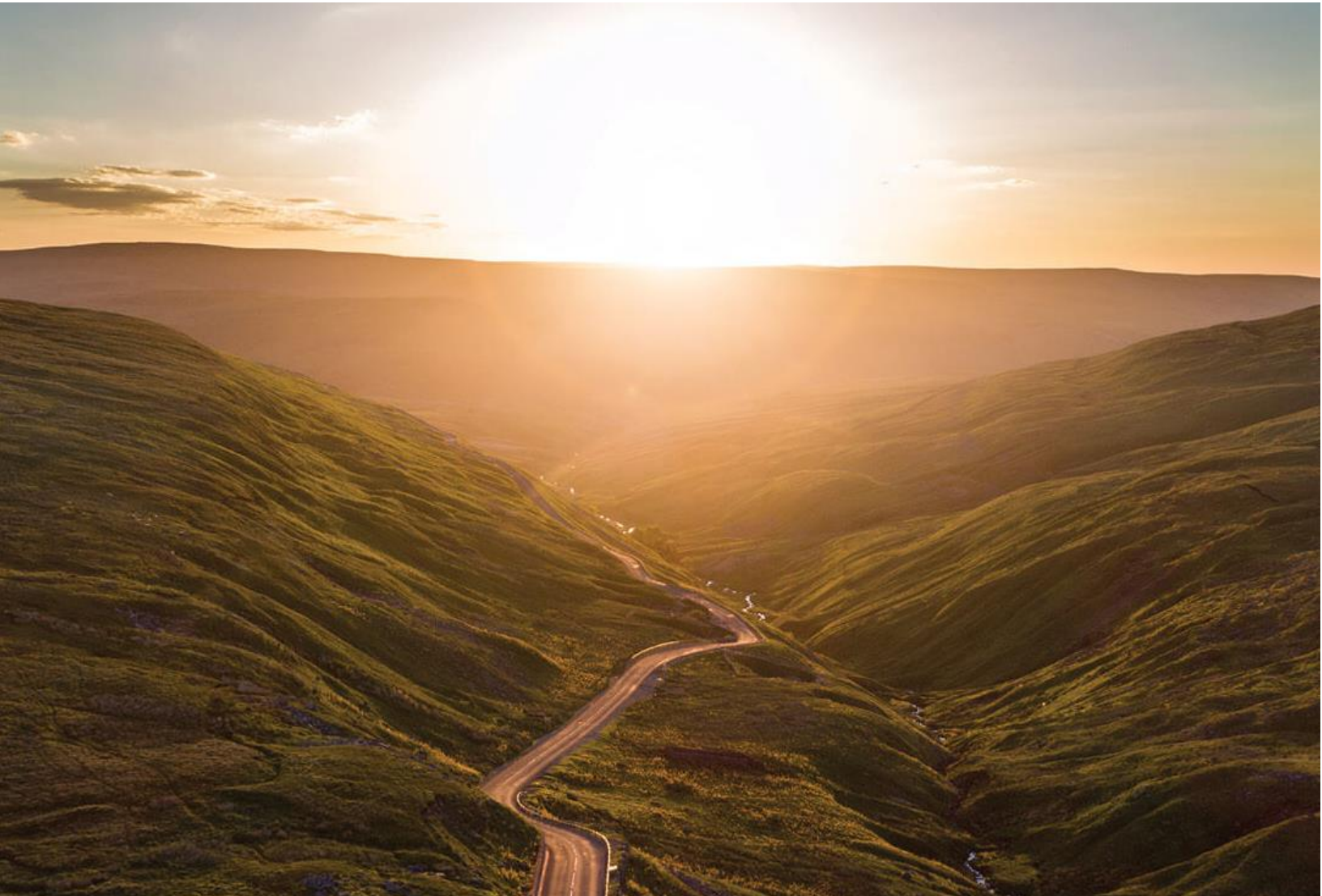
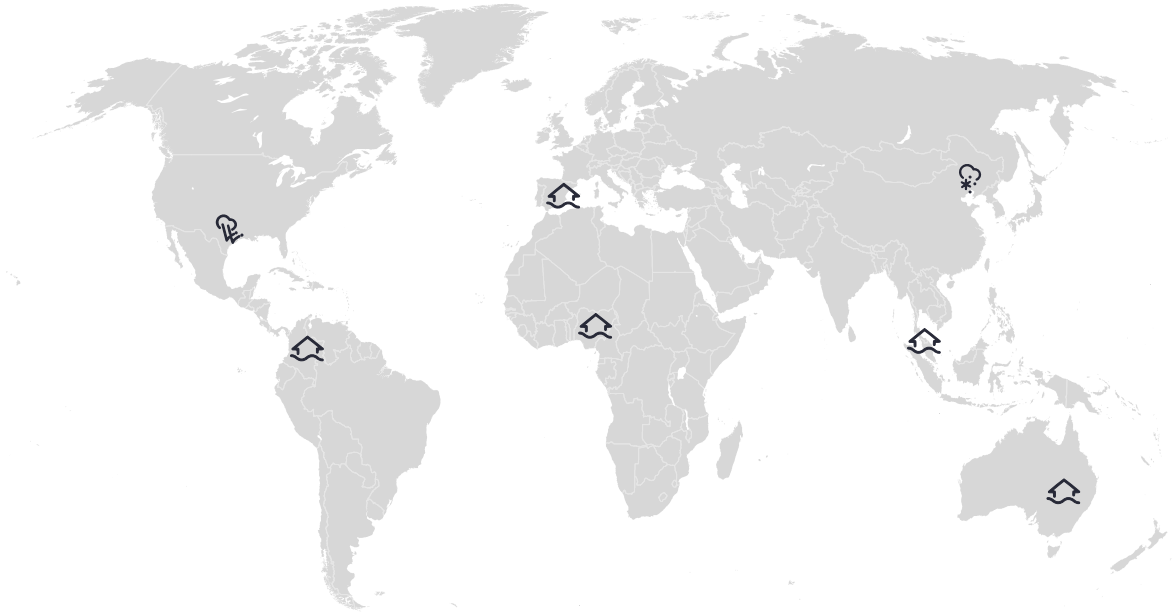


# **Weekly Cat Report**

November 18, 2022



## Executive Summary



Event	Affected Region(s)	Fatalities	Economic Loss (\$)	Page
<b>Flooding</b>	Australia	1	100s of millions	3
<b>Flooding</b>	West & Central Africa	1,100+	100s of millions	6
<b>Flooding &amp; Landslides</b>	Thailand, Indonesia	3+	Unknown	8
<b>Winter Weather</b>	China	0	Millions	8
<b>Flooding</b>	Spain	1	Millions	8
<b>Flooding &amp; Landslides</b>	Colombia	7+	Unknown	8
<b>Severe Convective Storm</b>	United States	0	Millions	8

