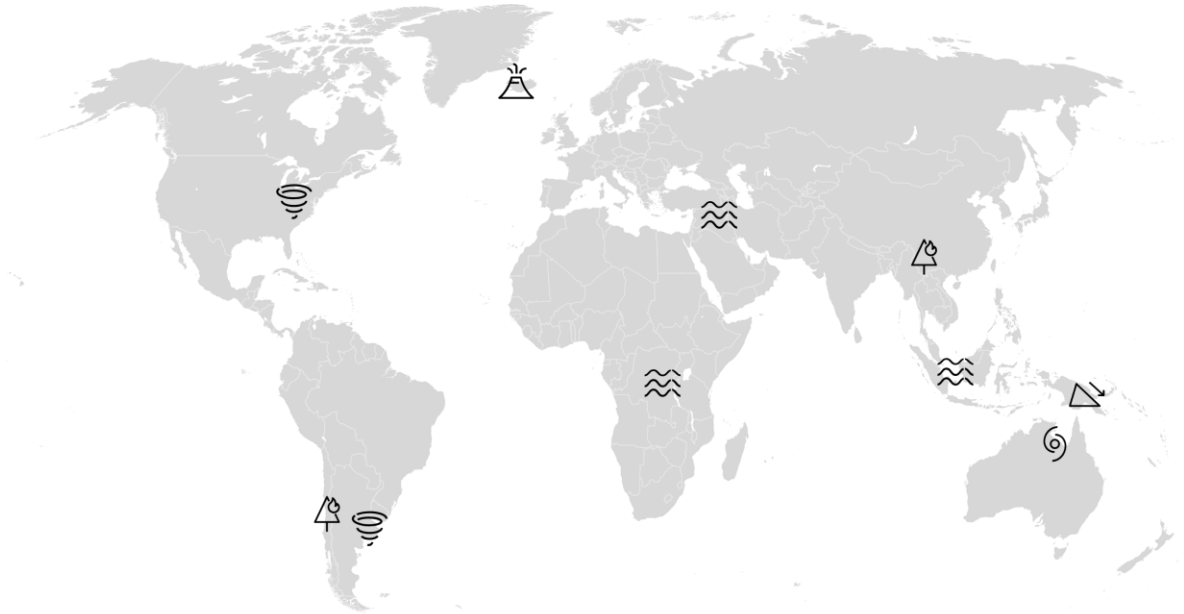


# **Weekly Cat Report**

March 22, 2024



## Executive Summary



Event	Affected Region(s)	Fatalities	Economic Loss (\$)	Page
<b>SCS (Update)</b>	United States	3	100s of millions	3
<b>Wildfire (Update)</b>	Chile	131	Billions	5
<b>Flooding &amp; Landslide (Update)</b>	Indonesia	51	10s of millions	6
<b>Cyclone Megan</b>	Australia	0	Negligible	6
<b>Landslide &amp; Flooding</b>	Papua New Guinea	23	Negligible	6
<b>Flooding</b>	Iraq	3	Unknown	6
<b>Wildfire</b>	China	4	Millions	6
<b>Flooding &amp; SCS</b>	DRC	2	Unknown	6
<b>Sundhnúkur Eruption</b>	Iceland	0	74+ million	7
<b>SCS &amp; Flooding</b>	Argentina	1	Millions	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.

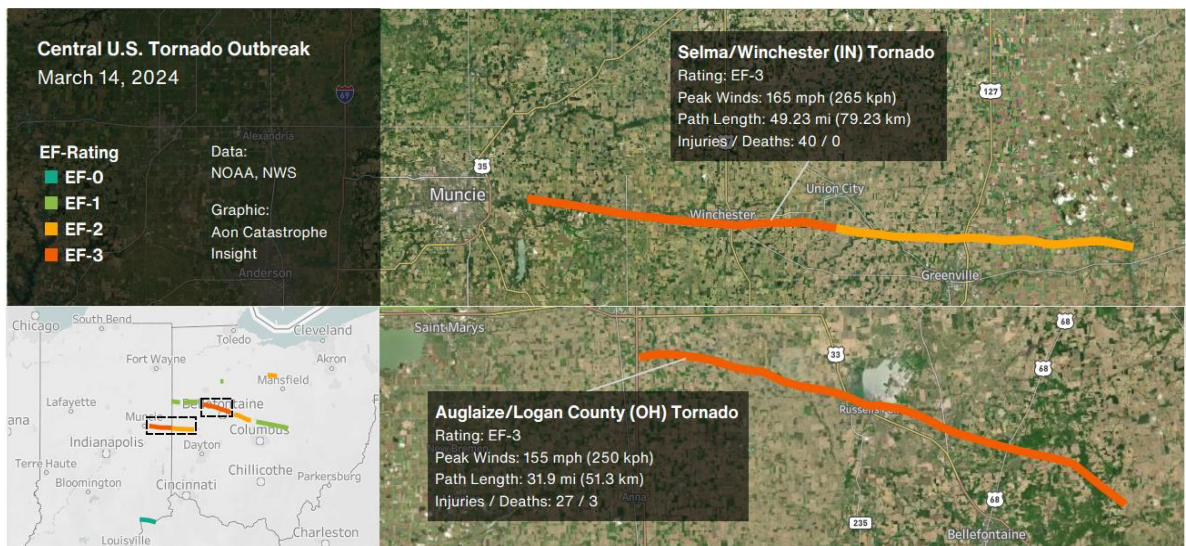
Along with this report, we continue to welcome users to access current and historical natural catastrophe data and event analysis on Impact Forecasting's Catastrophe Insight website: <http://catastropheinsight.aon.com>

## United States: Severe Convective Storm (Update)

### Overview

New damage assessments from a severe weather outbreak on March 12-16 reveal significant impacts across the central United States. Among the reports include two violent EF-3 tornadoes in Ohio and Indiana responsible for 3 deaths, nearly 70 injuries, and considerable property damage. Powerful winds and very large hail caused more notable damage, particularly on March 14-15. Total economic and insured losses could reach into the hundreds of millions USD, possibly higher.

