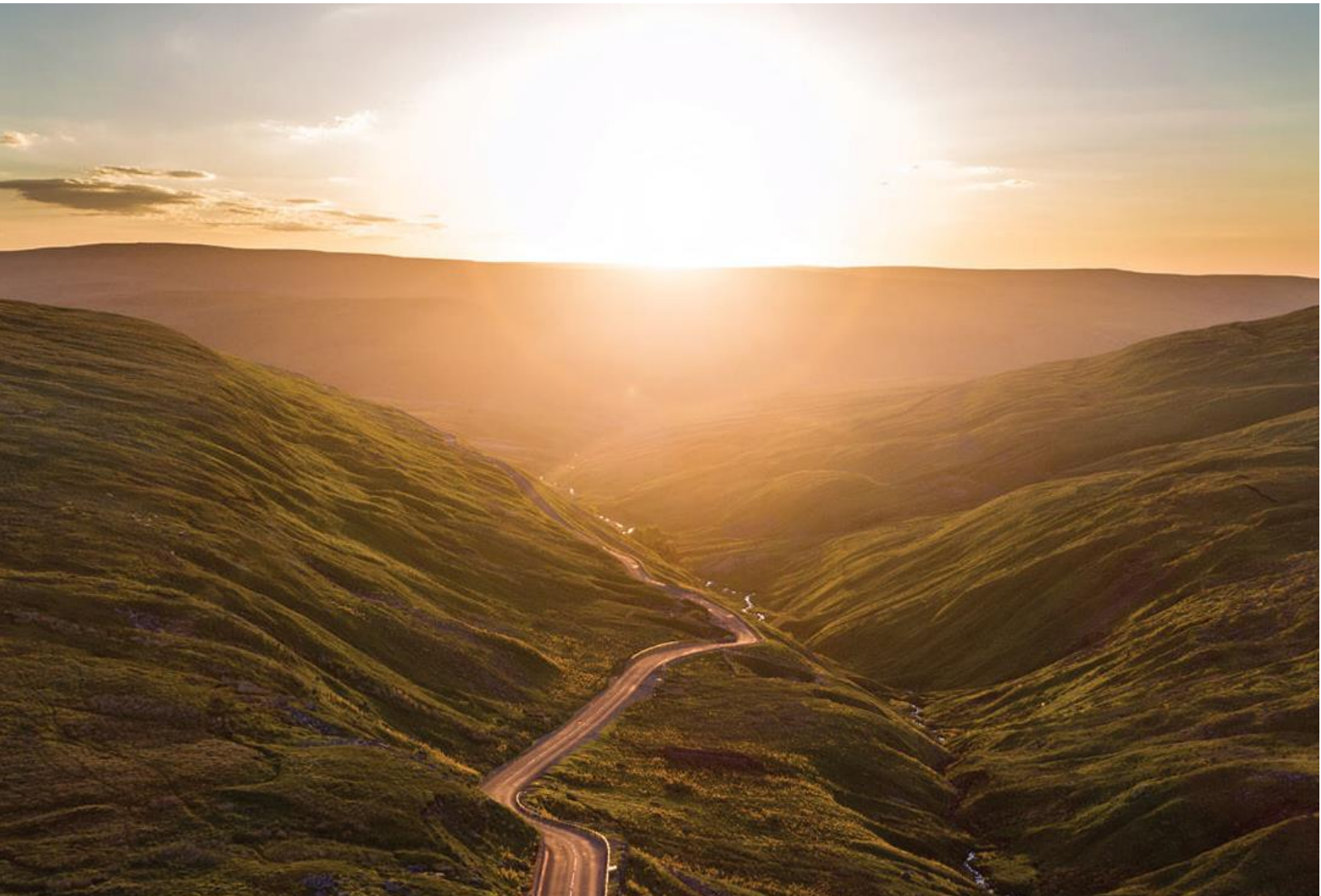
Weekly Cat Report

October 14, 2022



Executive Summary

Event	Affected Region(s)	Fatalities	Economic Loss ($)	Page
Hurricane Julia	Central America, Venezuela, Colombia	76+	300+ million	3
Flooding	Thailand, Vietnam, Cambodia	16+	100s of millions	5
Flooding	Australia	0	Millions	7
Flooding	Indonesia	10+	Unknown	7
Flooding	Nigeria	500+	10s of millions	7
Flooding	Southern Europe, North Africa	0	Unknown	7

Please note that any financial loss estimate is preliminary and subject to change. These estimates are provided as an initial view of the potential financial impact from a recently completed or ongoing event based on early available assessments. Significant adjustments may inevitably occur. All losses in US dollars ($) unless noted otherwise.

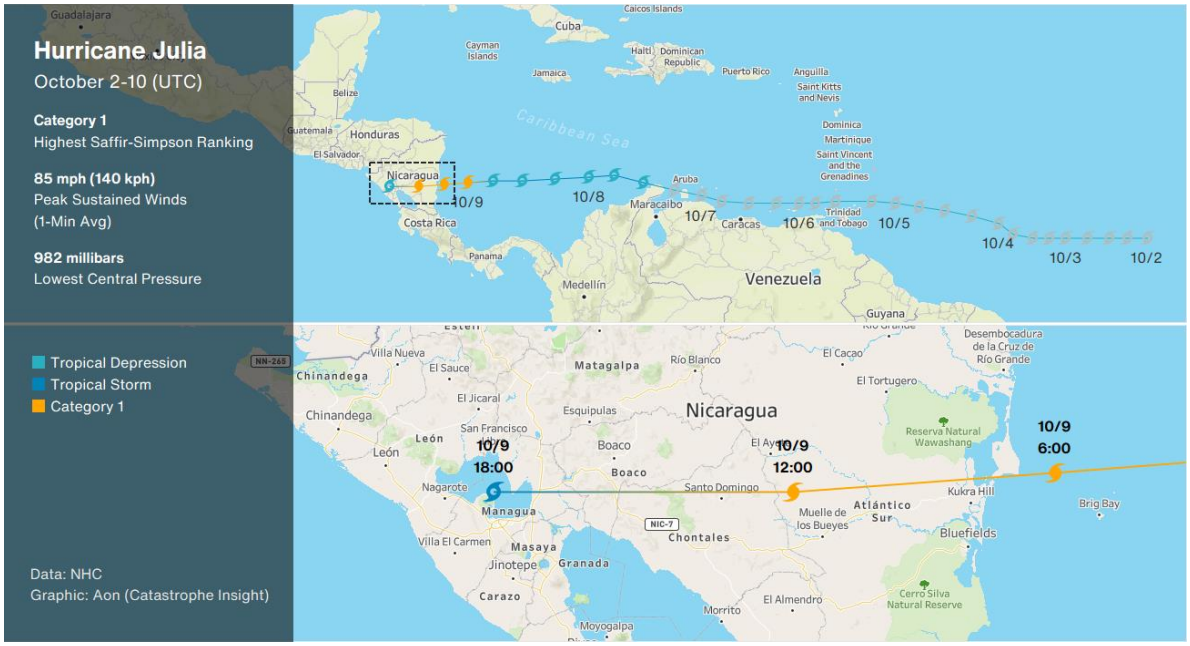
Along with this report, we continue to welcome users to access current and historical natural catastrophe data and event analysis on Impact Forecasting's Catastrophe Insight website: http://catastropheinsight.aon.com

