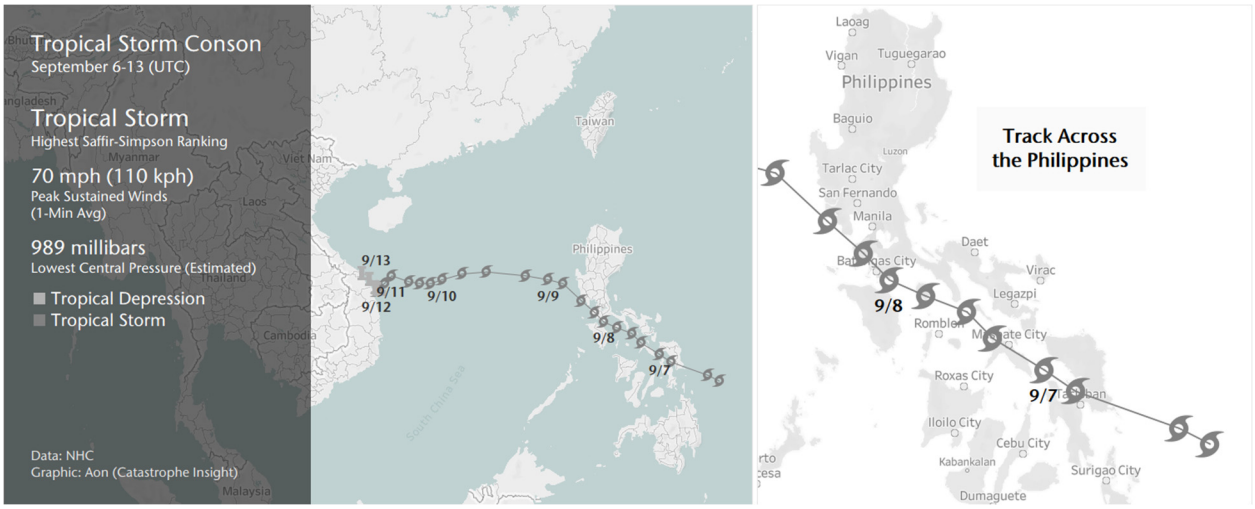


Satellite image for September 10, 0:00 UTC depicting Typhoons Conson and Chanthu
Source: NOAA/RAMMB

Tropical Storm Conson

During the day on September 5 (UTC), the Joint Typhoon Warning Center (JTWC) began tracking a cluster of organizing thunderstorms in the Western Pacific Ocean near the east coast of the Philippines. With in a few hours, both the JTWC and the Japan Meteorological Agency (JMA) officially declared a tropical depression. Further organization and consolidation of thunderstorm banding near the center of circulation prompted a declaration of Tropical Storm Conson as it pushed eastward towards the Philippines on September 6. By September 7, Conson continued to intensify as it near its first landfall in the Philippines. The system reached peak intensity as a 110 kph (70 mph) strong tropical storm prior to striking Hernani, Eastern Samar on the Philippines' Visayas region at 10:00 PM local time (13:00 UTC). Conson would eventually make eight separate landfalls across the Philippines archipelago.

After re-emerging into the South China Sea, Conson struggled as it tracked westward towards Vietnam. Increasing wind shear caused a notable disruption of the cyclone's core. The storm eventually came ashore in Vietnam on September 12 at tropical depression intensity near Da Nang. It quickly dissipated soon after making landfall.

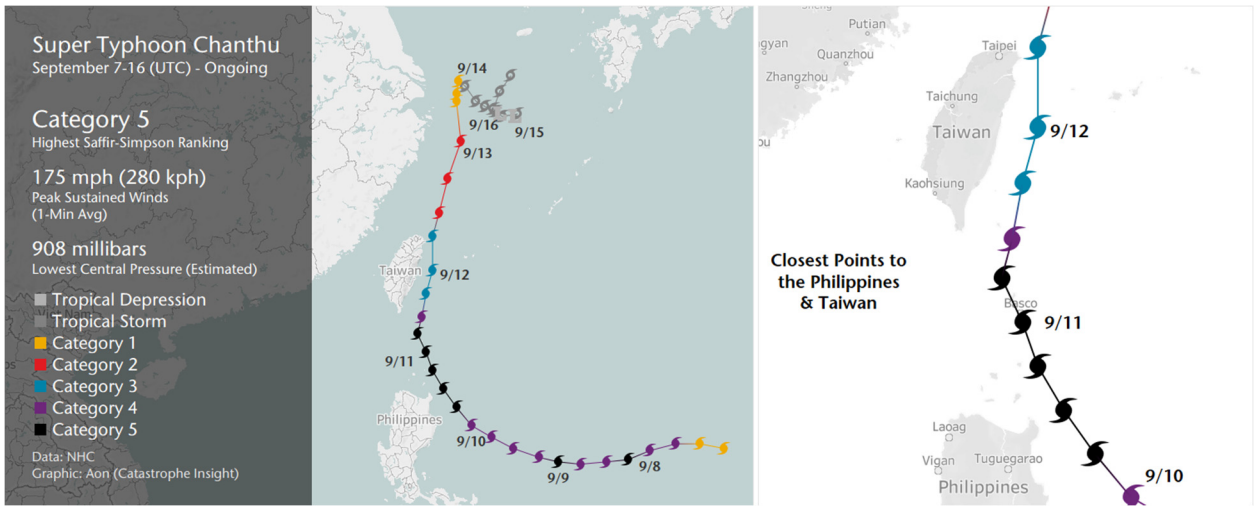


Super Typhoon Chanthu

The Joint Typhoon Warning Center (JTWC) started monitoring a disturbance roughly 500 miles (805 kilometers) east of the Philippines on September 5 and later upgraded it to a tropical depression on the following day after a significant improvement of convection around its circulation center. After a period of further intensification, the storm was officially named "Chanthu" by the JMA and later received an alternative name "Kiko" by PAGASA, as it entered the Philippine area of responsibility. During the following days, Chanthu underwent an explosive intensification cycle and eventually strengthened to its initial peak of a Category 5-equivalent storm on the Saffir-Simpson Hurricane Wind Scale. At its peak, the storm had 280 kph (170 mph) winds – well surpassing the 240 kph (150 mph) threshold to be deemed a Super Typhoon. Soon after reaching peak intensity, it underwent an eyewall replacement cycle on September 9. This caused a brief reduction in Chanthu's intensity, down to a Category 4-equivalent storm. However, as the storm neared the outermost small islands of the Philippines archipelago, it strengthened again to super typhoon intensity on September 10 and crossed Batanes Island at 8:30 AM local time (00:30 UTC) on September 11 as a Category 5-equivalent super typhoon with sustained winds of 265 kph (165 mph).

At this time, the storm began to recurve to the northeast and eventually due north on September 11 and 12 as it very closely tracked along the east coast of Taiwan. While not making landfall, high winds and mountain-enhanced rains left widespread impacts across the island. As atmospheric and oceanic conditions started to become less favorable for maintaining Category 3 or higher intensity, Chanthu weakened as it neared the east coast of China on September 13. It eventually weakened to a tropical storm as it remained nearly stationary near the Chinese coastline until September 16.

