

# **Weekly Cat Report**

December 9, 2022



## Executive Summary



Event	Affected Region(s)	Fatalities	Economic Loss (\$)	Page
<b>Cyclone Mandous</b>	India, Sri Lanka	2+	Millions	3
<b>Flooding &amp; Landslides</b>	Brazil	10+	Millions	4
<b>Flooding &amp; Landslides</b>	Vietnam	5	Millions	4
<b>Flooding &amp; Landslides</b>	Colombia	34+	Unknown	4
<b>Flooding</b>	Italy	0	Millions	4
<b>Flooding</b>	South Africa	14+	Unknown	4
<b>Flooding</b>	Spain, Portugal	1	Millions	5

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>

## India, Sri Lanka: Cyclone Mandous

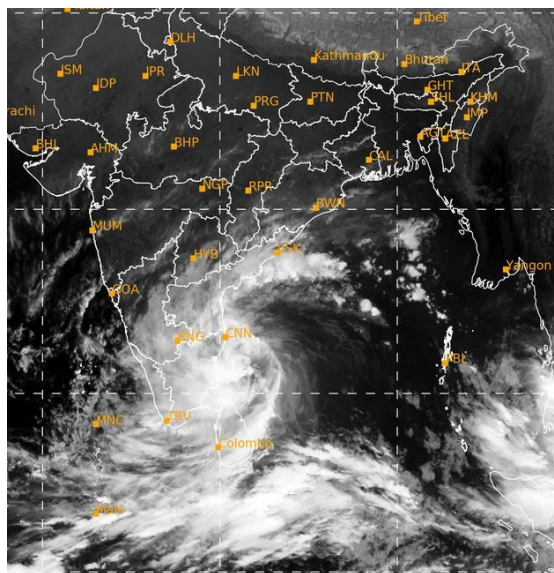
### Overview

*Cyclone Mandous, the third named storm of the 2022 North Indian cyclone season, was expected to affect southeast India later on December 9, after causing relatively minor losses on Sri Lanka with sustained winds of up to 100 kph (65 mph), equivalent to a tropical storm category on the Saffir-Simpson Wind Scale. The cyclone was expected to come ashore in the state of Tamil Nadu, and a red alert was in effect for 13 districts.*

### Meteorological Recap

The Regional Specialised Meteorological Center (RSMC) in New Delhi noted a tropical depression forming in the Bay of Bengal on December 6. The depression evolved into a cyclonic storm by December 8 and RSMC New Delhi assigned the name “Mandous” for this third storm of the 2022 North Indian cyclone season.

Mandous was packing winds of up to 100 kph (65 mph) and latest satellite imagery revealed majority of the convective activity to be in the southern periphery. Most of the December storms over the Bay of Bengal tend to weaken before landfall, and Mandous was also expected to weaken prior to landfall along the coast southwest of Chennai. However, heavy rain and storm surge up to 0.5 m (1.6 ft) are forecast to inundate low-lying areas in north coastal Tamil Nadu and Puducherry.



**Satellite imagery of Mandous at 00 UTC, December 9**  
Source: Indian Meteorological Department

### Event Details

As of the morning of December 6, the Disaster Management Center of Sri Lanka reported approximately 1,300 homes damaged due to high winds from the cyclone, as well as two fatalities and nine injuries. Most of the damage occurred in Badulla District of Uva Province.

A red alert was issued for 13 districts in Tamil Nadu, and schools across the state had declared a holiday for December 9. Disaster management team had set up 5000 relief camps across the states, and 169 relief centers were set up in Chennai city.

### Financial Loss

As the tropical storm has yet to landfall, it is currently difficult to assess its full financial impacts. The economic loss from storm of this scale is likely to range from the millions (USD) to tens of millions (USD).

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## Natural Catastrophes: In Brief

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### **Flooding & Landslides (Brazil)**

Summertime rain between November 29 and December 4 had affected multiple states in Brazil causing no less than ten fatalities. More than 17,500 people were displaced across the states of Paraná, Santa Catarina, Espírito Santo, Rio de Janeiro, and Bahia. A massive landslide along a highway in Paraná buried nine vehicles and claimed two lives, despite initial reports of potentially 30 people missing. Other areas of the state were also impacted and at least 647 houses were damaged. In Santa Catarina, 30 out of 32 municipalities were under a state of emergency. The Doce River at Linhares were above alert level on December 5-6 but had since returned to normalcy.

### **Flooding & Landslides (Vietnam)**

Incessant rain triggered flooding and landslides in North Central Vietnam on December 1-4. The worst flooding occurred in the Phu Loc district in Thua Thien Hue where three people were killed, and more than 2,900 houses were inundated. Strong monsoonal winds also led to the deaths of two people in southern Vietnam. Damages to properties, crops, and roads were also reported in Quang Nam, Phu Yen, and Quang Tri. The Cổ Chiên River in Vinh Long caused further economic damages of VND35 billion (\$1.5 million).

