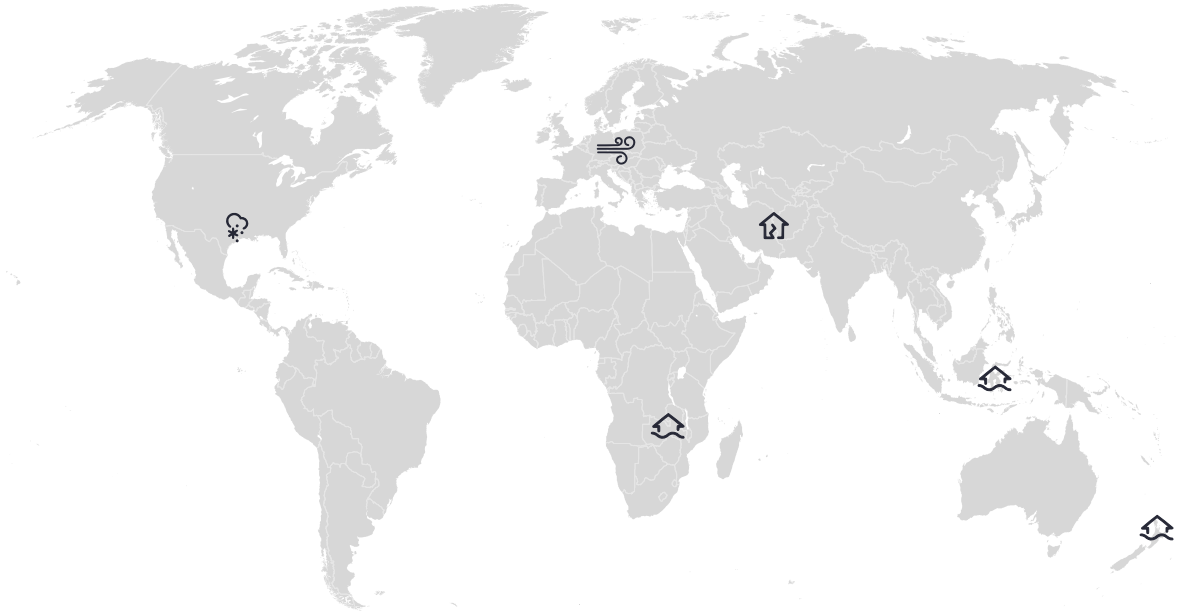


# **Weekly Cat Report**

February 3, 2023



## Executive Summary



Event	Affected Region(s)	Fatalities	Economic Loss (\$)	Page
<b>Flooding &amp; Landslides</b>	New Zealand	4	100s of millions	3
<b>Flooding</b>	Indonesia	5+	Millions	6
<b>Winter Weather</b>	United States	8+	10s of millions	6
<b>Earthquake</b>	Iran	3+	Millions	6
<b>Flooding</b>	Zambia	0	Unknown	6
<b>Windstorm Oleg</b>	Central Europe	0	Millions	6

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 January 25, we released the 2023 Weather, Climate and Catastrophe Insight Report. The document can be accessed at: <https://www.aon.com/weather-climate-catastrophe/index.aspx>

## New Zealand: Flooding & Landslides

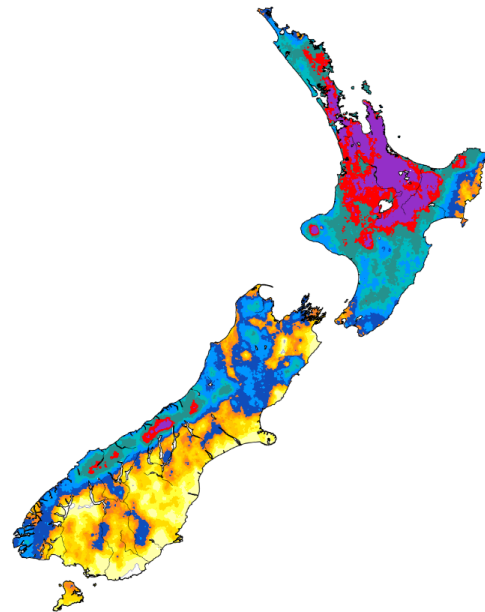
### Overview

Severe flooding and landslides triggered by extreme rainfall impacted northern New Zealand, particularly the Auckland Region, between January 27 and February 2, affecting tens of thousands of people and claiming at least four lives. Auckland flooding is going to be a significant event for insurance industry as the number of claims filed with insurers has already exceeded 30,000. The event may potentially rank as the costliest weather-related disaster on record for the country, with total economic and insured losses initially anticipated to be in hundreds of millions (NZD).

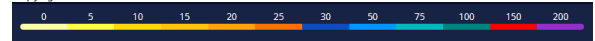
### Meteorological Recap

A combination of several meteorological factors favorable for excessive rainfall impacted the New Zealand's North Island. A record-breaking rainfall and thunderstorms were driven by the by the tropical moisture from the south, streaming in an atmospheric river between the area of low pressure located to the northwest of New Zealand, and two high-pressure areas centred to the northeast and to the west of New Zealand. Additionally, the presence of a low-level jet stream, bringing strong winds in the lower atmosphere, enhanced favourable conditions for the persistent heavy rain and localized thunderstorms.