### Meteorological Recap



While March 12-16 featured several, consecutive rounds of destructive storms (see previous Weekly Cat Report), the most prolific outbreak of severe weather occurred on March 14 into early March 15. In fact, nearly 450 storm reports were submitted to the Storm Prediction Center (SPC) during this period alone. This severe weather outbreak spanned from Texas to Ohio where storms produced strong wind gusts up to 75 mph (120 kph). Notably, many storms also produced very large hail, particularly in the St. Louis (MO) metro area, Oklahoma, Arkansas, Indiana, and Ohio. The largest reported hailstone from this event measured 5.25 inches (13.34 cm) in diameter and was discovered near the town of Ada (OK).

Remarkably, SPC also received 38 tornado reports across 9 different states on March 14-15. Damage surveys conducted by the National Weather Service (NWS) revealed six EF-2+ tornadoes had occurred in Ohio, Indiana, northern Kentucky, and Arkansas. The counties of Delaware (IN), Randolph (IN), Logan (OH), and Auglaize (OH) were particularly impacted due to two violent, high-end EF-3 tornadoes. These EF-3 tornadoes traveled dozens of miles while producing maximum winds of at least 155 mph (250 kph).

More severe weather was seen within the southern U.S. on March 15-16. Notably, wind gusts of 75 mph (120 kph) and hailstones up to 2.5 inches (6.4 cm) in diameter were recorded across several small towns near the Houston (TX) metro area.

## Event Details



**EF-3 Tornado Damage in Winchester, Indiana**

Source: NOAA DAT

Together, the aforementioned EF-3 tornadoes injured 67 people and caused significant devastation within Indiana and Ohio. Three people were killed while a large number of single-family and mobile homes were heavily damaged or destroyed near Indian Lake (OH). In Indiana, an initial report from the Delaware County Emergency Management Agency indicated that nearly half of all structures in the small town of Selma were damaged. More extreme property and infrastructure damage also occurred within Winchester (IN) and other nearby rural communities.

Notable severe weather impacts extended well beyond the areas impacted by the EF-3 twisters. Serious damage caused by 8 other tornadoes in Ohio prompted officials to declare a state of emergency for 11 counties within the state. An EF-2 tornado in Indiana and Kentucky wrecked dozens of structures and injured 2 people, while a separate EF-2 tornado near Hot Springs (AR) caused damage to numerous homes and power lines. Nearby towns in central and southern Arkansas also experienced heavy rain and localized flooding, which prompted multiple water rescues.

Several locations were also heavily impacted by very large hail. Near St. Louis (MO), significant damage was seen within St. Charles (MO) and Madison (IL) counties. This included the town of O'Fallon (MO) where approximately 450 vehicles were damaged by hail within a car dealership. A similar incident occurred in Ada (OK) as another car dealership saw nearly 170 of its vehicles damaged. In Texas, some communities near Houston were also damaged by large hail, along with strong winds. This included the towns of Needville, Bellville, and Angleton where numerous vehicles were wrecked and several homes had their roofs destroyed.

## Financial Loss

This prolonged period of severe weather caused widespread property and infrastructure damage across the central United States, primarily due to violent tornadoes and large hail. The aggregated impacts could drive economic and insured losses into the hundreds of millions USD, possibly higher with future damage assessments.

## Chile: Wildfire (Update)

### Overview

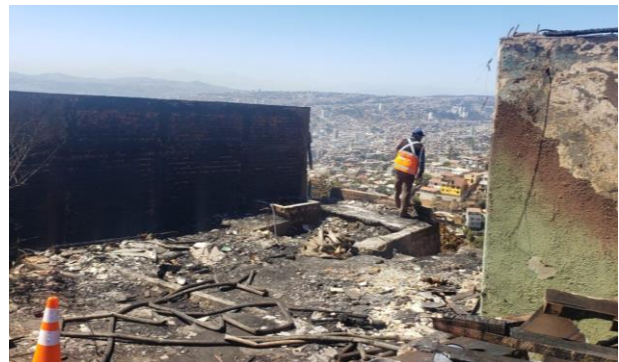
New wildfires broke out on March 13 within the Valparaíso region in central Chile, leading to hundreds of people being evacuated. This region is still reeling from the deadly February wildfires which claimed at least 131 lives and caused notable material damage to more than 15,000 buildings.

### Meteorological Recap

In recent days and weeks, much of Chile has been affected by a prolonged late-summer heatwave. Enhanced conditions for wildfire growth have since developed, particularly in parts of central Chile.

### Event Details

According to the National Disaster Prevention and Response Service (SENAPRED), recent wildfires damaged approximately 40 houses in the Valparaíso Municipality and forced hundreds of people to leave their homes. This is an addition to excessive losses that resulted from widespread wildfires in early February (see Weekly Cat Report from February 9).



Wildfire damage in Cerro Cordillera, Valparaíso region  
Source: SENAPRED

Although Chile has experienced one of the deadliest and costliest wildfire seasons this year, the total number of fires and wildfire extent both stand below the long-term averages, according to the Ministry of Agriculture (CONAF). However, there have been large regional differences in wildfire spread. The table below shows the regions with the largest wildfire extents as of March 20, according to CONAF.

Region	2023-2024 Burned Area (ha/acres)	Five-year Average (ha/acres)	Change (%)
Valparaíso	15,198 / 37,555	5,426 / 13,408	+180
O'Higgins	12,673 / 31,316	4,508 / 11,140	+181
Metropolitan	8,388 / 20,727	4,430 / 10,947	+89
Araucanía	16,715 / 41,304	51,665 / 127,667	-68
Other regions	17,100 / 42,255	82,116 / 202,913	-79

### Financial Loss

The latest reports still suggest that total economic losses due to wildfires could reach a billion USD. This is due to the number of damaged buildings this year, which has exceeded figures from wildfire outbreaks in 2017 and 2023. Insured losses are expected to exceed \$100 million, according to the Association of Insurers of Chile.