Central America, Venezuela, Colombia: Hurricane Julia

Overview

Hurricane Julia made landfall near Laguna de Perlas in Nicaragua at 3:15 AM EDT on October 9 as a Category 1 storm. It caused notable damage in Central America and parts of South America with strong winds and heavy rain. At least 76 deaths were reported due to the storm as of this writing. Damage assessments were still in the early phases, but the combined toll was expected be significant and poised to reach into the hundreds of millions USD.

Meteorological Recap



The National Hurricane Center (NHC) identified a tropical wave hundreds of miles east of Windward Islands on October 2 tracking in a general westward direction. The disturbance was subsequently upgraded to a tropical depression in the night of October 6. The depression further strengthened into Tropical Storm Julia in 12 hours through a concentrated burst of deep convection while near the Guajira Peninsula. Northerly shear aloft briefly suspended strengthening in the daytime, but the storm began to gradually intensify overnight to October 8 as it entered an area of decreasing vertical wind shear. The NHC upgraded Julia into a hurricane at 7:00 PM EDT on October 8. At that time, it was 140 mi (225 km) east of Nicaragua. Julia reached its peak intensity with maximum 1-minute sustained winds of 85 mph (140 kph) by the early hours of October 9 and made landfall near Laguna de Perlas in Nicaragua shortly after an hour. Land effects weakened Hurricane Julia back to tropical storm which completed its exit over the eastern Pacific by evening. by evening. The storm then traversed the coast of El Salvador early on October 10 with strong convection still present on its southern and eastern bands.

Event Details

Venezuela was affected by the outer rain bands of the intensifying storm late on October 8, after the storm left one dead in Trinidad and Tobago earlier. More than a month's worth of rain fell in Santos Michelena municipality, northern Venezuela within eight hours, triggeing flash flooding and landslides that killed 43 people and rendered over 55 people missing. About 80,000 people were left without power or water. No fewer than 300 homes were destroyed and over 750 were damaged. The nation declared three days of mourning on Sunday.

Flood damage in the town of Tejerias, Venezuela
Source: INAMEH

Hurricane Julia then moved on to impact close to 10,000 households in northern **Colombia**. The local disaster risk unit (UNGRD) tallied 174 homes destroyed and 5,247 damaged. Two people sustained injuries. San Andrés, a small Colombian island, suffered the most damages.

In **Nicaragua,** where Julia made landfall as a Category 1 hurricane, at least 20,000 people were evacuated and about one million residents were hit with power outages. One was killed by the storm. Infrastructural losses included more than 1,120 km (696 mi) of road sections damaged, along with 98 healthcare and 184 educational facilities. In total, 15,000 homes were damaged to varying degrees, of which 700 were completely destroyed and 8,000 sustained roof damage. Ministry of finance issued a preliminary estimate of damage in the country totaling $160 to 200 million.

Julia also pounded **Honduras** with torrential rainfall, bringing the Ulúa River beyond the red alert stage for flooding. Five storm victims were confirmed, with at least 12,000 people displaced and at least 835 buildings were damaged or destroyed. Additionally, the National Agrarian Institute estimated a potential damage of HNL1.5 billion ($61 million), mostly to banana and palm crops. Neighboring **Guatemala** reported 14 additional fatalities. Over 1,000 homes in the country were inundated. The barreling storm also caused deaths and damages in **Costa Rica**, **Panama**, **El Salvador**, and **Mexico**. In Salvador alone, agricultural losses on 12,000 acres of crops were preliminarily estimated at $17 million.

Financial Loss

Hurricane Julia was the second storm to cross from the Atlantic to Pacific basin in 2022 after Hurricane Bonnie, but made landfall with stronger maximum sustained winds. Heavy rainfall event earlier in September leading to increased river levels and saturated soils would likely further exacerbate flooding conditions in parts of central America. For context, Hurricane Cesar in 1996 inflicted more than $200 million in damages. It would take weeks or months for a clear picture on the damage losses from Hurricane Julia.

Thailand, Vietnam, Cambodia: Flooding

Overview

Several countries of mainland Southeast Asia have been affected by a period of heavy rainfall since the beginning of October. Notable material damage occurred in Thailand, Vietnam, and Cambodia, along with several fatalities caused by flooding and landslides.

Meteorological Recap

A surge of cold northeasterly air renewed the ongoing flooding in parts of southeast Asia, after Typhoon Noru made landfall in central Vietnam on September 28. The Inter-Tropical Convergence Zone (ITCZ) was positioned over lower central Thailand to central Vietnam as the region began to enter the northeast monsoon season. Bangkok metropolitan area recorded 90.4 mm (3.6 in) rainfall on October 7, and Vietnam received more than 500 mm (33.5 in) rainfall in 24 hours to October 10 across the provinces of Quang Nam, Quang Ngai, and Thua Thien Hue. The cold spell also caused torrential rainfall in Cambodia, leading to extended flooding around the Tonle Sap Lake. Most monitoring stations in the Mekong River basin, however, were in their normal water level.

