

# **Weekly Cat Report**

November 3, 2023



## Executive Summary



Event	Affected Region(s)	Fatalities	Economic Loss (\$)	Page
<b>Windstorm Ciarán</b>	Western Europe	7	100s of millions	3
<b>Hurricane Otis (Update)</b>	Mexico	46+	Billions	6
<b>Flooding</b>	United States	2	Millions	8
<b>Severe Convective Storm</b>	Central South America	1	Millions	8
<b>Wildfire</b>	Australia	4	Millions	8
<b>Tropical Storm Pilar</b>	El Salvador	3	Unknown	8
<b>SCS, Flooding, &amp; Landslide</b>	Southeast Asia	24	Unknown	8
<b>SCS &amp; Flooding</b>	Italy	5	Millions	9
<b>Flooding</b>	Somalia	4	Unknown	9
<b>Wildfire</b>	California	0	Negligible	9
<b>Drought</b>	Brazil	N/A	Unknown	9

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>

On October 19, we released the Q3 Global Catastrophe Recap. The document can be accessed [here](#).

## Western Europe: Windstorm Ciarán

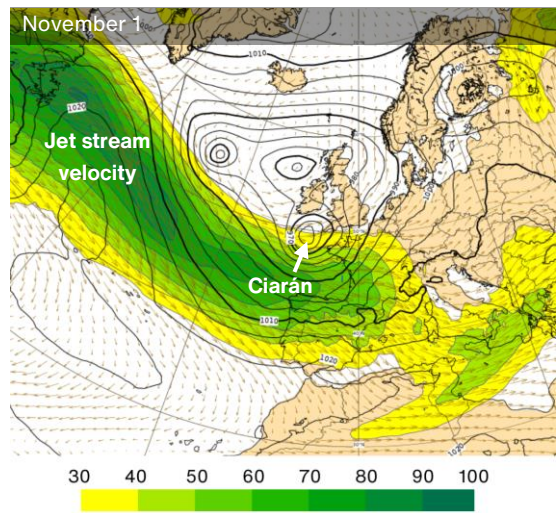
### Overview

A powerful storm named *Ciarán* hit Western Europe on November 1-2. The storm generated damaging wind gusts of up to 200 kph (125 mph) and localized heavy rainfall, particularly in France and the United Kingdom, resulting in casualties and notable economic and insured losses, initially expected to reach into the hundreds of millions EUR. Additional impacts also occurred in Belgium and the Netherlands.

### Meteorological Recap

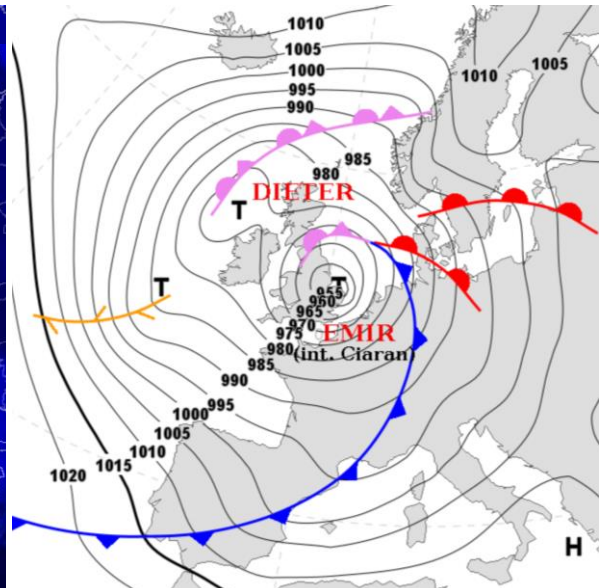
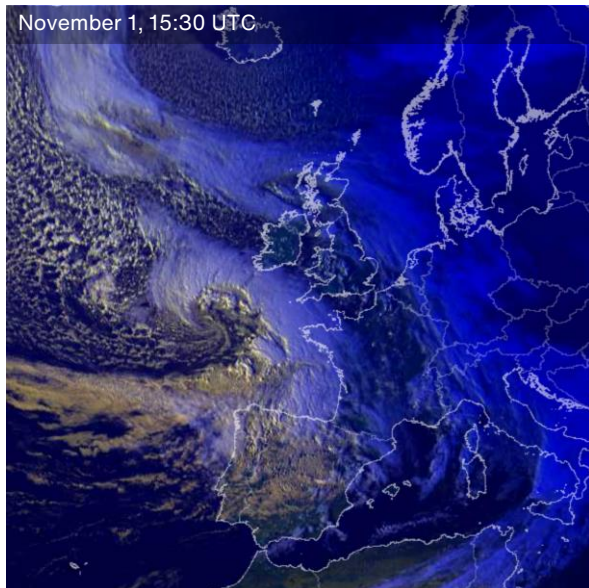
An initial area of low pressure formed off the coast of Newfoundland. The storm crossed over the warm seawaters of the North Atlantic Ocean, which enhanced the subsequent deepening. On October 29, this low was named **Ciarán** by the UK Met Office, alternatively Emir by FU Berlin.

A powerful, 320 kph (200 mph)-jet stream at about 9.1 km (30,000 ft) above the surface, was an essential element that helped with storm intensification. Rapid cyclogenesis occurred before the storm's impact in Western Europe on November 1-2 with violent, hurricane-force winds and heavy rainfall. The system was characterized as a **bomb cyclone**, which is defined as an extratropical storm with a pressure change of more than 24 mbar within a 24-hour period.



Sea level pressure and 200 hPa wind speed (mps)

Source: ECMWF



Prior to the storm's landfall, the highest red warnings due to damaging winds were issued for three departments in north-western France on November 1 by Météo-France, including Finistère, Côtes-d'Armor, and Manche, orange warnings were in place for 30 other departments. UK's Met Office issued an orange warning for southern and southwestern parts of the country.

Damaging hurricane-force winds were the primary hazard related to Ciarán. Wind gusts over 150 kph (90 mph) were reported at multiple locations. Based on data provided by national meteorological services, the tables below highlight the highest gusts measured in France and the United Kingdom, including the strongest of **207 kph (129 mph)** measured at Pointe du Raz station.