## Natural Catastrophes: In Brief

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### **Flooding & Landslide (Indonesia) - Update**

Large portions of western Indonesia have been severely affected by heavy rainfall, widespread flooding, and deadly landslides in recent weeks (see the previous Weekly Cat Report). As of March 20, the Indonesian Disaster Management Agency (BNPB) stated that at least 51 have died, 12 others have been injured, and nearly 500,000 people have been affected since March 1 due to floods and landslide events in the provinces of West Sumatra, West and Central Kalimantan, Central Java, North Sulawesi, and East Nusa Tenggara. More than 17,000 houses have been flooded across the aforementioned provinces.

### **Cyclone Megan (Australia)**

During the afternoon of March 18, Megan made landfall in Australia's Northern Territory as a category 3 cyclone with wind speeds up to 200 kph (125 mph). Despite rapid weakening and dissipation soon after landfall, the town of Borroloola received 255 mm (10 inches) of rainfall on March 18 alone. Flooding along the nearby McArthur River prompted officials to evacuate around 250 residents from Borroloola.

### **Landslide & Flooding (Papua New Guinea)**

At least 23 people lost their lives due to landslides that resulted from heavy rains in Papua New Guinea's Highlands region on March 19. All victims were buried under mud in multiple landslide events across Simbu Province, according to the local disaster management. Flooding and landslides damaged several houses and washed away roads in the affected area and elsewhere in the region.

### **Flooding (Iraq)**

Torrential rainfall has triggered severe flash flooding in various parts of Iraq since March 18, particularly across the Kurdistan region. The worst losses were incurred in the cities of Erbil and Duhok where 3 people died and 11 others suffered injuries, along with material damage to about 30 houses and 40 vehicles, according to local civil defense and media reports. More than 600 people have been evacuated.

### **Wildfire (China)**

Several wildfires have resulted in agricultural damage and casualties in southern China since March 15. Four fatalities and one injury have been reported in the Yunnan Province. Fires have already burnt more than 10,000 hectares (24,700 acres) of land in Sichuan Province, prompting evacuations of nearly 5,000 people across Yajiang County.

### **Flooding & SCS (Democratic Republic of the Congo)**

Heavy rainfall, flooding, strong winds, and thunderstorms have affected the central Democratic Republic of the Congo (DRC) since March 16. Among the worst impacted was the Maniema Province where two fatalities, no fewer than 27 injured, and about 100 damaged houses were reported.

## **Sundhnúkur Eruption (Iceland)**

On March 16, the fourth volcanic eruption since early December occurred on the Reykjanes Peninsula in southwest Iceland. While new lava flows are directed away from the town of Grindavik, partially due to a protective barrier, new volcanic hazards may result from lava interaction with seawater. Potential lethal health hazards are expected within a radius of 3 kilometers (1.9 miles) from the entry point into the sea, according to the Icelandic Met Office. This radius includes Grindavik town. Economic losses related to the Sundhnúkur eruptions have already reached ISK10 billion (\$74 million). The Natural Catastrophe Insurance of Iceland has received about 500 damage reports.

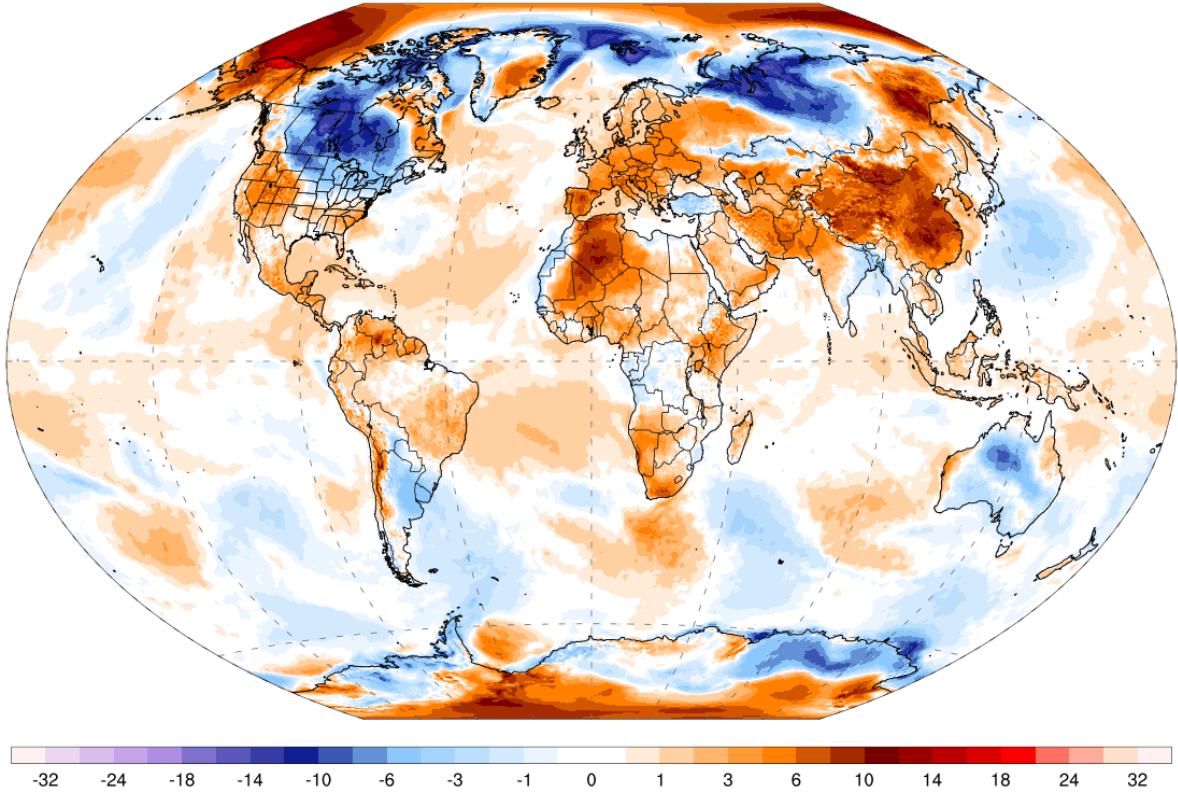
## **SCS & Flooding (Argentina)**

Powerful thunderstorms and heavy rainfall considerably impacted parts of the Bueno Aires province on March 18-19. Some locations within the city of Buenos Aires were flooded, especially the districts of Lanús and Avellaneda. Many homes and buildings were further damaged by hail and strong winds up to 150 kph (93 mph). Notably, a racetrack at 9 de Julio was completely destroyed while several nearby structures also collapsed. Overall, the IFRC reports that one person was killed, 6 were injured, and 300 more were displaced due to the storms.