Event Details

The recent rains exacerbated the floodign situation in **Thailand.** Nakhon Sawan in central part of the country observed rainfall of almost 120 mm (4.7 in) on October 7. Persistent days of rainfall increased the downstream flow towards Bangkok, which also saw heavy rainfall on the same day. The Industrial Estate Authority of Thailand (IEAT) raised the flood warning to level 2, the second highest level, for Ayutthaya on October 7 as the Chao Phraya and Rama IV dams increased their discharges downstream. Three districts in Nonthaburi were declared by authorities as disaster areas on October 8.

The same cold spell had also affected central **Vietnam** with more than 500 mm (33.5 in) 24-hour rainfall recorded in the provinces of Quang Nam, Quang Ngai, and Thua Thien Hue. One person died and two were reported missing. Hundreds of houses were damaged, and thousands were flooded. As much of

Flooding in Cambodia (left) and Hoi An Ancient Town, Vietnam (right)
Source: Cambodia Ministry of Water Resources and Meteorology, Vietnam Disaster Management Authority

central Vietnam lies in mountainous and rural regions, damages were not expected to be significant for the scale of the rainfall.

Cambodia was also badly affected by heavy rainfall that triggered widespread flood extent on October 5-7. Since the beginning of September, at least 15 flood related fatalities were reported, majority in the floods brought by the remnants of typhoon Noru that hit hard in Banteay Meanchey and Oddar Meanchey Provinces. Flooding and landslide events have already damaged or inundated more than 33,000 houses, according to Cambodian Humanitarian Forum. Nearly 170,000 people were affected and more than 180,000 ha (445,000 acres) of agricultural land were damaged.

Financial Loss

Damage assessment remains ongoing across the affected region. However, total economic losses caused by continued flooding were anticipated to reach into the hundreds of millions (USD).

Natural Catastrophes: In Brief

Flooding (Australia)

Four towns – Seymour, Rochestor, Carisbrook and Maribyrnong were under evacuation orders on October 13-14 as a frontal system brought heavy rainfall to the Victoria state. Almost 10,000 homes and businesses near Castlemaine lost power on Thursday night. The Maribyrnong River burst its bank on Friday morning, and the Goulburn River beat its previous 1974 level by cresting at 8.2m (26.9 ft). Flood stages were expected to continue rising till Saturday morning. Train lines between Melbourne and Sydney was suspended. About 500 homes were flooded and another 500 isolated across the state. Emergency payouts were eligible for homes impacted by the floods, according to the State Premier.

Flooding (Indonesia)

Widespread heavy rain affected Indonesia on October 4-9. The Water Resources Service of Jakarta Province had to deploy close to 1,000 water pumps in the capital city to drain out floodwaters. South Jakarta received 178 mm (7.0 in) rainfall in 24 hours to October 7, causing a school wall to collapse which killed three students and injured two others. In North and East Aceh, at least 8,000 houses and 1,000 ha (2,600 acres) of crops were inundated. Five people were also killed landslides and currents in Bali, with dozens of tourists in Seminyak having to be evacuated. Two other fatalities were also reported in North Aceh and Central Java.

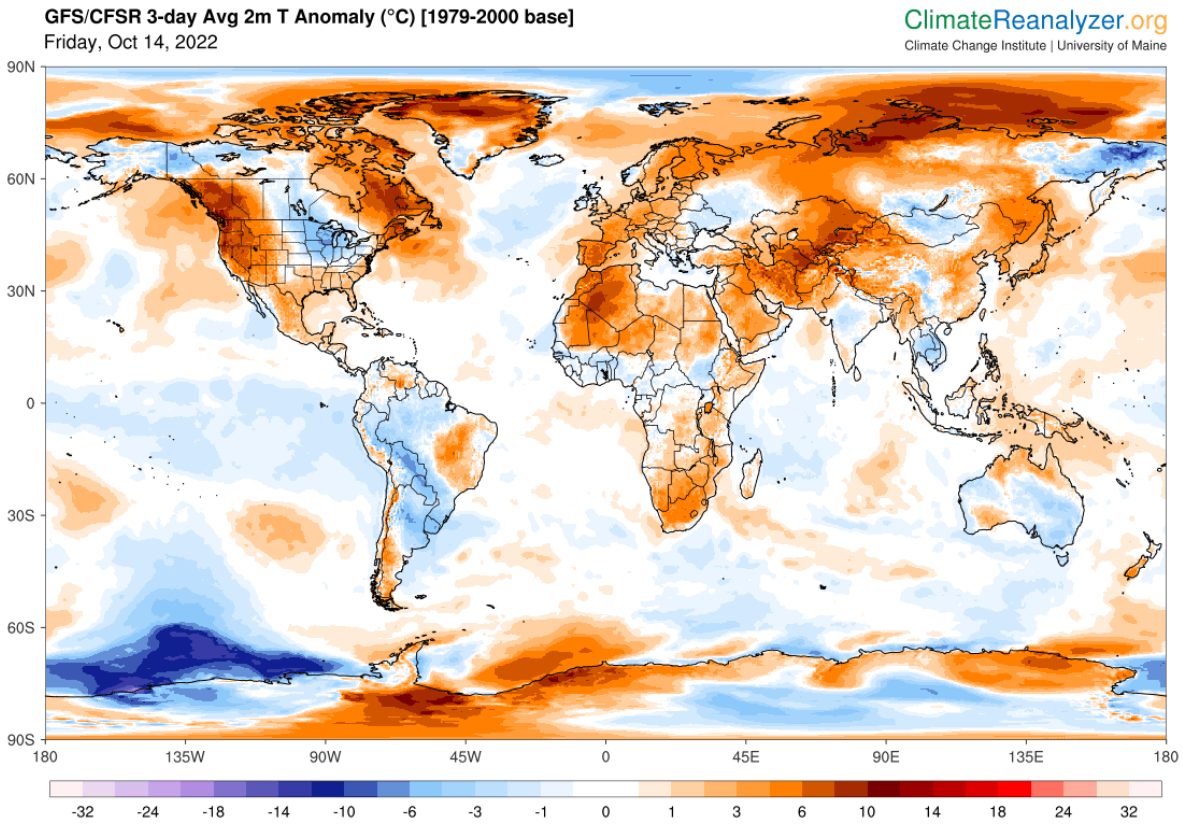
Flooding (Nigeria)

Nigerian Ministry of Humanitarian Affairs updated numbers from seasonal floods that have already affected lives of more than 1.4 million people in 31 states across the country. As of October 11, at least 500 people have been killed and 1,546 injured. Flooding caused widespread damage on buildings, infrastructure and agriculture during current rainy season. Almost 90,000 houses were damaged or destroyed, nearly 150,000 ha (371,000 acres) of farmland and crops were affected. Local authorities informed that the scale of the seasonal flooding is similar to situation in 2012.