Department	Location	Wind Gust (kph)	Wind Gust (mph)
Finistère	<b>Pointe du Raz</b>	<b>207</b>	<b>129</b>
	Île de Batz	195*	121
	Pointe de Saint-Mathieu	193*	120
Côtes-d'Armor	Île de Bréhat	175*	109
	Ploumanach	158*	98
	Lannion	158*	98
Manche	Pointe du Roc	171	106
	Gouville	167	104
	Carteret	157	98
Autres	Fécamp	170	106
	Cap de la hève	161	100
	Livry	145	90
Morbihan	Groix	168	104
	Belle Île	152	94
	Lorient	147	91

\* all-time station record

Location	Wind Gust (kph)	Wind Gust (mph)
<b>Jersey Airport</b>	<b>150</b>	<b>93</b>
Guernsey Airport	126	78
St Mary's Airport	124	77
Langdon Bay	114	71
Cardinham	109	68

Apart from high wind speeds, Ciarán brought a significant amount of rain into the region, also affecting the areas in Scotland that were already impacted by preceding heavy rainfall and flooding from last week. The storm generated very large waves up to 21 meters (68.9 ft) along the coastline in Finistère

(measured by the Pierres Noires buoy) and near-record air pressure for the month of November. In France, a minimum pressure of **956.1 hPa (mb)** was measured at Cap de la Hague, Manche. On the UK side of the Channel, the lowest pressure of **953.3 hPa (mb)** was recorded on the south-western coast in Plymouth, breaking the previous monthly record from 1916 for England. The national record of 939.7 hPa (mb) set in Scotland in 1877 remains unbroken.

## Event Details

Being exposed to the strongest gusts, the Brittany region in north-western **France** and south-western parts of the **United Kingdom** were the worst hit.

Fire brigades across north-western France intervened more than 3,500 times, mostly in the Finistère department. At the peak of the storm's intensity overnight between November 1 and November 2, about 1.2 million customers were without electricity, approximately 780,000 customers in the Brittany region alone. Notable damage to local infrastructure and vehicles was incurred. The storm interrupted transport services throughout the affected area, including hundreds of international flights.



**Wind damage in the department of Ille-et-Vilaine**

Source: Prefect of Brittany and Ille-et-Vilaine

British Channel Islands were notably impacted by the storm. Emergency services of Jersey and Guernsey Islands have responded to more than 1,000 calls and reported significant material damage.

Additional, but relatively minor material damage, downed trees, and traffic disruptions due to the storm occurred in the **Netherlands, Belgium, Germany**, and northern **Spain**, along with several fatalities. Seven people died in storm-related incidents, mostly due to fallen trees. Fatalities were reported from France (2), Belgium (2), Netherlands (1), Germany (1), and Spain (1). Dozens of people suffered injuries; at least 16 people were injured in the Aisne department in north-western France alone, according to the local authorities.

## Financial Loss

Ciarán will likely result in a notable economic and insured loss, particularly in France. Initial expectations of loss from the event from a financial perspective was in the hundreds of millions EUR, with the highest impact in the worst affected departments in northwestern France. Impact in the United Kingdom was eventually lower than initially feared from some modelled views. Additional, notable number of insurance claims was also expected to be filed in Belgium and the Netherlands.

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## Mexico: Hurricane Otis (Update)

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### Overview

Last week, Otis became the first Pacific hurricane to make landfall at Category 5 intensity after explosive intensification over warm seawaters (see previous Weekly Cat Report). The storm had a catastrophic impact on Acapulco City in Mexico's Guerrero State, where thousands of buildings were severely damaged or destroyed. As of November 2, at least 46 storm-related fatalities were reported, and dozens remain missing.

### Meteorological Recap

Otis, the strongest hurricane to ever strike Mexico's Pacific coast, generated extreme wind speeds. According to the verified data by the National Autonomous University of Mexico, the weather station in Acapulco Bay measured a maximum wind gust of **204.9 mph (329.8 kph)** on October 25 at 05:40 UTC.

Otis was initially forecasted to intensify into a weak tropical storm at its peak intensity. In this case, numerical prediction models failed to capture the magnitude of intensification and thus underestimated the hurricane's intensity. The rate of Otis' intensification was among the fastest observed in the satellite era. In a 24-hour period, the hurricane's maximum sustained winds increased by 110-115 mph (175-185 kph), ranking as the second fastest after hurricane Patricia in 2015, which intensified by 120 mph (195 kph) in the same time frame.

Overall, Otis was the fourth-strongest landfalling hurricane by sustained wind speed in Mexico, and the strongest hurricane from the Pacific (see the Table below). Mexico has seen two of its top-10 strongest hurricane landfalls this October. Preceding Category 4 hurricane Lidia made landfall on October 10.

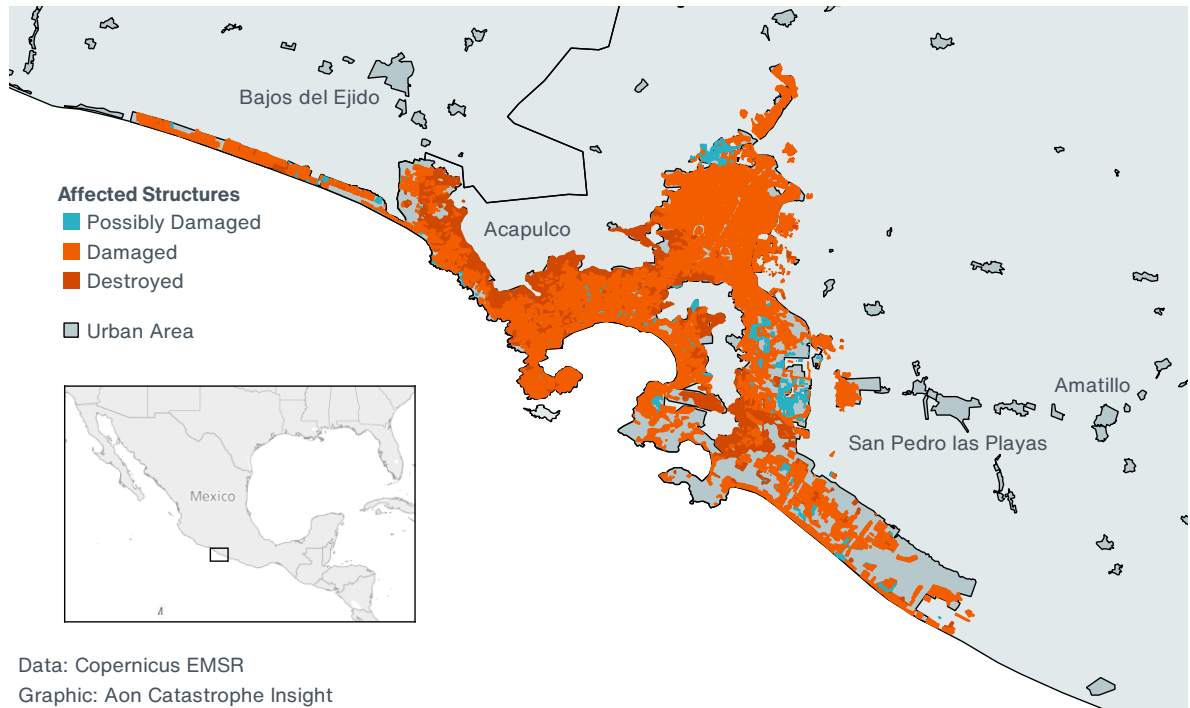
Hurricane Name	Year	Ocean	Landfall Sustained Winds
Dean	2007	Atlantic	175 mph / 282 kph
Anita	1977	Atlantic	
Janet	1955	Atlantic	
<b>Otis</b>	<b>2023</b>	<b>Pacific</b>	165 mph / 266 kph
Gilbert	1988	Atlantic	160 mph / 257 kph
Wilma	2005	Atlantic	150 mph / 241 kph
Patricia	2015	Pacific	
Madeline	1976	Pacific	145 mph / 233 kph
<b>Lidia</b>	<b>2023</b>	<b>Pacific</b>	140 mph / 225 kph
Kenna	2002	Pacific	
Mexico Hurricane	1959	Pacific	
Hurricane Twelve	1957	Pacific	