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>

## Australia: Flooding

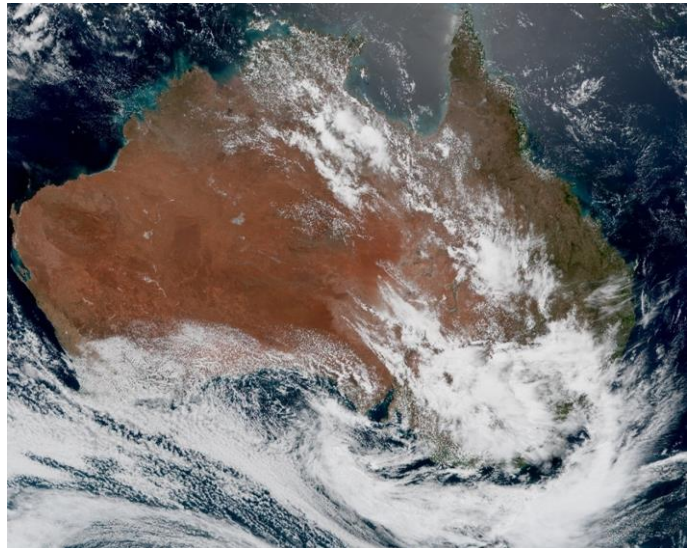
### Overview

Widespread heavy rain across southeast Australia over the weekend of November 12-14 caused the Wyangala Dam to spill large amounts of water into the Lachlan River, bringing many townships in Central West New South Wales under water. On November 15, the Insurance Council of Australia (ICA) declared a “significant event” for the unfolding situation in Central West.

### Meteorological Recap

An elongated low-pressure surface trough was positioned over New South Wales, extending all the way towards the Top End, on November 12-14. Widespread thunderstorms covered much of New South Wales, already affected by previous heavy rains. The successive spells of wet weather in recent months were influenced by ongoing **La Niña** in the tropical Pacific and a positive Southern Annular Mode (SAM) in the Southern Ocean. The Indian Ocean Dipole (IOD), though still largely negative, had showed signs of improving into the neutral phase.

The **table below** includes a select look at weekly rainfall totals across New South Wales, where the ‘significant event’ was declared, from November 9 to 15.



Satellite imagery at 02 UTC on November 13

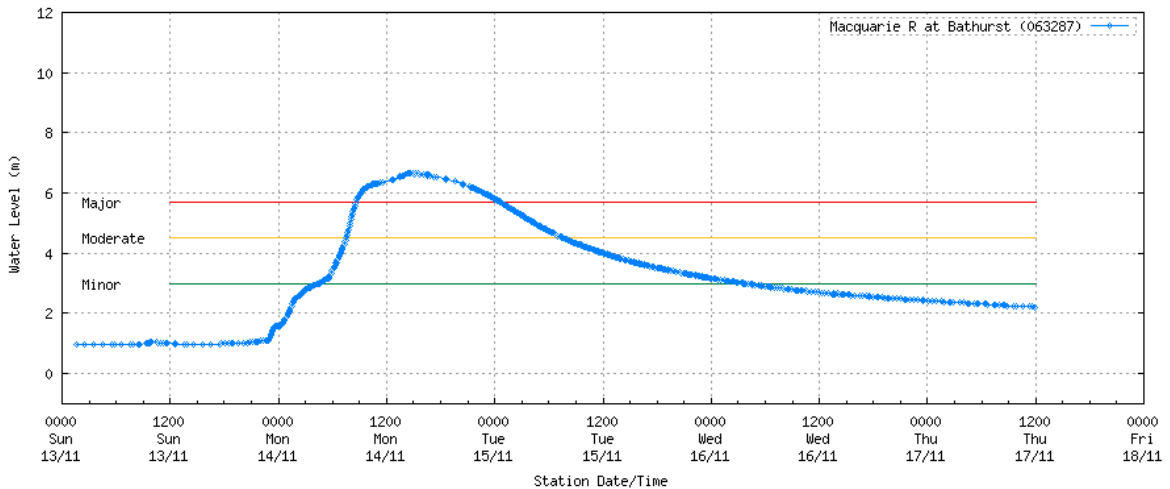
Source: NOAA / RAMMB

Most of the rainfall fell on November 13. Mount Hotham in Victoria also recorded 2-day rainfall totals of 144 mm (5.7 in) between November 13-14.

Station / Location	Total Rainfall (mm)	Total Rainfall (in)
Tuena	174	6.8
Forbes Airport	132	5.2
Cowraag	121	4.8
Gooloogong	120	4.7
Borenore	119	4.7
Killala	113	4.4
Orange Airport	110	4.3

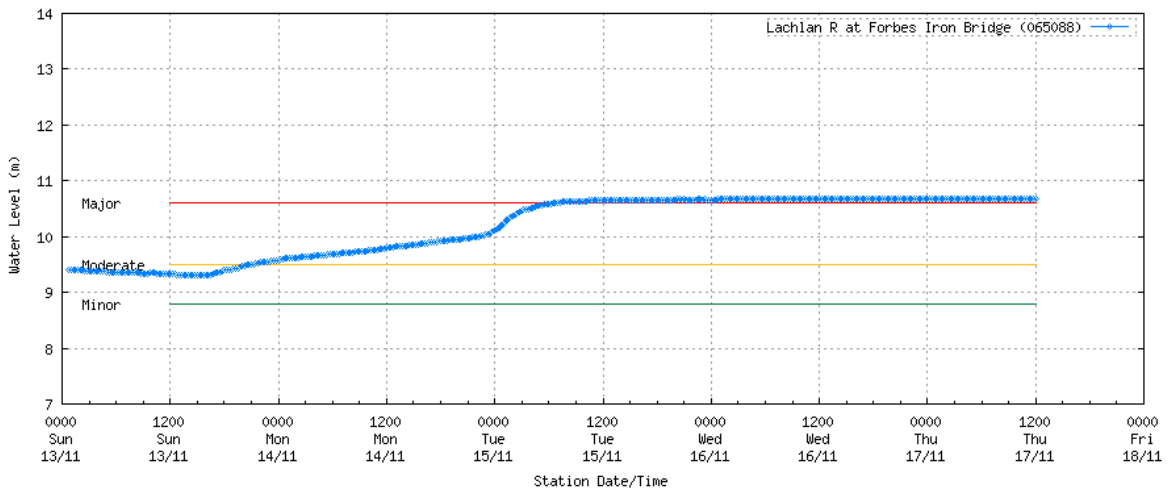
### Hydrological Data

The graphic below highlights selected rivers in major flood stages approaching historical levels. Major flooding occurred in Bathurst on November 14 as the Macquarie River peaked at its highest in 24 years, but the worst flooding occurred along the Lachlan River. Multiple sections of the river, including Nanami, Forbes, Cottons Weir and Jemalong, were in major flood stages as the Wyangala Dam spilled a record rate of 230 GL (60.8 G gal) into the river on Tuesday. The Lachlan River notched above the June 1952 flood level at Condobolin, Eubalong and Cottons Weir, and going to sustained at major flood level at Forbes Iron Bridge for a prolonged period.