## Global Temperature Anomaly Forecast

GFS 2m T Anomaly (°C) [CFSR 1979-2000 baseline]  
Days 1-3 Avg | Thu, Mar 21, 2024

ClimateReanalyzer.org  
Climate Change Institute | University of Maine



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



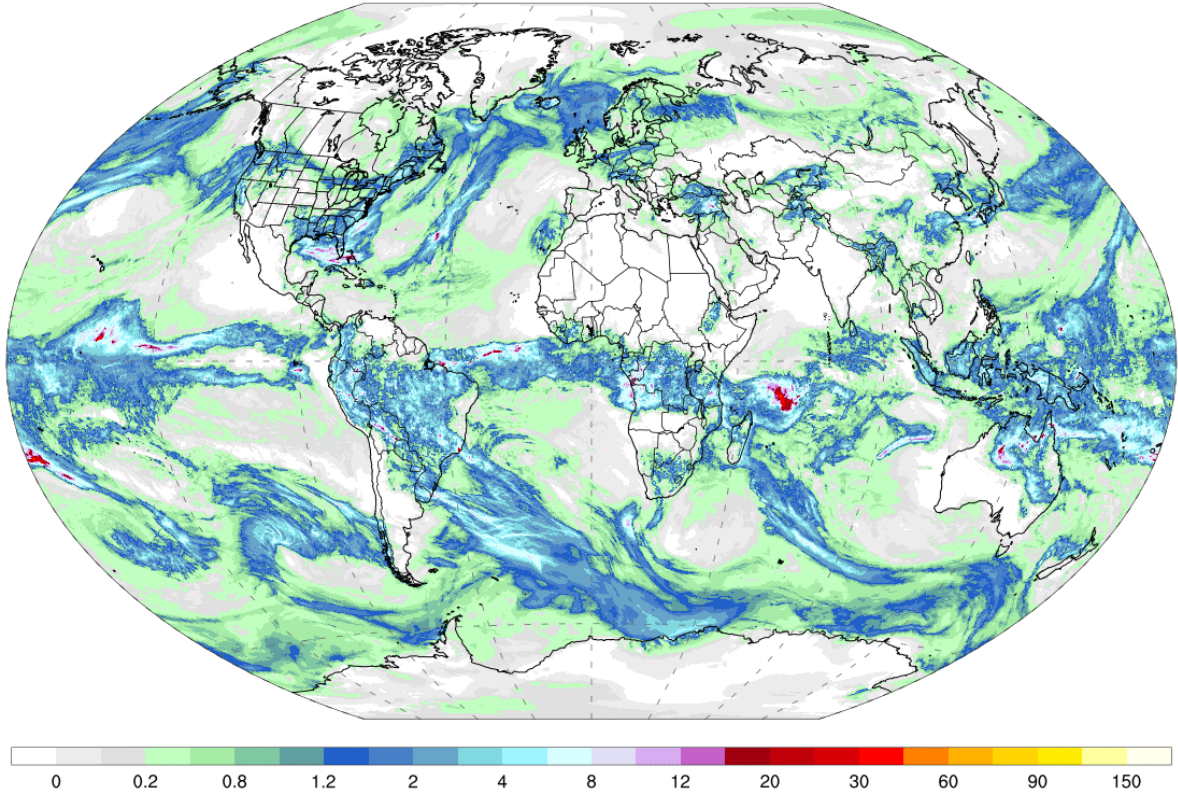
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## Global Precipitation Forecast

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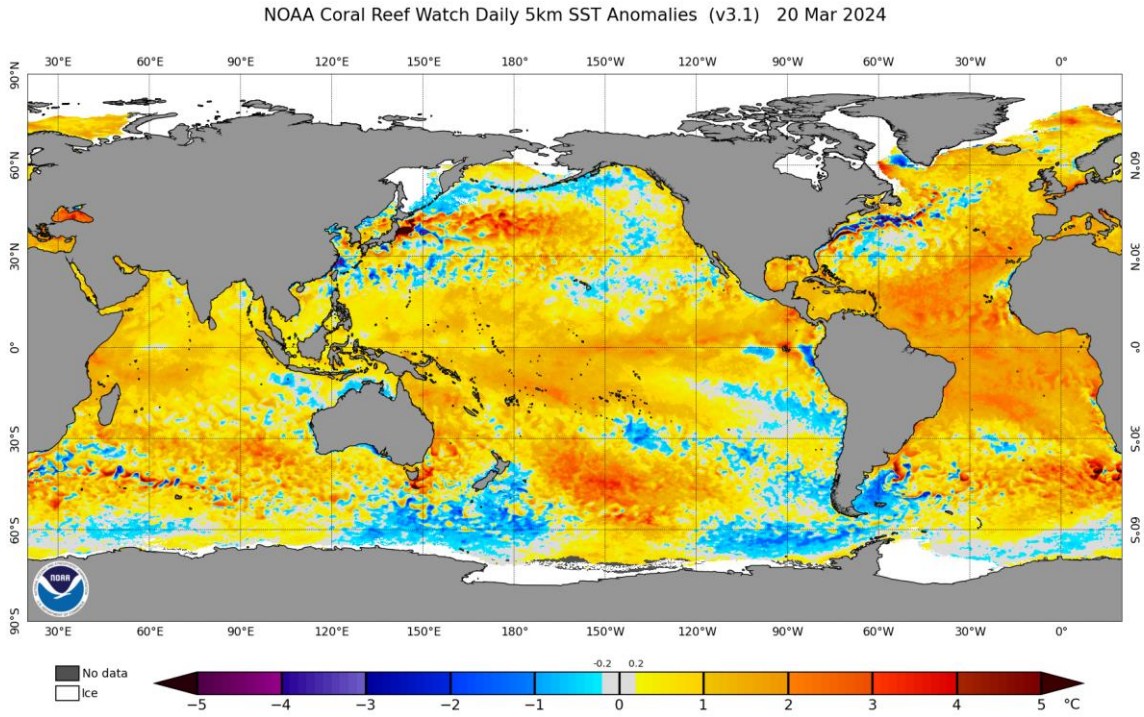
GFS Accumulated Precipitation (cm)  
Days 1-3 Total | Thu, Mar 21, 2024