With this amount of rain, Auckland stations received an entire summer's (December-February) worth of rain in just one day, over 769 percent of their January monthly rainfall, and over 38 percent of their entire annual rainfall, according to the National Institute of Water and Atmospheric Research (NIWA).



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**Accumulated Rainfall**

Source: MetService

During 24-hours period (measured from 9am 27th to 9am 28th), Auckland Airport recorded 249 mm (9.8 in) of rain, substantially exceeding the previous daily record of 161.8 mm (6.4 in) set in 1985.

Table below highlights selected rainfall totals between January 27-28, usually exceeding all-time records for given locations.

Period	Rainfall (mm)	Rainfall (in)	Locality
1-hour	68.6	2.7	Auckland, Māngere
3-hour	153.0	6.0	Auckland, Albany
24-hour	249.0	9.8	Auckland, Airport
36-hour	309.5	12.2	Coromandel, Castle Rock

## Event Details

Widespread flood-related material damage has occurred across the upper North Island, particularly in the western and northern suburbs of **Auckland**. On January 27, the highest red warning was issued for northern parts of New Zealand’s North Island, a state of emergency has been declared in Auckland on the same day.

As of January 31, more than 1,800 houses were reported to be damaged, with total estimates of around 5,000 building across the region that need inspection after flooding and landslides. Dozens of roads have been damaged. As the event impacted a densely populated area with a large concentration of commercial and industrial exposure, a relatively high loss to businesses was also anticipated.

Flooding caused severe traffic disruptions across the Auckland Region and the Auckland international airport has been temporarily closed due to flooding directly in the airport’s international terminal.

Electricity services to more than 26,000 customers were lost at the peak of the event.

Fire and emergency services answered over 3,000 calls related to severe weather, including more than 160 rescues. Thousands of people were forced to leave their homes. At least four people died in the floodwater in suburbs of Auckland.



**Infrastructural damage near Coromandel Town**

Source: New Zealand Transport Agency

## Financial Loss

As damage assessments are still ongoing, it is too early to estimate total losses from the event. However, the scale of damage apparent from the initial, preliminary evaluation, Auckland flooding will likely become a substantial event for insurers, and probably the costliest weather-related event for the local insurance industry on record. As of February 3, insurance companies have already received approximately 30,000 claims related to the event.

The table below lists the top 5 costliest weather-related insured loss events in New Zealand:

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Event	Peril	Number of Claims	Nominal Insured Loss (NZD million)	Inflated Insured Loss (2022 USD Million)
<b>Timaru Hailstorm (2019)</b>	SCS	19,040	171	130
<b>North Island Floods (2004)</b>	Flooding	10,622	112	118
<b>South &amp; North Island Floods (2021)</b>	Flooding	5,534	140	103
<b>Remnants of Cyclone Debbie (2017)</b>	Flooding	5,470	92	79
<b>North Island Floods (2022)</b>	Flooding	9,973	120	78

Source: ICNZ, Aon's Catastrophe Insight Database

## Natural Catastrophes: In Brief

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### **Flooding (Indonesia)**

Flash flooding and landslides triggered by heavy rain left at least five people dead and one person injured in North Sulawesi, Indonesia, on January 27. According to local authorities (BNGRC, ADINet), material damage on more than 1,100 houses and infrastructure were incurred due to flooding and landslides. City of Manado and its vicinity received more than 400 mm (15.7 in) of rain in 48-hour period, based on reports of the Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG). Additional flooding was also reported from parts of Kalimantan, Nussa Tenggara or Aceh, bringing the total of affected homes to nearly 10,000.

### **Winter Weather (United States)**

Wintry weather with freezing rain affected thousands of people in the United States between January 30 and February 1, notably in Texas, Arkansas, Oklahoma, and Tennessee. Icy roads resulted in traffic disruptions and hundreds of vehicle accidents, killing 8 people and injuring no fewer than 25. More than 4,500 flights were cancelled or delayed across the affected area. In Texas alone, authorities responded to hundreds of weather-related calls, two people lost their lives due to winter weather, and more than 360,000 customers experienced power outages.

### **Earthquake (Iran)**

A 5.9-magnitude earthquake jolted north-western Iran on January 28, killed at least three people and injured more than 1,000 others, according to the national news agency (IRNA). Earthquake-related damage was incurred in about 70 villages across West Azerbaijan Province. The earthquake had a 51 percent likelihood of economic losses in the millions (USD), based on the USGS's PAGER methodology.

