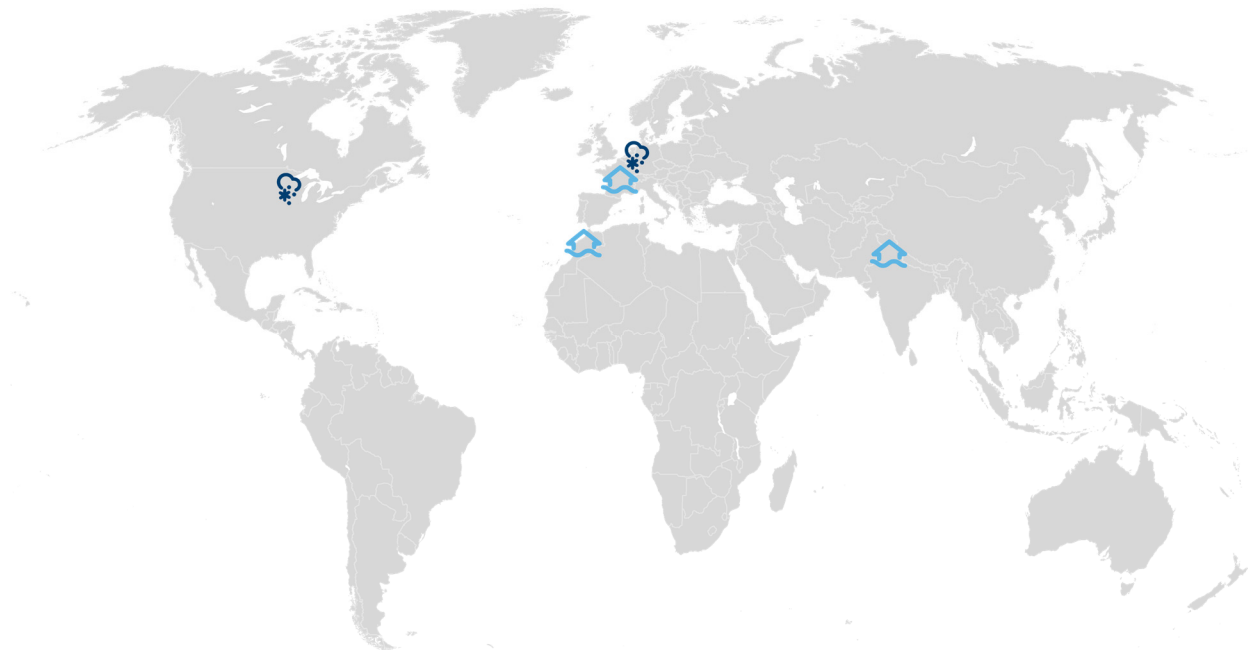













Weekly Cat Report

February 12, 2021

This Week's Natural Disaster Events



-  Drought
-  Flooding
-  Wildfire
-  Earthquake
-  Severe Weather
-  Winter Weather
-  EU Windstorm
-  Tropical Cyclone
-  Other

Event	Impacted Areas	Fatalities	Damaged Structures and/or Filed Claims	Preliminary Economic Loss (USD)*	Page
Winter Weather	United States, Canada	9+	Thousands	Millions	3
Winter Weather	Western, Central & Northern Europe	N/A	Unknown	10s of millions	6
Flooding	India	35+	Thousands	210+ million	7
Flooding	France	0	Hundreds	10s of millions	9
Flooding	Morocco	28	Hundreds	Millions	10

**Please note that these estimates are preliminary and subject to change. In some instances, initial estimates may be significantly adjusted as losses develop over time. This data is provided as an initial view of the potential financial impact from a recently completed or ongoing event based on early available assessments.*

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>

The "Weather, Climate, and Catastrophe Insight: 2020 Annual Report" has been released! To download the report, view report findings, and see a video recap, please click here: [CLICK HERE](#)

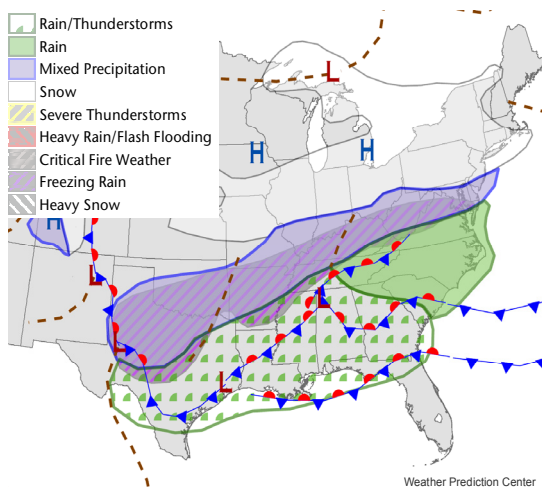
Arctic outbreaks impact U.S., Canada, Europe

A prolonged Arctic outbreak settled across portions of Canada, the United States, and Europe during the beginning of February. In the central United States, the outbreak was marked by a significant stretch of abnormally low temperatures. Along the southern periphery of the cold air, a notable ice storm affected portions of the Plains and Mid-South, including Arkansas, Kentucky, Tennessee, and Texas between February 10-11. Snowstorms and freezing temperatures caused disruption across Western, Northern, Central and Eastern Europe. particularly affected by were Germany, UK, and the Netherlands.

Meteorological Recap

A disruption of the Polar Vortex was linked to plummeting temperatures and a succession of weather disturbances across the Northern Hemisphere mid-latitudes throughout the first two weeks of February. This ultimately allowed Arctic air to rush southward from the high-latitudes, sending portions of Europe and North America into an extended deep freeze. The Polar Vortex is a large area of low-pressure and cold air surrounding the Earth's poles. The vortex is weakened when it is disrupted by energy pushed upwards from lower levels of the atmosphere. This disruption causes a southern shift or tilt of the vortex and can cause pieces to split apart. These splits or “lobes” usher unseasonably cold air southward into the mid-latitudes. This pattern also generates a more amplified jet stream, enhancing long duration spells of cold temperatures and wintry weather.

United States and Canada



Location	Min Temp (°F)	Date
Cotton, Minnesota	-46	11-Feb
Owen, Wisconsin	-45	11-Feb
Bottineau, North Dakota	-42	8-Feb
Amasa, Michigan	-42	9-Feb
Cut Bank Airport, Montana	-38	10-Feb
Lodgepole, South Dakota	-27	9-Feb
Elkader, Iowa	-27	10-Feb
Weston, Wyoming	-25	8-Feb
Atkinson, Nebraska	-23	8-Feb
Mount Carroll, Illinois	-21	7-Feb

U.S. surface weather map from February 10 (left), and table of select minimum air temperatures (°F) by U.S. state (right)
 Data: NOAA (NWS, WPC); temperature data accessed February 11

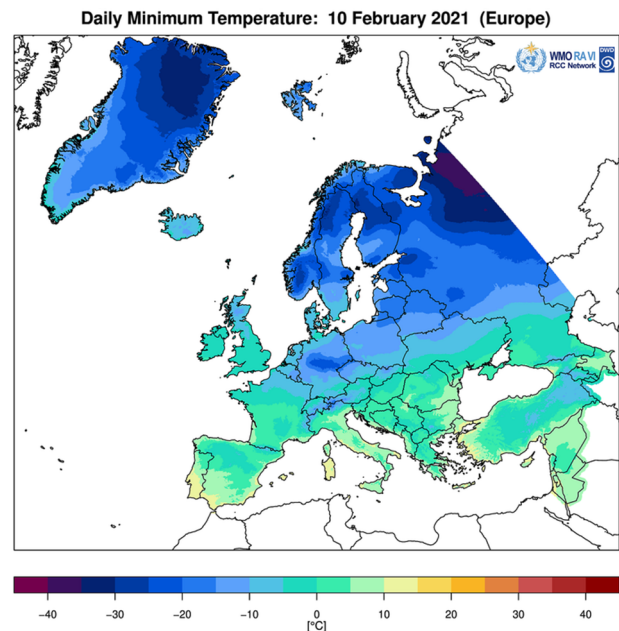
In the United States, an Arctic air mass associated with a high-pressure system anchored across the northcentral portion of the country generated a prolonged period of anomalously cold temperature and dangerous wind chills beginning the second week of February. By February 9, wind chill warnings and advisories already spanned 12 states from the Northern and Central Plains into the Midwest, while cold air continued to progress southward and eastward. Minimum temperature readings across the Northern Plains and Upper Midwest dropped below -15 to -30°F (-26 to -34°C). A temperature of -46°F (-43°C) was reported in Cotton, Minnesota (St. Louis County) on February 11. Aided by a reinforcing shot of Arctic air, the long duration cold snap is anticipated to endure through the middle of February. This will allow locations across the central U.S. to prolong an impressive streak of much below normal temperatures.