Flooding (Southern Europe, North Africa)

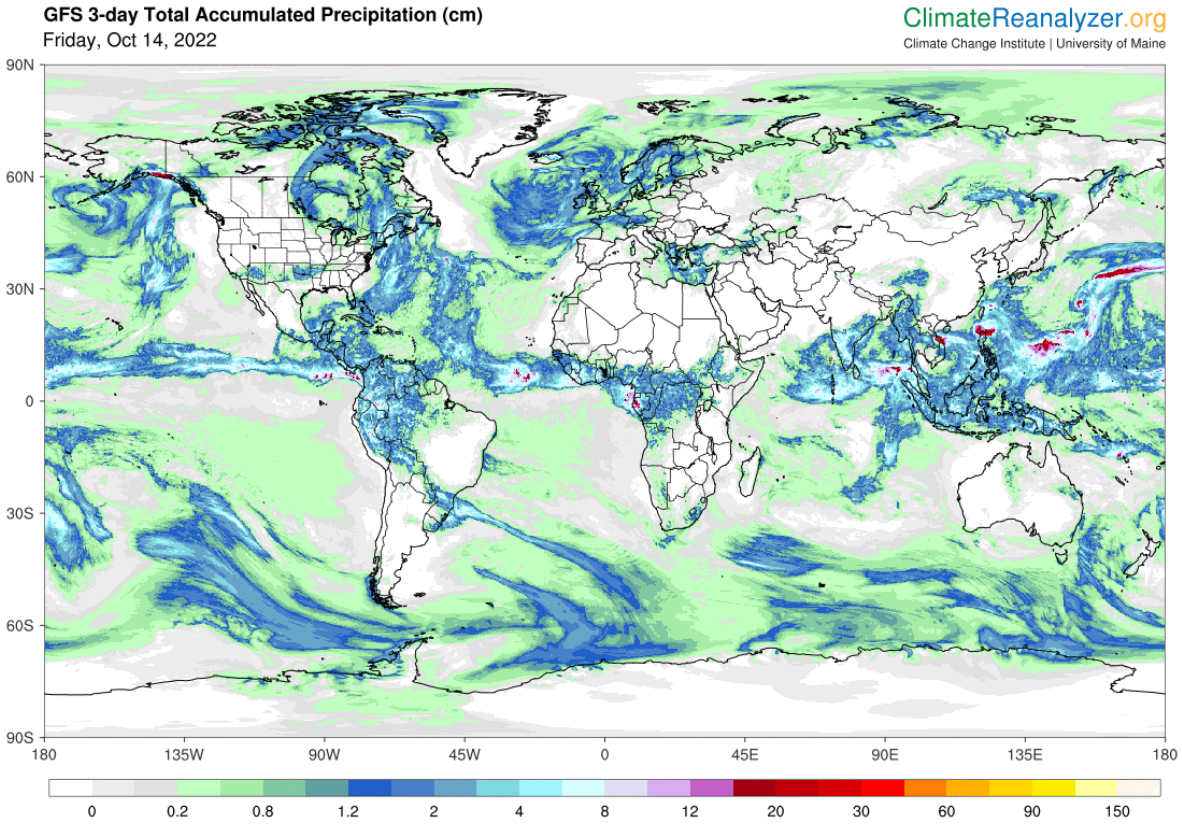
Western Mediterranean region was hit by a period of unstable weather on October 8-12, with spells of heavy rainfall and subsequent flash flooding and landslides affecting parts of Spain, Italy, Morocco, Algeria and Tunisia. At least 8 people were killed in Algeria in Bordj Bou Arreidj. Localized damage was reported from multiple regions and aggregated damage is likely to be in the millions USD.

Global Temperature Anomaly Forecast



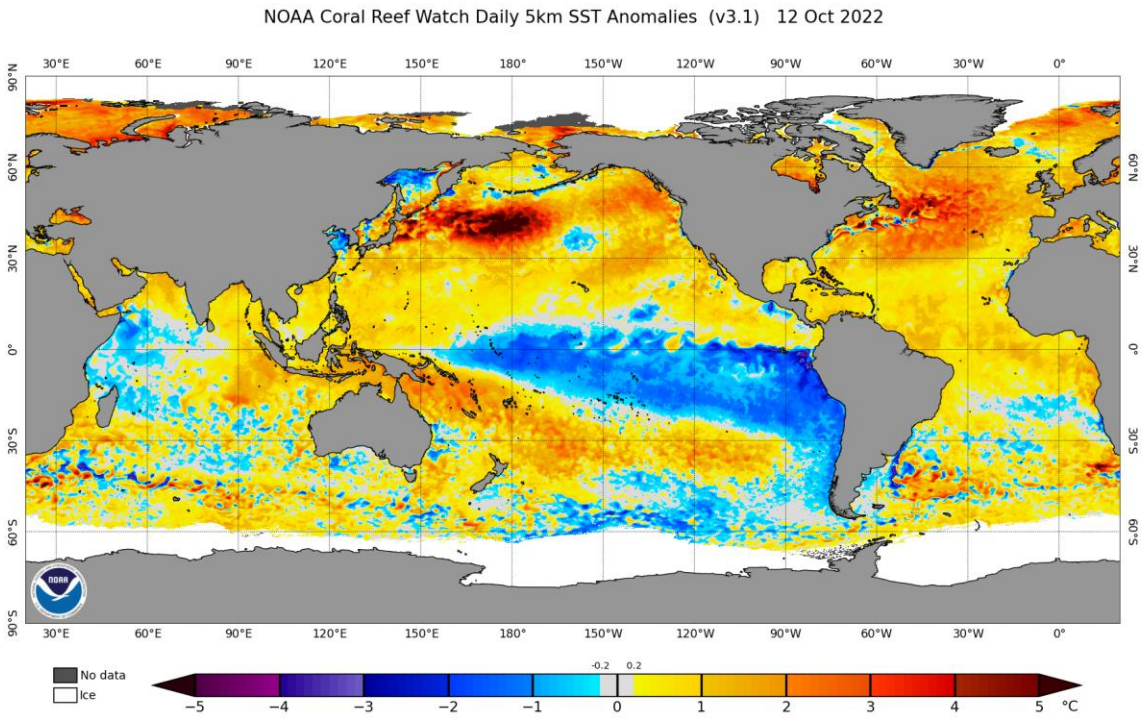
Source: Climate Reanalyzer, Climate Change Institute, University of Maine, USA