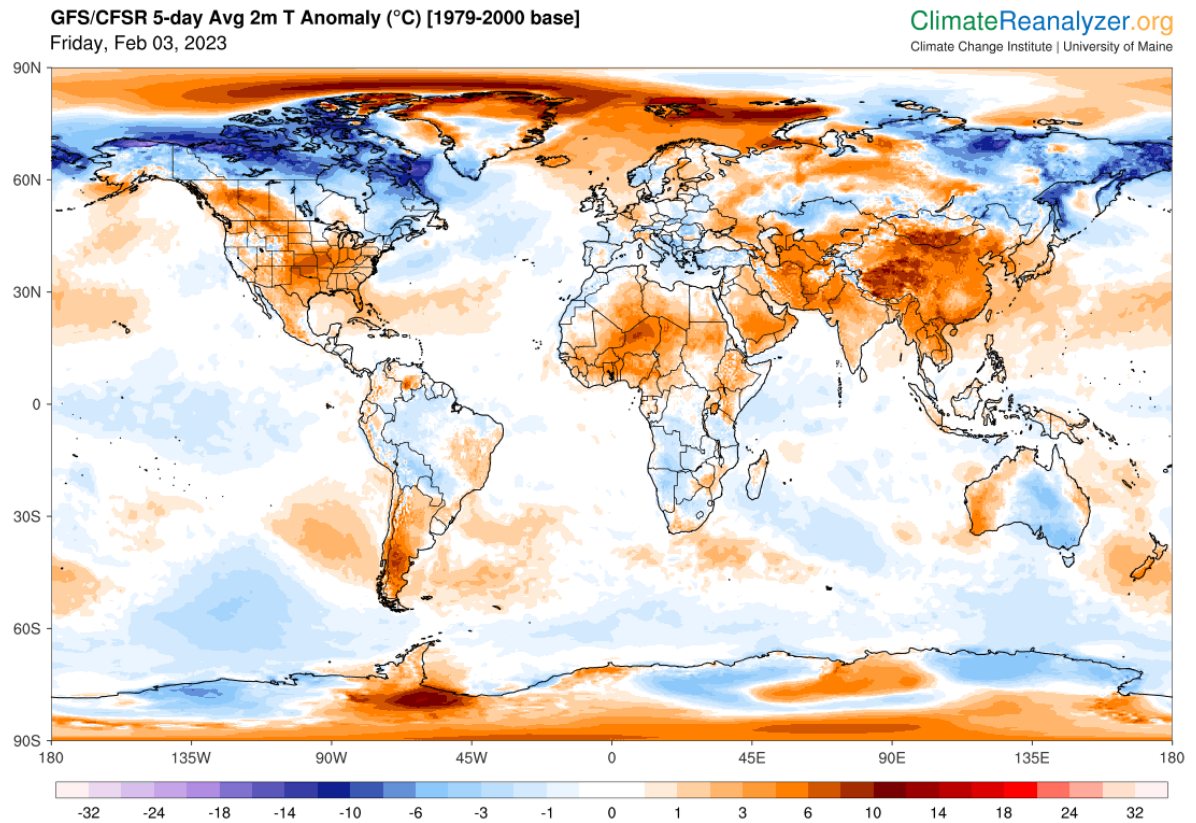
### **Flooding (Zambia)**

Abundant rainfall accompanied by widespread flooding has been affecting tens of thousands of people in Zambia since mid-January, particularly Southern, Central, Eastern and Lusaka Provinces. As of January 28, Zambian Disaster Management and Mitigation Unit (DMMU) reported at least dozens of destroyed homes, along with severe agricultural damage.

### **Windstorm Oleg (Central Europe)**

An active cyclonic pattern established over the last week in Central Europe, as a result of the interplay between a pronounced area of high pressure centered over Western Europe, and low-pressure trough over northeastern part of the continent. Strong winds were brought particularly by a low named Oleg on February 1, which brought strong winds and rare thunderstorm activity to parts of Germany, the Czech Republic and Poland. Further hazards included ice accumulation and snowfall. Total losses were expected to be in the millions EUR. Another system (named Pit) was expected to bring damaging gusts to the same region on February 3.