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

Continuous heavy rain caused a deadly landslide event in the municipality of Pueblo Rico, Risaralda Department, western Colombia, on December 4. Landslide buried three vehicle – bus, car and motorbike carrying tens of people. As of December 5, the National Unit for Disaster Risk Management (UNGRD) reported no fewer than 34 fatalities and nine injured people.

### **Flooding (Italy)**

Another round of torrential rainfall triggered flooding in several regions of southern and central Italy. Regions of Sicily, Calabria, Lazio and Tuscany were the most affected by heavy rainfall of localized intensity up to 250 mm (9.8 in) in several hours on December 3. Heavy rainfall together with intense winds and thunderstorms prompted more than 400 interventions across the region and caused damage on several homes and local infrastructure. Total economic losses are expected to reach millions (USD).

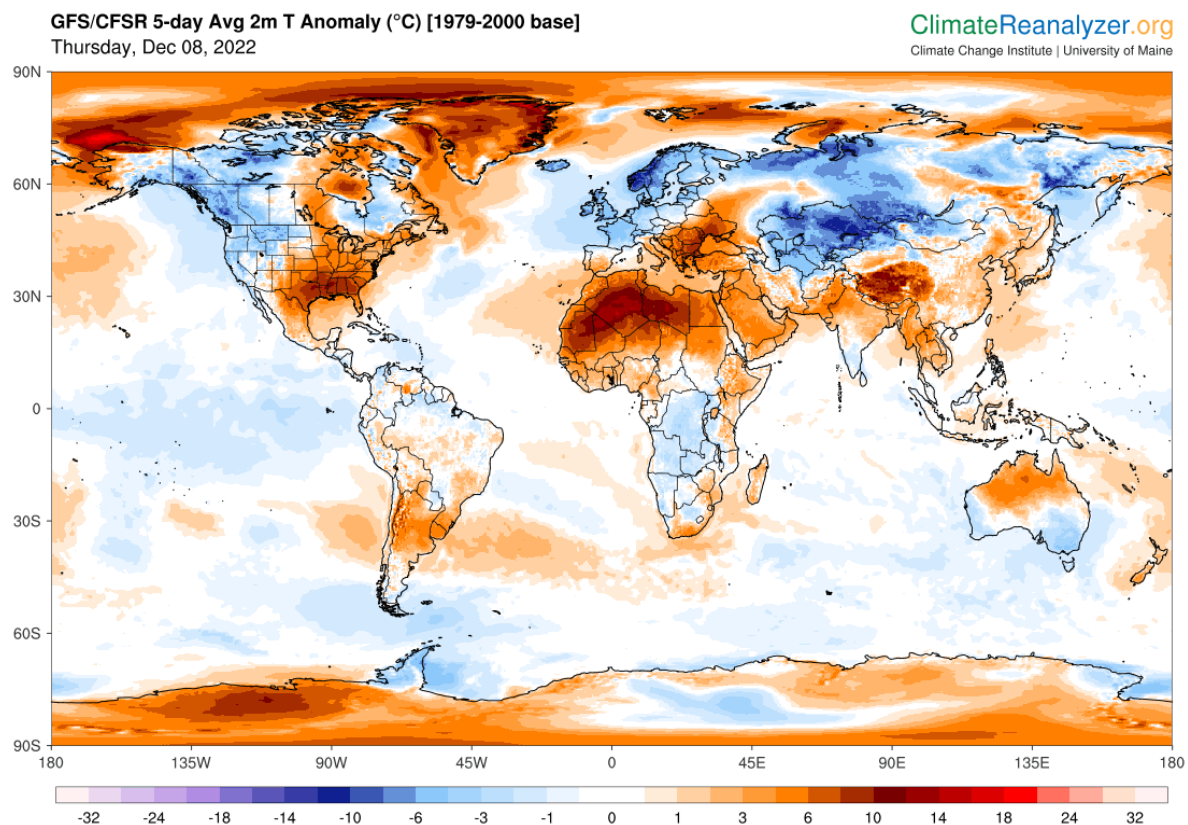
### **Flooding (South Africa)**

At least 14 people were killed during flash flooding along the Jukskei river in Johannesburg, South Africa, triggered by heavy rain on December 3. As of December 5, three people remain missing, several people sustained injuries, according to Johannesburg Emergency Services.