Global Precipitation Anomaly Forecast



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

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



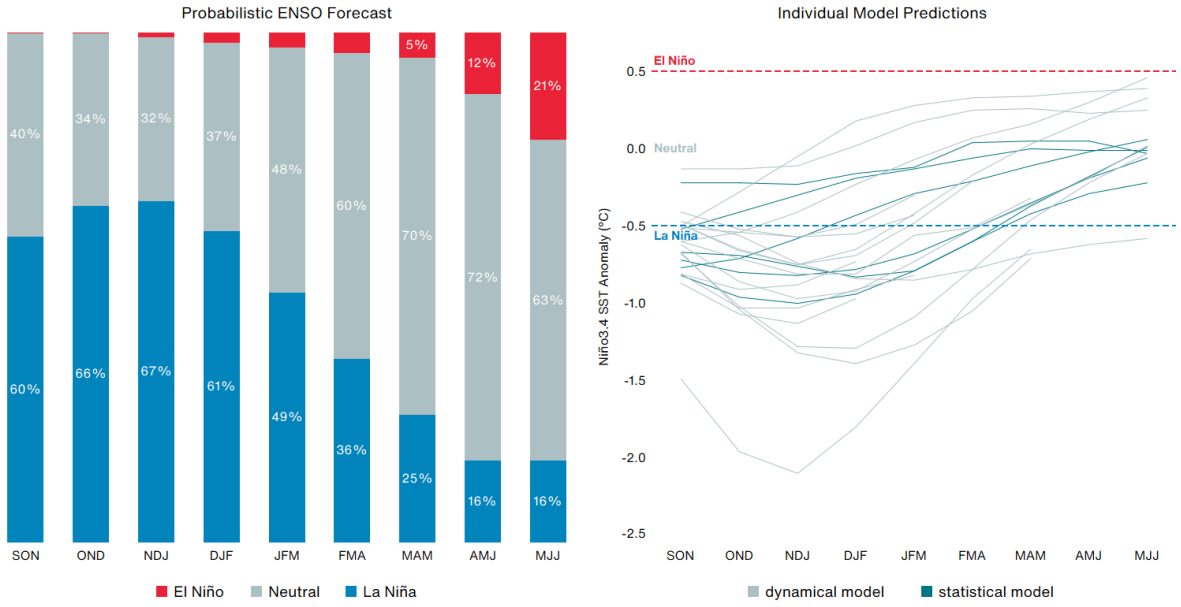
El Niño-Southern Oscillation (ENSO)

Overview

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. There is a ~70 percent chance of La Niña emerging in September and lasting into early 2022.

Probabilistic ENSO Model Projections: September 2021

Data: NOAA & Columbia University (IRI), Graphic: Aon (Catastophe Insight)



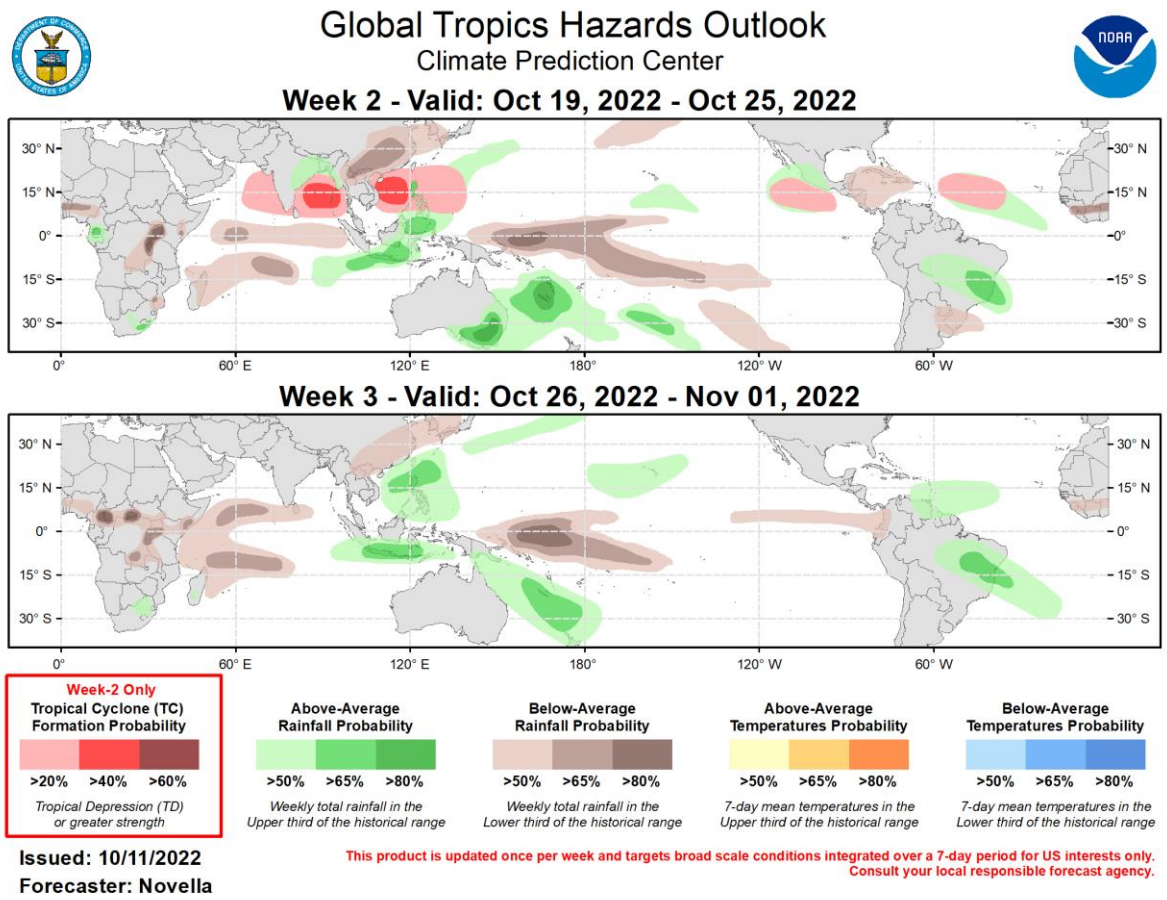
El Niño: *Warm phase of an ENSO cycle. Sea surface temperatures of +0.5°C occur across the east-central equatorial Pacific.*