## Global Temperature Anomaly Forecast

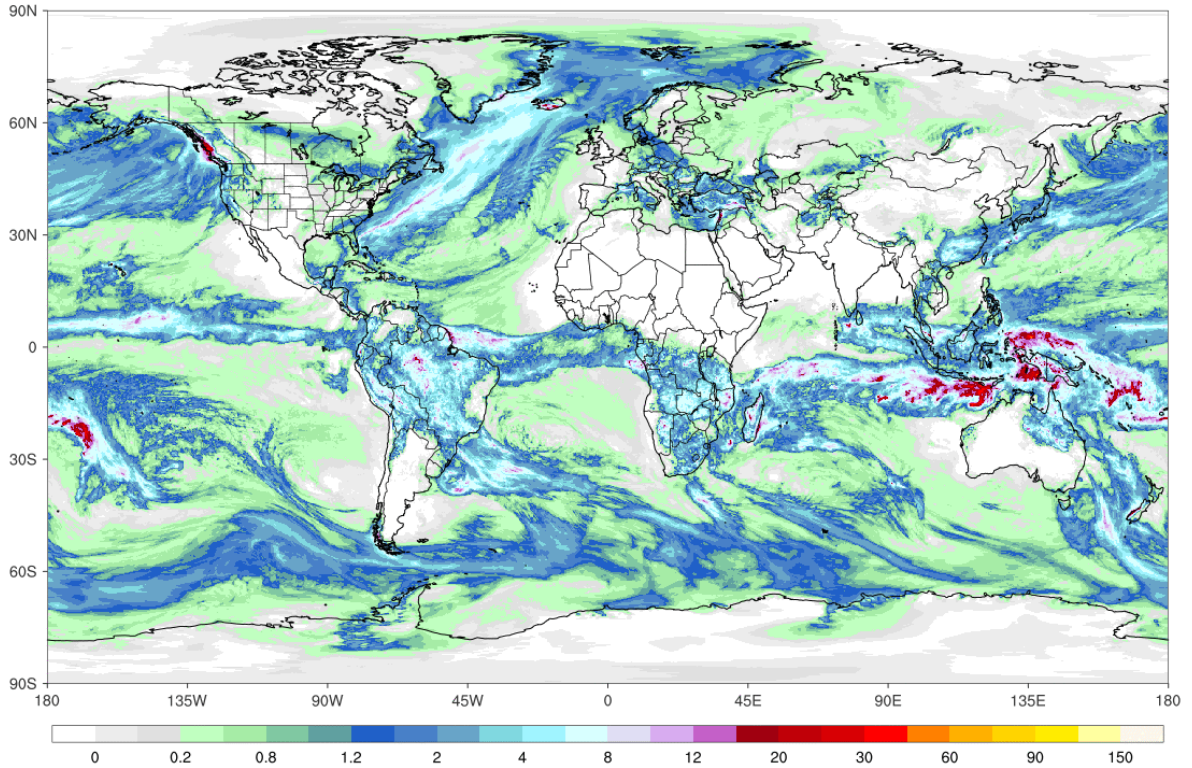


Source: Climate Reanalyzer, Climate Change Institute, University of Maine, USA

## Global Precipitation Forecast

GFS 5-day Total Accumulated Precipitation (cm)  
Friday, Feb 03, 2023

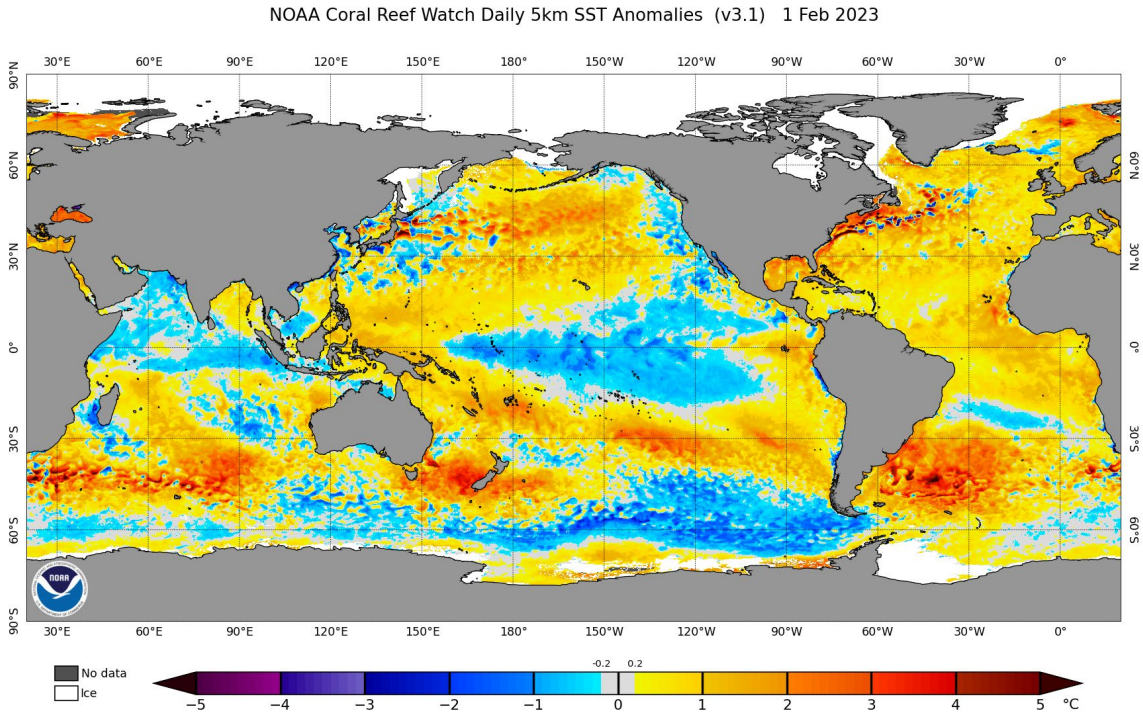
ClimateReanalyzer.org  
Climate Change Institute | University of Maine



