




Weather Hazards Basics

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Weather hazards include hurricanes, tornadoes, thunderstorms, lightning, hail, winds, and winter weather. Many of these phenomena are related to atmospheric conditions that can be monitored and forecast.

Why do weather hazards matter?

Weather hazards impact the entire country, with enormous effects on the economy and public safety. Since 1980, weather/climate disasters have cost the U.S. economy more than \$1 trillion.[1] Several billion-dollar weather/climate disasters affect the United

States in an average year.[2]

How does geoscience help inform decisions about weather and climate hazards?

Geoscientists who study weather patterns, also known as meteorologists, closely monitor weather conditions in order to issue warnings and make recommendations to the public and emergency managers. They also combine these observations with computer models of the Earth's atmosphere, land, and oceans to predict how weather is likely to change in the future.

References

1Billion-Dollar Weather/Climate Disasters: Overview, NOAA, www.ncdc.noaa.gov/billions/overview

2Billion-Dollar Weather/Climate Disasters: Table of Events, NOAA, www.ncdc.noaa.gov/billions/events

Learn More

Introductory Resources

- Severe Weather 101 (Webpage), *National Severe Storms Laboratory/NOAA*
Answers to basic questions about the science and forecasting of severe weather events, including tornadoes, thunderstorms, lightning, hail, floods, damaging winds and winter weather.
- How weather forecasts are created (Website), *UK Met Office*
Explanation of how weather forecasting works, from measurements to models to distribution

Resources for Educators

- Education Resources Network, *AGI's Center for Geoscience & Society*
Search for weather hazard resources in: Professional Resources, Organizations, Curricula & Instruction, Teaching Media, Outreach Programs
- NGSS Performance Expectations, *Next Generation Science Standards*
K-ESS2-1, K-ESS3-2, 3-ESS2-1, 3-ESS2-2, 3-ESS3-1, 4-ESS3-2, MS-ESS2-5, MS-ESS3-2, HS-ESS3-1
- NGSS Disciplinary Core Ideas, *Next Generation Science Standards*
ESS2.D, ESS3.B

Frequently Asked Questions

How does El Niño affect my area?

National Oceanic and Atmospheric Administration

What is the evidence that our present-day climate is changing?

American Geosciences Institute

How might global warming change hurricane intensity, frequency, and rainfall?

National Oceanic and Atmospheric Administration

How does the damage from hurricanes compare to that of tornadoes?

National Oceanic and Atmospheric Administration

How many tornadoes have there been in my state or county?

National Oceanic and Atmospheric Administration

Do you have a question that's not listed here? Search all FAQs

Maps & Visualizations



Interactive map of real-time flood information for Texas

U.S. Geological Survey

The U.S. Geological Survey's Water On The Go app provides real-time information on stream flows, lake levels, and rainfall in Texas. The app automatically finds data near your current location (or any chosen location in Texas) for rapid access to water information. Special icons indicate rapidly...

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