The cold air first settled across portions of western and central Canada, where a weather station in the Northwest Territories at Wekweeti reported a reading of -61.4°F (-51.9°C) on February 7, the coldest Canadian temperature since 2017. The cold air tied the all-time minimum temperature record in Uranium City, Saskatchewan with a reading of -56.0°F (-48.9°C). Fort Chipewyan, Alberta set a monthly minimum temperature record with a reading of -53.0°F (-47.2°C).

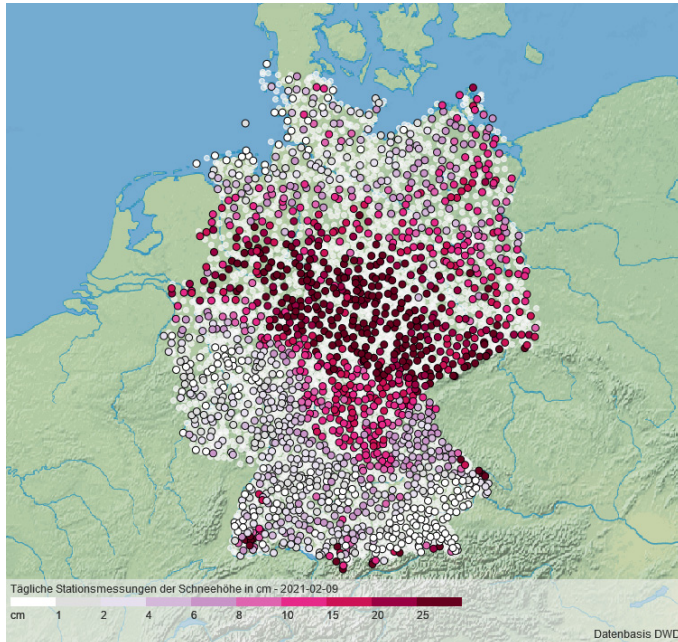
A deep dip in the jet stream across the central United States and an associated quasi-stationary frontal boundary along the southern periphery of the Arctic air, aided in multiple rounds of impactful wintry weather traversing from the Southern Plains into New England between February 8-12. Measurable ice accretions were reported across the Southern Plains, Mid-Mississippi and Ohio valleys between February 10-11. The ice storm resulted from relatively warm and moist southerly flow overrunning a surface layer of shallow dense cold air. By February 10, ice storm warnings spanned from northern Arkansas through portions of Kentucky. By February 11, ice accretions approaching and exceeding 0.25 to 0.50 inches (0.64 to 1.3 centimeters) were observed - the NWS reported 0.5 inches (1.3 centimeters) of accretion at Louisville International Airport (Kentucky).

Europe

The first half of February in Europe was characterized by a notable Arctic outbreak and heavy snowfall spells in several regions. The setup featured a strong anticyclone over Scandinavia, which allowed for an incursion of a polar continental air mass into central and western sections of the continent. In a negative North Atlantic Oscillation (NAO) phase, cyclonic systems tracked further south and brought significant snowfall - the most notable episode occurred on February 7-8 in Central Europe (particularly Germany) and the Netherlands with the depth of new snow reaching up to 25 centimeters (10 inches). Strong easterly winds drove higher moisture and heavy lake-effect snow showers from the North Sea into parts of eastern England and Scotland. Additional impacts included snow drifts and freezing rain. Wintry conditions were expected to continue in the coming days.



The influx of polar air sent temperatures plummeting across the region. In Germany, minimum readings reached as low as -26°C (-14.8°F) on February 9. France recorded a minimum of -16.3°C (2.7°F) in Buhl-Lorraine on February 11. The United Kingdom registered the coldest temperatures during the morning of February 11, as the mercury fell to -23°C (-9.4°F) in Braemar at Aberdeenshire. This marked the UK's coldest February temperature since 1955. It was also the UK's coldest night since December 30, 1995.



Snow depth in Germany (cm) on February 9
Source: DWD

Minimum temperature in Germany on Feb 9
Source: DWD

Location	Min Temp (°C)
Olbersleben	-26.0
Dachwig	-24.7
Mühlhausen	-23.4
Dippoldiswalde	-22.9
Starkenber	-22.9

Minimum temperature in France on Feb 11
Source: Météo-France

Location	Min Temp (°C)
Buhl-Lorraine	-16.3
Erckartwiller	-16.0
Dambach	-15.6
Haguenau	-14.9
Berulle	-14.8

Event Details

United States

Freezing rain and wintry weather quickly deteriorated road conditions across portions of the Mid-Mississippi, Tennessee, and Ohio Valleys beginning February 10. By the morning of February 11, no less than 70,000 customers in Kentucky lost power, and at least 45,000 in West Virginia. Multiple regional COVID-19 vaccination centers were disrupted or closed due to the adverse weather conditions in portions of Kentucky, Oklahoma, Tennessee, and Texas.

In **Kentucky**, ice accretions resulted in multiple reports of downed trees and power lines. Live power lines and traffic incidents resulted in transportation disruptions throughout the state. Louisville MetroSafe reported at least 70 motor vehicle crashes on February 10 resulting in 17 injuries, and an additional 10 crashes by the morning of February 11.

In **Texas**, spotty ice accumulations and freezing rain resulted in major traffic incidents near the Dallas-Fort Worth metroplex. Several multi-vehicle pileups were reported near Dallas (Dallas County) resulting in three fatalities. In Tarrant County, Arlington police responded to 82 crashes over a 12-hour period ending the morning of February 11. A major pile-up involving as many as 100 vehicles occurred on I-35W near Fort Worth on February 11, resulting in at least six fatalities and 65 injuries. A 26-car pileup which sent five people to the hospital occurred near Austin (Travis County).



Deadly pile-up near Fort Worth, TX
Source: Fort Worth Fire Department

Europe

In central and northern **Germany**, traffic was disrupted and train services canceled due to the large amount of snowfall. Local media reported dozens of injuries and hundreds of weather-related traffic accidents across the country. Several regions were covered with more than 20 centimeters (8 inches) of snow, while winds as strong as 80 kph (50 mph) complicated the situation.

Authorities in **Netherland** declared a “Code Red” emergency, for the first time in nine years, due to the extreme weather conditions across the country. Many parts of the country received 5 to 10 centimeters (2 to 4 inches) of snow by the afternoon of February 7, while some localities received more than 20 centimeters (11 inches). Dozens of flights were delayed or cancelled at Amsterdam’s Schiphol airport while Eindhoven airport, in the south of the country, scrapped all services. All trains were cancelled in the Netherlands, including international services to Germany. The conditions prompted the Dutch government to close all coronavirus vaccination and testing centers for several days.

Cold air emanating from Russia and Eastern Europe moved across the **United Kingdom**, bringing the risk of significant snow accumulations to parts of eastern England and Scotland. Yellow National Severe Weather Warnings for snow and ice were issued across the eastern half of the UK from February 7 through the evening on February 10. In south-east England, the icy conditions and heavy snow caused mass disruption of rail services and road closures.

Road closures, significant delays and cancelation of rail services were also reported from the **Czech Republic, Slovakia, Poland and Austria**. Most of the physical damage resulted from trees collapsed under the weight of snow, which also disrupted powerlines.