As of this writing, Chanthu was forecast to cross much of Japan on September 17-18 as a weakening tropical storm. A forward acceleration to the east-northeast was expected as Chanthu's motion becomes embedded within the mid-latitude westerlies.



Event Details

Typhoon Conson

Conson made at least eight successive landfalls as a tropical storm in **Philippines** causing notable losses to agricultural, property, and infrastructure. Preliminary data from the National Disaster Risk Reduction and Management Council (NDRRMC) indicated that 18,082 homes were damaged or destroyed or damaged, while at least 52,800 hectares (130,500 acres) of cropland was impacted. As of September 15, 20 fatalities were reported while dozens more remained missing. Agricultural and infrastructural damage in the country totaled PHP1.5 billion (USD30 million).

The storm eventually affected central parts of **Vietnam** on September 11-12 with heavy rainfall. According to local disaster management authorities, one person was killed, and nearly 1,300 homes sustained damage due to strong wind or inundation, mostly in Quang Ngai. Aggregated economic losses in both countries in Vietnam were expected to reach into the millions USD.

Super Typhoon Chanthu

Damage in the **Philippines** was relatively minor, as the storm primarily affected the remote and sparsely populated archipelago of Batanes, with additional impacts in Luzon. Nearly 38,000 people were described as affected by the storm according to the National Disaster Risk Reduction and Management Council (NDRRMC), more than 6,300 were evacuated and three were injured. Chanthu prompted landslides and flooding; 285 homes were damaged partially, while 38 were destroyed, mainly in the Region II (Cagayan Valley), which also includes the Batanes. In addition, at least 28 road sections were damaged and losses in agriculture amounted to more than PHP18 million (USD0.4 million).

Minor damage was also recorded in eastern regions of **Taiwan**, as parts of Hualien and Taitung counties received more than 200 millimeters (7.9 inches) and the entire region was subject to strong winds. Notable effects were reported from the Orchid Island, also known as Lanyu township, to the southeast from the main island. There were more than 81,000 power outages nationwide, and 3,339 homes identified as damaged. Approximately 2,600 people were pre-emptively evacuated in Hualien due to a risk of landslides. According to the data from Central Disaster Response Center, authorities dealt with 370 storm-related incidents.

Natural Catastrophes: In Brief

Hurricane Larry (Canada)
Hurricane Larry, a long-lived tropical cyclone that tracked from the west coast of Africa into the North Atlantic, made landfall in Newfoundland, Canada on September 11 at 1:50 AM local time (03:50 UTC). The storm had 80 mph (130 kph) winds when coming ashore and rapidly accelerated across the Canadian Maritimes while undergoing an extratropical transition. The storm left more than 60,000 customers in Newfoundland without electricity, and left widespread damage to various homes, businesses, and schools in the province. Many of the impacts were due to toppled trees onto properties. Infrastructure impacts to the electrical grid and to the road network were also noted. Total economic and insured losses were each anticipated to reach into the tens of millions (USD).

Flooding (Pakistan)
At least 20 people were killed in northern Pakistan in recent rounds of heavy rainfall and subsequent flash flooding and landslides. Among the worst affected areas was the Torghar district in the Khyber Pakhtunkhwa Province. Local authorities noted that at least 160 people were killed in total since the start of the rainy season in July, with Khyber Pakhtunkhwa being the most affected province.

Flooding (Nigeria)
Flash flooding triggered by heavy rainfall on September 12 affected areas on the southern outskirts of the city Abuja in Nigeria. Particularly affected were parts of Trademoore, Light Gold, Wisdom, and Lugbe. According to the Emergency Management Agency (FEMA) at least 4 people were killed. Floodwaters left damage on 166 houses and 26 vehicles; however, the full extent of the damage is being assessed at the time of this writing.

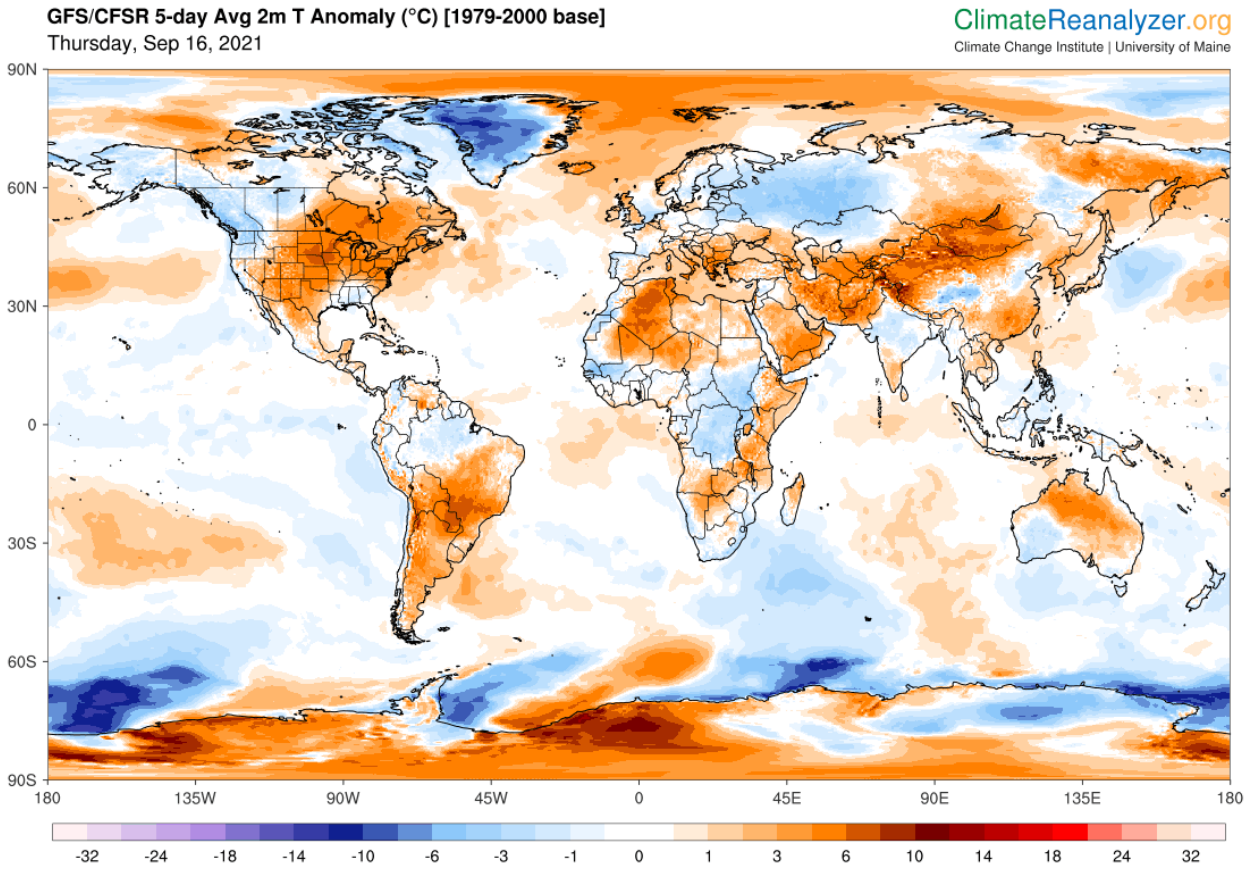
Flooding (India)
Enhanced rainfall activity over western India on September 11-14 resulted in widespread flooding in the state of Gujarat, with additional flood-related impacts recorded elsewhere in India, including Odisha, Uttar Pradesh or Bihar. Among the worst affected districts were Rajkot, Jamnagar, Porbandar, Valsad and Junagadh. Millions of people were affected nationwide, with at least 11 fatalities recorded as of September 14. According to national disaster management authorities, no fewer than 1,700 homes were damaged or destroyed.