Australian Government Bureau of Meteorology

(Generated: 17/11/2022 12:15:43)



Australian Government Bureau of Meteorology

(Generated: 17/11/2022 12:16:15)

### More Intense Rainfall from a Warming Climate

A separate, recent study by the Australian Research Council (ARC) Center of Excellence for Climate Extremes shown that the intensity of extreme downbursts over the Greater Sydney Region had soared by 40% over the last two decades, increasing the risk of urban flash flooding. To address evolving

climate risk and inform best practices among climate scientists, Aon has recently established a Climate Advisory Council in Australia.



**Aerial view of the flooding in Eugowra (left), Flooding in Farrand Street, downtown Forbes (right)**

Source: NSW SES / Forbes Shire Council

### **Event Details**

The town of Eugowra in central west **New South Wales** was segregated from rising floodwaters, with majority of the emergency rescues carried out through the roofs. One elderly was killed, and another was still missing. Local authorities noted close to 300 damaged properties. Torrents also ripped up roads, charged debris and containers at buildings, and destroyed bridges in nearby Molong and Canowindra. The town of Forbes, which had seen three major flood stages in four weeks, was issued with evacuation orders on Tuesday morning. Up to 500 homes in Forbes were estimated to be inundated. Nationals MP had likened the flooding in Central West as 'Lismore-level' devastation. International aid from New Zealand and Singapore arrived on Thursday to assist with the flood crisis.

Flash flooding and strong winds also affected **Victoria, Adelaide, Tasmania**. More than 160,000 users were without power in South Australia on Sunday. Dozens of schools in Adelaide were closed. On early Monday, sixteen wagons from a freight train derailed at Inverleigh near Geelong, leading to the closure of the freight line between Adelaide and Melbourne.

### **Financial Loss**

The Insurance Council of Australia declared a 'significant event' for the flooding in Central West on November 15. Despite significant economic losses, most of the damages were expected to be uninsured in the rural towns.

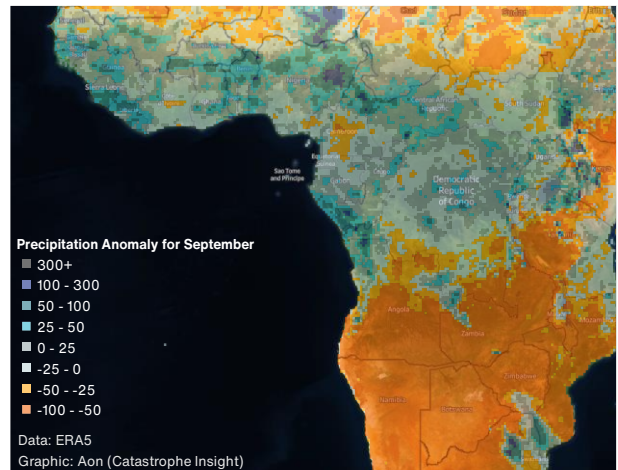
## West & Central Africa: Flooding (Update)

### Overview

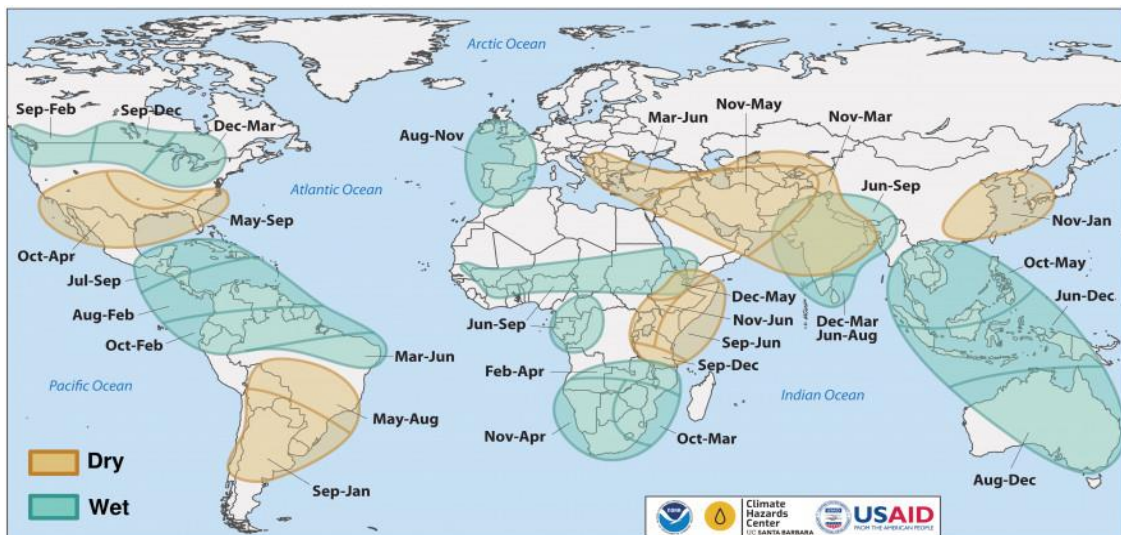
The worst seasonal flooding in years has affected millions of people in several countries in West and Central Africa this year, claimed more than 1,100 lives, injured at least 4,000 people and damaged more than 458,000 homes across the region. Widespread damage to buildings and infrastructure could potentially push the season flood loss to hundreds of millions (USD), particularly in Nigeria.

### Meteorological and Climatological Recap

Western and Central Africa region experiences flooding of varying severity typically between June and September, with the position of the Intertropical Convergence Zone (ITCZ) being a key factor in the nature, severity and timing of the seasonal rains and subsequent floods. This season, ITCZ has persisted further north, which resulted in unusually intense and prolonged seasonal rains. Additionally, La Niña phase also contributed to above-average rainfall in parts of the region. Consequently, some areas experienced precipitation anomalies over 50% compared to 1991-2020 average (see map on right).



While the rainy season in West Africa has already ended, it currently continues in many regions of Central Africa (CAR, DRC, Congo, Cameroon) and is expected to be accompanied with above-average rainfall in the upcoming months.



Timing of wet and dry conditions related to La Niña. Source: FEWS NET

## Event Details

Heavy rains and flooding continue to take a significant toll on human life, properties, and farmlands in the region. Table below summarizes updated numbers for **ten most affected countries** in the region. Among the worst hit was **Nigeria**, where a significant human impact and material damage was incurred. Together with other countries, including Mauritania, Gambia, Guinea, Senegal, Togo, Côte d'Ivoire, Sierra Leona, Ghana, Burkina Faso, and Sao Tome & Principe, 2022 flooding has already claimed more than 1,100 lives, injured at least 4,000 people and damaged more than 458,000 houses across the region, according to the latest UN OCHA report.

Country	Fatalities	Injured	Affected people	Damaged houses	Damaged crops (ha)
Nigeria	603	2,400	2,500,000	203,400	332,000
Chad	22	229	1,100,000	15,000	465,000
Niger	195	185	327,000	38,000	-
Congo	-	-	194,000	-	-
DRC	7	-	176,000	15,000	-
Cameroon	2	95	153,000	18,000	27,400
CAR	13	3	118,000	9,000	18,500
Liberia	-	-	89,000	-	-
Mali	10	12	79,000	8,200	-
Benin	41	-	75,000	2,000	-

Most recent events that resulted in casualties and damage on several buildings were reported in South-Kivu Province, **eastern DRC**. At least seven people were killed, several another were injured in flood and landslide related incidents during past week.