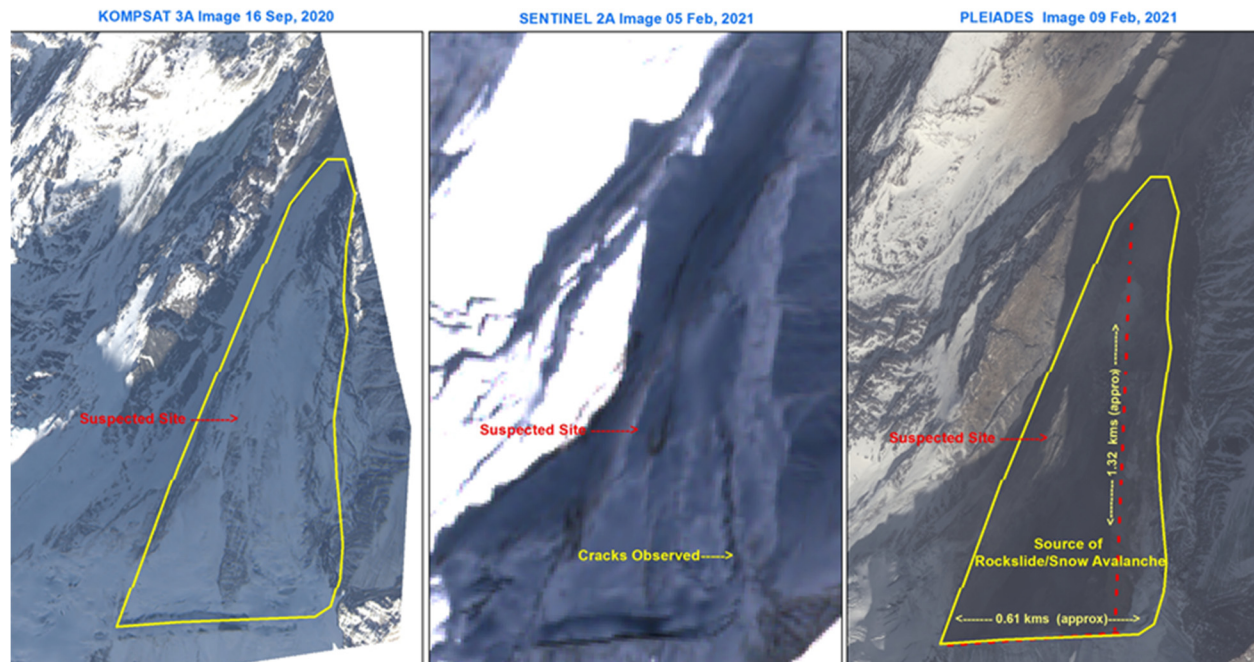
Financial Loss

In the **United States**, It will be several weeks until the scope of the cold, snow, and ice impacts are realized across the Midwest, Plains, and Mid-South. Apart from physical damage related to the Plains and Mid-South ice storm, cold weather impacts will continue in the coming week(s) across the central U.S. A reinforcing shot of Actic air will push frigid tepeatures well into the Southern Plains, potentially incurring additional interuption and agriculural losses.

Glacial lake collapse triggers flash flood in India

A Glacial Lake Outburst Flood (GLOF) event in India's state of Uttarakhand resulted in major flash flooding on February 7-8, causing notable damage and casualties. At least 35 people were confirmed dead and as many as 200 others remained missing as the search and rescue operation continued as of this writing. Thousands of structures along with four hydroelectric power plants were damaged to various degrees. A multi-year rebuilding process was anticipated. The preliminary economic damage was tentatively listed at INR15 billion (USD206 million) and expected to further rise.

Meteorological Recap



Suspected area of rockslide/ avalanche based on analysis of Pleiades Satellite image of 09-Feb-2021

Source: National Remote Sensing Center, Indian Space Research Organization, India

On February 7, a Glacial Lake Outburst Flood (GLOF) event occurred due to a glacial lake in the vicinity of Nanda Devi landscape which busted its banks, prompting discharge of a large amount of water downstream and resulting in massive flash flooding, avalanches, and landslides. Snow and Avalanche Study Establishment (SASE) suspected that a huge glacier mass broke and fell into the nearby lake, causing it to break its banks; however, they continued to ascertain the exact reason behind this outburst. This stream of an extremely large volume of water smashed into multiple small- and medium-scale dams and grew heavier after collecting debris along with the flow. Later, this stream joined the Dhauliganga River in the Chamoli district of Uttarakhand and resulted in a massive wave of water, rocks, and debris, causing widespread destruction in its wake.

The Indian Himalayas are well known for large glaciers surrounded by snow-capped mountains. The freshwater lakes in these frozen areas, commonly known as 'glacial lakes', often form in the region vacated by advancing or retreating glaciers. Numerous academic studies have cited that these Himalayan glaciers have been melting due to continued warming of Earth's surface temperature and changing climate, subsequently increasing the volume of water in glacial lakes which trigger GLOF activities.



Damage caused by the GLOF activity on February 7

Source: National Remote Sensing Center, India

Event Details

A deluge containing debris, boulders, ice, and snow pummeled downstream from a Himalayan glacier into the Chamoli district in Uttarakhand on February 7, causing widespread destruction. The flash flooding resulted in destruction of the Rishiganga hydropower plant in the Raini village, and an under-construction dam on the Dhauliganga river in the Tapovan area. At least three additional hydropower plants along with thousands of other structures, including residential houses, businesses, and roads were either damaged or destroyed during the event, per local media reports. Tributaries of the River Ganga – Dhauliganga and Alaknanda rivers – also broke their banks causing notable damage to several houses, businesses, roads, and bridges in the affected areas.

Residents located in downstream flood advisories were asked to vacate their houses on an emergency basis. More than fifteen villages in remote locations of Uttarakhand's Chamoli district were rendered inaccessible due to broken roads and bridges. As many as 35 people were confirmed dead while more than 200 others remain missing as the search and rescue operations continue as of this writing. Several teams of the national disaster relief force and members of the military carried out multi-day search operations for missing people; however, the operations were severely hampered by the presence of rugged terrain and damaged roads.

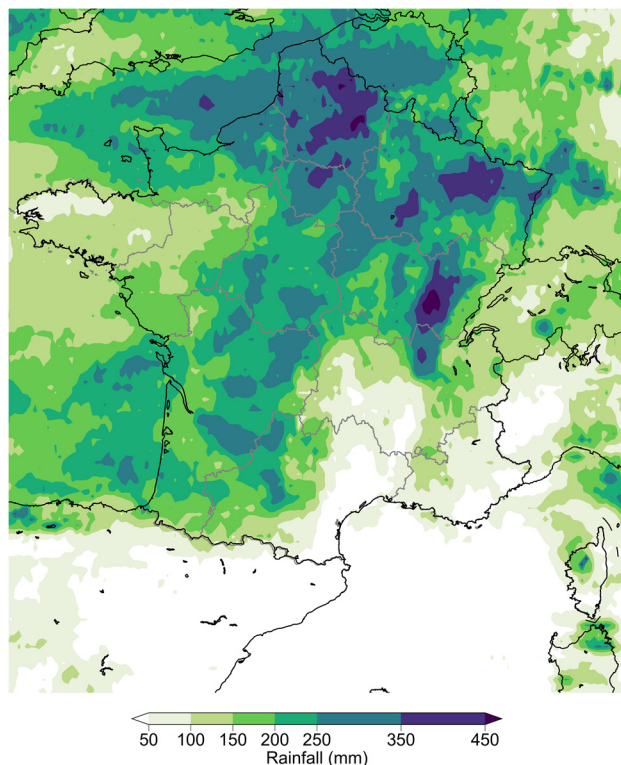
Financial Loss

The damage assessment remained in early stages at the time of this writing. A preliminary report from the Uttarakhand government cited that the damage to the Tapovan-Vishnugad hydropower project was to approach INR15 billion (USD206 million). Given the extensive damage elsewhere, including damage to the private and public infrastructure and other direct impacts, the combined losses were anticipated to be even higher.

Update: Floods in France

The flooding situation in southwestern and northern France continued into the second week of February as multiple rivers registered notable crests. Hundreds of people were evacuated from their homes and as floodwaters recede, authorities start to assess damage. Initial estimates from insurers did not suggest a significant industry event on a national scale, yet preliminary assessment of total economic loss was in the tens of millions EUR.

Event Details



Satellite precipitation estimate for January 20 – February 8
Source: GPM, NASA

The flood situation from the first week in February continued in south-western France, as a result of overflowing rivers in Lot-et-Garonne and Charente-Maritime Departments. A period of heavy rainfall in France since late January has caused rivers to rise and prompted authorities to issue flood warnings. On February 4, a red level warning, the highest warning on the agency's four-degree scale, was in place along the Garonne river in Lot-et-Garonne department. The Garonne river reached a height of 10.20 meters (33.46 feet) overnight from February 4 into February 5, a level not seen for 40 years and just short of the record 11.39 meters (37.37 feet) set in June 1875.

Meanwhile, Charete river at Pont-Pallissy, reached 6.18 meters (20.28 feet) on February 8, which is its third-highest level on record - the river reached 6.84 meters (22.44 feet) during the floods of December 1982. As of February 9, orange alerts have been issued for various rivers in the country. The Seine River in Paris stood at 4.52 meters (14.83 feet) as of February 8 and is predicted to remain well above 4 meters (13 feet) in upcoming days.

Several hundred people across south-western France were evacuated from their homes and dozens of communes were affected. Emergency services carried out more than 500 interventions to deal with endangered property, fallen trees, and rescue operations. Notable damage occurred on infrastructure, as departmental roads in Lot-et-Garonne and Charente alone required repairs worth approximately EUR13 million (USD16 million).