Flooding (France)
Exceptional rainfall accumulations in the department of Gard in southern France on September 14 led to localized flash flooding. Météo-France noted that precipitation totals exceeded 200 millimeters (7.9 inches) particularly southwest of Nimes. The highest 3-hour total of 244 millimeters (9.6 inches) was recorded in Saint-Dionizy, with an estimated return period higher than 100 years. The total also came close to the national historical 3-hour record of 253 millimeters (9.96 inches) reached in Montpellier in 2014. The flooding resulted in notable property and infrastructural losses and more than 500 fire brigade interventions, although the exact extent of damage was not yet determined at the time of this writing. No fatalities were reported.

Flooding (Indonesia)
Multiple regions of Indonesia were hit by flooding due to heavy rains on September 10-15. Local authorities reported flooding in the provinces of West Java, Papua, East Kalimantan, Banten ad Riau. Nearly 2,600 homes were damaged or destroyed and more than 10,000 people were affected in total. Among the hardest hit was the Banten Province, particularly Pandeglang, Serang, and Lebak Regencies.

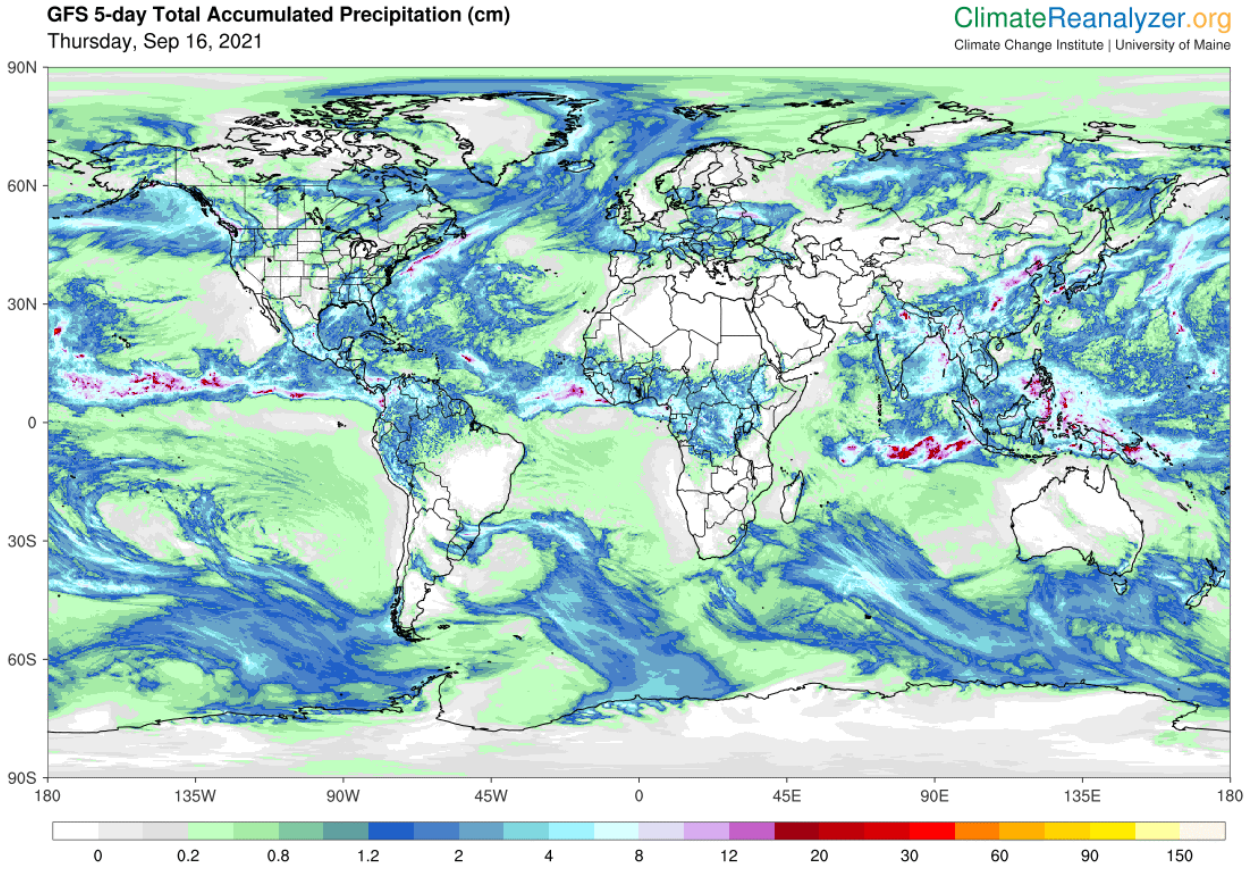
Earthquake (China)
A strong, magnitude-5.4 earthquake struck the Lu County in China's Sichuan province in the morning hours of September 16 in a shallow depth of 10 kilometers (6.2 miles). According to preliminary information from the area, at least three people were killed and 100 were injured. Preliminary data from China's Ministry of Emergency Management revealed that at least 1,400 homes collapsed, another 6,400 were severely damaged, and a further 29,000 sustained minor structural damage. Authorities also noted that at least 10,000 residents were moved to shelters and 62,000 households experienced power cuts. Immediately after the event, an emergency fund of CNY50 million (USD8 million) was allocated for event relief efforts, although total economic losses were expected to be significantly higher.