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



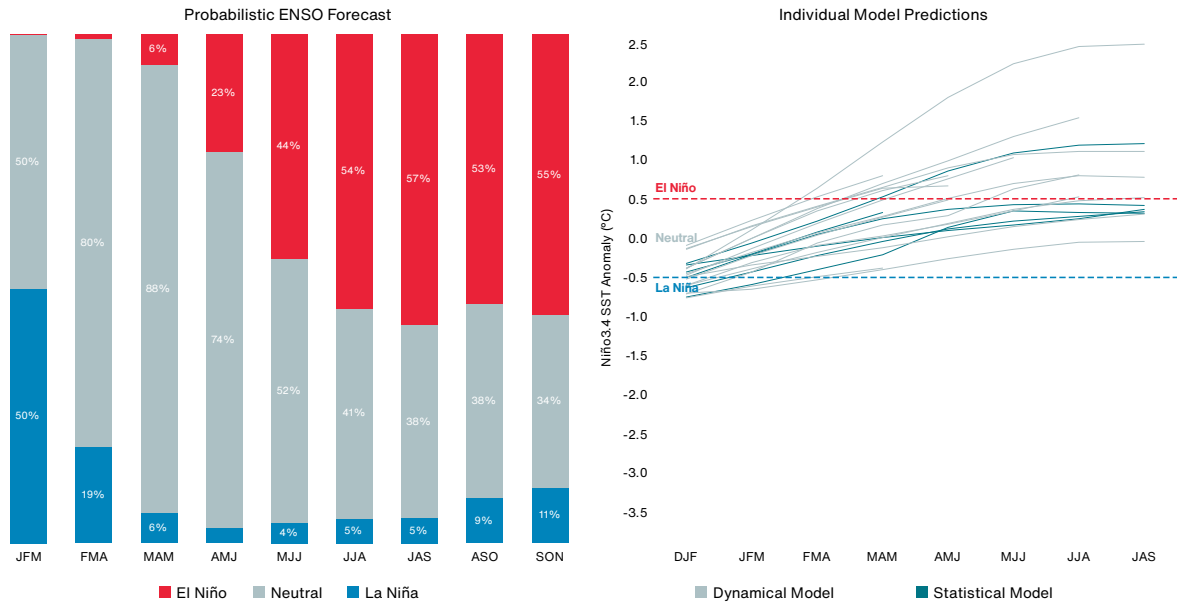
## Weekly Sea Surface Temperature (SST) Maps (°C)



# El Niño-Southern Oscillation (ENSO)

## Probabilistic ENSO Model Projections: Mid-December 2022

Data: NOAA & Columbia University (IRI) | Graphic: Aon (Catastrophe Insight)



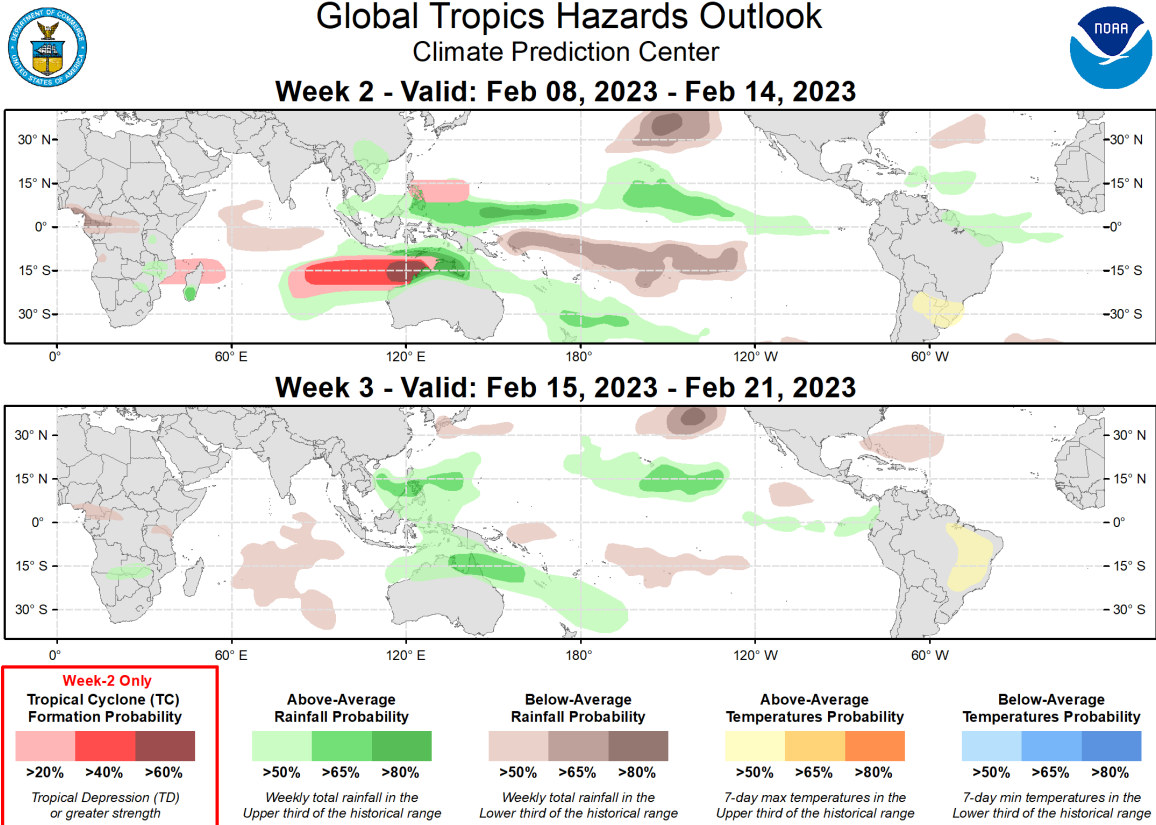
**El Niño:** Warm phase of an ENSO cycle. Sea surface temperatures of +0.5°C occur across the east-central equatorial Pacific.