Financial Loss

Initial estimates from insurers at the beginning of February did not suggest a significant market event as a result of the flooding in the southwest and major entities expected claims in the low thousands. However, due to the prolonged nature of the event, a final economic and insured toll will be determined in the coming weeks.

Natural Catastrophes: In Brief

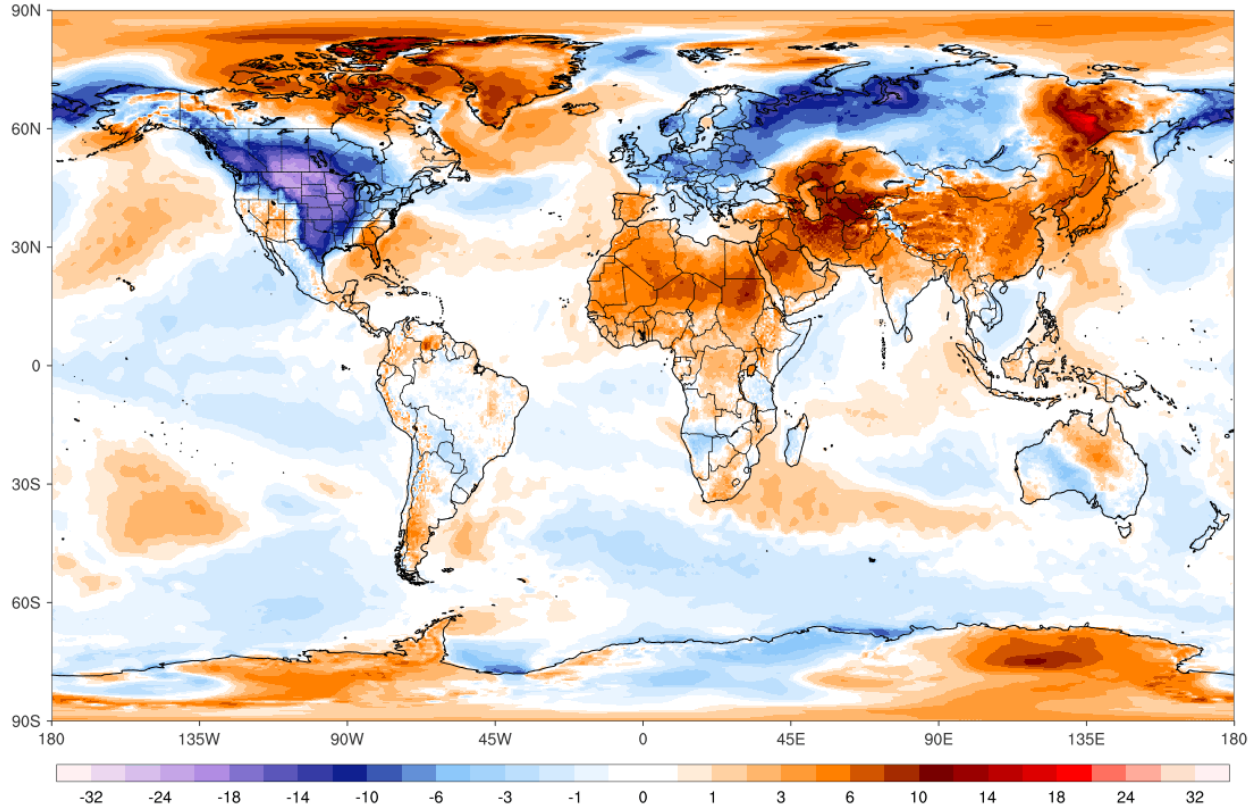
Flooding (Morocco)

After a long period of drought, Morocco has experienced heavy rains in recent weeks. The General Directorate of Meteorology (DMN) reported the highest rainfall accumulations for February 6-7 in Tangier at 28 millimeters (1.1 inches) and Larache with 20 millimeters (0.7 inches). Poorly maintained drainage systems could have exacerbated the flooding in Tangier on February 8, where a minimum of 28 people died in what was described as a basement of an illegal textile factory. Local media reported inundated homes and vehicles across the city. The total economic impact was yet to be determined. As of February 9, an orange (3rd out of 4 degrees) level alert was in place for further heavy rain and strong winds in northern areas of the country.