Global Temperature Anomaly Forecast



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

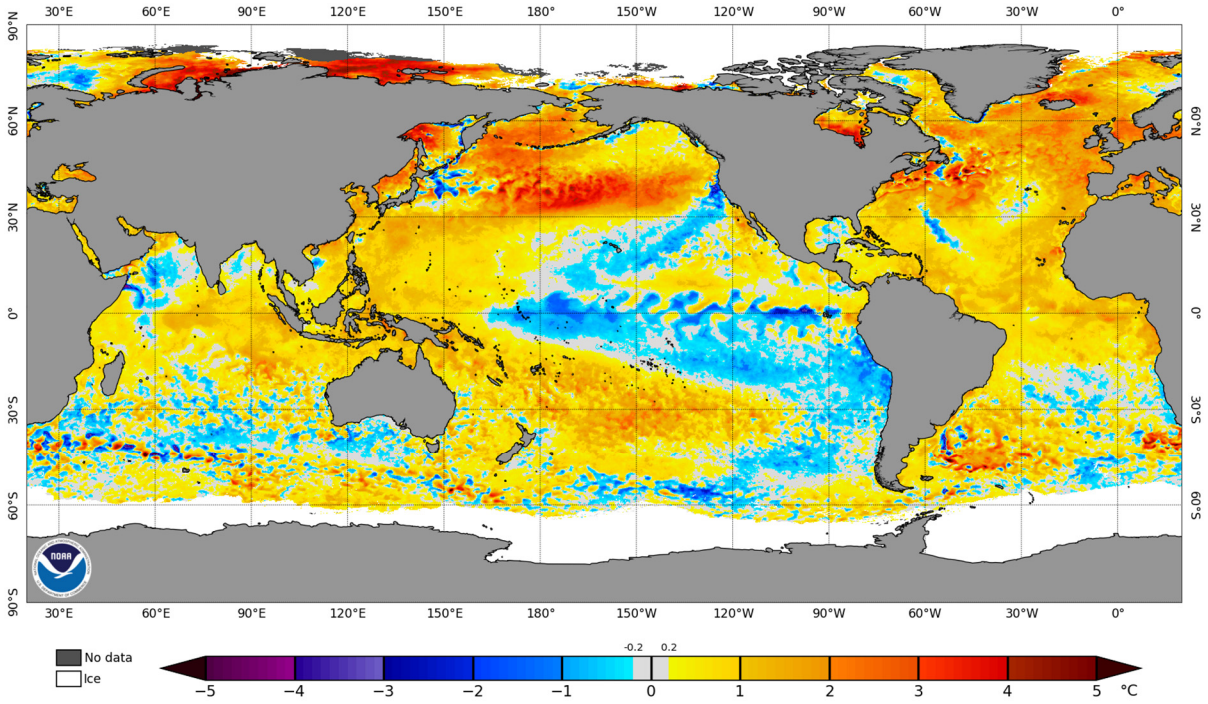
Global Precipitation Forecast



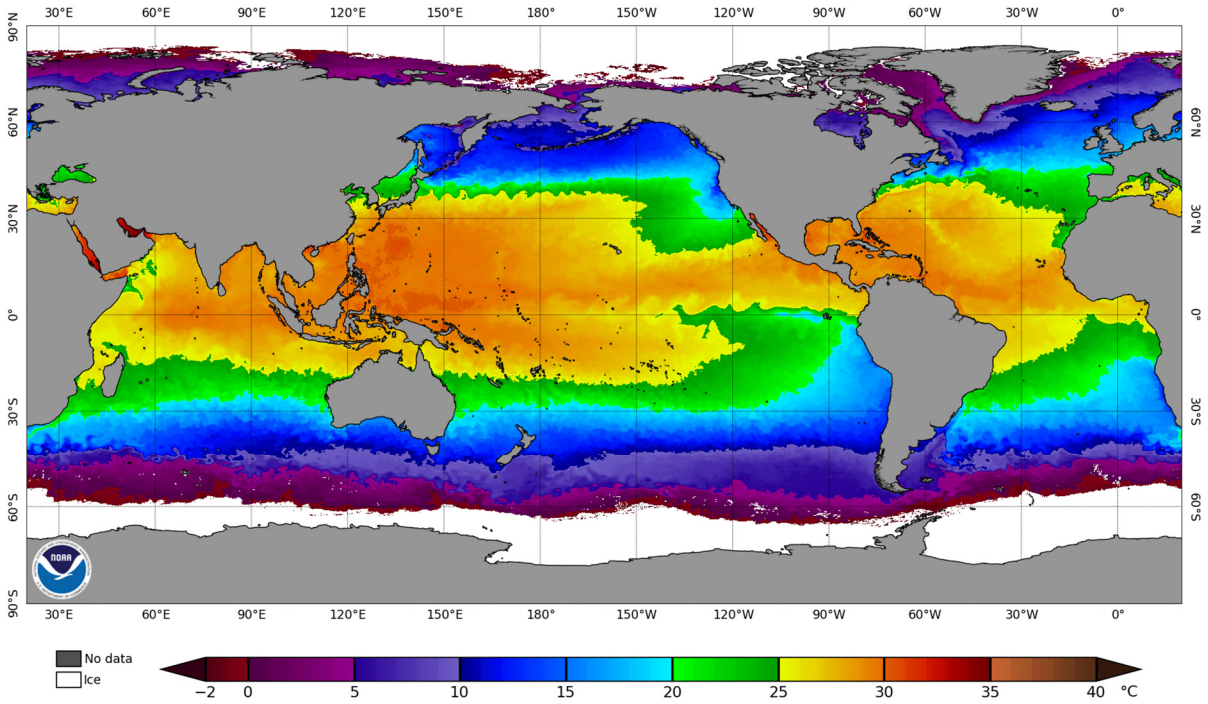
Source: Climate Reanalyzer, Climate Change Institute, University of Maine, USA