## Event Details

As of November 2, local authorities stated that at least 46 people died due to the storm and no fewer than 52 others remain missing. As investigations continue across the affected area, the total death toll is expected to further rise.

Damage assessments from Hurricane Otis are still ongoing, more than one week after landfall. The federal government reported that more than 250,000 structures were affected. About 80% of all hotels in Acapulco sustained various degrees of damage. More than 513,000 customers in Guerrero state lost power as the storm passed.

According to the Rapid Mapping Service by Copernicus Emergency Management, which was activated to provide damage assessment, approximately 750,000 people were affected within the area of interest, including coastal and inland areas of Acapulco. The built-up area exposed to the hurricane effect was calculated to be about 37,000 hectares / 91,400 acres (see Map below).



## Financial Loss

As relief operations remain ongoing in the areas affected by Hurricane Otis, damage assessments will also continue in the following days and weeks. Initial estimates suggest that total economic losses will likely run into the billions of USD or even higher. Insurers will likely face a notable industry event, particularly due to a large commercial, industrial, and residential exposure in Acapulco. Hurricane Otis might possibly exceed losses caused by **Hurricane Wilma** in October 2005, which resulted in total economic losses of \$11.5 billion, and \$2.8 billion in insured losses (both inflated to 2023 prices).

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## Natural Catastrophes: In Brief

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### **Flooding (United States)**

Heavy rainfall on October 23-30 over north-central Texas triggered numerous localized flash floods, especially for areas just south of Dallas-Fort Worth (DFW). The eight consecutive days of measurable rainfall was among the longest stretches in history for DFW and Waco, according to the NWS. Notably, on October 27-28, over 1 foot (300 mm) of rain fell in some locations within Ellis, Kaufman, and Dallas counties. In Kaufman County, the subsequent flooding claimed 2 lives, injured 3 people, and damaged at least 30 homes.

### **Severe Convective Storm (Central South America)**

Stormy weather pattern has affected multiple locations across central South America since October 26. Heavy rainfall and flooding, along with intense winds and large hail occurred in the Brazilian states of São Paulo and Paraná, where storms left one dead, and resulted in hundreds of flooded or damaged houses and more than 2,700 weather-related calls, according to local authorities. Notable crop damage was incurred in Minas Gerais state due to large hail. Additional material losses and thousands of evacuated people due to severe weather were reported in northeast Argentina, western Uruguay, and southern Paraguay.

### **Wildfire (Australia)**

At least 80 wildfires have burned across Queensland and New South Wales in east Australia since late October. The fires have been fuelled by hot and dry conditions during the southern hemisphere spring, including extreme temperatures recently exceeding 40 °C (104 °F). The most notable fire, near the town of Tara, has destroyed 58 homes and burned over 24,000 hectares (60,000 acres) of land. As of October 25, four people have been killed due to the recent fires.

### **Tropical Storm Pilar (El Salvador)**

Slow movement from Tropical Storm Pilar led to days of consistent rainfall across El Salvador on October 29-November 1. While the storm remained just offshore, its outer rainbands triggered flooding and landslides within several cities including San Salvador and Santa Ana. According to the General Directorate of Civil Protection, 3 people were killed and 23 homes were damaged. The storm is currently forecast to move further away from land and slowly weaken over the next several days.

### **SCS, Flooding, & Landslide (Southeast Asia)**

Multiple incidents of severe weather, heavy rainfall, and landslides since October 22 have impacted several countries in Southeast Asia, including the Philippines, Malaysia, and Indonesia. A severe landslide near General Nakar in the Philippines caused 5 deaths and 5 homes to collapse. In western Malaysia, heavy rain and flooding damaged at least 130 homes, primarily in Kedah State. Several days of severe weather triggered multiple landslides across Sumatra and Java in Indonesia, leading to two deaths. More notable landslides within the Highland Papua province in eastern Indonesia killed an additional 17 people while severely damaging crops in the area.



## **Severe Convective Storm (Italy)**

Thunderstorms accompanied by strong winds and heavy rainfall triggered localized flash flooding in the northern parts of Italy on October 30-31. Regions of Emilia Romagna, Liguria, Tuscany, and Lombardy, including the city of Milan and Brianza Province, were among the worst affected. Severe weather and flooding caused some infrastructural damage, downed trees, and resulted in widespread power outages across the region. Notably, the intense rains caused Lake Como and the Seveso River to burst their banks, which caused parts of nearby Milan to become inaccessible. On November 2-3, another episode of bad weather impacted parts of northern and central Italy and resulted in at least 5 fatalities (more details on this event will be provided in the next weekly report).

## **Flooding (Somalia)**

The remnants of Cyclone Tej increased the impact of seasonal rainfall and flooding in several parts of Somalia. According to the UN OCHA and local authorities, almost 280,000 people have been affected by flash flooding in the states of Galmudug, Hirshabelle, Jubaland, and South West since October 4. As of October 28, four people died and more than 2,100 shelters hosting displaced people were destroyed by floodwaters.

## **Wildfire (United States)**

The Highland fire in Riverside County, an area just southeast of Los Angeles, began as a result of a Santa Ana wind event on October 30. While no deaths occurred, one firefighter was injured, and 4,000 residents were issued evacuation orders. According to Cal Fire officials, 7 structures have been destroyed while 6 others have been damaged. As of early November 2, hundreds of homes and structures are still threatened as the fire has now burned nearly 2,500 acres (1,000 hectares) while remaining only 25% contained.