## **Flooding (Spain, Portugal)**

Heavy rainfall accompanied by severe weather was reported in southern Spain and Portugal on December 5-6. In Malaga Province, southern Spain, intense winds, localized flooding and F0-tornado in Marbella City generated damage on several buildings and vehicles and minor structural damage, along with downed trees, one person sustained slight injuries. Additional material damage caused by flooding and strong winds was incurred in Algarve Region, southern Portugal. One person died in floodwaters prompted by heavy rain in Oeiras City. Economic losses are expected to be in millions (USD).

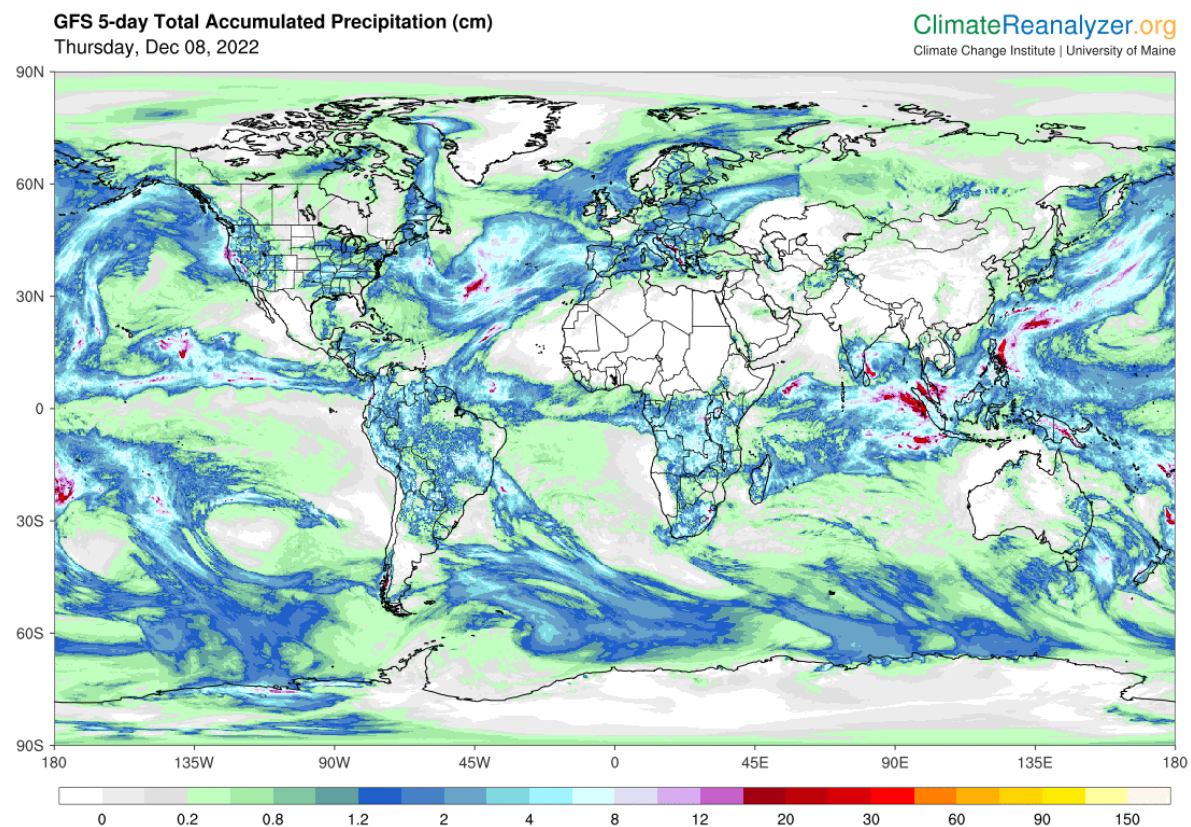
## Global Temperature Anomaly Forecast



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

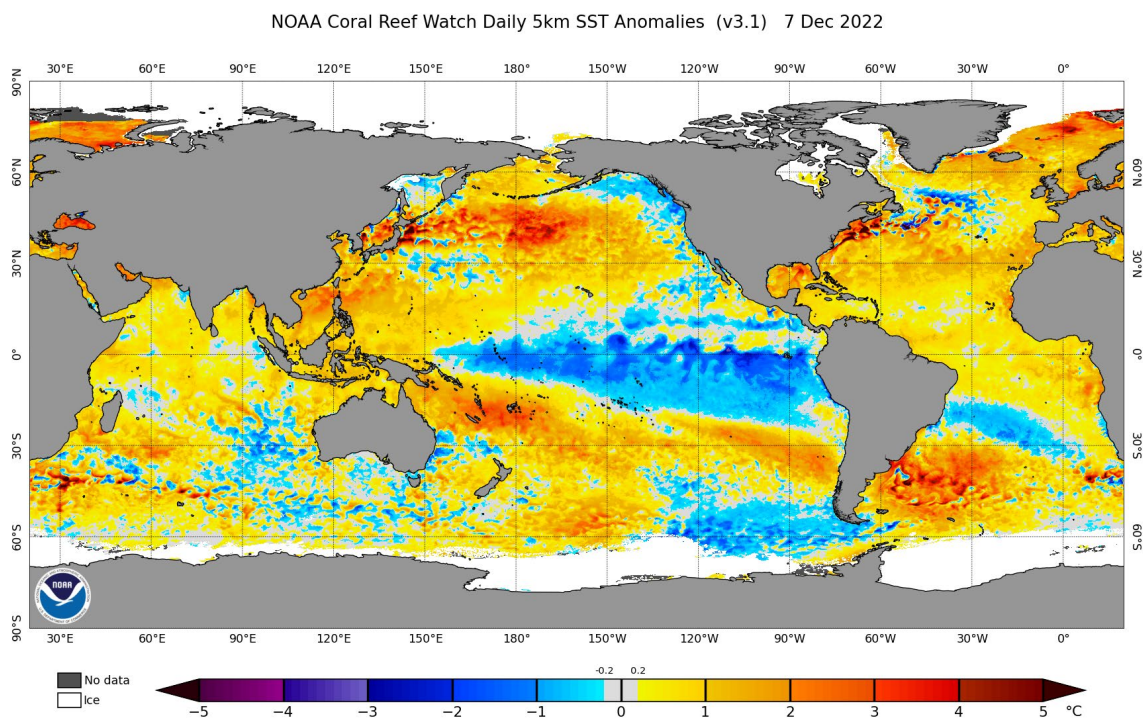


## Global Precipitation Forecast



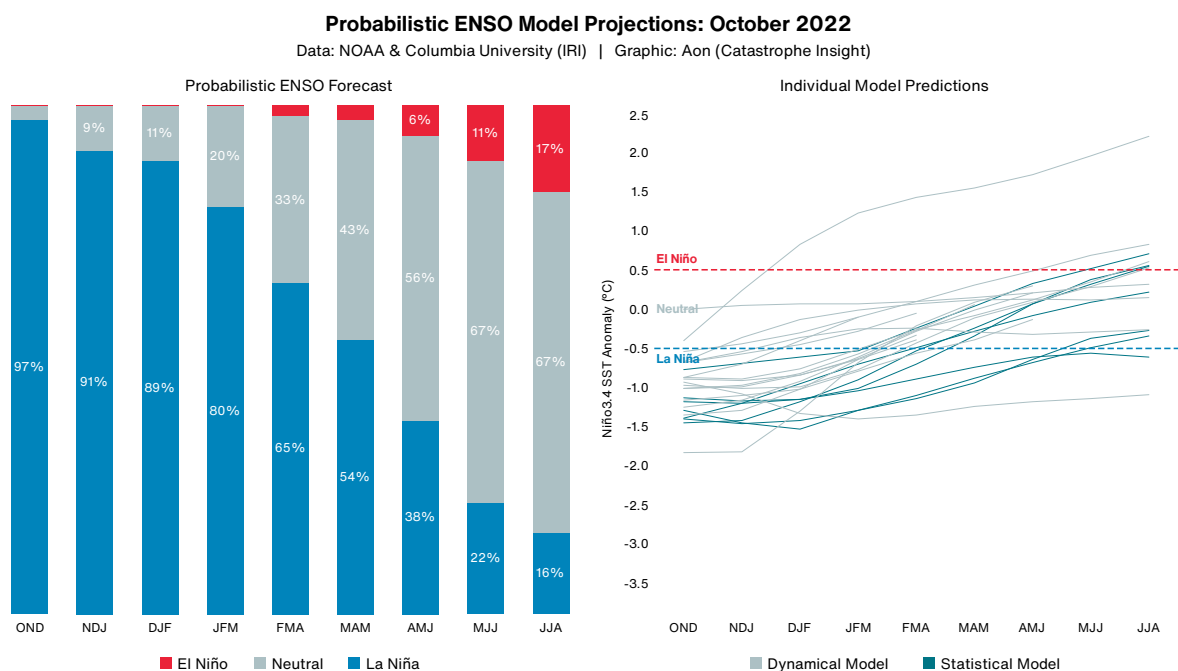
Source: Climate Reanalyzer, Climate Change Institute, University of Maine, USA