## Financial Loss

Damage assessment across the region remains ongoing and it could be difficult to quantify real impact due to a lack of reliable information. Financial impact caused by flooding in African countries, particularly on the insurance sector can often be negligible despite a large humanitarian impact. At the same time, the larger extent of the current flooding, such as that seen in Nigeria, can drive total losses into tens or even hundreds of millions (USD).

## Natural Catastrophes: In Brief

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### **Flooding & Landslides (Thailand, Indonesia)**

Heavy rainfall triggered flooding and landslides in several provinces of southern Thailand and Indonesia since November 11. According to the ASEAN Disaster Information Network (ADINet), flood waters inundated more than 2,200 houses and affected about 6,700 people, particularly in Thailand provinces of Narathiwat, Pattani, Songkhla and Yala. At least three people died during landslide event in the Lampung Province of Sumatra on November 12. Thousands of people were affected and around 1,400 houses were flooded across Indonesia.

### **Winter Weather (China)**

Northeast China experienced heavy blizzard on November 11-12. Both Jilin and Heilongjiang launched level IV emergency responses to blizzards. Snow depth in Changchun, Jilin, accumulated up to 18 cm (7.1 in) while similar icy road conditions also affected provinces in Heilongjiang and Liaoning. More than 1,600 people were dispatched for snow clearing operations on Jilin's expressway. Economic losses were expected to be in the millions (USD).

### **Flooding (Spain)**

An upper-level depression brought heavy rainfall into north-eastern parts of Spain on November 11-12. Daily rainfall over 150 mm (5.9 in) resulted in localized flash flooding, particularly in Valencian Community. Severe weather generated damage on buildings and vehicles, inundated several roads and left one person dead in the Zaragoza municipality, Aragón Community. The Valencia airport has been temporarily closed, cancelling tens of flights. Around 7,000 homes experienced with power outages. Economic losses are anticipated to be in the millions (USD).

### **Flooding & Landslides (Colombia)**

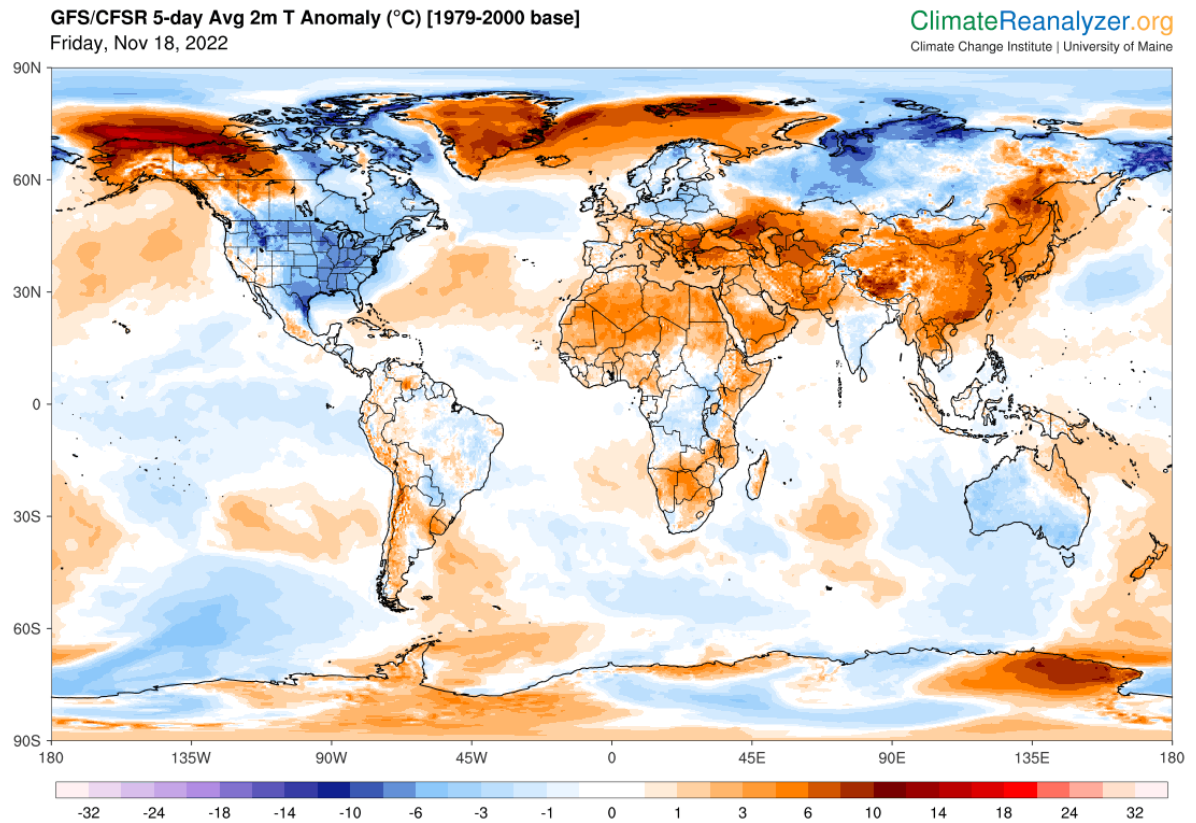
Incessant rains continue to affect several regions of Colombia, recurring flooding and landslides. Over the past week, at least two people died in Cundinamarca Department, central Colombia. Another five persons were killed in landslide event in North Santander Department, northern Colombia. Damage on several houses and infrastructure was incurred during landslides and flooding across the state. The National Unit for Disaster Risk Management (UNGRD) reported as of November 11 that prolonged rainy season left no fewer than 204 dead, 37 missing and 281 injured people. Nearly 83,000 houses were destroyed or damaged.

### **Severe Convective Storm (United States)**

A notable hailstorm, associated with a progressing cold front, affected parts of central Texas on November 11. Storm reports indicated hailstones with a maximum diameter of up to 2 inches (5 cm) in Bell County and relatively minor damage.