## **Drought (Brazil)**

On October 29, an ongoing drought prompted authorities to declare a state of emergency for 60 out of 62 municipalities within the State of Amazonas in northwest Brazil. Several portions of the Amazon River Basin are at historically low water levels. This includes the Rio Negro, where peak water levels of 30 meters (100 feet) 2 years ago are now down to 13 meters (43 feet). Areas such as Manaus, a city home to over 2 million people, have experienced significant disruptions to travel and goods exchanges. The situation is widely believed to be influenced, at least in part, by the current El Niño climate pattern.

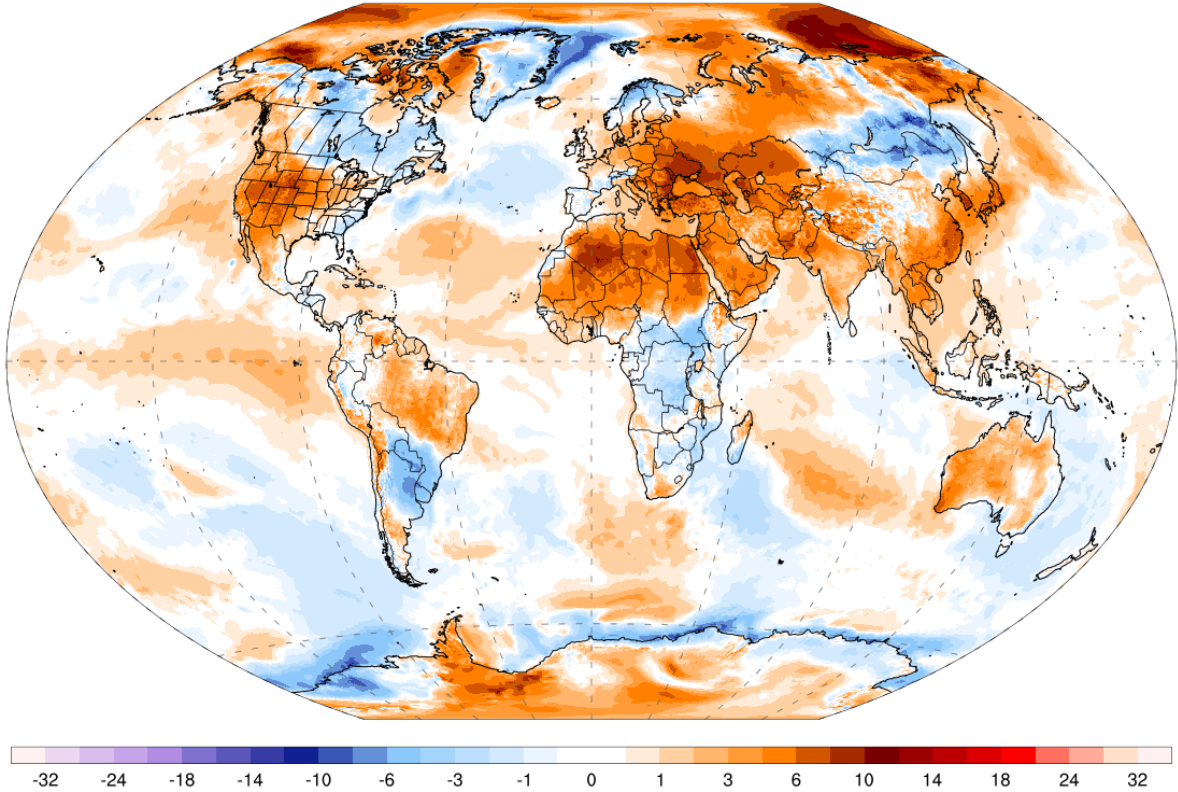
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## Global Temperature Anomaly Forecast

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GFS 2m T Anomaly (°C) [CFSR 1979-2000 baseline]  
Days 1-3 Avg | Fri, Nov 03, 2023

ClimateReanalyzer.org  
Climate Change Institute | University of Maine



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

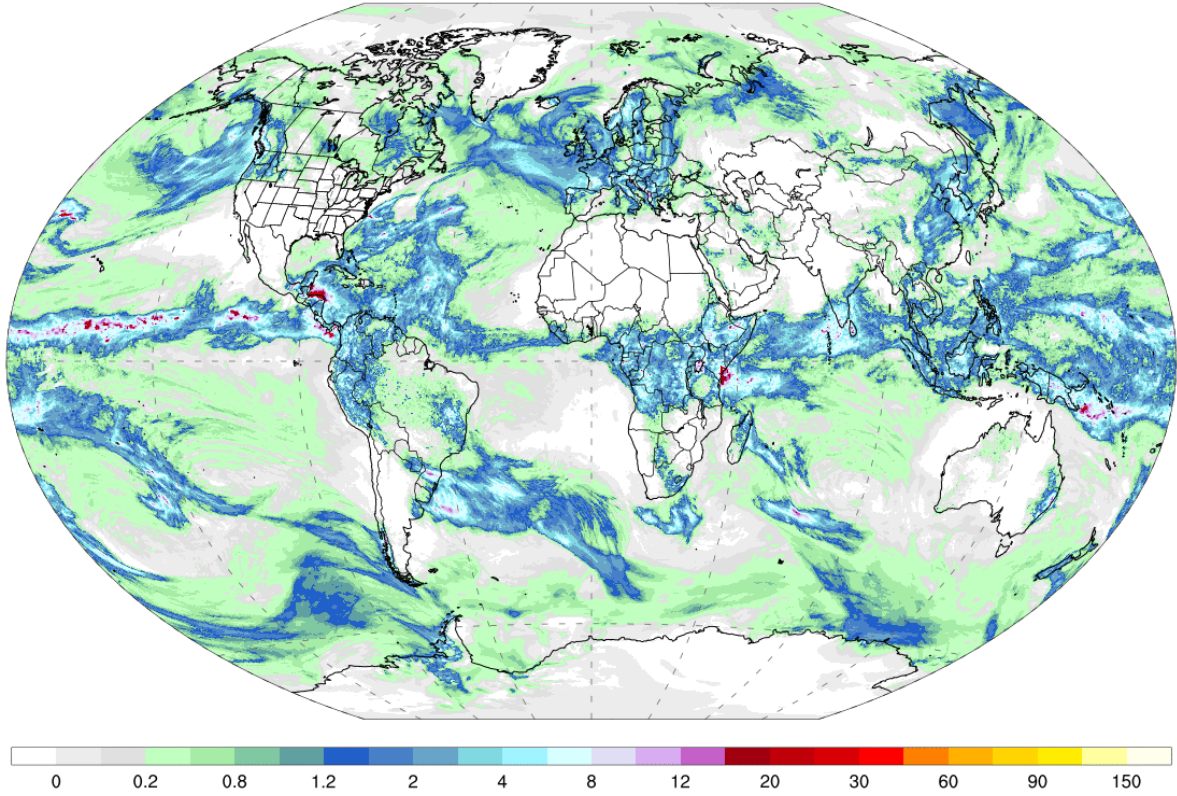
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## Global Precipitation Forecast