**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

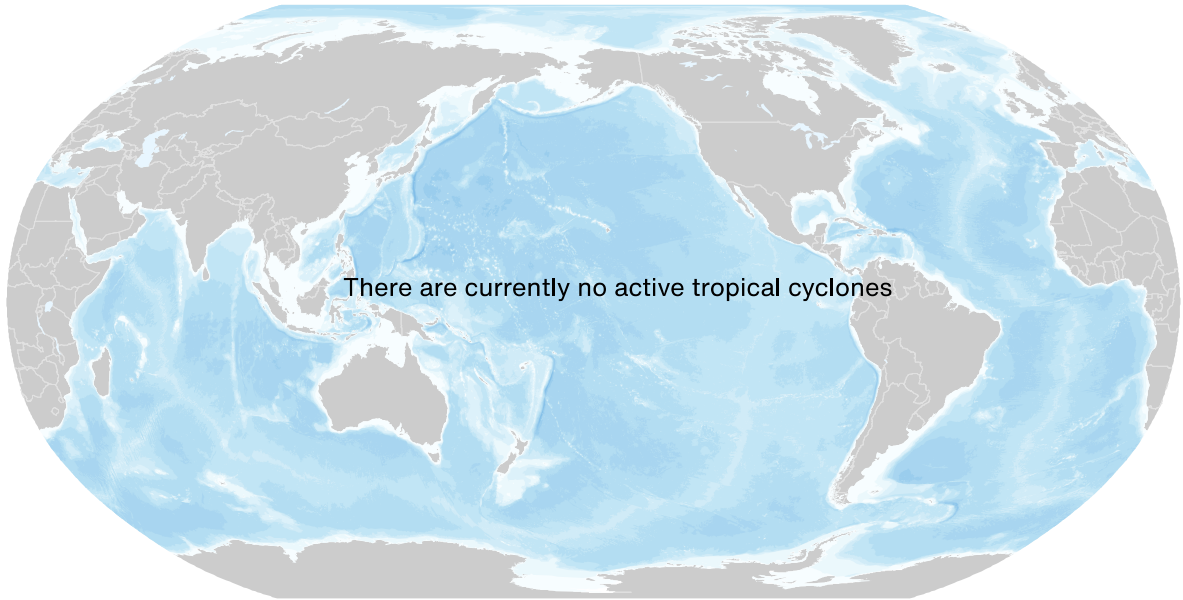


**Issued: 01/31/2023**  
**Forecaster: Pugh**

This product is updated once per week and targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.

Source: Climate Prediction Center (NOAA)

## Current Tropical Cyclone Activity



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

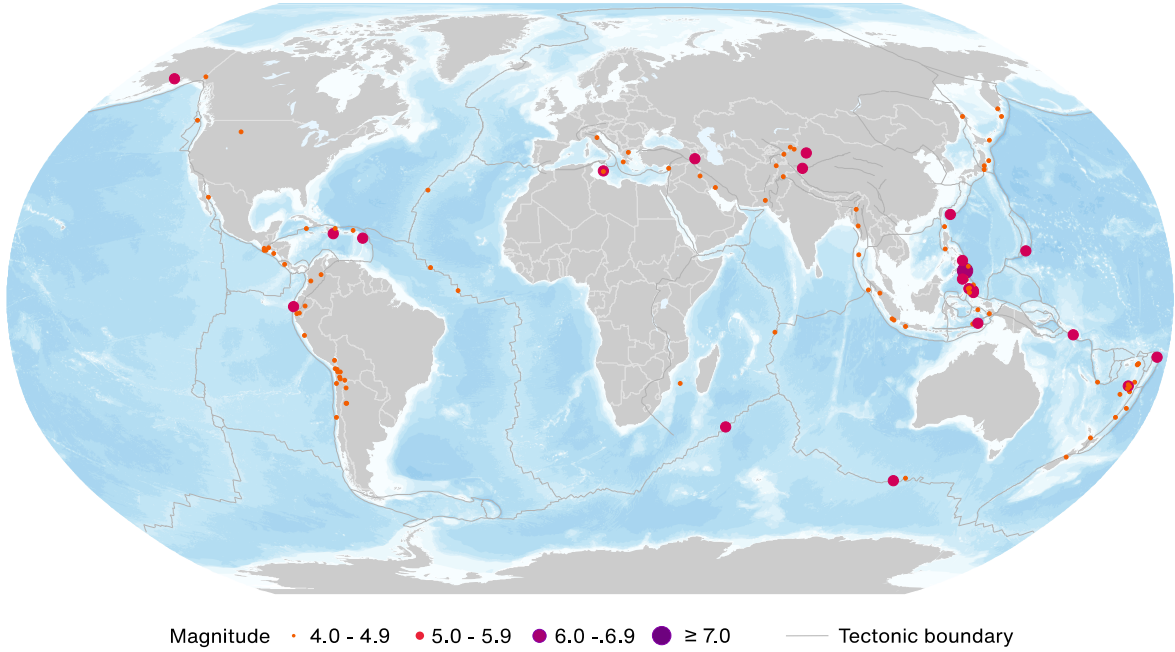
Storm Name	Location	Winds	Location from Nearest Land Area

\* 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)