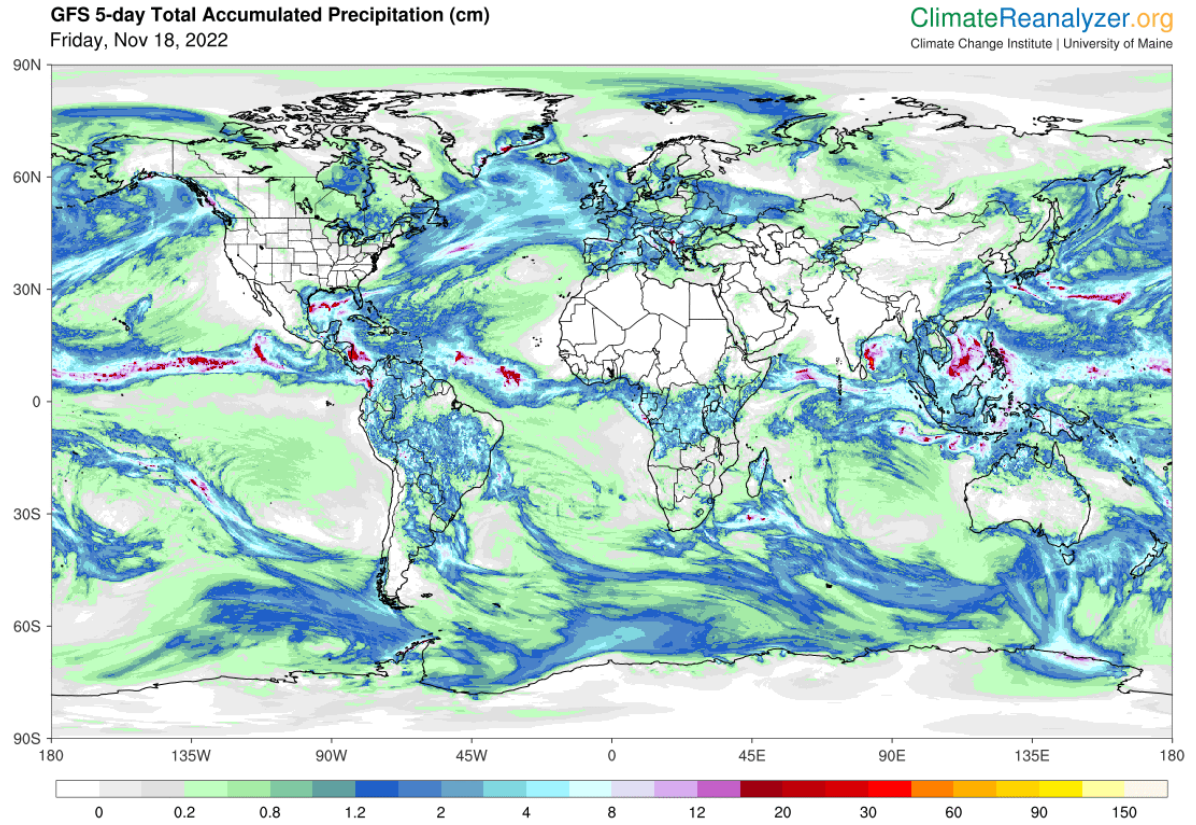


## Global Temperature Anomaly Forecast



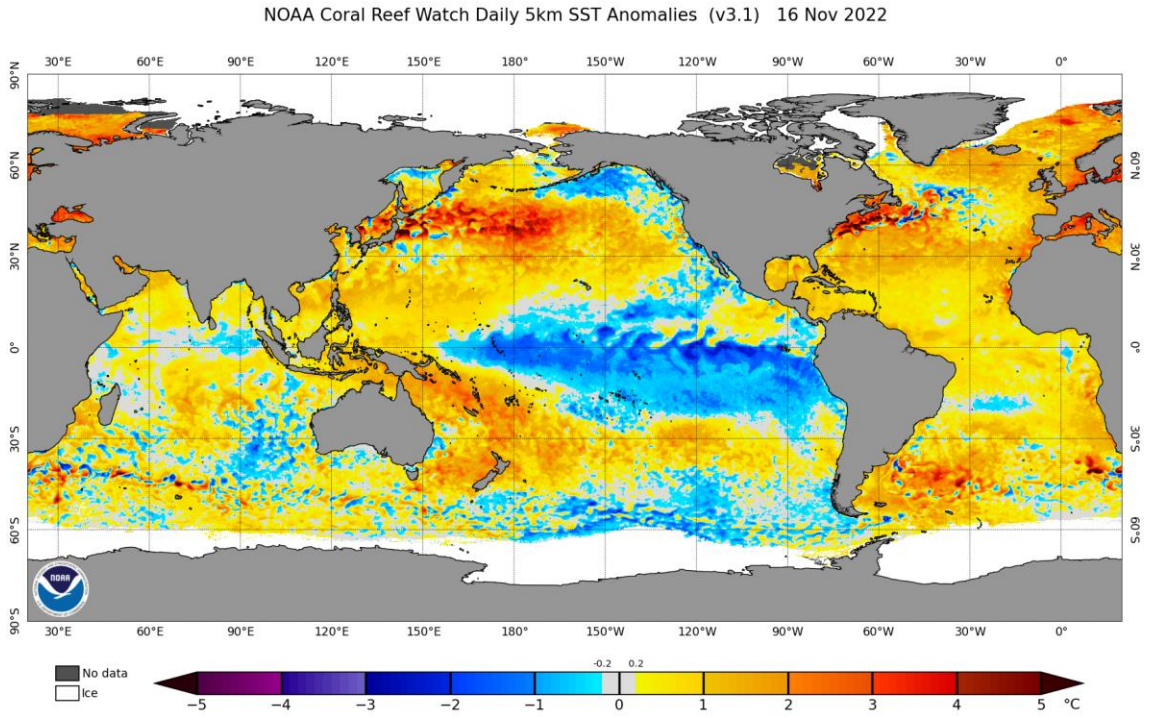
Source: Climate Reanalyzer, Climate Change Institute, University of Maine, USA