La Niña: *Cool phase of an ENSO cycle. Sea surface temperatures of -0.5°C occur across the east-central equatorial Pacific.*

Neutral: *A period when neither El Niño nor La Niña conditions are present.*

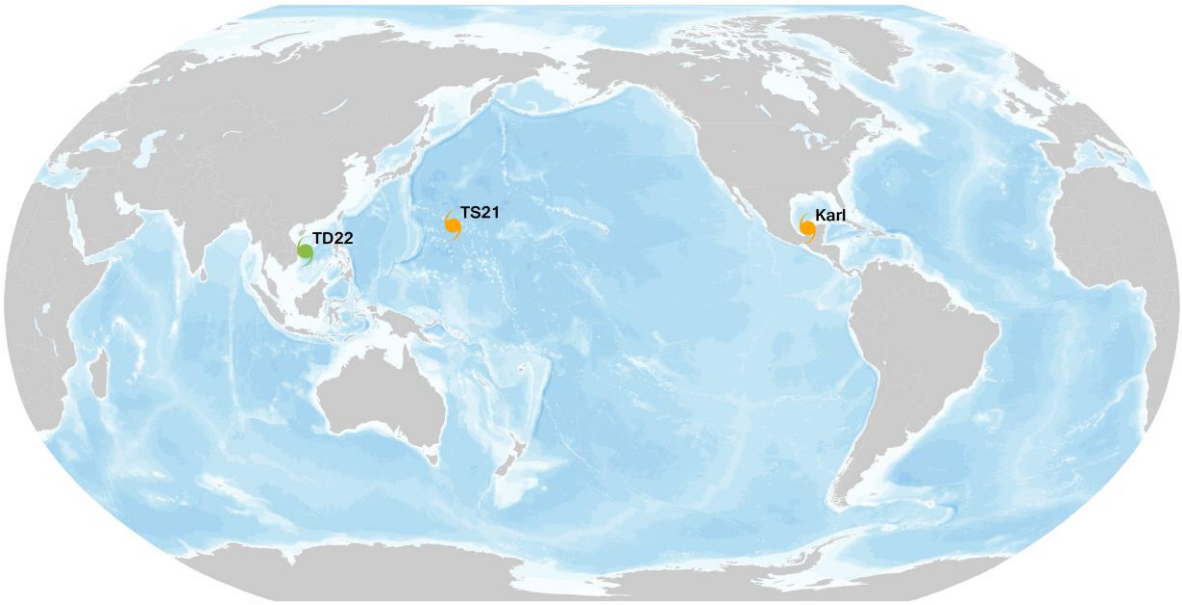
El Niño (La Niña) is a phenomenon in the equatorial Pacific Ocean characterized by a five consecutive 3-month running mean of sea surface temperature (SST) anomalies in the Niño 3.4 region that is above the threshold of +0.5°C (-0.5°C). This is known as the Oceanic Niño Index (ONI).

Global Tropics Outlook



Source: Climate Prediction Center (NOAA)

Current Tropical Cyclone Activity



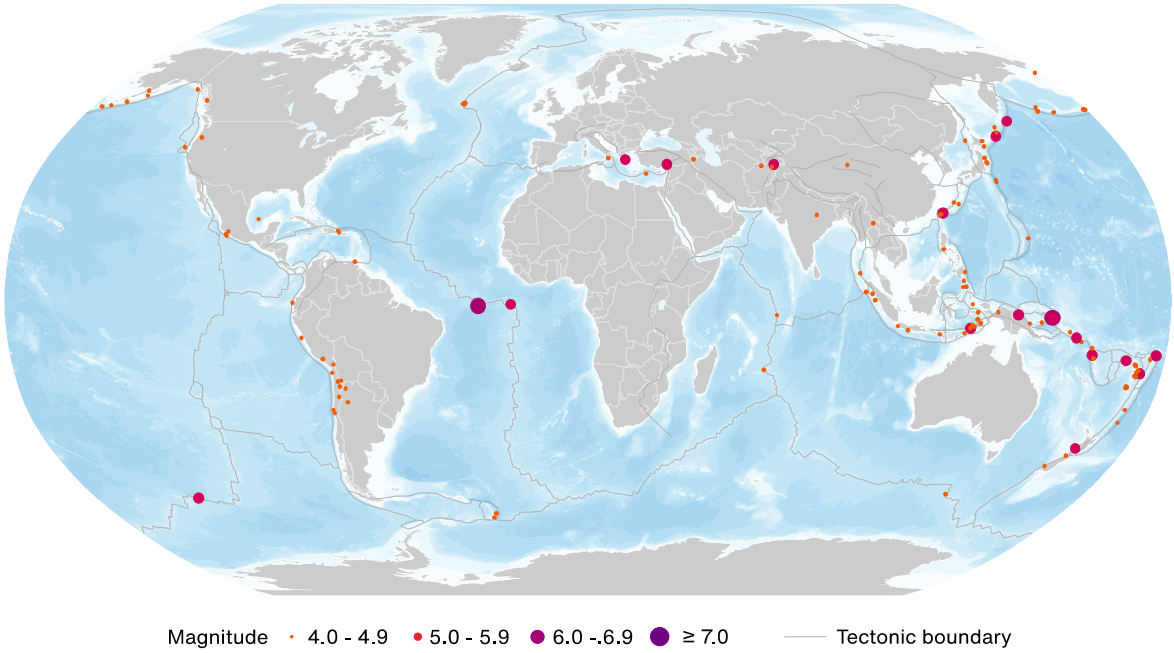
Tropical Depression Tropical Storm Category 1 Category 2 Category 3 Category 4 Category 5