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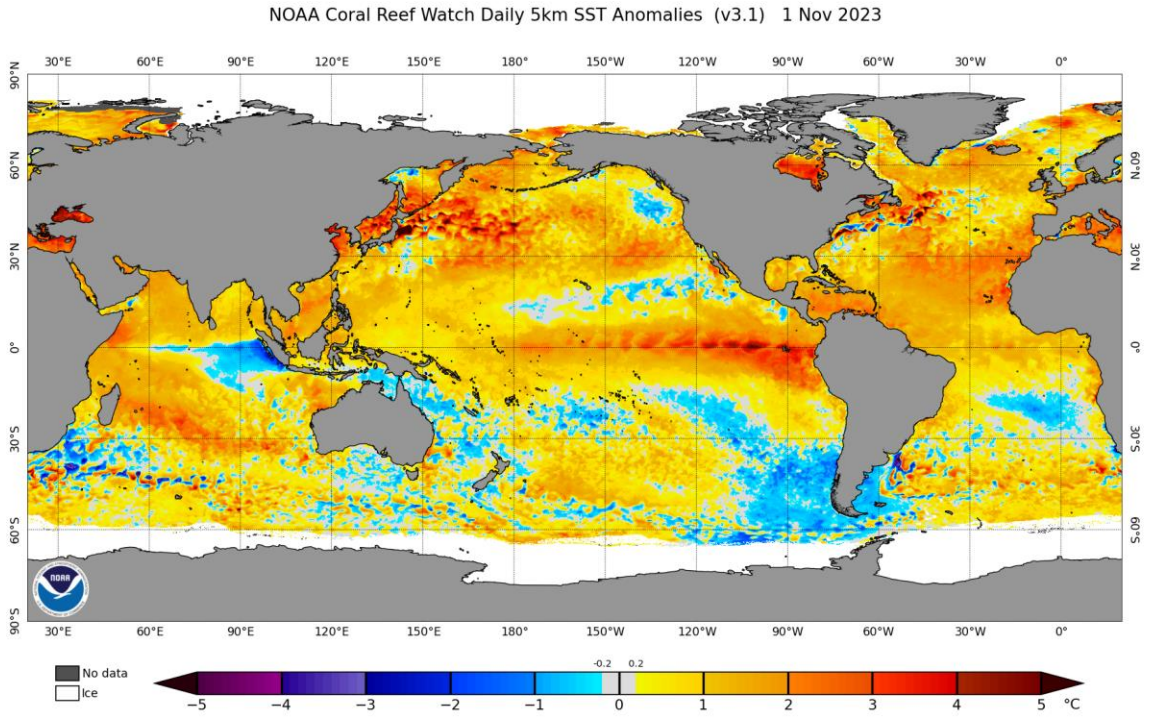
**GFS Accumulated Precipitation (cm)**  
Days 1-3 Total | Fri, Nov 03, 2023

[ClimateReanalyzer.org](https://climatereanalyzer.org)  
Climate Change Institute | University of Maine