## Global Precipitation Forecast

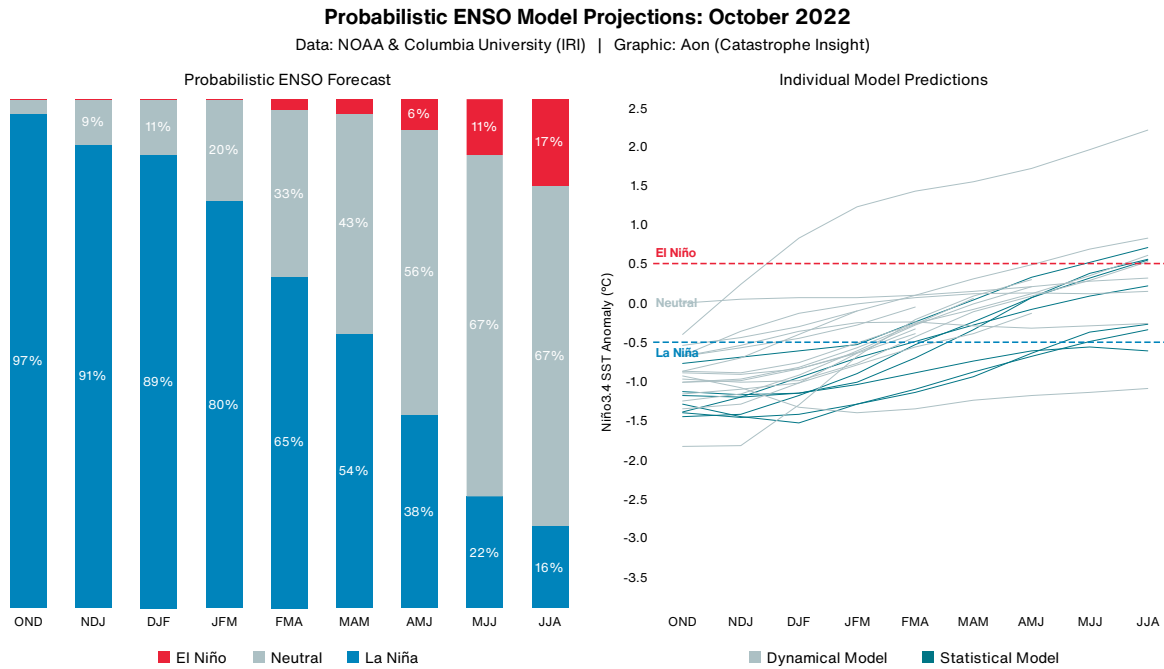


Source: Climate Reanalyzer, Climate Change Institute, University of Maine, USA

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



## El Niño-Southern Oscillation (ENSO)



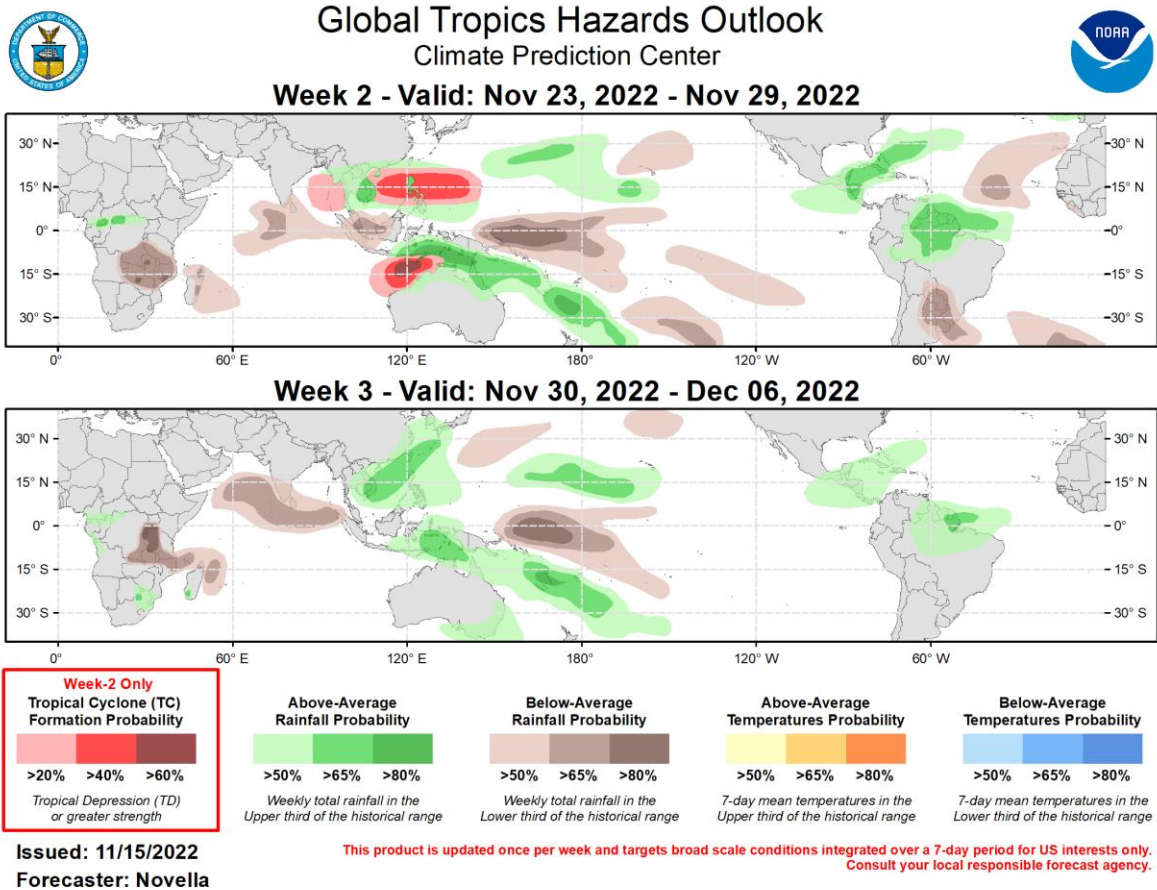
**El Niño:** Warm phase of an ENSO cycle. Sea surface temperatures of +0.5°C occur across the east-central equatorial Pacific.

**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.

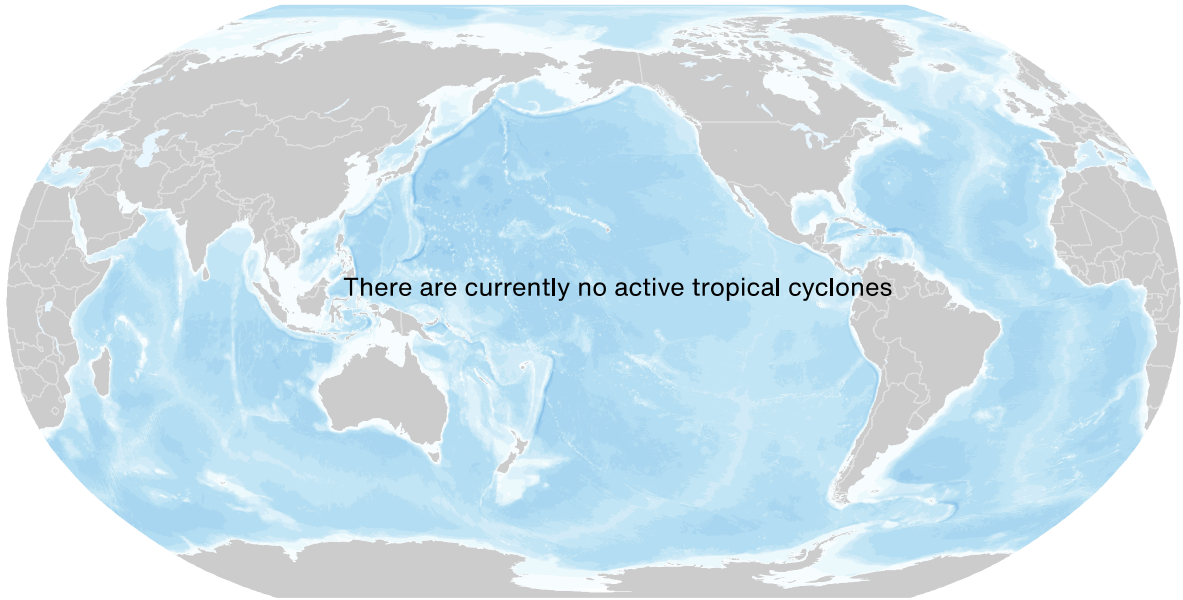
El Niño (La Niña) is a phenomenon in the equatorial Pacific Ocean characterized by a five consecutive 3-month running mean of sea surface temperature (SST) anomalies in the Niño 3.4 region that is above the threshold of +0.5°C (-0.5°C). This is known as the Oceanic Niño Index (ONI).