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

NOAA Coral Reef Watch Daily 5km SST Anomalies (v3.1) 14 Sep 2021

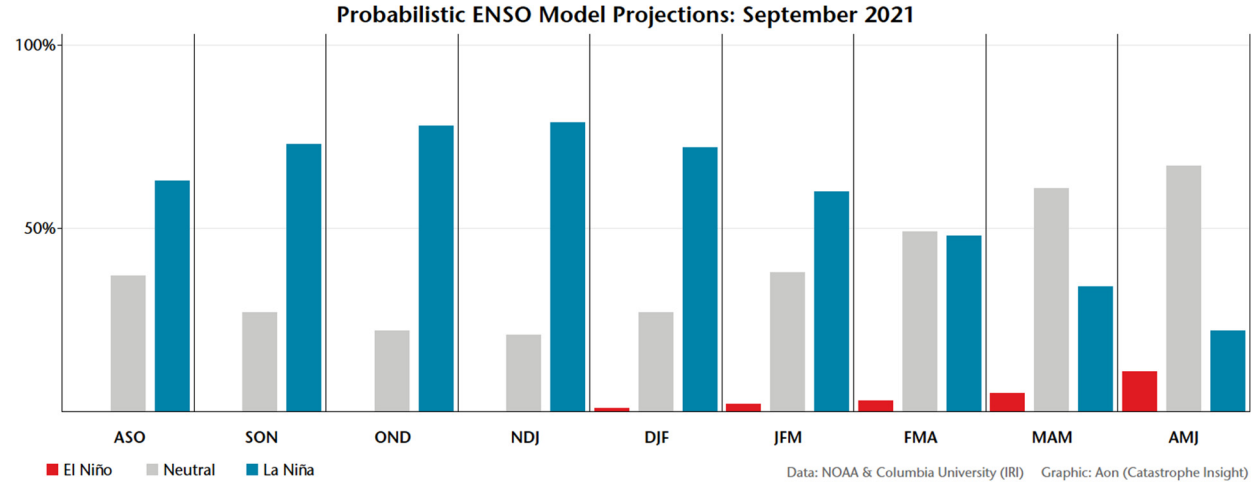


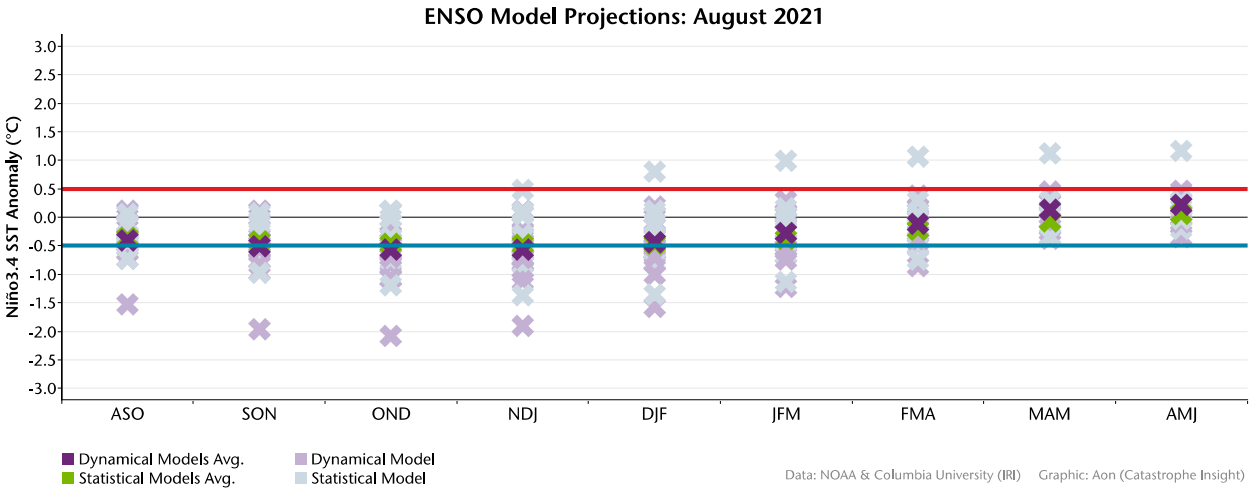
NOAA Coral Reef Watch Daily 5km Sea Surface Temperatures (v3.1) 14 Sep 2021



El Niño-Southern Oscillation (ENSO)

ENSO-neutral conditions are currently present, though NOAA has issued a La Niña Watch. NOAA notes a ~60 percent chance that neutral conditions will persist through the Northern Hemisphere summer and into September, and a ~70 percent chance of La Niña emerging in September and lasting into early 2022.





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.*

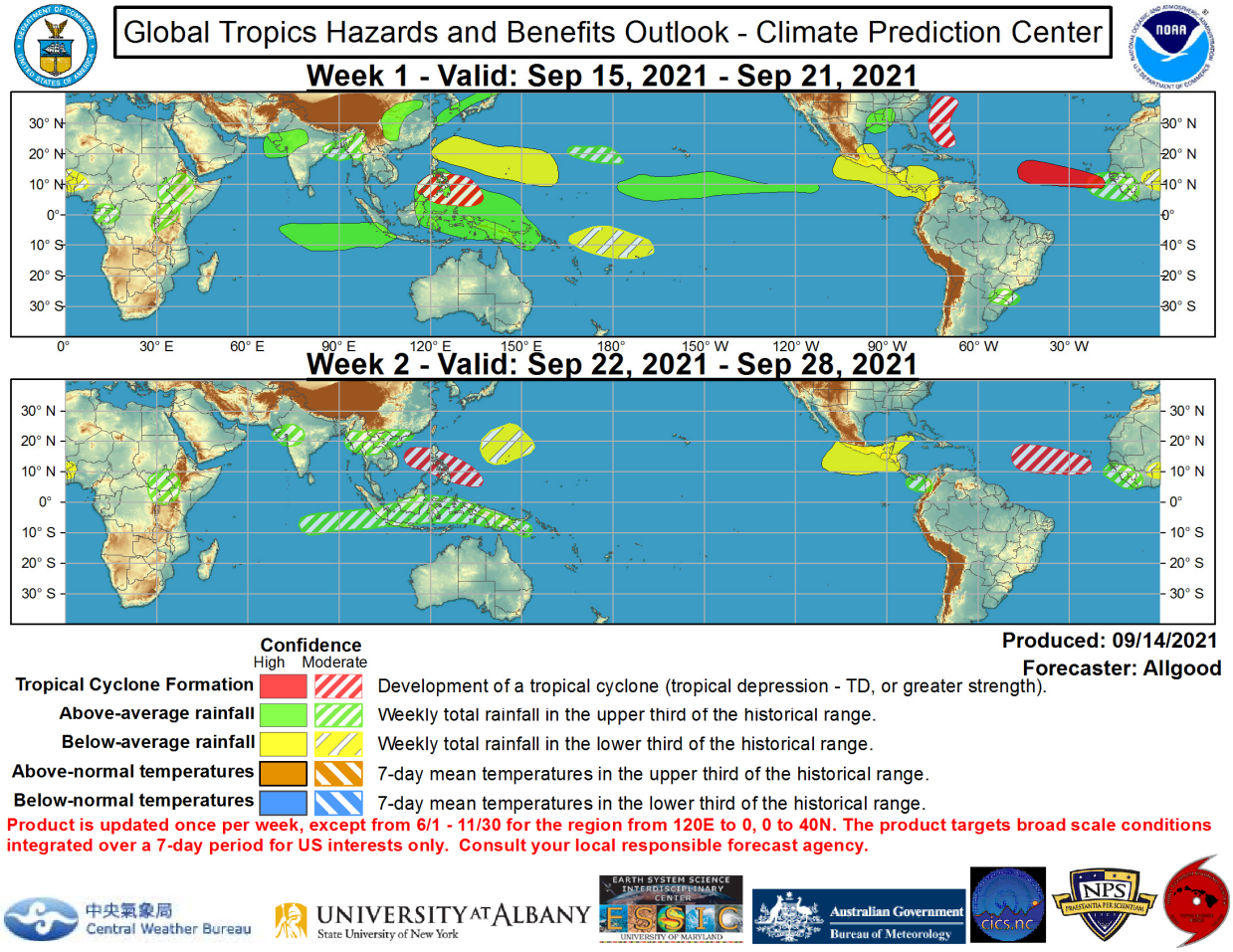
La Niña *refers to the periodic cooling of sea-surface temperatures (-0.5°C) across the east-central equatorial Pacific. It represents the cold phase of the ENSO cycle.*