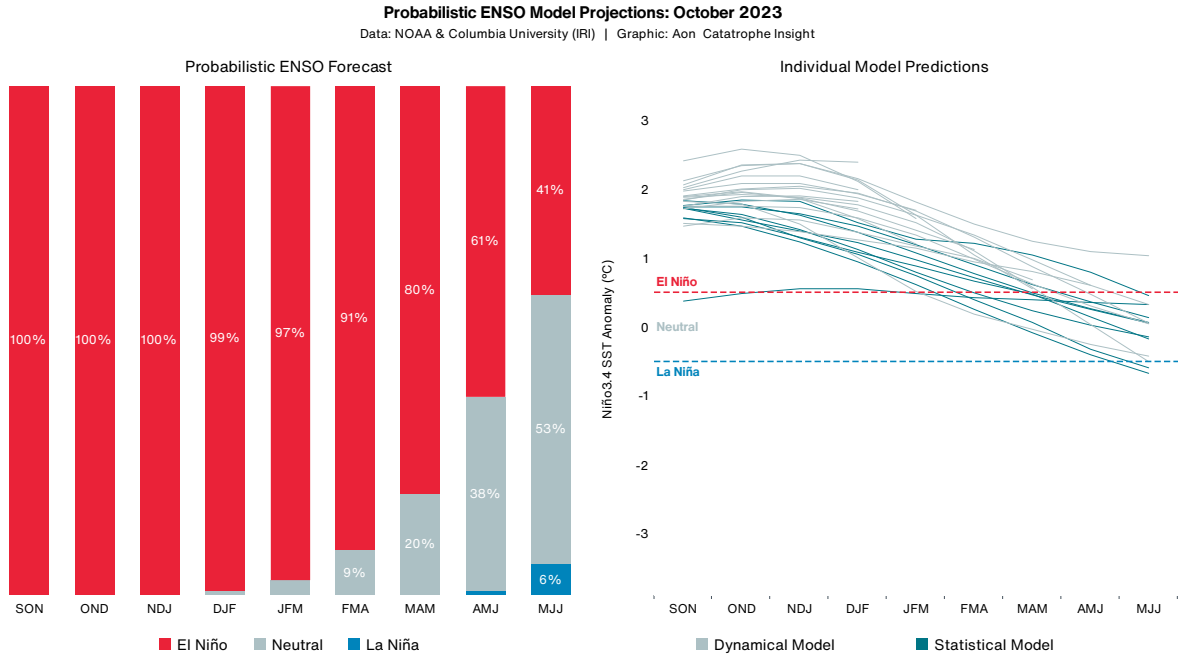


Source: Climate Reanalyzer, Climate Change Institute, University of Maine, USA

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



# El Niño-Southern Oscillation (ENSO)



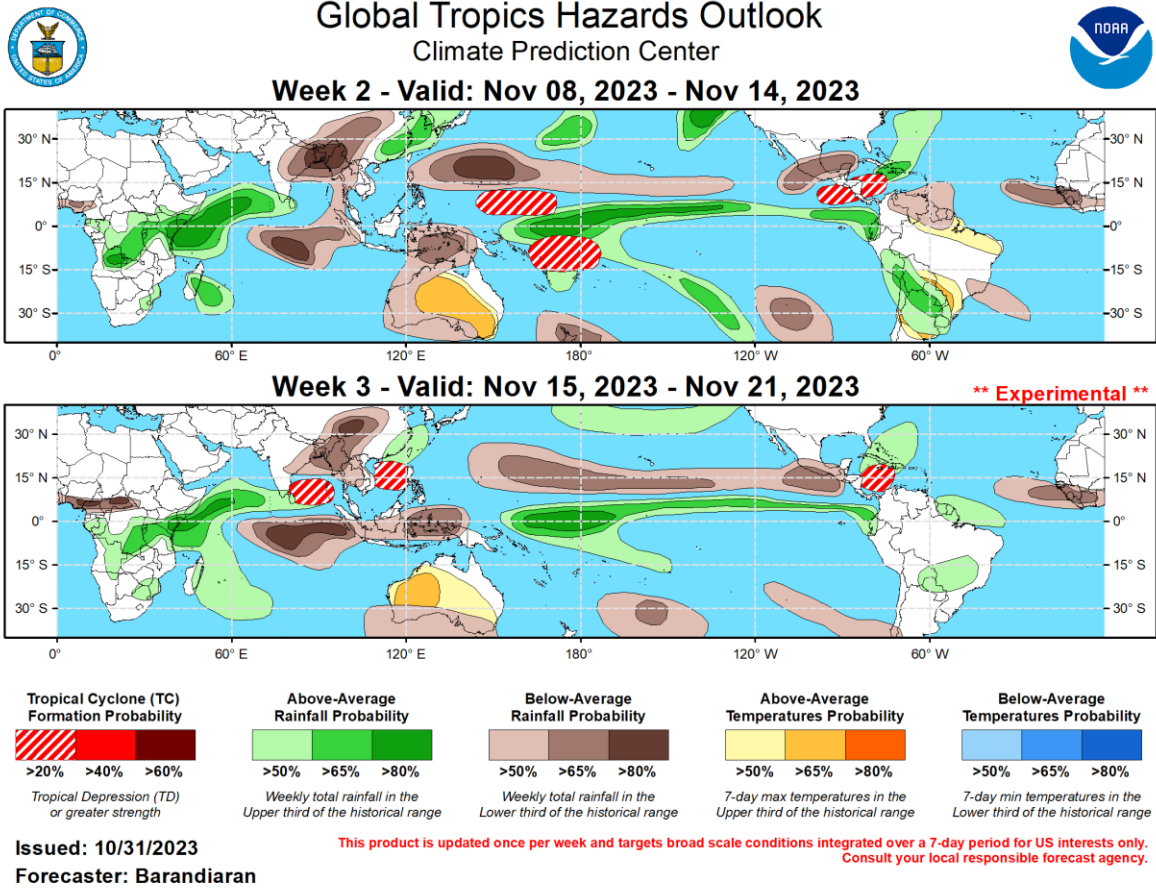
**El Niño:** Warm phase of an ENSO cycle. Sea surface temperatures of +0.5°C occur across the east-central equatorial Pacific.

**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.

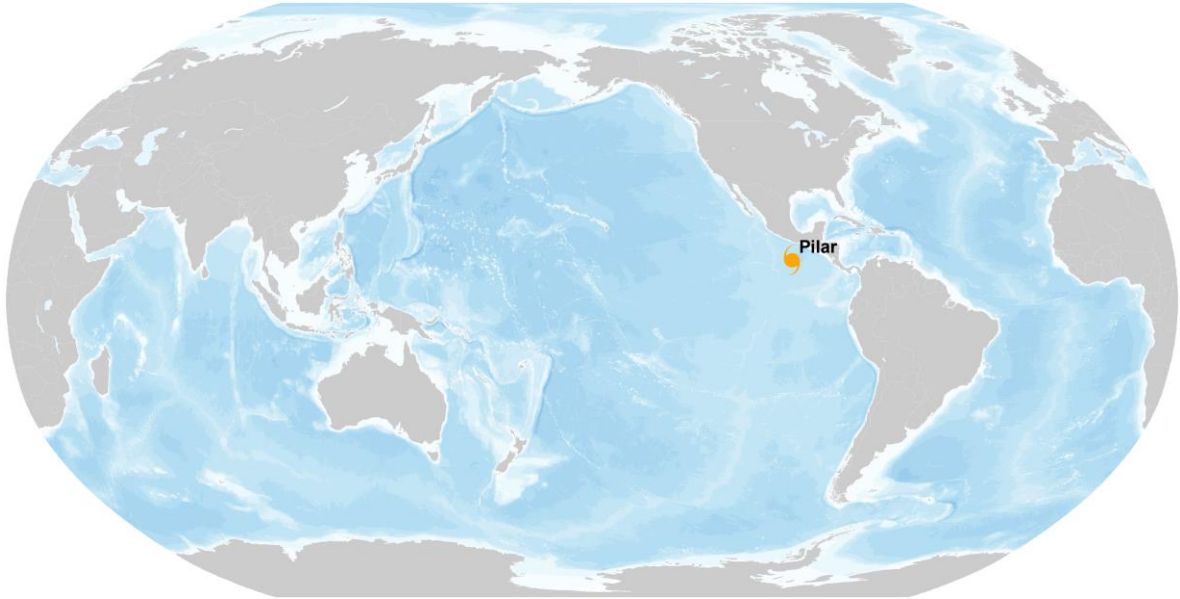
El Niño (La Niña) is a phenomenon in the equatorial Pacific Ocean characterized by a five consecutive 3-month running mean of sea surface temperature (SST) anomalies in the Niño 3.4 region that is above the threshold of +0.5°C (-0.5°C). This is known as the Oceanic Niño Index (ONI).