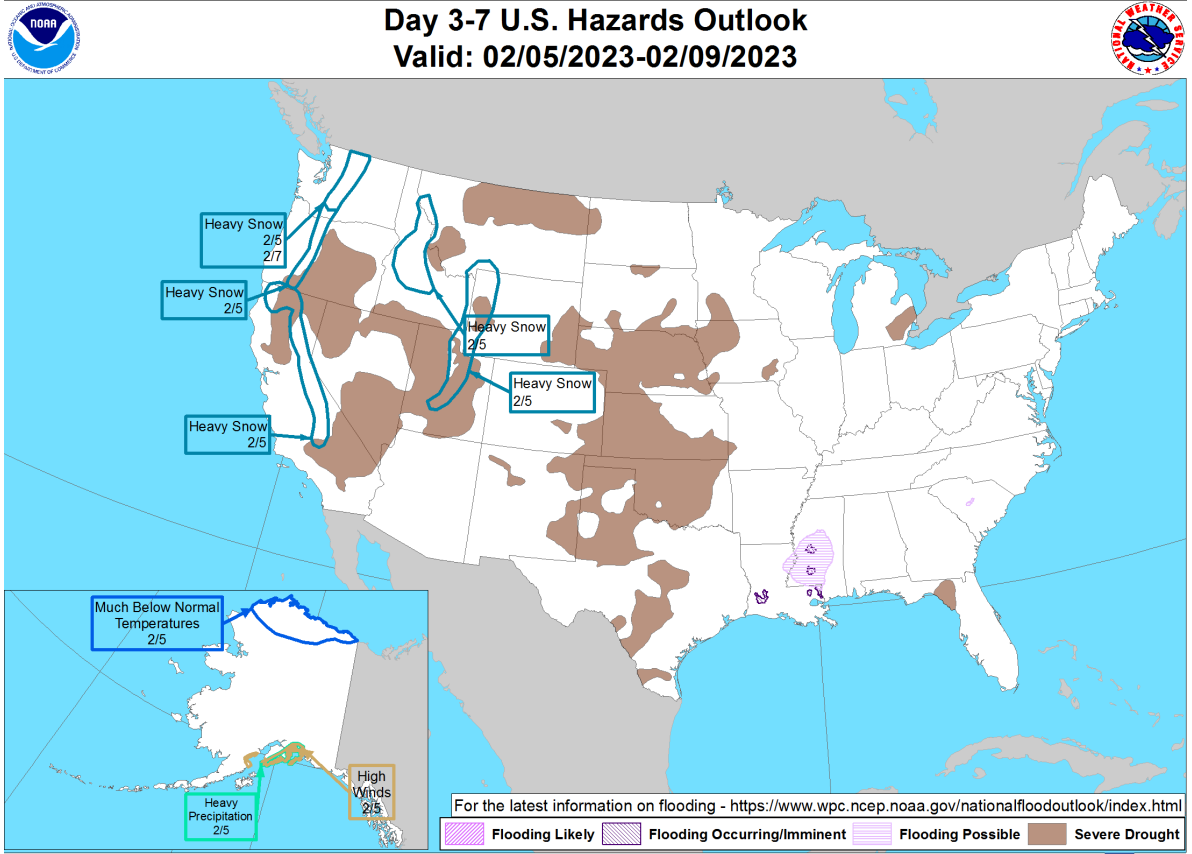
## Global Earthquake Activity ( $\geq M4.0$ ): Jan 27-Feb 2



Date (UTC)	Location	Magnitude	Epicenter
2/1/2023	7.75N, 126.06W	6.0	2 km (1 mi) NW of Babag, Philippines

Source: United States Geological Survey

## U.S. Hazard Outlook



**Weather Prediction Center**

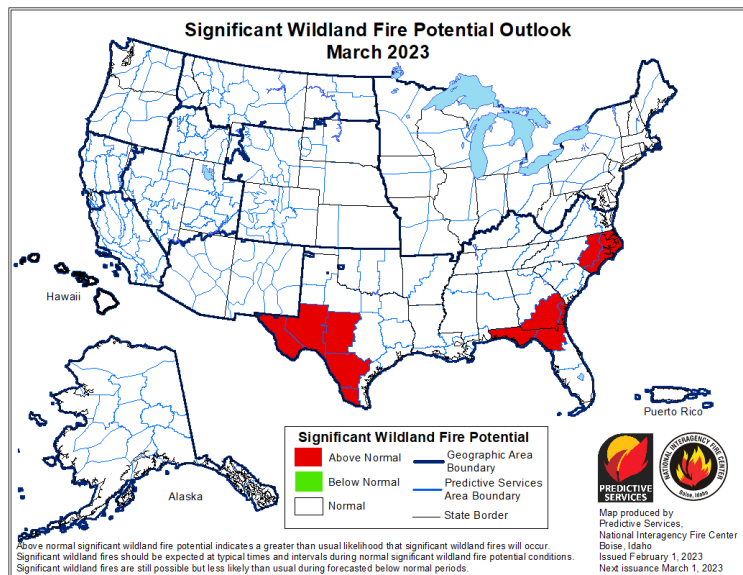
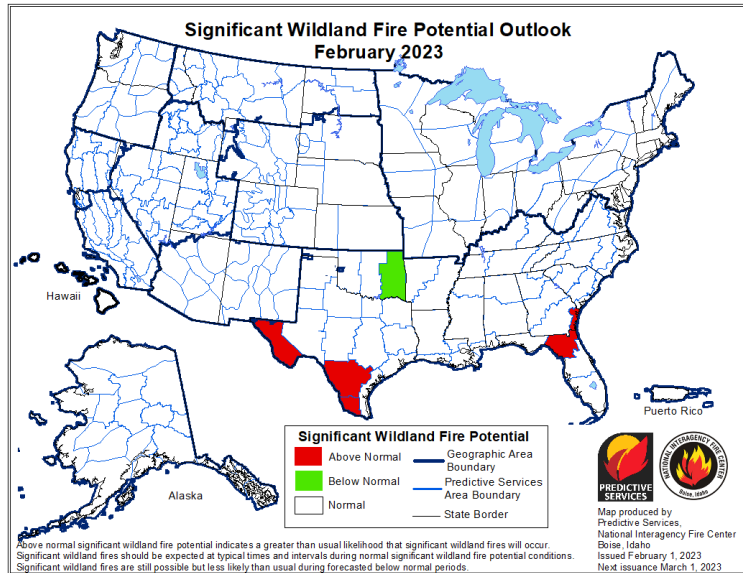
Made: 02/02/2023 3PM EST