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.*

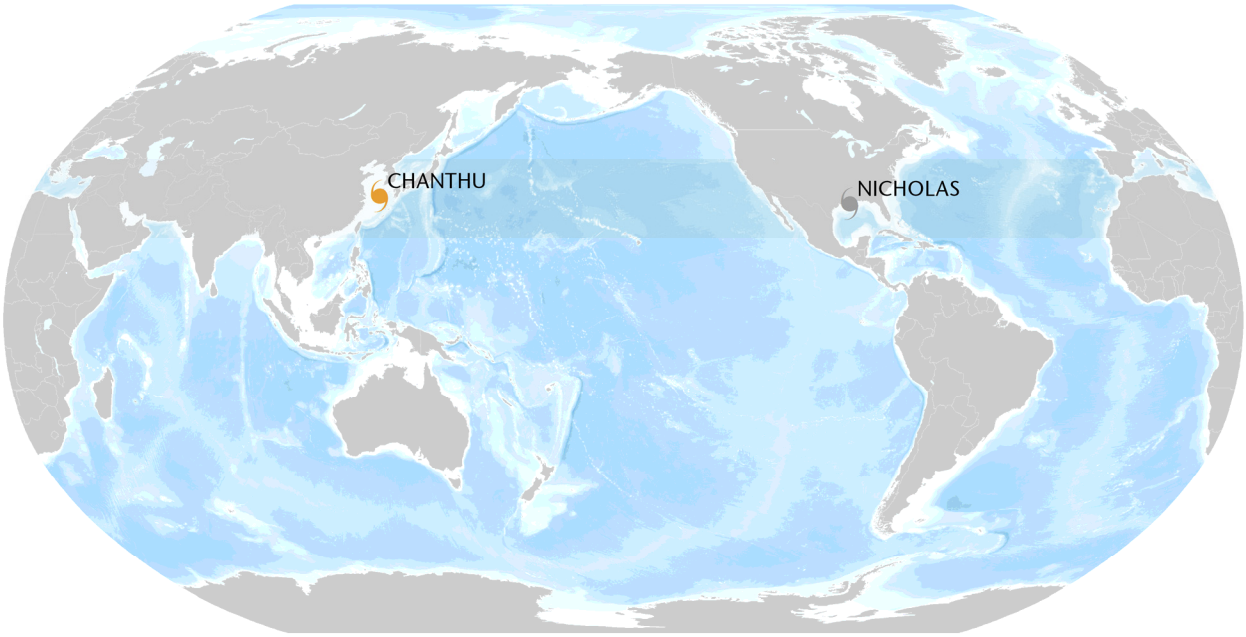
El Niño (La Niña) is a phenomenon in the equatorial Pacific Ocean characterized by a five consecutive 3-month running mean of sea surface temperature (SST) anomalies in the Niño 3.4 region that is above the threshold of +0.5°C (-0.5°C). This is known as the Oceanic Niño Index (ONI).

Global Tropics Outlook



Source: Climate Prediction Center

Current Tropical Systems



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

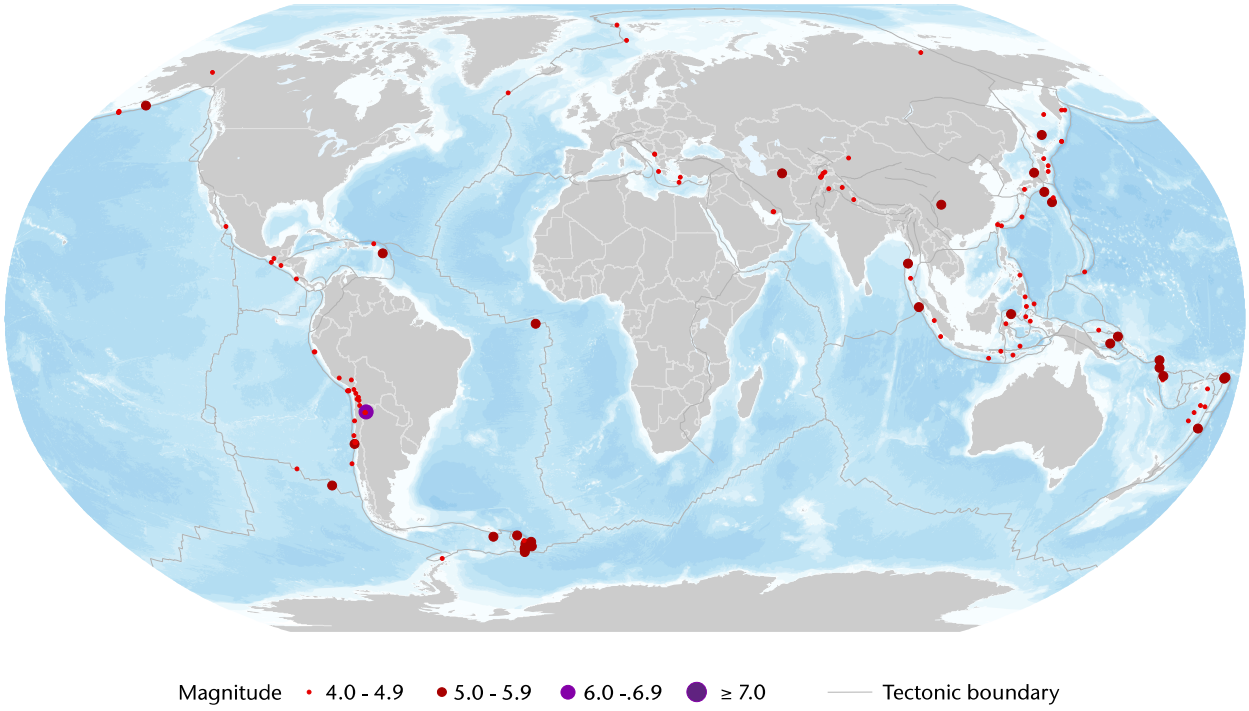
Location and Intensity Information

Name*	Location	Winds	Storm Reference from Land	Motion**
TD Nicholas	29.7°N, 91.7°W	25 mph	60 miles (100 kilometers) SW from Baton Rouge, Louisiana	SE at 3 mph
TS Chanthu	31.7°N, 125.°9E	60 mph	130 miles (210 kilometers) S from Jeju, South Korea	N at 5 mph