ClimateReanalyzer.org  
Climate Change Institute | University of Maine

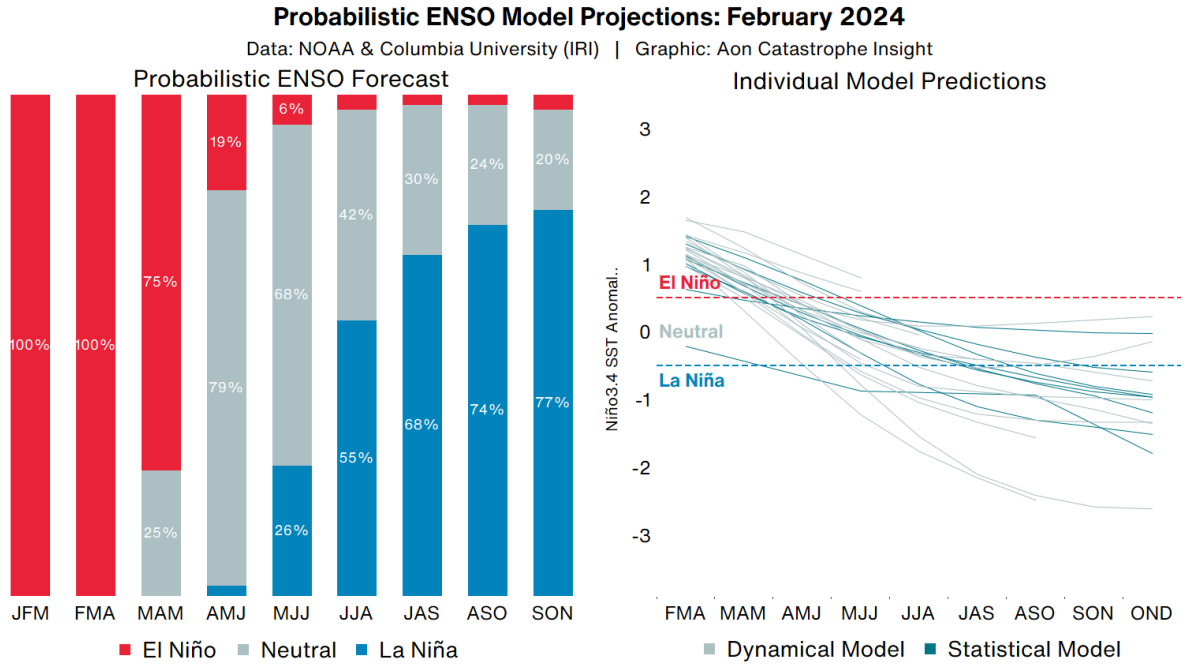


Source: Climate Reanalyzer, Climate Change Institute, University of Maine, USA

## 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.

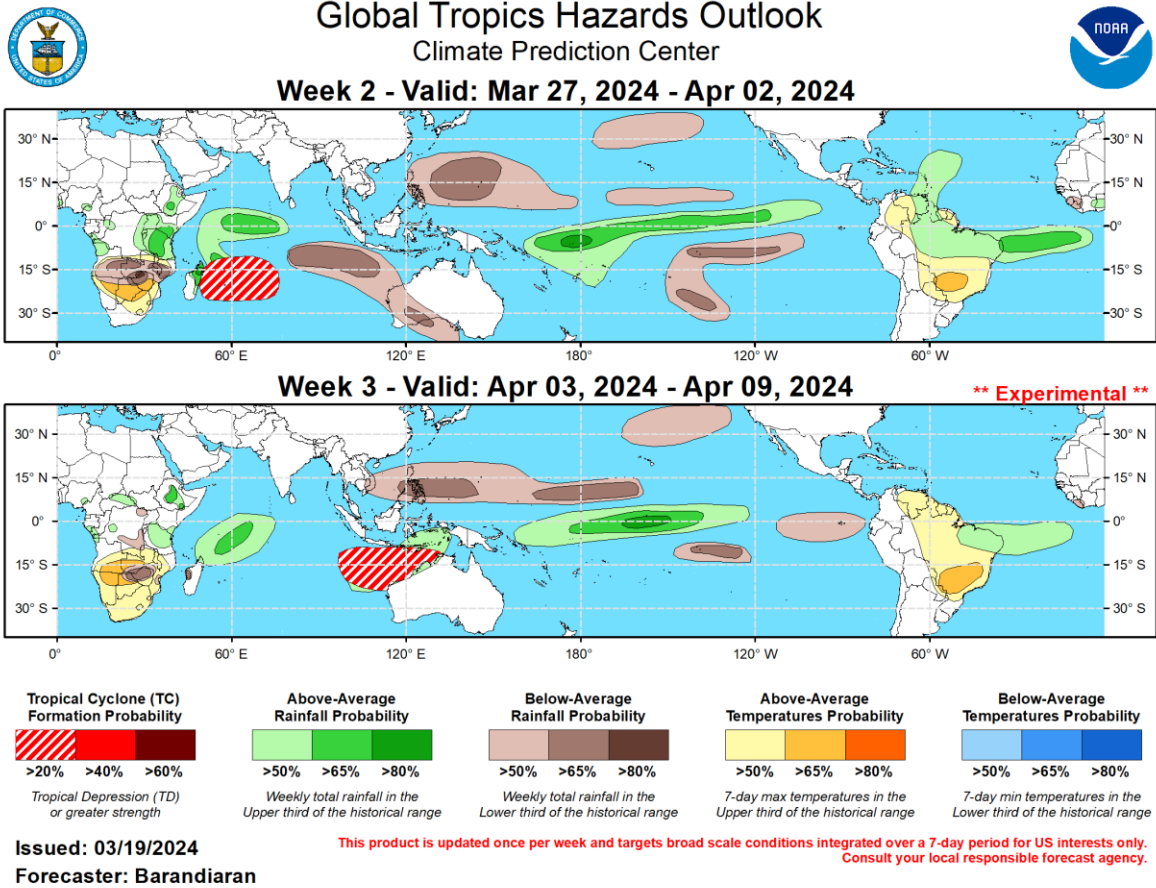
**La Niña:** Cool phase of an ENSO cycle. Sea surface temperatures of -0.5°C occur across the east-central equatorial Pacific.