## 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

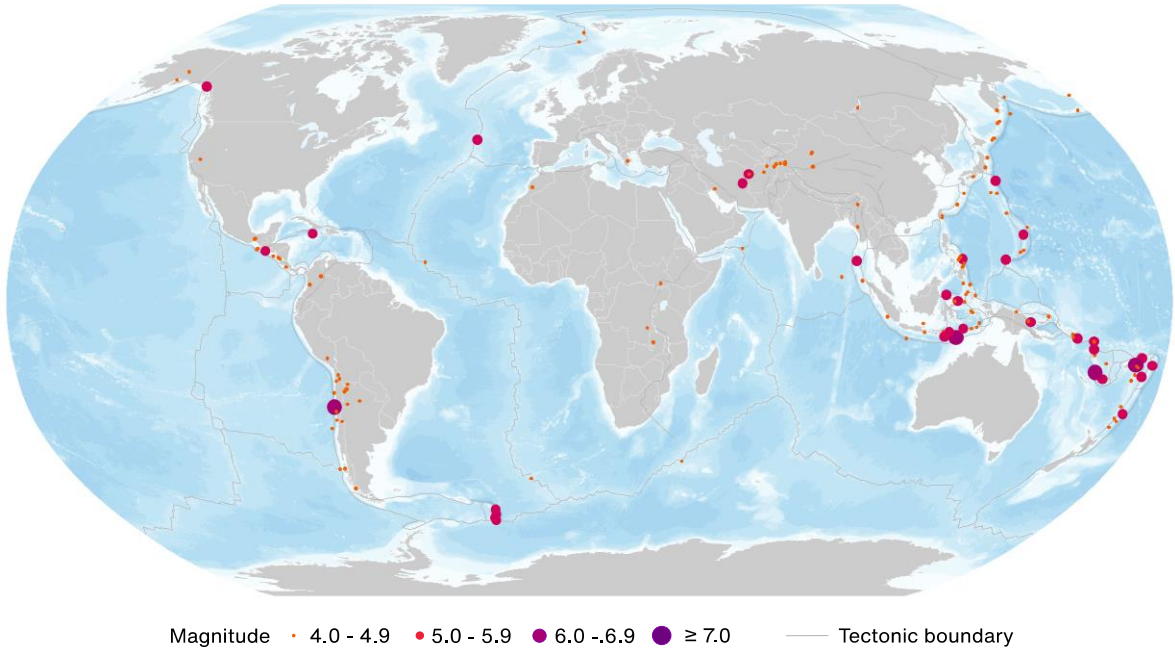
Name	Location	Winds	Center
TS Pilar	11.0N, 98.2W	60	430 miles (695 km) S from Oaxaca, Mexico

\* 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 ( $\geq M4.0$ ): Oct 27-Nov 2

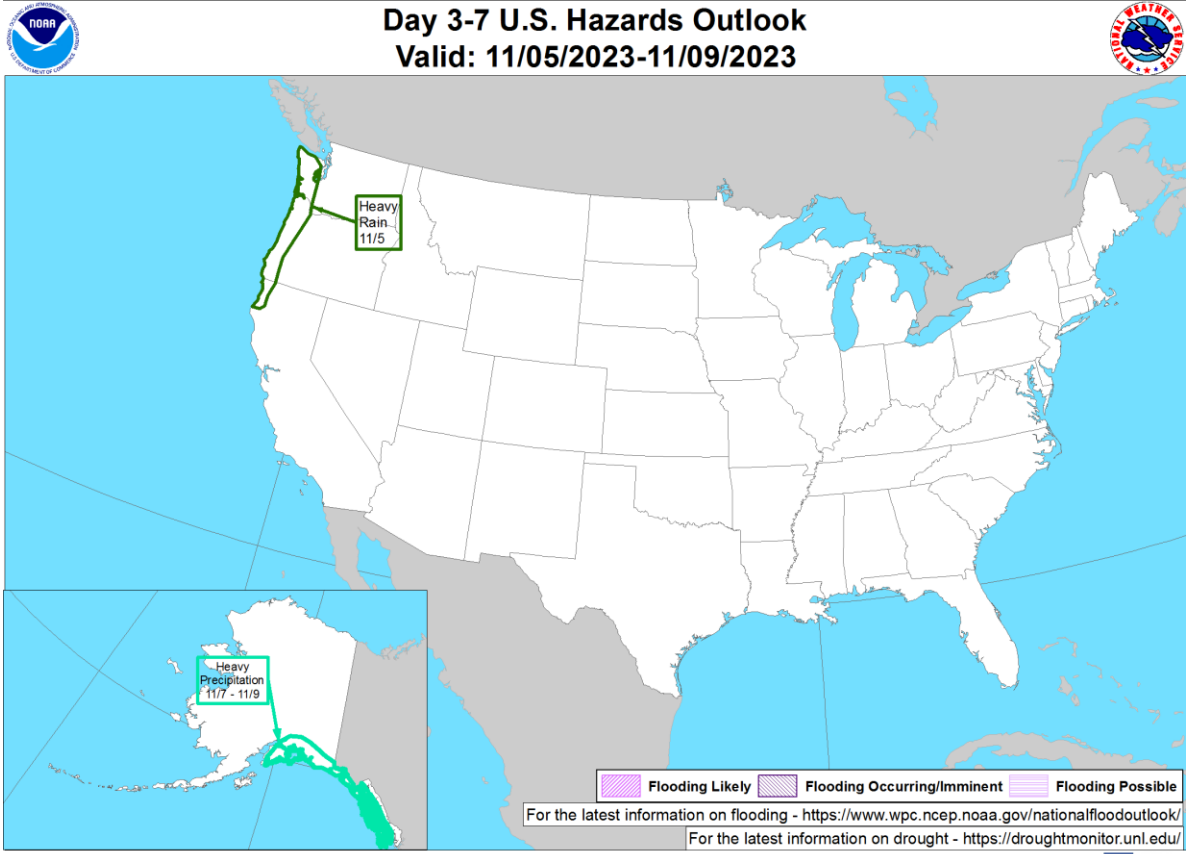


Date (UTC)	Location	Mag	Epicenter
10/29/2023	19.41S, 168.77E	6.0	55 km (34 miles) WNW of Isangel, Vanuatu
10/31/2023	17.52S, 179.01W	6.5	18 km (11 miles) ENE of Levuka, Fiji
10/31/2023	28.75S, 71.57W	6.6	81 km (50 miles) WSW of Vallenar, Chile
11/1/2023	10.01S, 123.73E	6.1	22 km (14 miles) NE of Kupang, Indonesia