## 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

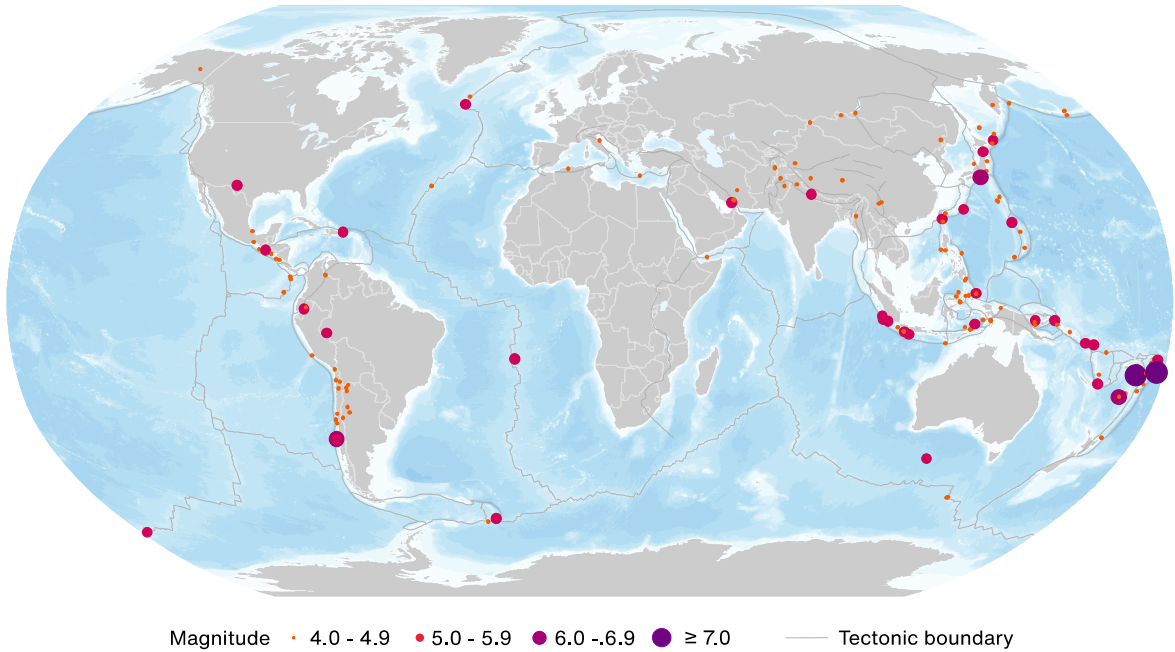
Storm Name	Location	Winds	Location from Nearest Land Area

\* 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)

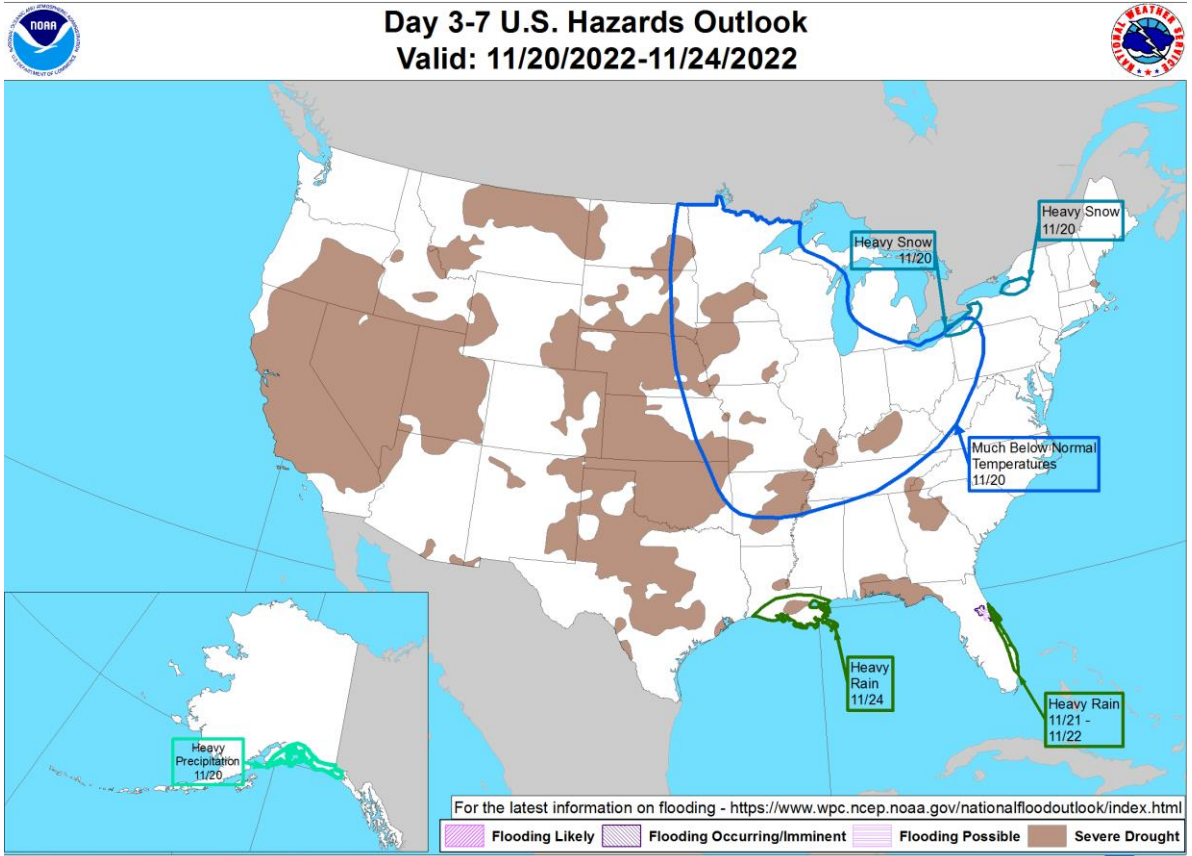
## Global Earthquake Activity ( $\geq M4.0$ ): Nov 4 – Nov 10



Date (UTC)	Location	Magnitude	Epicenter
11/11/2022	19.32S, 172.10W	7.3	21 kilometers (13 miles) ESE of Neiafu, Tonga
11/12/2022	20.12S, 178.36W	7.0	Fiji region
11/13/2022	37.46S, 73.74W	6.2	18 kilometers (11 miles) NNW of Lebu, Chile
11/14/2022	26.04S, 178.23E	6.1	south of the Fiji Islands
11/14/2022	33.80N, 137.25E	6.1	84 kilometers (52 miles) SSE of Toba, Japan