**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).

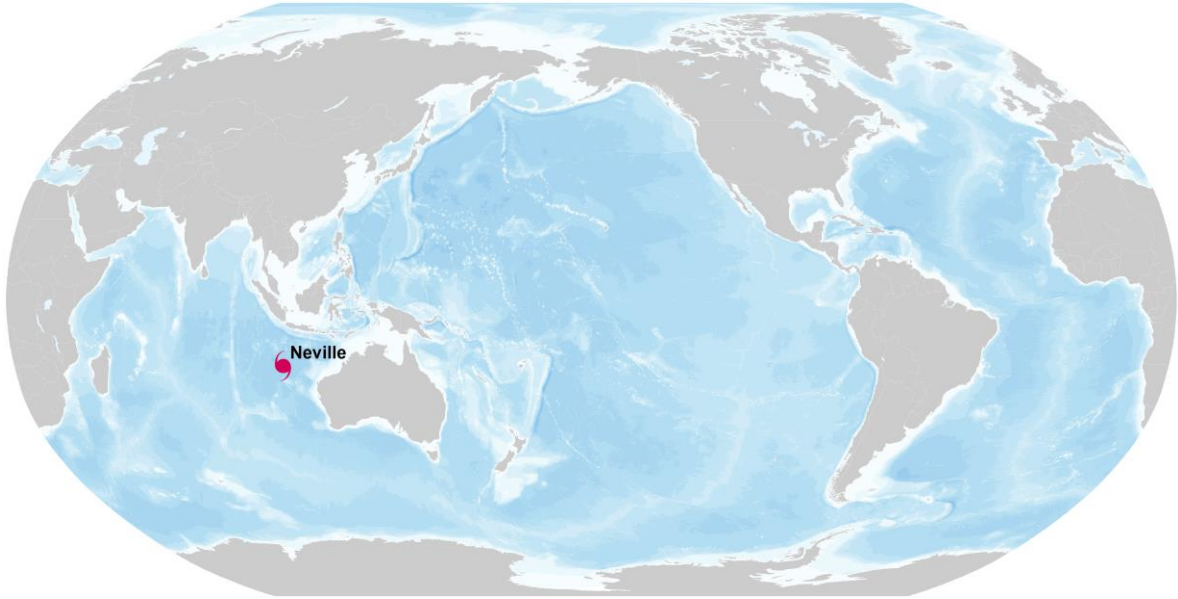
Source: NOAA, Columbia University | Graphic: Aon Catastrophe Insight

## 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

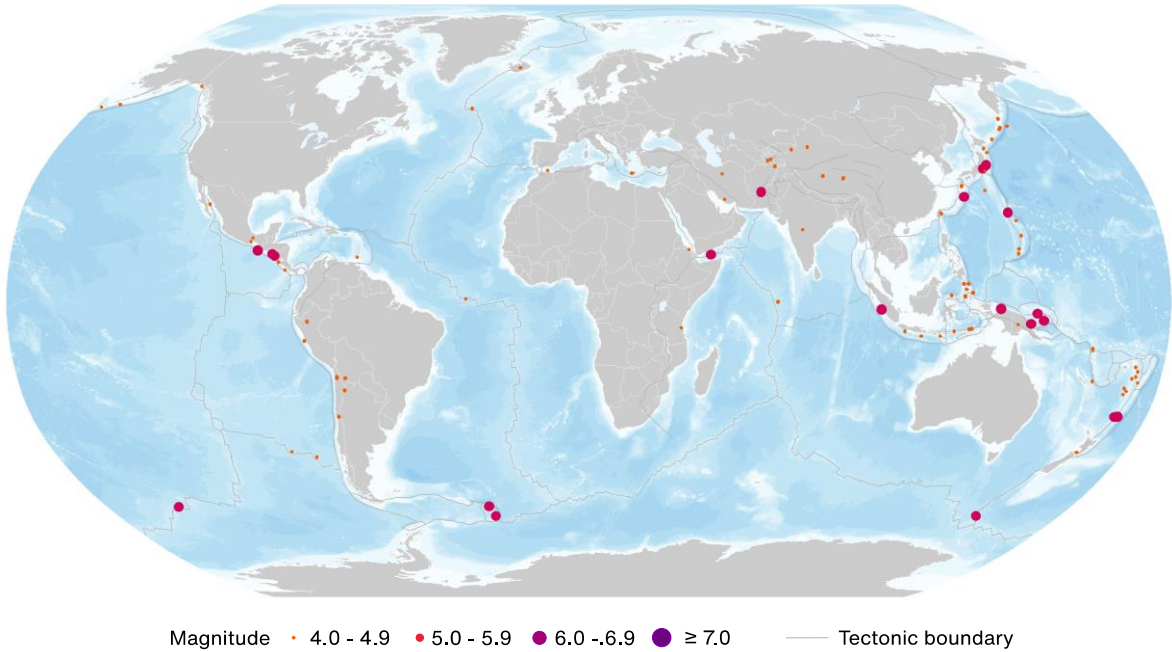
Name	Location	Winds	Center
CY Neville	17.8S, 103.8E	130	790 miles (1270 km) S from Bandung, Indonesia