* 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): September 10-16

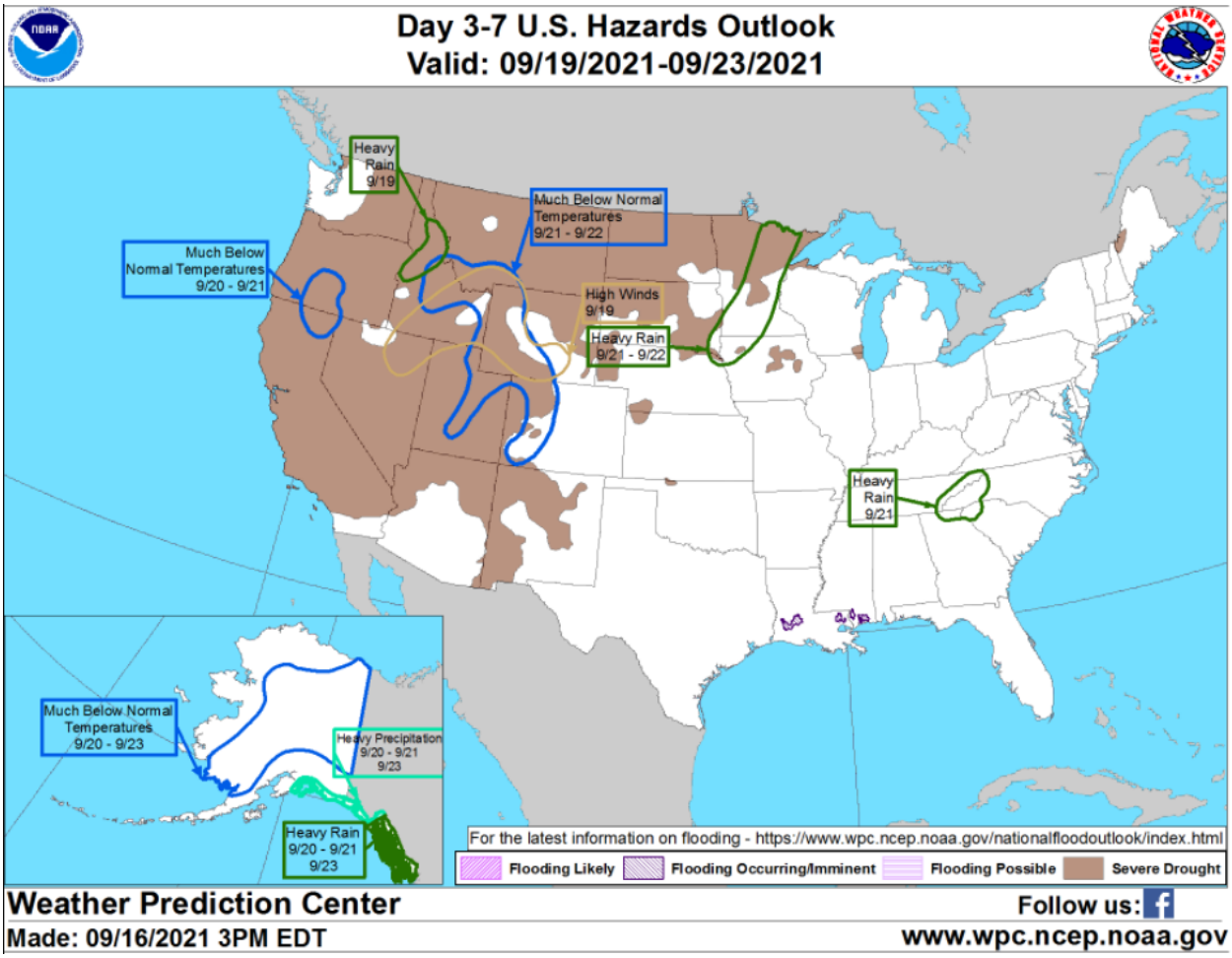


Significant EQ Location and Magnitude (≥M6.0) Information

Date (UTC)	Location	Magnitude	Depth	Epicenter
09/13/2021	23.89S, 67.02W	6.2	193 km	79 kilometers (49 miles) WNW of San Antonio de los Cobres, Argentina

Source: United States Geological Survey

U.S. Weather Threat Outlook



Potential Threats

- An advancing frontal boundary will cross the Rockies, Plains, and head towards the Midwest early next week. This will spawn heavy rain chances ahead of the leading front, but also leave much cooler temperatures in the Rockies in its wake. This may also result in mountain snow. Elsewhere, heavy precipitation and below-normal temperatures will be found across southern sections of Alaska.

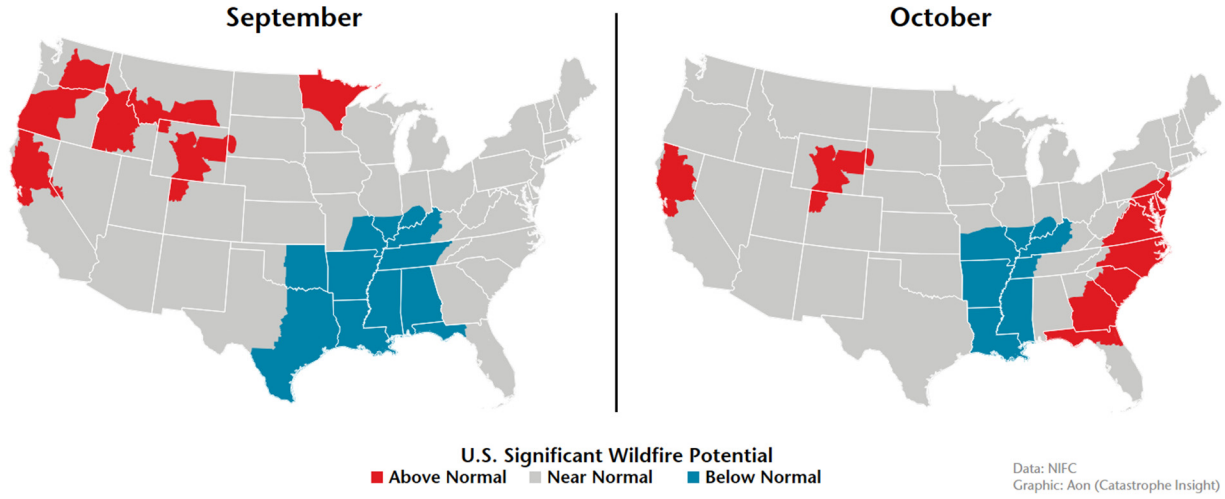
- Continued extensive drought conditions persist across most of the Western U.S., Rockies, Northern Plains, and Upper Midwest. These conditions have led to prolonged wildfire threats across much of the West, including California.

- Recent heavy rains from the remnants of Hurricane Nicholas and Hurricane Ida have left river levels swollen and soils highly saturated across parts of the Southeast.

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

The National Interagency Fire Center has highlighted an expansive risk area for significant wildfire activity across much of the U.S. West and the Northern Tier. Continued summer-like conditions are maintaining wildfire conditions across much of the U.S. West. The ongoing historic drought and subsequent fire weather conditions in these areas has accelerated seasonal wildfire statistics for the Lower 48, though 2021 is now running behind the pace of 2020.

**Please note that NIFC has stopped releasing daily U.S. Wildfire Outlook shapefiles



Annual YTD Wildfire Comparison: September 16

Year	Number of Fires	Acres Burned	Acres Burned Per Fire
2017	49,588	8,464,280	170.69
2018	47,861	7,245,601	151.39
‘a 2019	37,274	4,343,273	116.52
2020	42,512	6,927,327	162.95
2021	44,898	5,549,094	123.59
10-Year Average (2011-2020)	**44,822**	**6,362,507**	**141.95**