Source: United States Geological Survey

## U.S. Hazard Outlook



**Weather Prediction Center**

Made: 11/17/2022 3PM EST

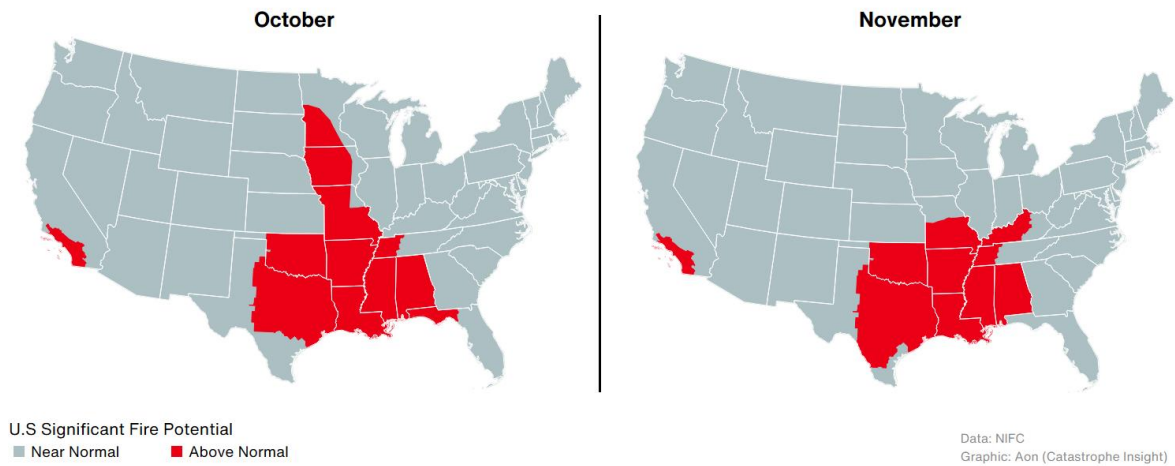
Source: Climate Prediction Center (NOAA)

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



### Annual YTD Wildfire Comparison: November 14

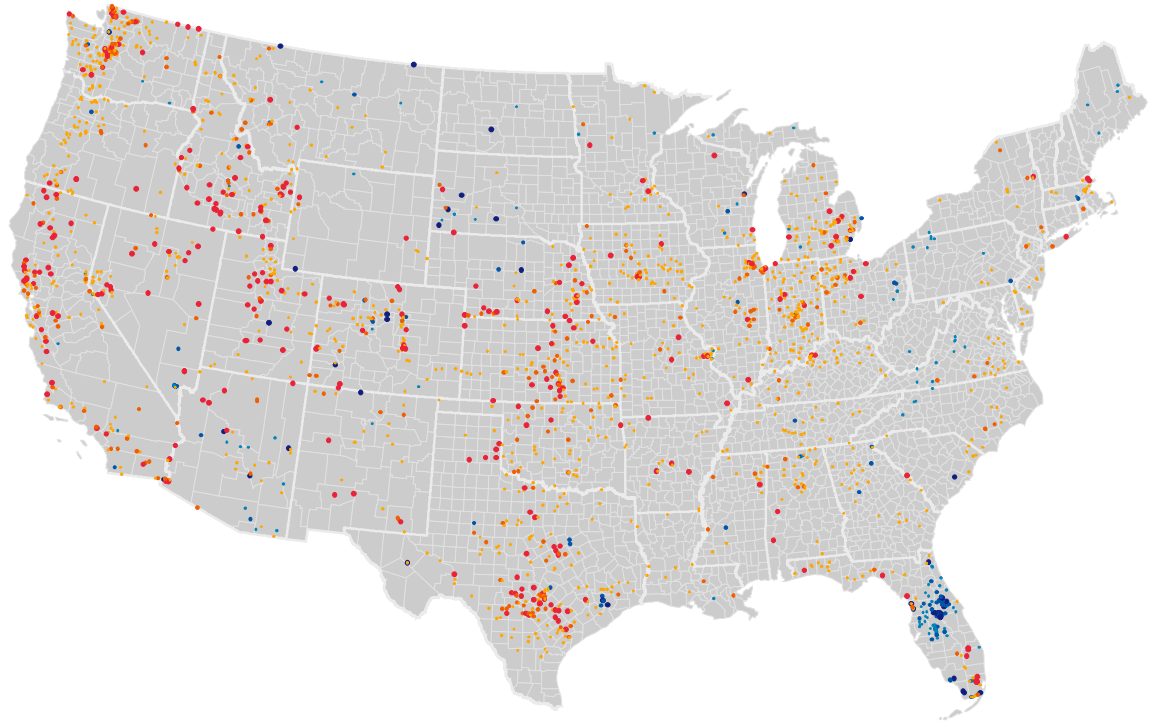
Year	Number of Fires	Acres Burned	Acres Burned Per Fire
2018	51,898	8,512,844	164
2019	45,959	4,602,023	100
2020	50,012	8,755,129	175
2021	49,752	6,546,939	132
2022	61,390	7,251,835	118
<b>10-Year Average (2012-2021)</b>	<b>52,007</b>	<b>6,859,200</b>	<b>132</b>

### Top 5 Most Acres Burned by State: November 7

State	Number of Fires	Acres Burned	Acres Burned Per Fire
Alaska	595	3,110,976	5,229
New Mexico	733	858,809	1,172
Texas	11,213	662,883	59
Oregon	1,950	445,333	228
Idaho	1,045	401,133	384

Source: National Interagency Fire Center

## U.S. Current Riverine Flood Risk



- |                            |                           |                         |                    |
|----------------------------|---------------------------|-------------------------|--------------------|
| High Flows<br>(Percentile) | • ≥ 99 / Above floodstage | Hydrological<br>Drought | • Severe Drought   |
|                            | • 95 - 99                 |                         | • Moderate Drought |
|                            | • 90 - 95                 |                         | • Below Normal     |

*A ≥99<sup>th</sup> percentile indicates that estimated streamflow is greater than the 99<sup>th</sup> percentile for all days of the year. This methodology also applies for the other two categories. A stream in a state of severe drought has 7-day average streamflow of less than or equal to the 5<sup>th</sup> percentile for this day of the year. Moderate drought indicates that estimated 7-day streamflow is between the 6<sup>th</sup> and 9<sup>th</sup> percentile for this day of the year and 'below normal' state is between 10<sup>th</sup> and 24<sup>th</sup> percentile.*

Source: United States Geological Survey

## Source Information

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### **Australia: Flooding**

Bureau of Meteorology

Insurance Council of Australia

Record dam spill swells Central West flood, as more than 100 people rescued, *Sydney Morning Herald*

### **West & Central Africa: Flooding (Update)**

United Nations Office for the Coordination of Humanitarian Affairs (UN OCHA)

Famine Early Warning Systems Network (FEWS NET)

Source

Source

### **Natural Catastrophes: In Brief**

ASEAN Disaster Information Network (ADINet)

NE China experiences snow, sudden temperature drop, *Xinhua*

Torrential storms with hail overflow ravines, flood streets and divert flights, *Las Provincias*

European Severe Weather Database (ESWD)

Colombia's Unit for Disaster Risk Management (UNGRD)

Unusually large, 5-km-long landslide hits Colombia, *The Watchers*

'Paralyzing' snow predicted in Buffalo; state of emergency declared, *Washington Post*

## Contacts

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