\* 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)

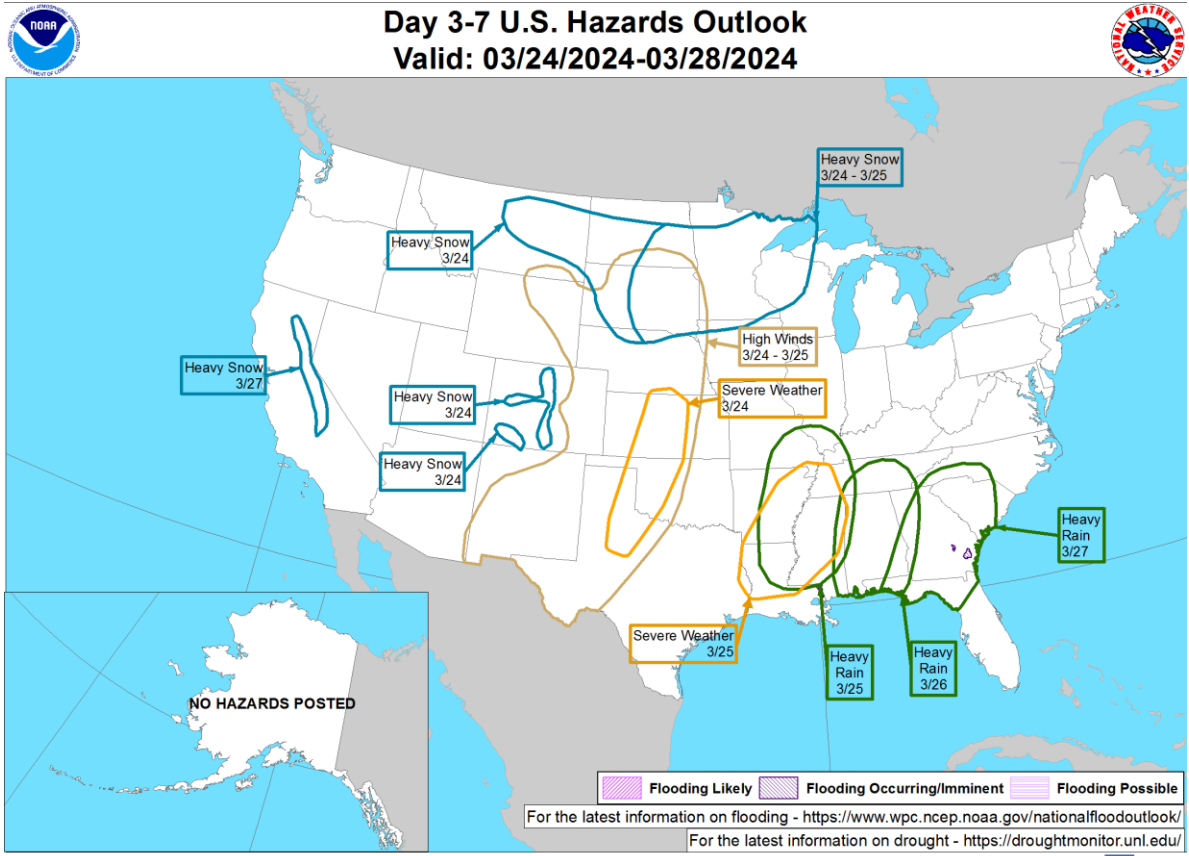
## Global Earthquake Activity ( $\geq M4.0$ ): March 15-21



Date (UTC)	Location	Magnitude	Epicenter
3/8/2024	5.82N, 126.88E	6	98 km (61 miles) SE of Pondaguitan, Philippines
3/13/2024	5.87S, 150.63E	6	65 km (40 miles) ESE of Kimbe, Papua New Guinea
3/14/2024	29.83N, 42.66W	6	Northern Mid-Atlantic Ridge

Source: United States Geological Survey

## U.S. Hazard Outlook

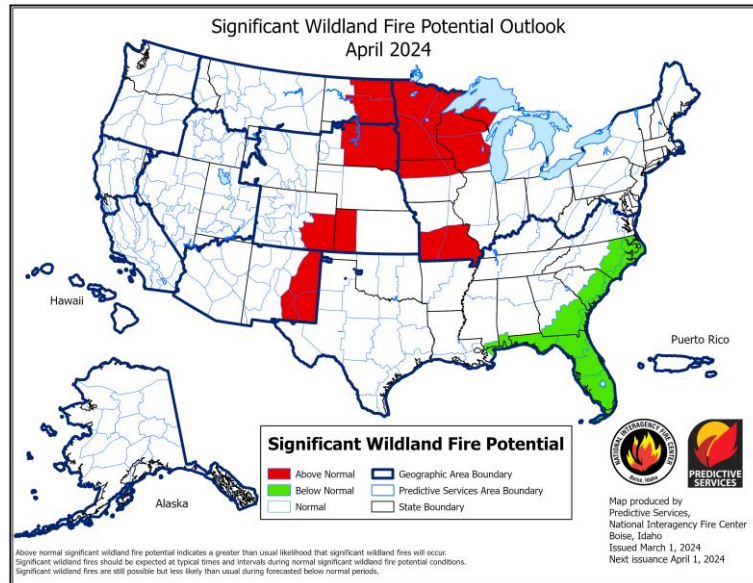
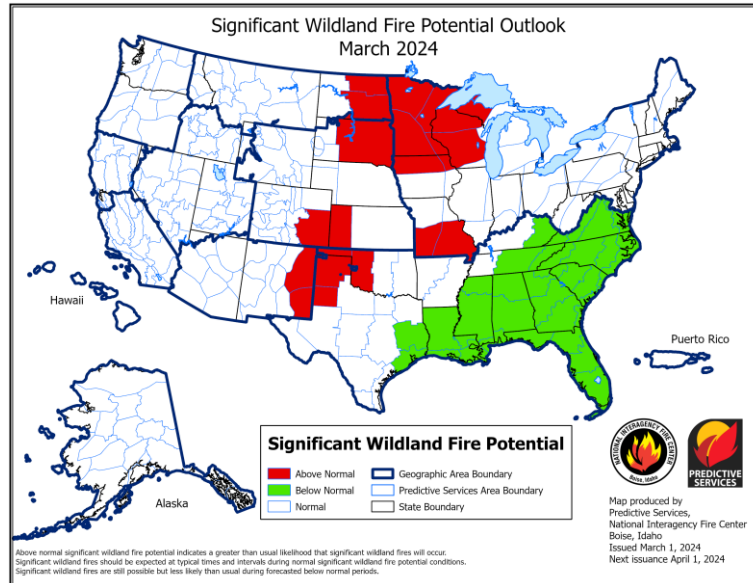