Source: Climate Prediction Center (NOAA)

Follow us:

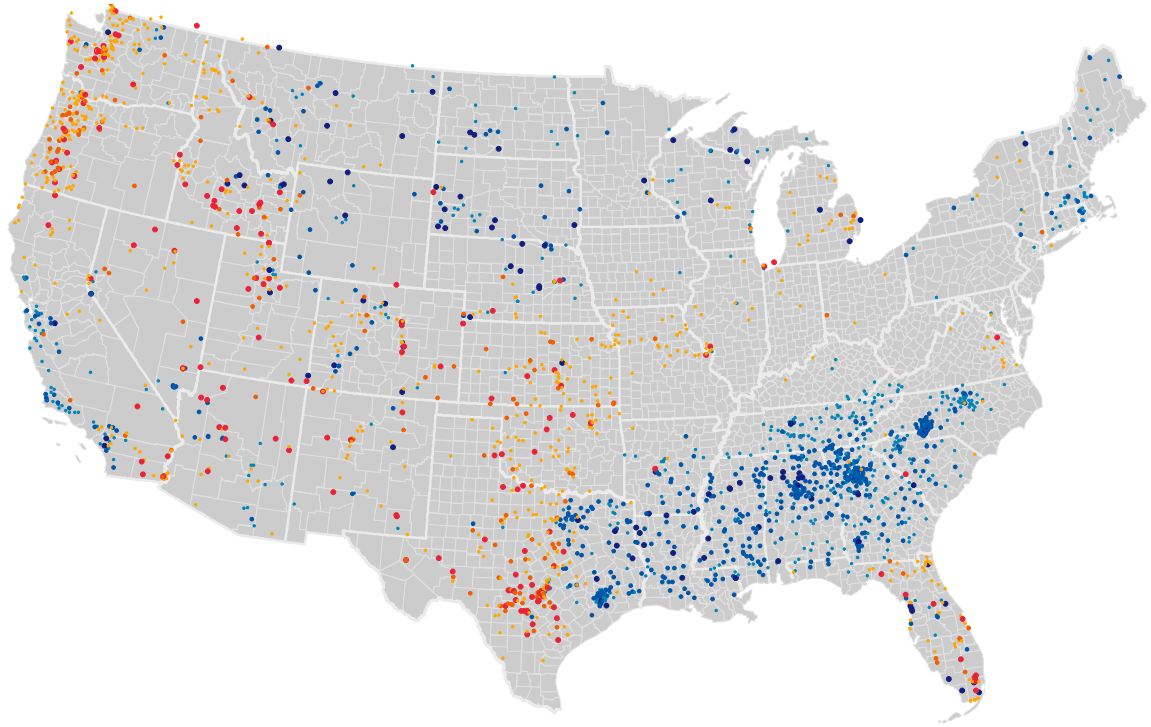
[www.wpc.ncep.noaa.gov](http://www.wpc.ncep.noaa.gov)

## 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



## Source Information

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### **New Zealand: Flooding**

National Institute of Water and Atmospheric Research (NIWA)

National Meteorological Service

Auckland Council

More Heavy Rain Forecast as Auckland Counts Costs of Floods, *FloodList*

Upper North Island Flooding, *Event Report by Aon*

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

Asean Disaster Information Network (ADINet)

Indonesian National Board for Disaster Management (BNGRC)

More rounds of freezing rain and ice expected across the South after already deadly road conditions,

*CNN*

U.S. Geological Survey (USGS)

Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG)

“Catastrophic Situation” After Floods Hit Southern and Central Provinces, *FloodList*

## Contacts

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Aon plc (NYSE:AON) is a leading global professional services firm providing a broad range of risk, retirement and health solutions. Our 50,000 colleagues in 120 countries empower results for clients by using proprietary data and analytics to deliver insights that reduce volatility and improve performance.

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