Flood Basics

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Flooding has many causes, including heavy rain, snow melting too fast, and dams or levees breaking. Coastal flooding occurs during hurricanes from heavy rainfall and storm surge, which causes sea level to rise temporarily at the shore.

Why do floods matter?

Flooding is the most common, and costliest, natural hazard facing the United States. The National Weather Service published reports on flood damages and deaths until 2014. From 1984 to 2014 floods caused an average of $8 billion in damages and 82 deaths per year nationwide.[1]

How does geoscience help inform decisions about flood hazards?

Geoscientists study water and fluid flow, monitor streamflow, and map out past flooding events and likely inundation zones to

understand how and where flooding occurs and inform the public about flood risk. They also design structures to reduce flooding impacts and inform land-use managers and policy makers to establish best practices for flood management.

References

[1] Storm Events Database, National Centers for Environmental Information, NOAA, https://www.ncdc.noaa.gov/stormevents/

Learn More

Introductory Resources

- Severe Weather 101: Flood Basics (Webpage) *National Severe Storms Laboratory/NOAA*
  Answers to basic questions about flood hazards, areas that are most at risk for flooding, and definitions of flood watches, warnings, advisories, statements.

- Ready.gov - Floods (Webpage), *FEMA*
  Short article on flood hazards, what to do before/during/after flooding, flood insurance, and links to tools/resources on spring flooding.

- Assessing, Mitigating, and Communicating Flood Risk (Webinar), *American Geosciences Institute*
  2017 Webinar on flood risk assessment, mitigation, and communication efforts in the U.S. from national to state and local levels - includes many additional resources on flood risk in your area.

Resources for Educators

- Education Resources Network, *AGI's Center for Geoscience & Society*
  Search for flood resources in: Curricula & Instruction, Teaching Media

- NGSS Performance Expectations, *Next Generation Science Standards*
  K-ESS3-2, 3-ESS3-1, 4-ESS3-2, MS-ESS3-2, HS-ESS3-1

- NGSS Disciplinary Core Ideas, *Next Generation Science Standards*
  ESS3.B

Frequently Asked Questions

What is Lidar and what is it used for?
National Oceanic and Atmospheric Administration
Can floods be predicted?
U.S. Geological Survey
How do changes in land use impact water resources?
American Geosciences Institute
What are the effects of contaminants on water quality?
American Geosciences Institute
Does flood risk for a particular location change over time?
Federal Emergency Management Agency

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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