**Weather Prediction Center**  
Made: 03/21/2024 03:29 PM EDT

Follow us:   
[www.wpc.ncep.noaa.gov](http://www.wpc.ncep.noaa.gov)

Source: Climate Prediction Center (NOAA)

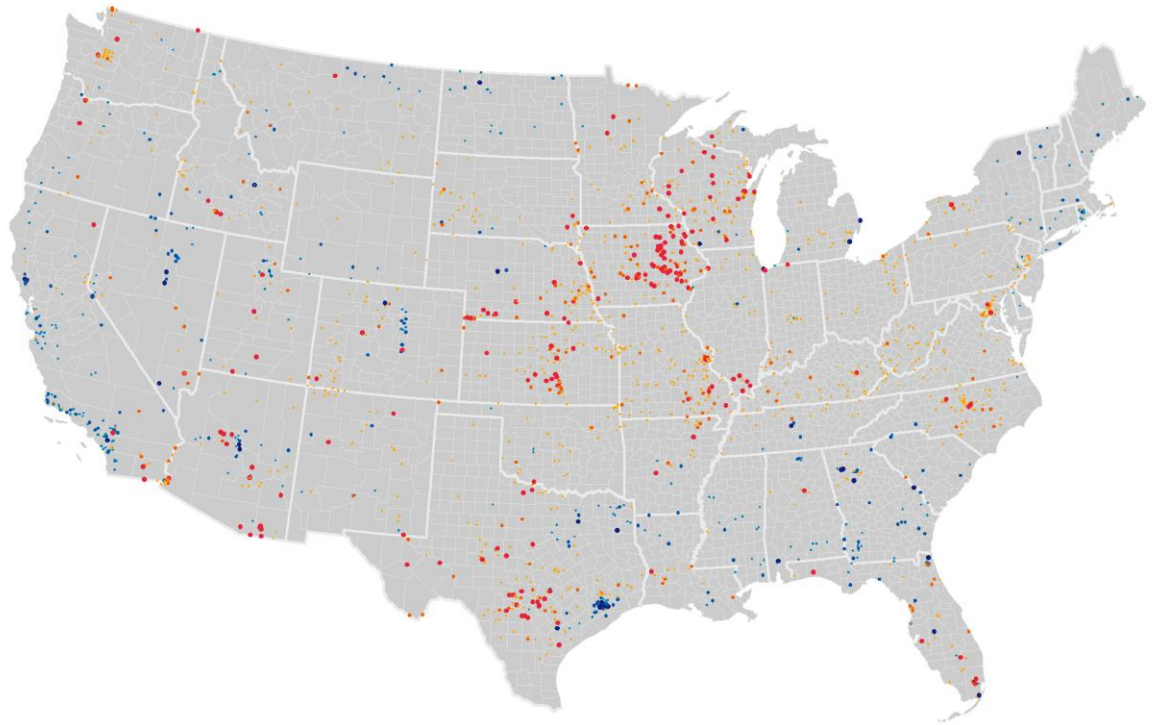
## U.S. Wildfire: Significant Fire Risk Outlook & Activity



Source: NIFC



## U.S. Current Riverine Flood Risk



- |                            |                           |                         |                    |
|----------------------------|---------------------------|-------------------------|--------------------|
| High Flows<br>(Percentile) | • ≥ 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

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## Source Information

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

NOAA Damage Assessment Toolkit (DAT)

National Weather Service (NWS)

Storm Prediction Center (SPC)

Delaware County Emergency Management Agency

Severe weather outbreak leaves 3 dead as tornadoes tear across multiple states, *Fox Weather*

Hailstorm causes major damage in St. Charles County, *Fox 2 Now*

Tornadoes in Indiana: What we know about damage in Winchester, Selma and Madison, *Indy Star*

Baseball-sized hail, strong winds cause extensive damage in Needville, *Houston Chronicle*

Ohio governor declares state of emergency for tornado-hit counties, *Dayton Daily News*

Fatalities confirmed as suspected tornado in western Ohio causes 'pure devastation,' reports say, *Cleveland.com*

### **Chile: Wildfire (Update)**

National Disaster Prevention and Response Service (SENAPRED)

CONAF

Association of Insurers of Chile

New Wildfires Threaten Chile's Pacific Coast. *The New York Times*

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

Indonesian Disaster Management Agency (BNPB)

At least two killed as torrential rain causes flash floods in Iraq. *The National News*

Icelandic Met Office

Warning floods in NT town hit by tropical cyclone Megan could be 'one-in-100-year' event, *News.com.au*

Partial evacuation at Borroloola ordered as major flood modelled for McArthur River, *ABC News*

Buenos Aires 'supercell' storm causes flight disruption, flooding, one death, *Buenos Aires Herald*

Shocking storm: it rained in CABA and there were floods and destruction due to winds of 150 km/h in PBA, *InfoBae*

## Contacts

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