Storm Name	Location	Winds (mph)	Location from Nearest Land Area
HU Karl	20.4N, 92.6W	40	140 mi (230 km) W from Campeche, Mexico
TD22	14.2N, 111.4E	35	150 mi (245 km) E from Qui Nhon, Vietnam
TS21	21.2N, 156.6E	40	825 mi (1325 km) NE from Northern Mariana Islands

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

Source: National Hurricane Center, Joint Typhoon Warning Center, Central Pacific Hurricane Center (NOAA)

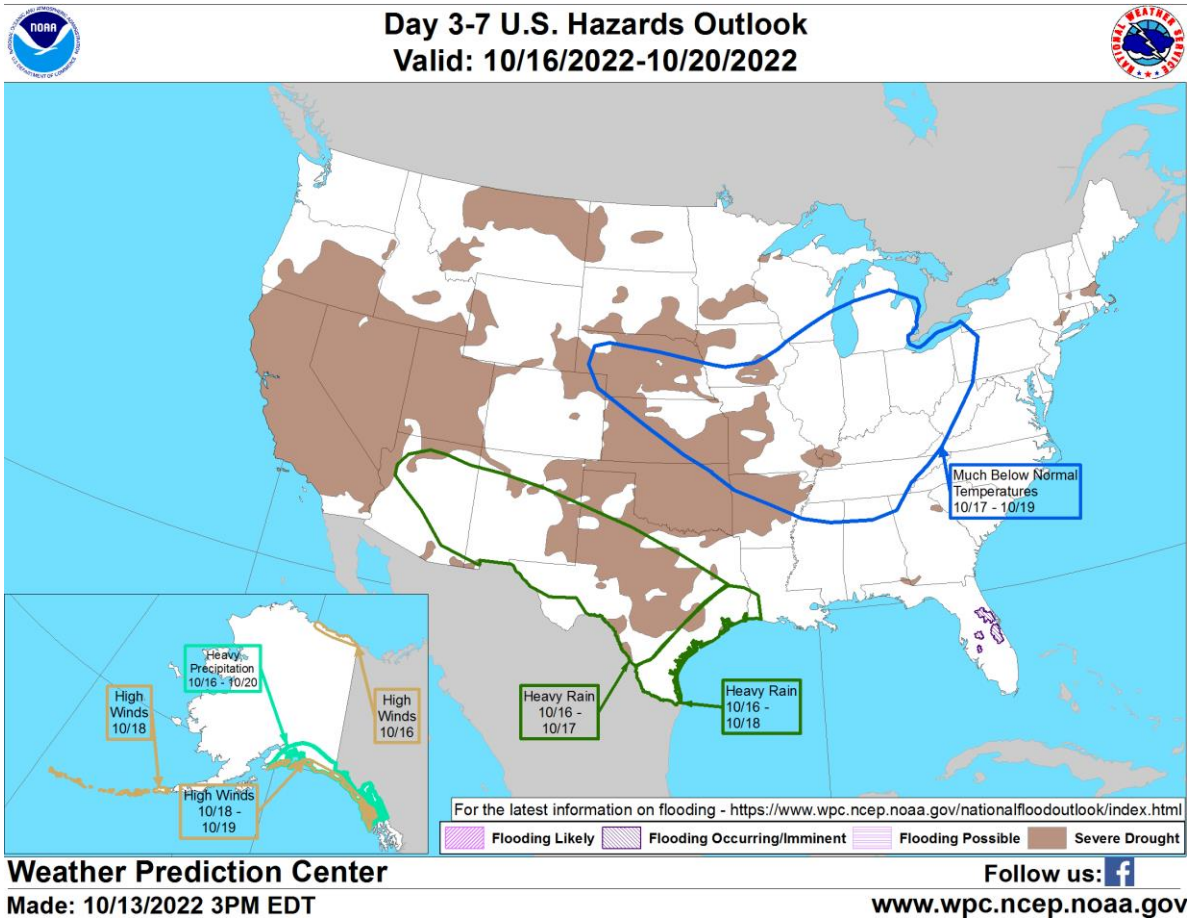
Global Earthquake Activity (≥M4.0): October 7-13



Date (UTC)	Location	Magnitude	Epicenter
10/9/2022	1.38S, 23.90W	6.2	central Mid-Atlantic Ridge
10/13/2022	4.79S, 153.56E	6.4	15 km (9 mi) ESE of Kokopo, Papua New Guinea