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





## El Niño-Southern Oscillation (ENSO)



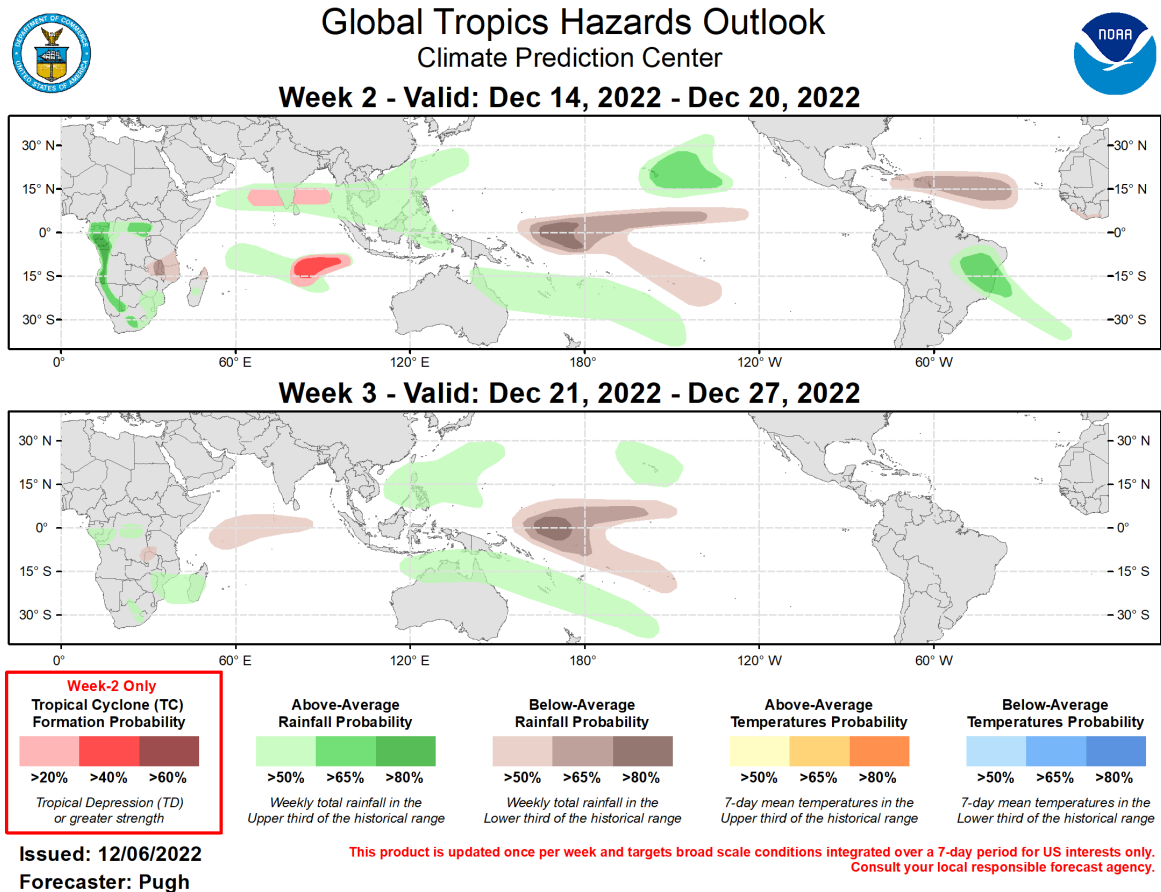
**El Niño:** Warm phase of an ENSO cycle. Sea surface temperatures of +0.5°C occur across the east-central equatorial Pacific.

**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.

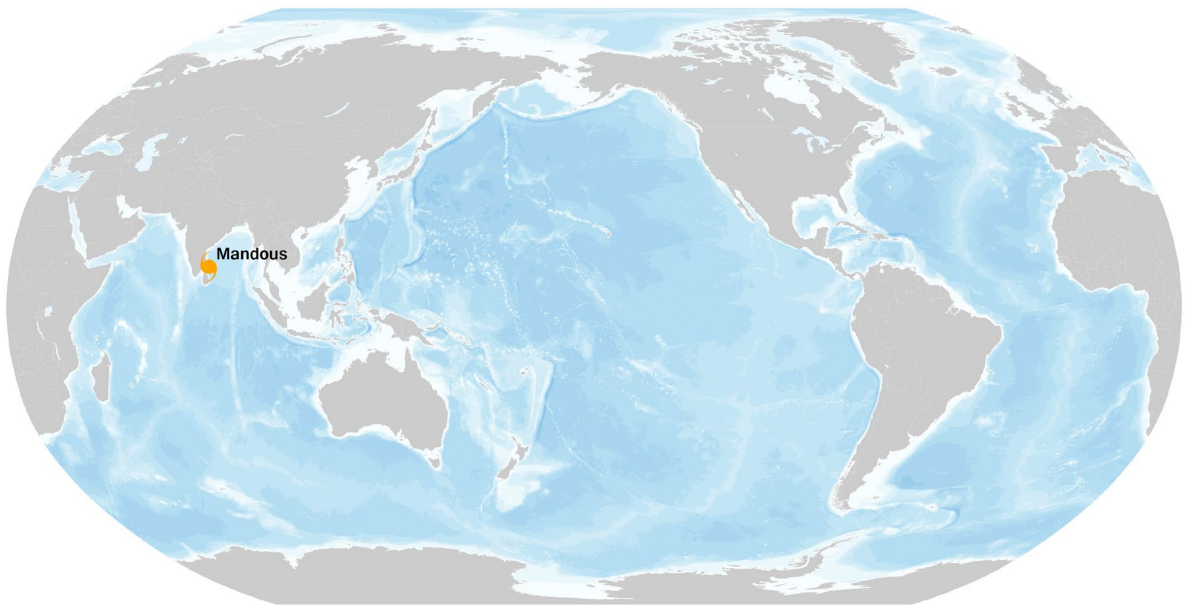
El Niño (La Niña) is a phenomenon in the equatorial Pacific Ocean characterized by a five consecutive 3-month running mean of sea surface temperature (SST) anomalies in the Niño 3.4 region that is above the threshold of +0.5°C (-0.5°C). This is known as the Oceanic Niño Index (ONI).