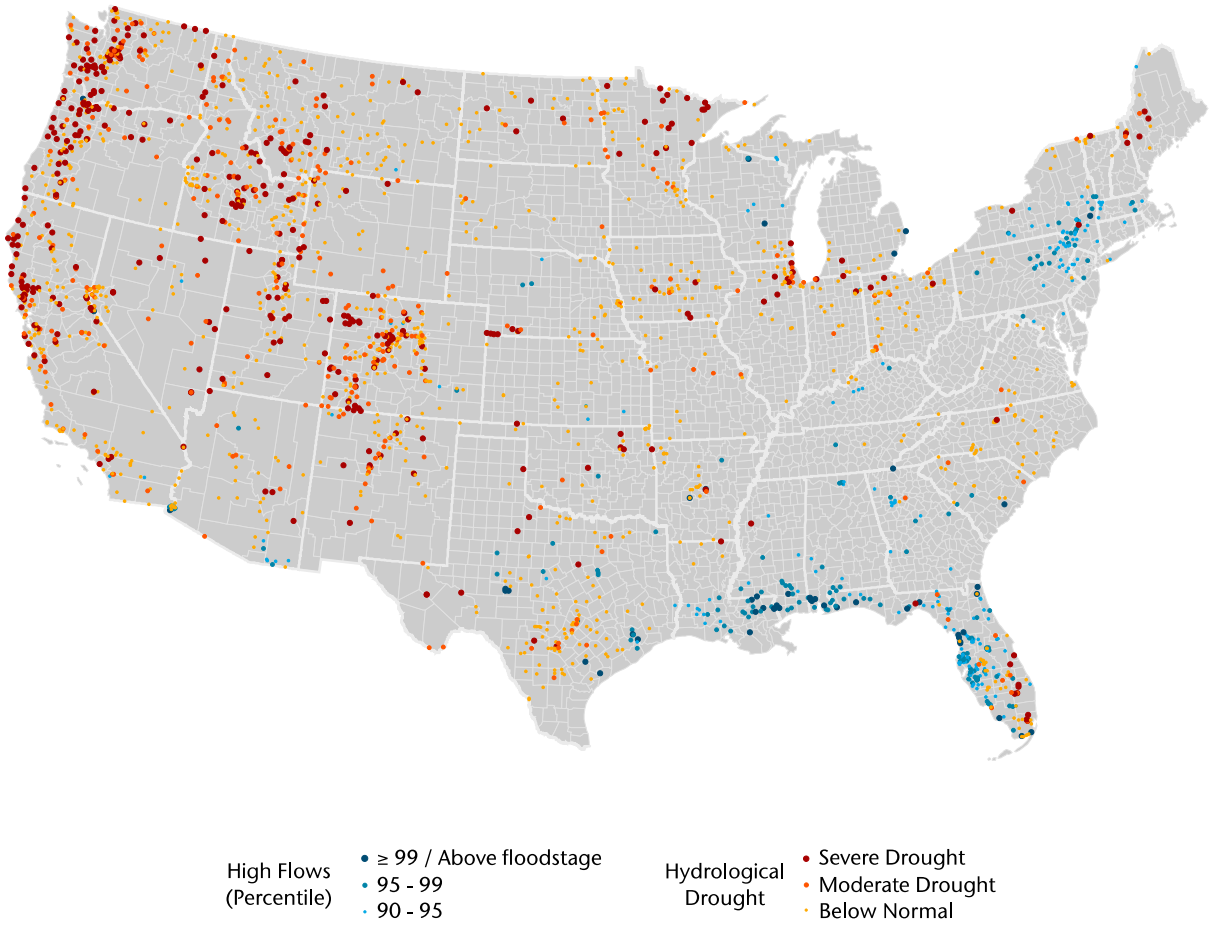
Source: National Interagency Fire Center

Top 5 Most Acres Burned by State: September 16

State	Number of Fires	Acres Burned	Acres Burned Per Fire
California	7,807	1,661,238	212.79
Oregon	1,679	639,899	381.12
Montana	2,275	626,016	275.17
Arizona	1,638	529,370	323.18
Washington	1,667	420,879	252.48

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
Hoosic River near Eagle Bridge, New York	6.52	99.10
Mohawk River at Cohoes, New York	12.87	98.96
Walloomsac River near North Bennington, Vermont	3.41	98.90
Fishing Creek near Bloomsburg, Pennsylvania	4.27	98.81
Bouie Creek near Hattiesburg, Mississippi	10.55	98.81

Source Information

Hurricane Nicholas strikes Texas; prompts flooding

Nicholas crawls into Louisiana from Texas, dumping rain in areas struck by Ida, NPR
Nicholas deluges U.S. Gulf Coast with heavy rain, flooding, Reuters
Tropical Storm Nicholas brings limited damage to Texas coast, The Texas Tribune
U.S. National Hurricane Center
U.S. National Weather Service
U.S. Weather Prediction Center

Hurricane Olaf

U.S. National Hurricane Center
"Olaf" leaves damages in tourist area and center of SJC, La Tribuna de Los Cabos
Tropical storm Olaf leaves minor material damage in northwestern Mexico, Infobae

Typhoons Conson & Chanthu affect East Asian countries

Typhoon Chanthu drenches Taiwan but spares island a direct hit. Channel News Asia
National Disaster Risk Reduction and Managament Council, Philippines
JTWC

Natural Catastrophes: In Brief

Nigeria – Flash Floods Wreak Havoc in Abuja, FloodList
3 killed in a 6.0 shallow earthquake in Sichuan, China, at least 10,000 evacuated to shelters, Yahoo
China launches emergency response after quake kills at least three, Reuters
BNPB, Indonesia
Earthquake leaves three dead and 60 injured in China's Sichuan, CNN
USGS
China’s Ministry of Emergency Management

Contact Information

Steve Bowen
Managing Director
Head of Catastrophe Insight
Impact Forecasting
Aon
steven.bowen@aon.com

Michal Lörinc
Senior Catastrophe Analyst
Impact Forecasting
Aon
michal.lorinc@aon.com

Brian Kerschner
Senior Catastrophe Analyst
Impact Forecasting
Aon
brian.kerschner@aon.com

Karmen Hozjan
Catastrophe Analyst
Impact Forecasting
Aon
karmen.hozjan@aon.com

About Aon

Aon plc (NYSE:AON) is a leading global professional services firm providing a broad range of risk, retirement and health solutions. Our 50,000 colleagues in 120 countries empower results for clients by using proprietary data and analytics to deliver insights that reduce volatility and improve performance.

© Aon plc 2021. All rights reserved.
The information contained herein and the statements expressed are of a general nature and are not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information and use sources we consider reliable, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

Copyright © by Impact Forecasting®
No claim to original government works. The text and graphics of this publication are provided for informational purposes only. While Impact Forecasting® has tried to provide accurate and timely information, inadvertent technical inaccuracies and typographical errors may exist, and Impact Forecasting® does not warrant that the information is accurate, complete or current. The data presented at this site is intended to convey only general information on current natural perils and must not be used to make life-or-death decisions or decisions relating to the protection of property, as the data may not be accurate. Please listen to official information sources for current storm information. This data has no official status and should not be used for emergency response decision-making under any circumstances.

Cat Alerts use publicly available data from the internet and other sources. Impact Forecasting® summarizes this publicly available information for the convenience of those individuals who have contacted Impact Forecasting® and expressed an interest in natural catastrophes of various types. To find out more about Impact Forecasting or to sign up for the Cat Reports, visit Impact Forecasting's webpage at impactforecasting.com.

Copyright © by Aon plc. All rights reserved. No part of this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise. Impact Forecasting® is a wholly owned subsidiary of Aon plc.