Global Temperature Anomaly Forecast

GFS/CFSR 5-day Avg 2m T Anomaly (°C) [1979-2000 base]
Thursday, Feb 11, 2021

ClimateReanalyzer.org
Climate Change Institute | University of Maine

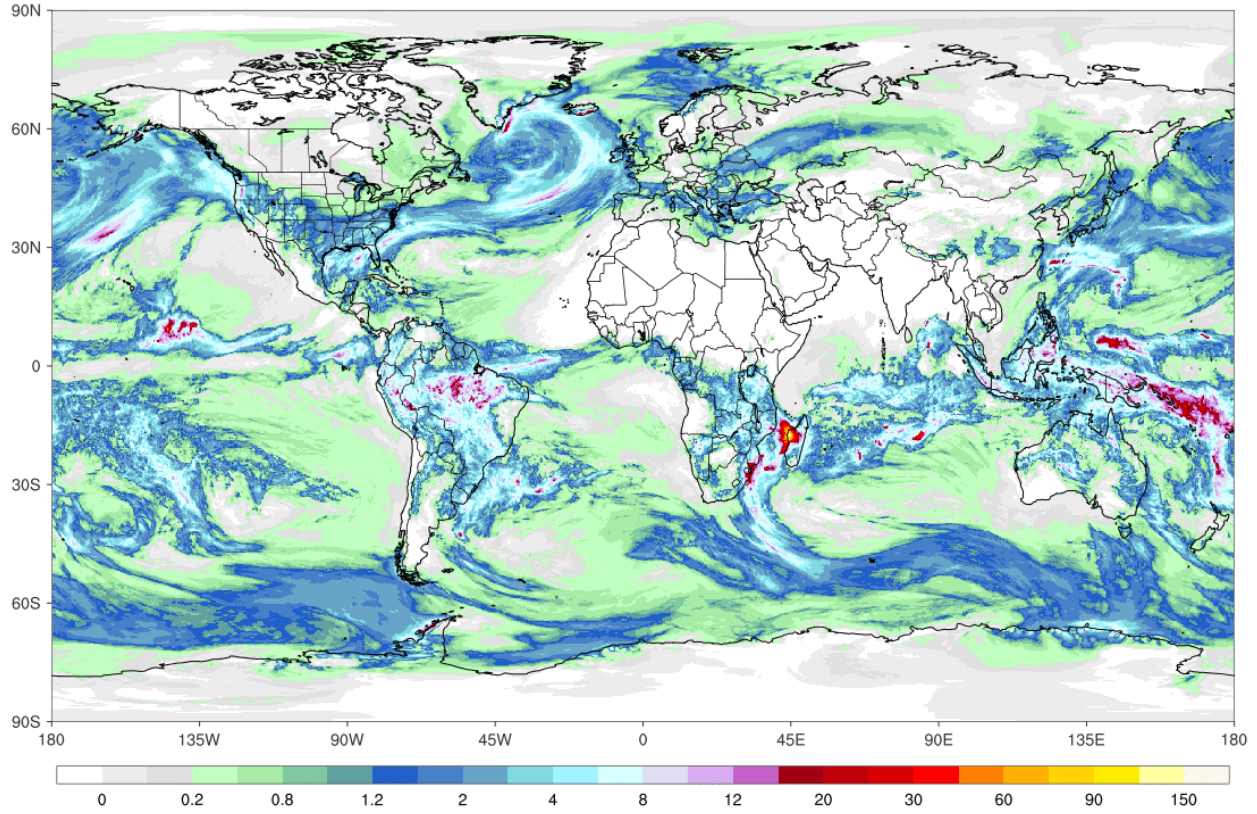


Source: Climate Reanalyzer, Climate Change Institute, University of Maine, USA

Global Precipitation Forecast

GFS 5-day Total Accumulated Precipitation (cm)
Thursday, Feb 11, 2021

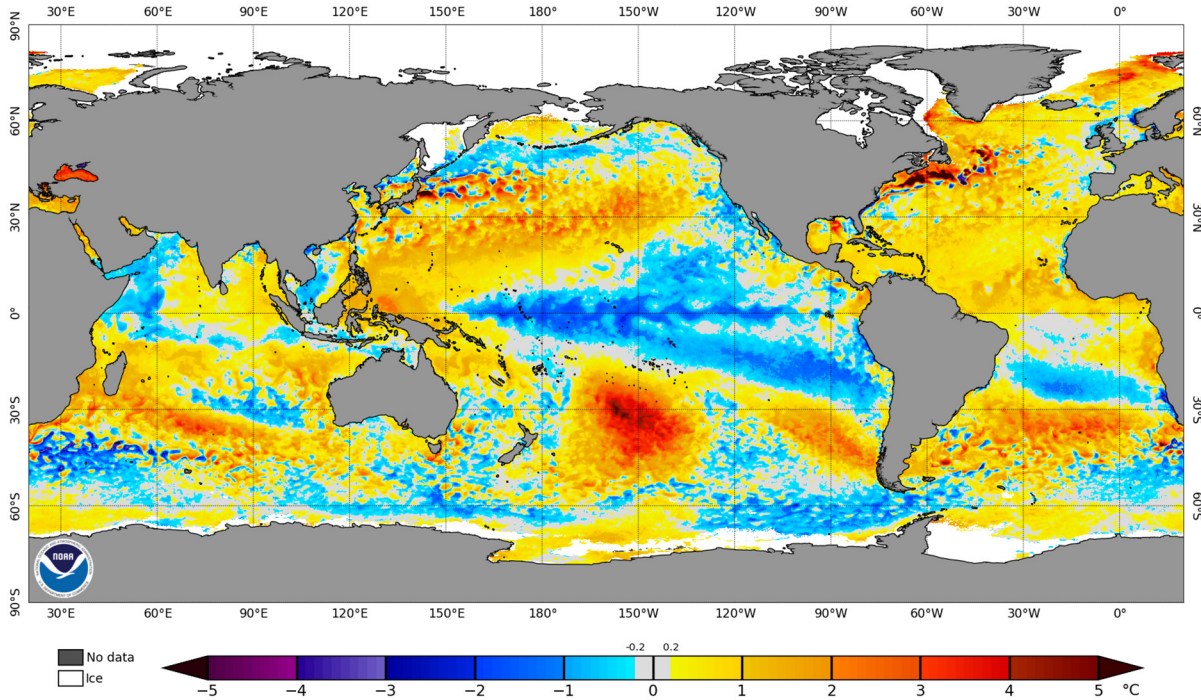
ClimateReanalyzer.org
Climate Change Institute | University of Maine



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

Weekly Sea Surface Temperature (SST) Anomalies (°C)

NOAA Coral Reef Watch Daily 5km SST Anomalies (v3.1) 10 Feb 2021



The SST anomalies are produced by subtracting the long-term mean SST (for that location in that time of year) from the current value. This product with a spatial resolution of 0.5 degree (50 kilometers) is based on NOAA/NESDIS operational daily global 5 kilometer Geo-polar Blended Night-only SST Analysis. The analysis uses satellite data produced by AVHRR radiometer.

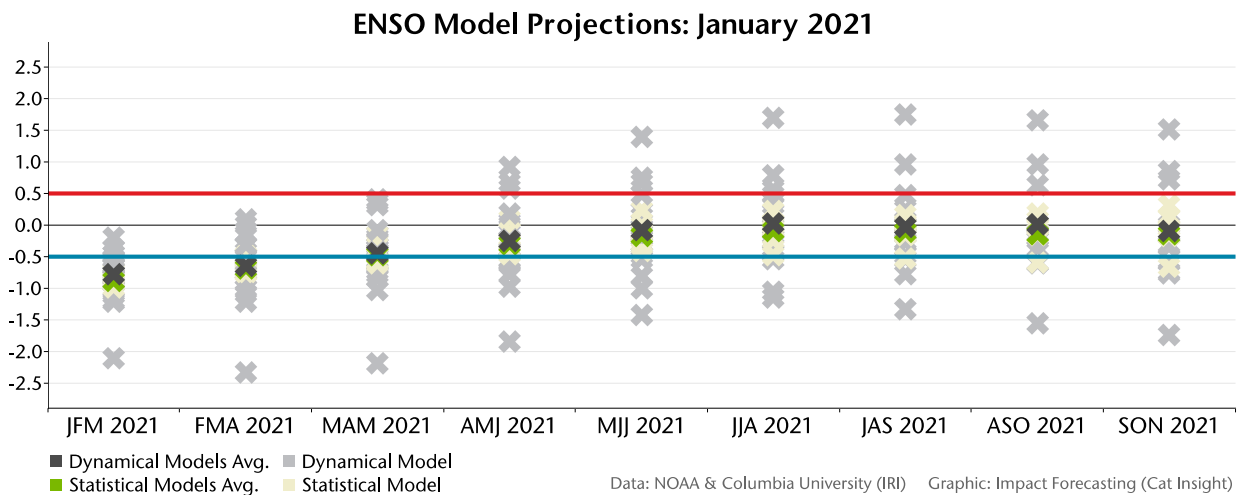
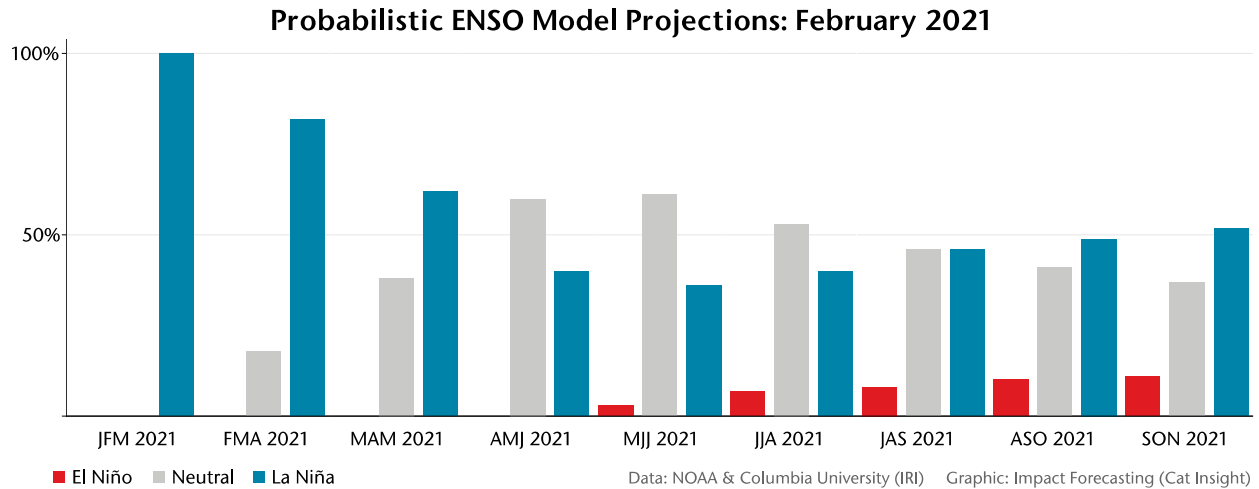
Select Current Global SSTs and Anomalies

	Location of Buoy	Temp (°C)	Departure from Last Year (°C)
	Eastern Pacific Ocean (1,020 miles SW of San Salvador, El Salvador)	25.0	-0.4
	Niño3.4 region (2°N latitude, 155°W longitude)	25.0	-0.6
	Western Pacific Ocean (700 miles NNW of Honiara, Solomon Islands)	29.5	-0.4

Sources: ESRL, NOAA, NEIS, National Data Buoy Center

El Niño-Southern Oscillation (ENSO)

La Niña conditions are currently present, though NOAA has officially issued a **La Niña Advisory**. NOAA notes a 95 percent chance that La Niña conditions will persist through boreal (Northern Hemisphere) winter, and a 60 percent chance of a transition to ENSO-neutral conditions by the spring months.



El Niño refers to the above-average sea-surface temperatures (+0.5°C) that periodically develop across the east-central equatorial Pacific. It represents the warm phase of the ENSO cycle.

La Niña refers to the periodic cooling of sea-surface temperatures (-0.5°C) across the east-central equatorial Pacific. It represents the cold phase of the ENSO cycle.

El Niño and La Niña episodes typically last nine to 12 months, but some prolonged events may last for years. While their frequency can be quite irregular, El Niño and La Niña events occur on average every two to seven years. Typically, El Niño occurs more frequently than La Niña.

ENSO-neutral refers to those periods when neither El Niño nor La Niña conditions are present. These periods often coincide with the transition between El Niño and La Niña events. During ENSO-neutral periods the ocean temperatures, tropical rainfall patterns, and atmospheric winds over the equatorial Pacific Ocean are near the long-term average.

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).