## Global Tropics Outlook



Source: Climate Prediction Center (NOAA)

# Current Tropical Cyclone Activity



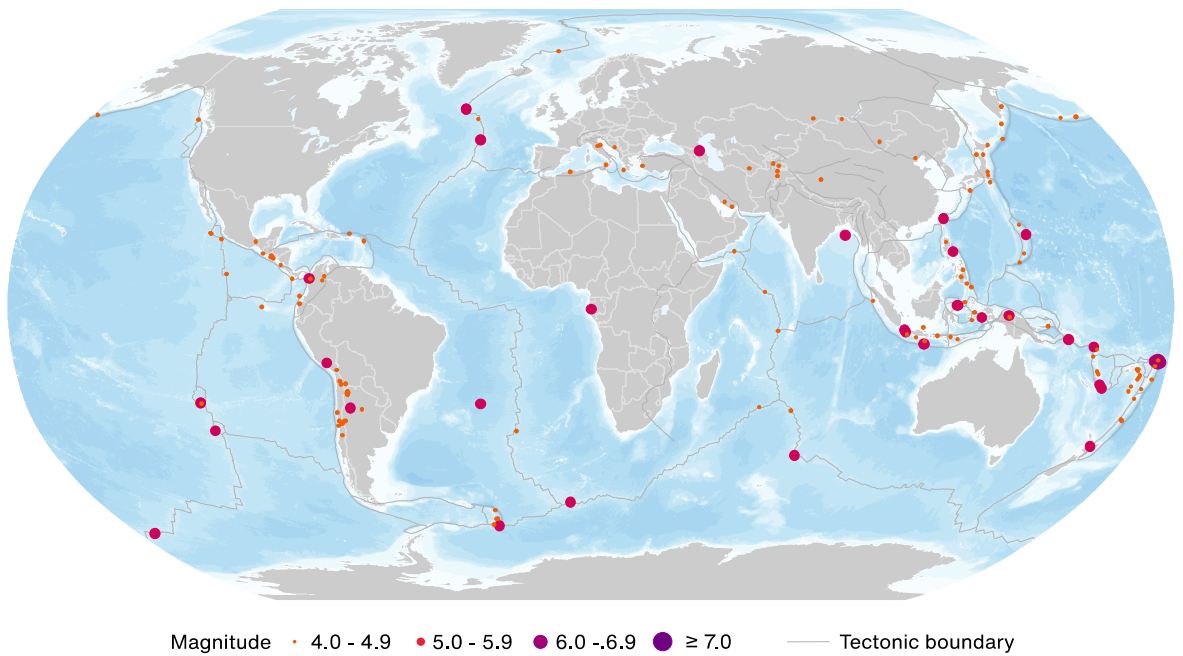
🌀 Tropical Depression 🟡 Tropical Storm 🟠 Category 1 🔴 Category 2 🟡 Category 3 🟢 Category 4 🟣 Category 5

Storm Name	Location	Winds	Location from Nearest Land Area
Mandous	10.9N, 81.4E	65.0	205 km (130 mi) SE from Pondicherry, India

\* 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)