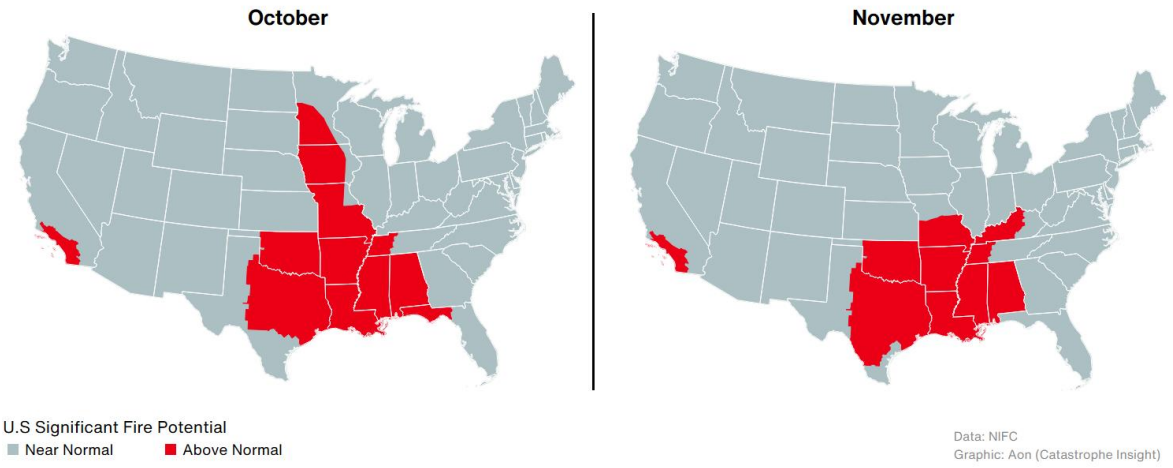
Source: United States Geological Survey

U.S. Hazard Outlook



Source: Climate Prediction Center (NOAA)

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



Annual YTD Wildfire Comparison: October 13

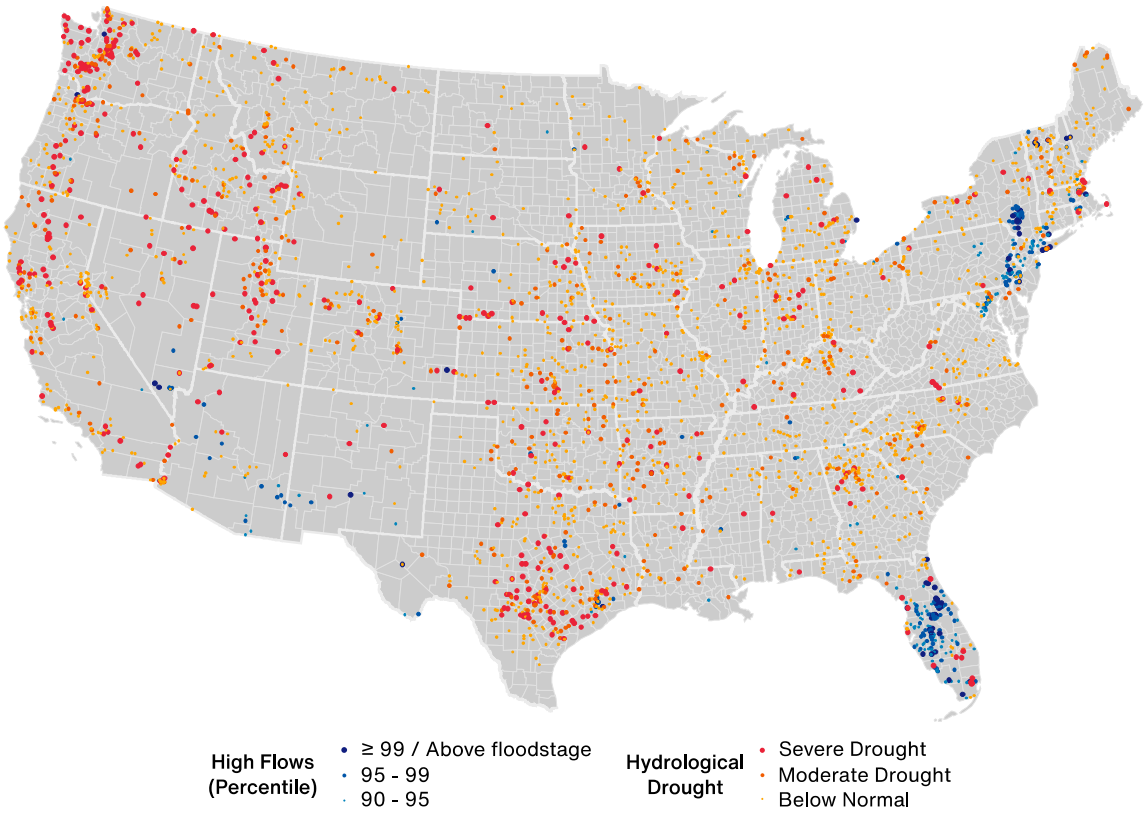
Year	Number of Fires	Acres Burned	Acres Burned Per Fire
2018	49,723	8,145,157	164
2019	42,962	4,448,654	104
2020	45,749	8,285,894	181
2021	47,442	6,496,251	137
2022	56,033	6,949,253	124
10-Year Average (2012-2021)	**46,961**	**6,641,498**	**141**

Top 5 Most Acres Burned by State: October 6

State	Number of Fires	Acres Burned	Acres Burned Per Fire
Alaska	593	3,107,189	5,240
New Mexico	721	858,995	1,191
Texas	10,251	649,993	63
Idaho	987	390,773	396
Oregon	1,407	341,222	243

Source: National Interagency Fire Center

Current U.S. Riverine Flood Risk



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.

Source: United States Geological Survey

Source Information

Central America, Venezuela, Colombia: Hurricane Julia

National Hurricane Center (NHC)
Venezuela Instituto Nacional de Meteorología e Hidrología (INAMEH)
Columbia Disaster Management Agency (UNGRD)
Guatemala's National Coordinator for Disaster Reduction (CONRED)
Update - Death Tolls from Floods, Landslide in Venezuela reaches 43 – Vice President, *Urdu Point*
Julia left damages of 160 to 200 million dollars in Nicaragua, says the Government. Yahoo
Agricultural losses from storm Julia are estimated at $17 million. El Salvador

Thailand, Vietnam, Cambodia: Flooding

Thailand Department of Disaster Prevention and Mitigation (DDPM)
Vietnam Disaster Management Authority (VDMA)
Cambodian Humanitarian Response Forum

Natural Catastrophes: In Brief

Victorian floods: Thousands of homes inundated or isolated by floodwater, *9News*
Indonesia Disaster Mitigation Agency (BNPB)
Floods affect 150,322 people in week ended Oct 9, BNPB, *Antara*
Nigerian's National Emergency Management Agency (NEMA)

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