Source: United States Geological Survey



## U.S. Hazard Outlook

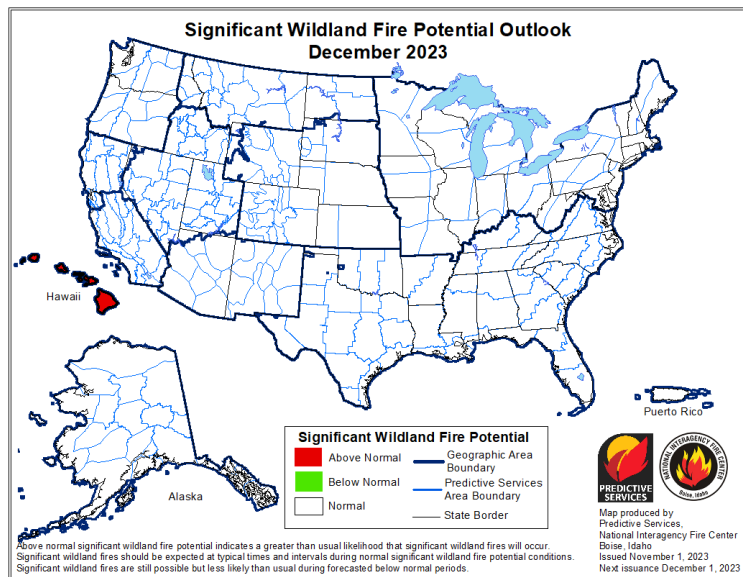
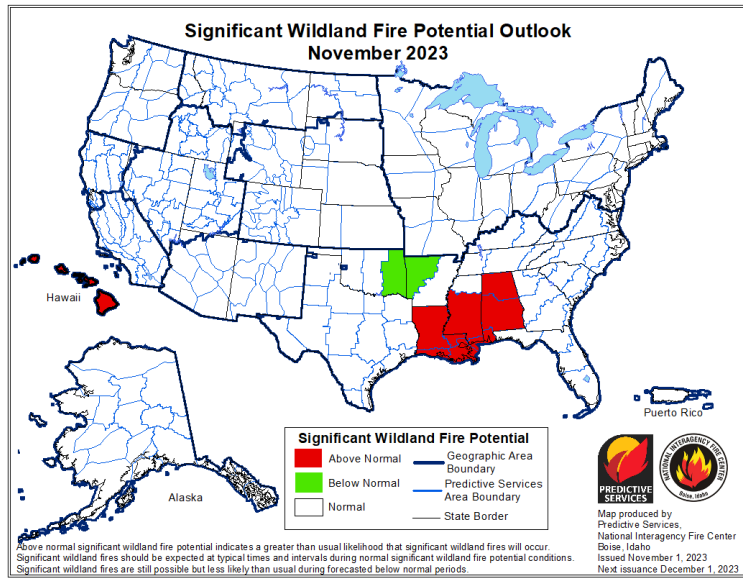


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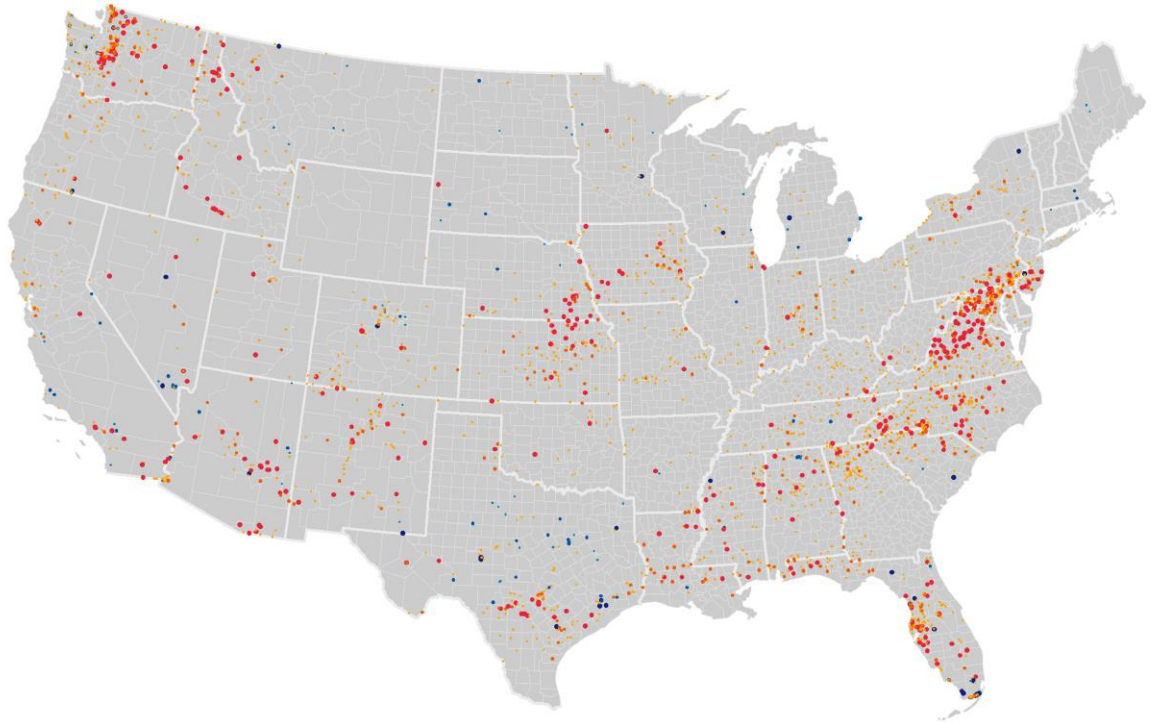
Source: Climate Prediction Center (NOAA)

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



Source: NIFC

## U.S. Current Riverine Flood Risk



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

*A  $\geq 99^{\text{th}}$  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

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## Source Information

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### **Western Europe: Windstorm Ciarán**

UK Met Office

Météo-France

ESWD

Severe Weather Europe

ECMWF

### **Mexico: Hurricane Otis (Update)**

National Autonomous University of Mexico

Secretariat of Security and Citizen Protection of Mexico (SSPC)

Acapulco reels from catastrophic damage in the wake of Hurricane Otis, *Yale Climate Connections*

There are 220,305 homes affected in Acapulco; continuous assessment, *La Jornada*

Copernicus EMSR

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

NWS Dallas/Fort Worth

'This was the worst one': Kaufman resident receive helping hand in flood recovery, *NBC 5 DFW*

2 killed in Texas flash floods that also sent 3 police officers to the hospital, *Fox Weather*

Bushfires in Queensland, *NASA Earth Observatory*

Australia fires: Dreaded bushfire season turns deadly, *BBC*

Weather conditions set to improve across much of Queensland, but 'significant fire dangers' remain for state's Far North, *ABC News*

ESWD

UN OCHA

ADINet

MET Malaysia

PAGASA

Brazil: Drought Affects 62 Municipalities in the Amazonas State, *La nueva Televisión del Sur*

General Directorate of Civil Protection

California Department of Forestry and Fire Protection

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