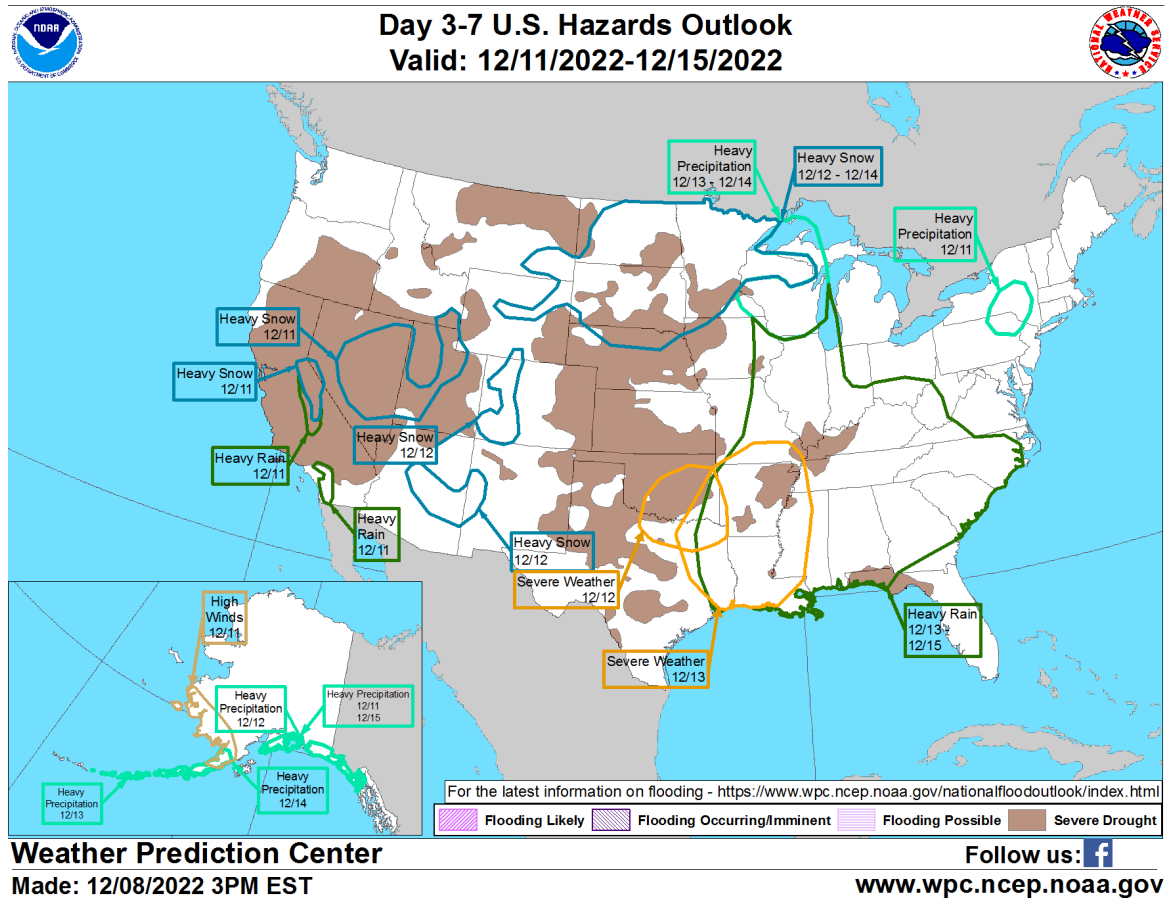
Global Earthquake Activity ( $\geq M4.0$ ): Dec 2 – Dec 8



Date (UTC)	Location	Magnitude	Epicenter
12/04/22	15.40S, 172.97W	6.7	10 km (6 mi) NE of Hihifo, Tong