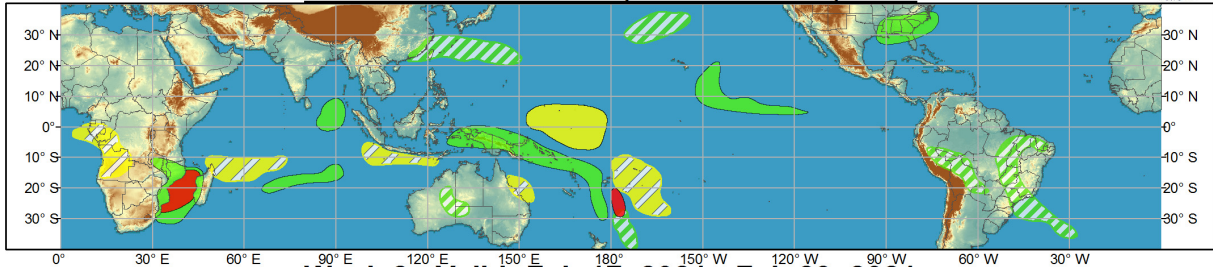
Global Tropics Outlook



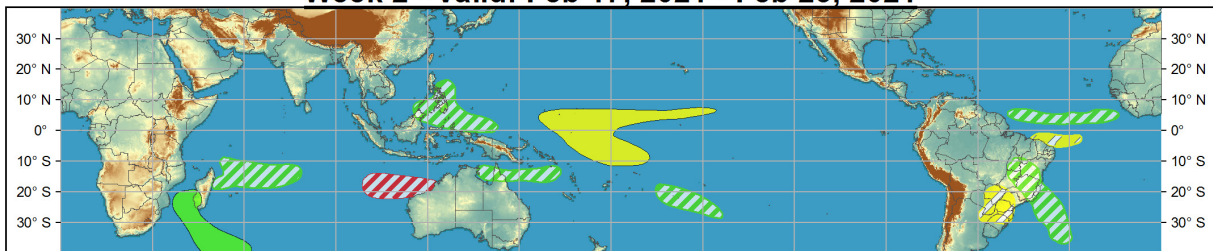
Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



Week 1 - Valid: Feb 10, 2021 - Feb 16, 2021



Week 2 - Valid: Feb 17, 2021 - Feb 23, 2021



Confidence
High Moderate

- Tropical Cyclone Formation** Development of a tropical cyclone (tropical depression - TD, or greater strength).
- Above-average rainfall** Weekly total rainfall in the upper third of the historical range.
- Below-average rainfall** Weekly total rainfall in the lower third of the historical range.
- Above-normal temperatures** 7-day mean temperatures in the upper third of the historical range.
- Below-normal temperatures** 7-day mean temperatures in the lower third of the historical range.

Product is updated once per week, except from 6/1 - 11/30 for the region from 120E to 0, 0 to 40N. The product targets broad scale conditions integrated over a 7-day period for US interests only. Consult your local responsible forecast agency.

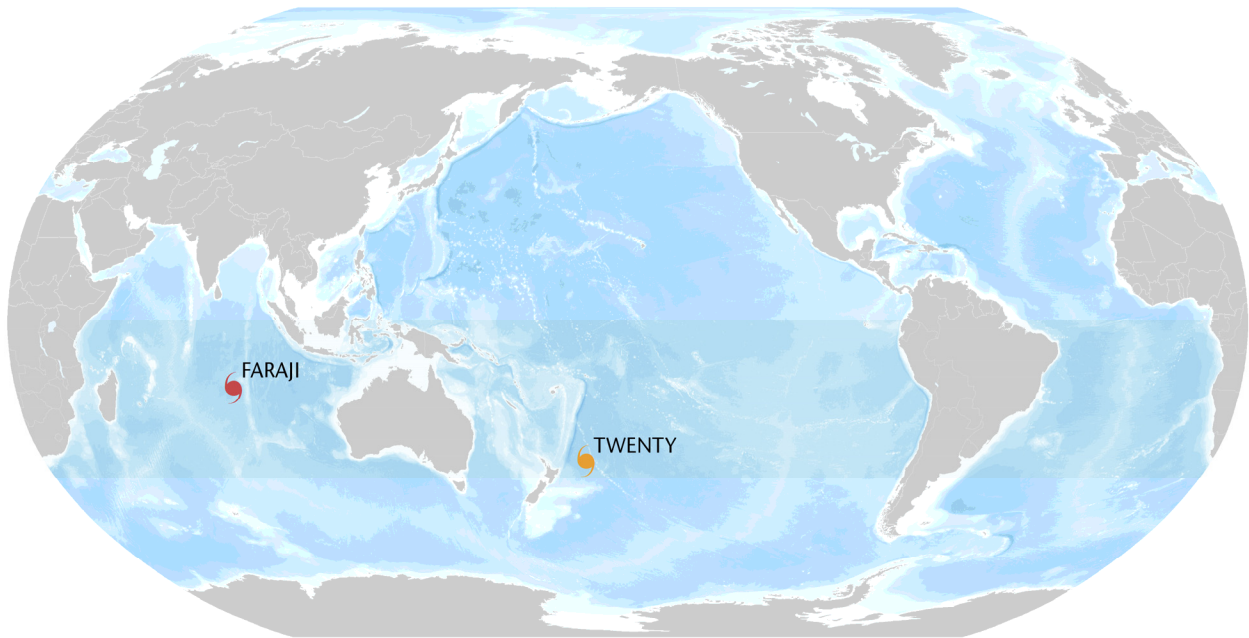
Produced: 02/09/2021

Forecaster: Harnos



Source: Climate Prediction Center

Current Tropical Systems



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

Location and Intensity Information

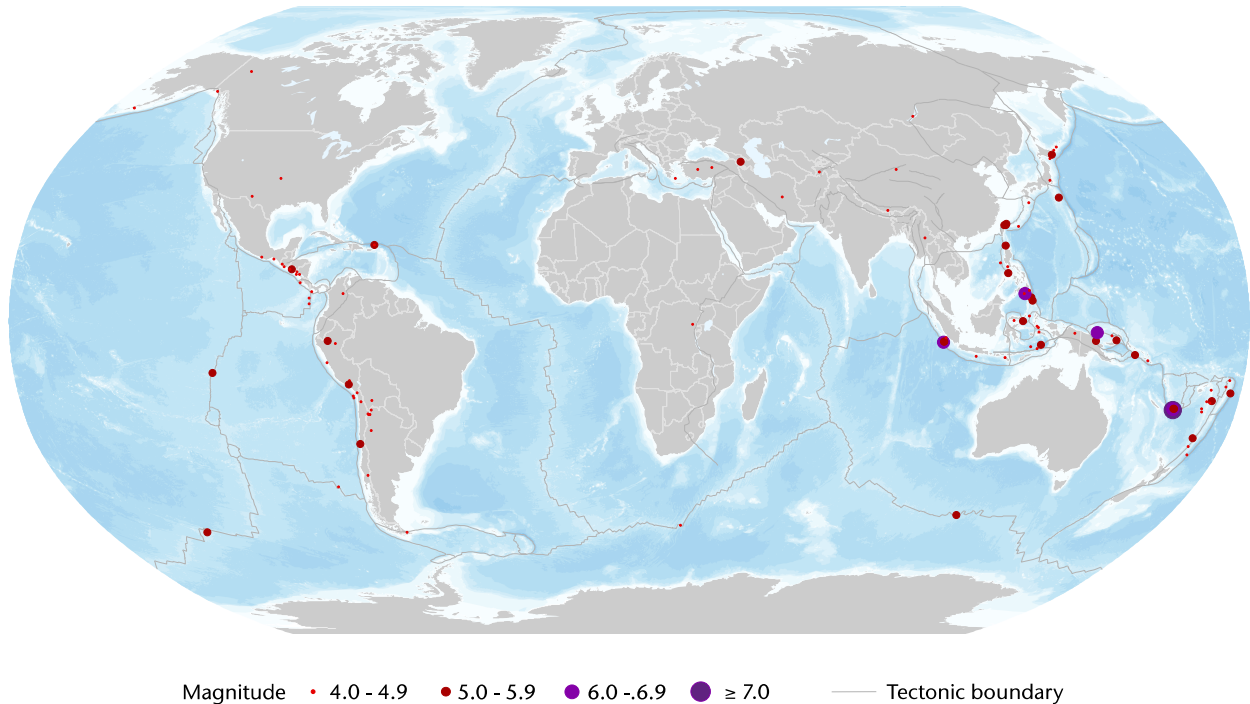
Name*	Location	Winds	Storm Reference from Land	Motion**
CY Twenty	35.4°S, 172.8°W	40 mph	555 miles (895 kilometers) W from Gisborne, New Zealand	SE at 23 mph
CY Faraji	16.6°S, 84.3°E	105 mph	1,505 miles (2,420 kilometers) SW from Bengkulu, Indonesia	SW at 4 mph

* TD = Tropical Depression, TS = Tropical Storm, HU = Hurricane, TY = Typhoon, STY = Super Typhoon, CY = Cyclone

** N = North, S = South, E = East, W = West, NW = Northwest, NE = Northeast, SE = Southeast, SW = Southwest

Sources: National Hurricane Center, Joint Typhoon Warning Center, Central Pacific Hurricane Center

Global Earthquake Activity ($\geq M4.0$): February 5 – 11

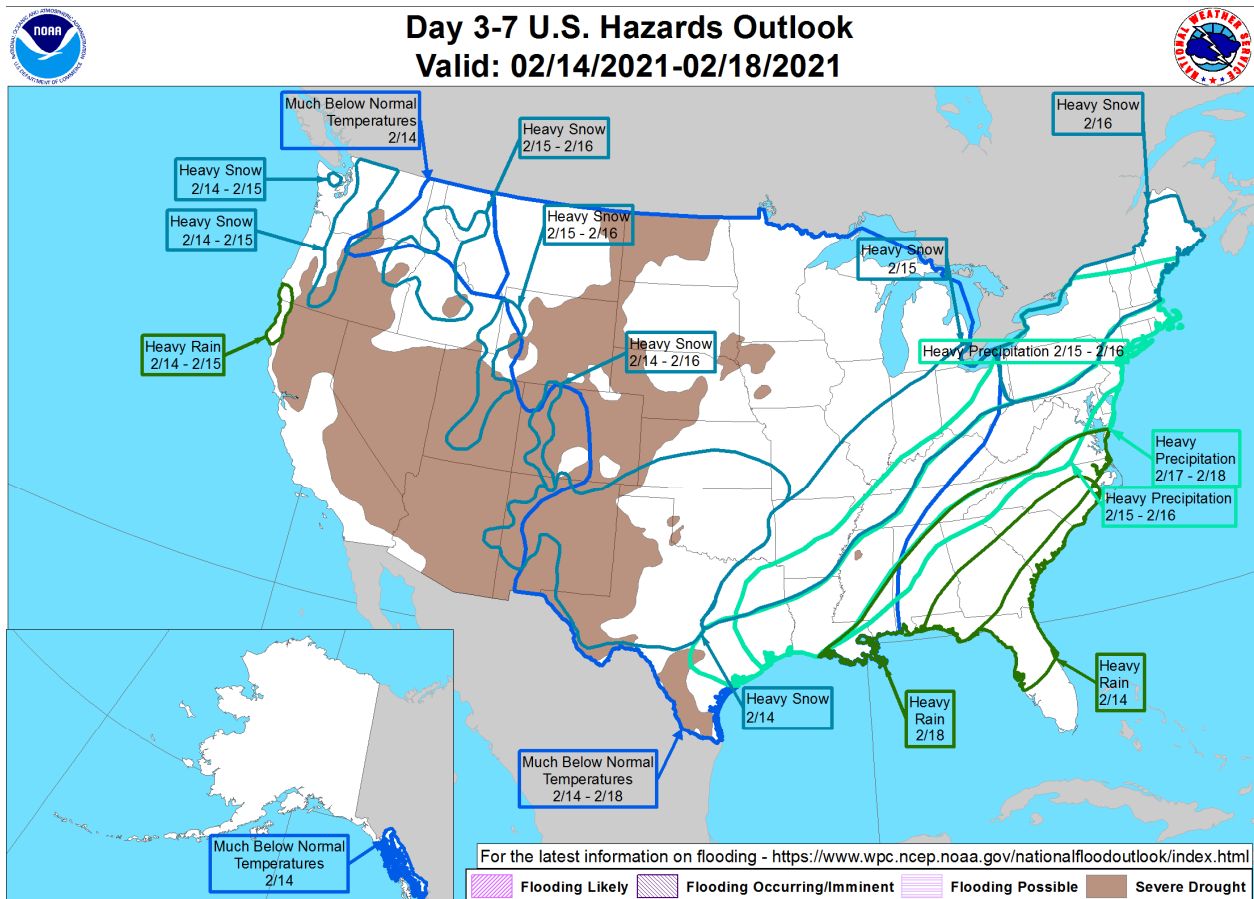


Significant EQ Location and Magnitude ($\geq M6.0$) Information

Date (UTC)	Location	Magnitude	Depth	Epicenter
02/07/2021	6.78°N, 125.21°E	6.0	16 km	0 kilometers (0 miles) WSW of Bansalan, Philippines
02/07/2021	3.29°S, 146.06°E	6.3	10 km	19 kilometers (12 miles) SW of Lorengau, Papua New Guinea
02/10/2021	22.86°S, 171.65°E	6.0	10 km	southeast of the Loyalty Islands
02/10/2021	5.66°S, 101.66°E	6.2	10 km	21 kilometers (13 miles) SSW of Bengkulu, Indonesia
02/10/2021	22.78°S, 171.58°E	6.1	10 km	southeast of the Loyalty Islands
02/10/2021	23.05°S, 171.60°E	7.7	10 km	southeast of the Loyalty Islands
02/10/2021	22.84°S, 171.08°E	6.1	10 km	southeast of the Loyalty Islands
02/10/2021	22.77°S, 171.15°E	6.1	10 km	southeast of the Loyalty Islands
02/10/2021	23.26°S, 171.62°E	6.4	10 km	southeast of the Loyalty Islands
02/11/2021	23.41°S, 171.82°E	6.0	10 km	southeast of the Loyalty Islands

Source: United States Geological Survey

U.S. Weather Threat Outlook



Weather Prediction Center

Made: 02/11/2021 3PM EST

Follow us:

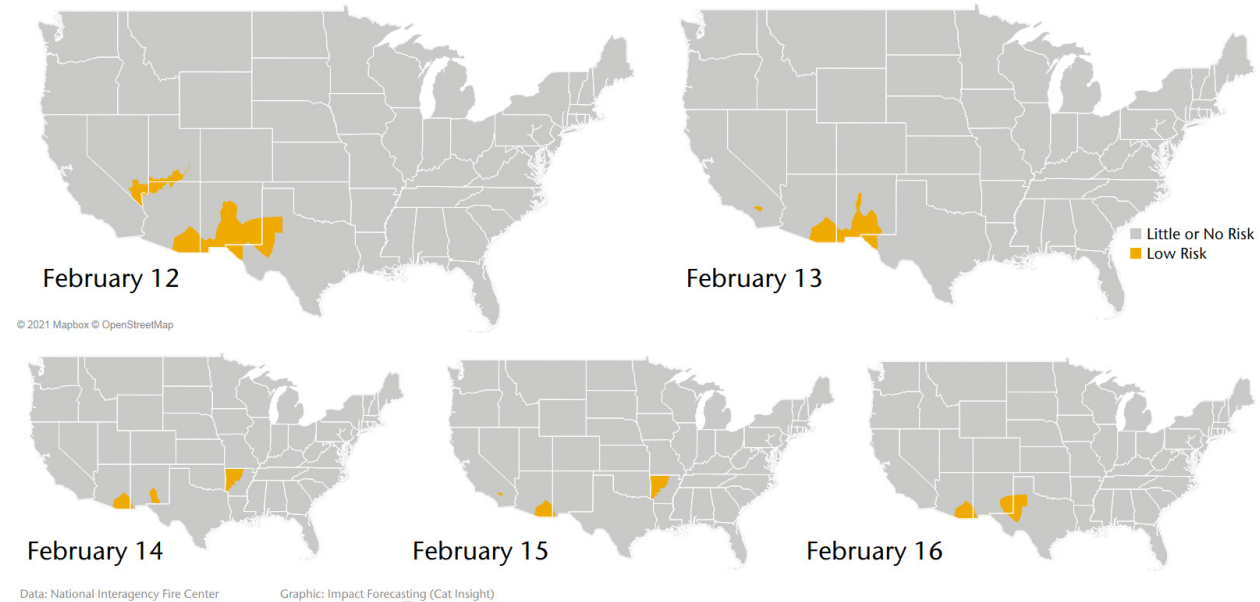
www.wpc.ncep.noaa.gov

Potential Threats

- The predominant threat over the medium range continues to be much below average temperatures across the central U.S through February 18. Temperatures will range 25 to 45 degrees (°F) below normal. Subzero lows and dangerous wind chills will push southward into the Southern Plains.
- A series of storms will produce heavy snowfall across the Cascades between February 14-15. The heavy snowfall will spread across portions of the Northern and Central Rockies, and Great Basin through February 16.
- A complex weather disturbance is anticipated to produce heavy snowfall across the Central and Southern Plains into the Midwest between February 14-15. Icy conditions are possible across central Texas and the Lower Mississippi Valley. Heavy mixed precipitation will spread into the Mid-Atlantic and Northeast by February 16.
- A second system is expected to develop over the Southern Plains by February 17.