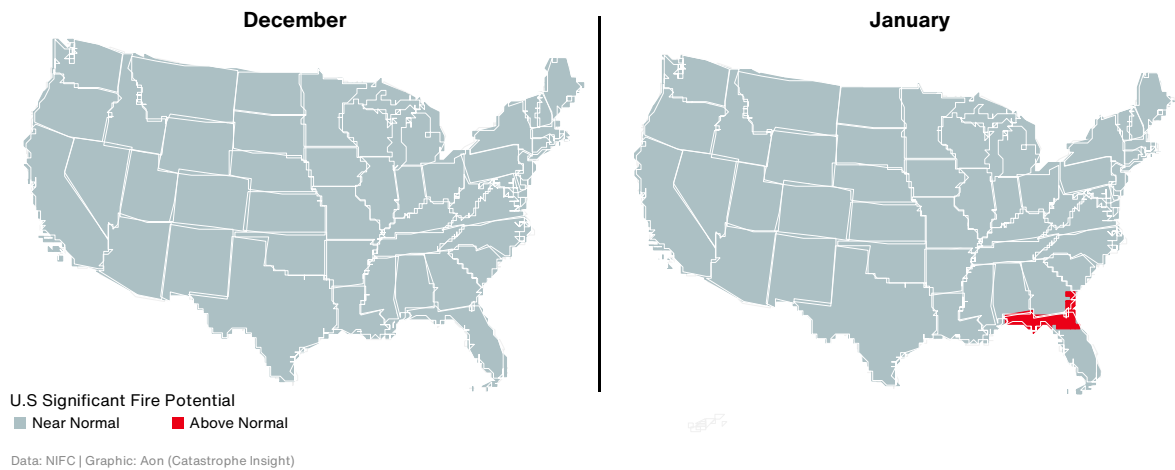
Source: United States Geological Survey

## U.S. Hazard Outlook





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



## Annual YTD Wildfire Comparison: December 7

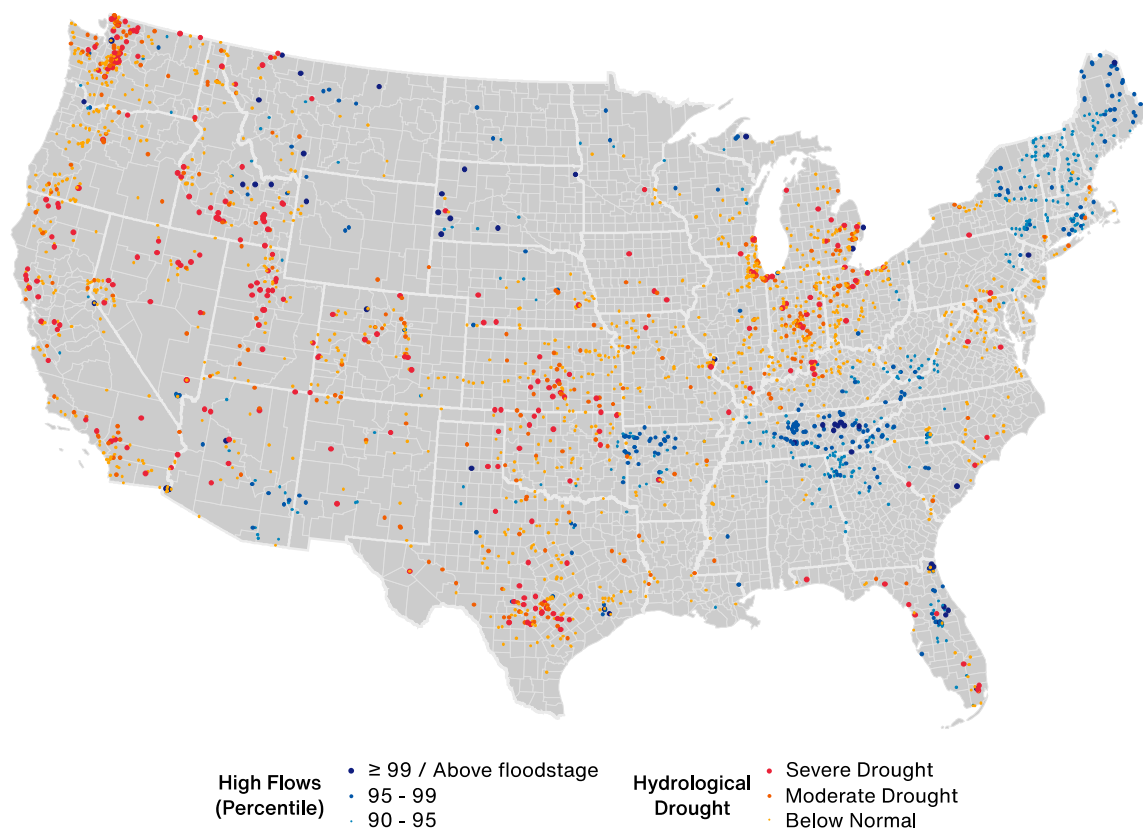
Year	Number of Fires	Acres Burned	Acres Burned Per Fire
2018	52,757	8,507,405	161
2019	47,978	4,687,913	98
2020	55,719	9,569,762	172
2021	54,976	6,814,073	124
2022	64,127	7,343,939	115
<b>10-Year Average (2012-2021)</b>	53,183	7,055,603	133

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

State	Number of Fires	Acres Burned	Acres Burned Per Fire
Alaska	595	3,110,976	5,229
New Mexico	744	858,915	1,154
Texas	11,687	666,737	57
Oregon	1,961	456,205	233
Idaho	1,049	402,625	384

Source: National Interagency Fire Center

## U.S. Current Riverine Flood Risk



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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### **India and Sri Lanka: Cyclone Mandous**

Regional Specialised Meteorological Center

Joint Typhoon Warning Center

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

At Least 30 People Are Missing after Landslide in Paraná, *Folha De S.Paulo*

Vietnam Disaster Management Authority (VDMA)

The National Unit for Disaster Risk Management (UNGRD)

European Severe Weather Database (ESWD)

Johannesburg Emergency Services

The passage of a small tornado through Marbella knocks down trees and causes various damage to the streets, *Nius News*

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## Contacts

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