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

The National Interagency Fire Center has highlighted a limited volume of potential fire risk across much of the country during the next week. The arrival of more seasonal precipitation and temperatures should minimize any significant fire chance for the rest of the winter months, though continued drought conditions in the Desert Southwest will keep a lingering threat.



Annual YTD Wildfire Comparison: February 5*

Year	Number of Fires	Acres Burned	Acres Burned Per Fire
2017	2,778	78,876	28.39
2018	4,042	93,015	23.01
2019	1,010	12,574	12.45
2020	1,425	25,651	18.00
2021	2,039	45,375	22.25
10-Year Average (2011-2020)	2,025	41,113	20.30

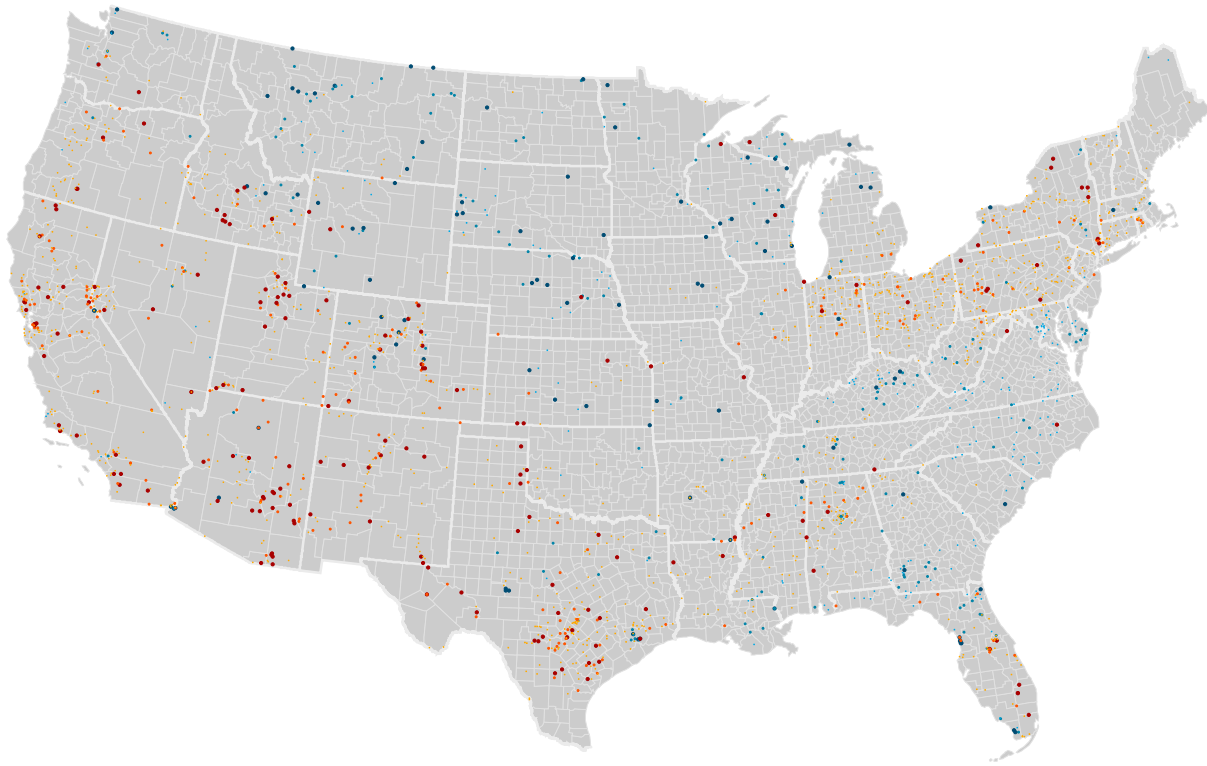
*Most recent available data via NIFC
Source: National Interagency Fire Center

Top 5 Most Acres Burned by State: February 11

State	Number of Fires	Acres Burned	Acres Burned Per Fire
Texas	468	31,867	68.09
Montana	24	6,274	261.42
Florida	273	6,241	22.86
Oklahoma	179	4,667	26.07
California	418	2,343	5.61

Source: National Interagency Fire Center

Current U.S. Streamflow Status



- | | | | |
|----------------------------|--------------------------------|-------------------------|--------------------|
| High Flows
(Percentile) | • ≥ 99 / Above floodstage | Hydrological
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 99th 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 5th percentile for this day of the year. Moderate drought indicates that estimated 7-day streamflow is between the 6th and 9th percentile for this day of the year and 'below normal' state is between 10th and 24th percentile.

Top 5 Rivers Currently Nearing or Exceeding Flood Stage

	Location	Current Stage (ft)	Flood Percentile
Red Lake River at Crookston, Minnesota		7.24	99.16
Oconto River near Gillett, Wisconsin		3.76	99.09
Dolores River at Dolores, Colorado		3.43	99.09
Menominee River near Iron Mountain, Michigan		15.44	99.07
Chippewa River near Bruce, Wisconsin		3.78	99.07

Source: United States Geological Survey

Source Information

Arctic outbreaks impact U.S., Canada, Europe

U.S National Weather Service

Arctic blast over central U.S. set to worsen, expand, The Washington Post

Polar vortex breaks temperature records across Prairies, bitter cold expected to linger, CBC

Slick roads and power outages: Winter storm warning continues Thursday in Louisville area, Louisville Courier Journal

Rescues Underway in Fort Worth After Overnight Sleet Turns North Texas Roads Into 'Sheets of Ice', NBC 5 DFW

UK weather: Storm Darcy to cause further disruption across UK, The Guardian

Storm Darcy: Netherlands hit by 'first major snowstorm in decade', BBC news

Germany: Winter storm wreaks havoc in north and east, DW

Deutscher Wetterdienst

ZAMG, Austria

KNMI, Netherlands

Met Office, United Kingdom

Severe Weather Europe

ECMWF

Glacial lake outburst triggers flash floods in India

Indian Space Research Organization

Defense Research and Development Organization

Snow and Avalanche Study Establishment (SASE), India

National Remote Sensing Center, India

Uttarakhand: Govt estimates damage worth Rs 1,500 cr to project, Indian Express

Uttarakhand flash flood: Rescue ops, halted after rise in Rishiganga river level, resume, Hindustan Times

Uttarakhand dam disaster: Race to rescue 150 people missing in India, BBC News

Uttarakhand: 171 still missing, rescue teams race against time, Times of India

Update: Floods in France

Météo-France

Floodlist

Natural Catastrophes: In Brief

Floodlist

Marocmeteo

Contact Information

Steve Bowen

Director & Meteorologist
Head of Catastrophe Insight
Impact Forecasting
Aon
steven.bowen@aon.com

Brian Kerschner

Senior Catastrophe Analyst
Impact Forecasting
Aon
brian.kerschner@aon.com

Michal Lörinc

Senior Catastrophe Analyst
Impact Forecasting
Aon
michal.lorinc@aon.com

Gaurav Srivastava

Catastrophe Analyst
Impact Forecasting
Aon
gaurav.srivastava6@aon.com

About Aon

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.

© Aon plc 2021. All rights reserved.

The information contained herein and the statements expressed are of a general nature and are not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information and use sources we consider reliable, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

Copyright © by Impact Forecasting®

No claim to original government works. The text and graphics of this publication are provided for informational purposes only. While Impact Forecasting® has tried to provide accurate and timely information, inadvertent technical inaccuracies and typographical errors may exist, and Impact Forecasting® does not warrant that the information is accurate, complete or current. The data presented at this site is intended to convey only general information on current natural perils and must not be used to make life-or-death decisions or decisions relating to the protection of property, as the data may not be accurate. Please listen to official information sources for current storm information. This data has no official status and should not be used for emergency response decision-making under any circumstances.

Cat Alerts use publicly available data from the internet and other sources. Impact Forecasting® summarizes this publicly available information for the convenience of those individuals who have contacted Impact Forecasting® and expressed an interest in natural catastrophes of various types. To find out more about Impact Forecasting or to sign up for the Cat Reports, visit Impact Forecasting's webpage at impactforecasting.com.

Copyright © by Aon plc. All rights reserved. No part of this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise. Impact Forecasting® is a wholly owned subsidiary of Aon plc.