

AGU SCIENCE VOTES THE FUTURE

Science is Essential to

Address Climate Change and Natural Hazards

WHY SCIENCE SUPPORT IS NEEDED NOW

Natural hazards are responsible for the loss of life of thousands of Americans and causing billions of dollars in damage and property loss each year. But dramatically increasing wildfires, flooding, and the historically extreme hurricane seasons [have been linked to climate change](#), and the cost of these disasters is likely to increase as well.

At the same time, scientific understanding and monitoring of natural hazards has increased, better preparing our communities for inevitable disasters such as floods, tornadoes, and earthquakes.

The challenges continue to arise, putting more pressure on our first responders, communities, and scientists to ensure that we are keeping ahead of the next disaster.

Increasing diversity in STEM is vital to addressing climate change.

- The response to COVID-19, which has affected every community across the world, has brought together scientists from all walks of life—representing various nationalities, religions, races, ethnicities, genders, sexual orientations, and socioeconomic backgrounds—on a scale unlike any in humanity’s history. Solutions to complex, global problems, like pandemics and global climate change, require a diversity of perspectives and approaches. Without support for increasing diversity in STEM, these solutions will be undercut.
- The U.S. is currently facing a skilled worker shortage in the science and technology sectors, and without a new infusion of STEM-trained individuals, this shortage will worsen. The [Bureau of Labor Statistics](#) estimates that the U.S. economy will need an additional one million more STEM professionals by 2030 in order to retain its preeminence in science and technology.

Science helps mitigate climate and natural hazard risks to vulnerable communities.

- The [Internal Displacement Monitoring Centre](#) estimates that, on average, more than 232,000 people in the U.S. alone are at risk of being displaced by natural disasters every year—the country experienced around 573,000 disaster-related displacements in 2021. Support for science will help us understand the effects of a changing climate crucial for identifying vulnerable populations, migration patterns and preparing for future challenges.
- Landslides affect every state and U.S. territory, causing between \$1.6 and \$3.2 billion in damages and 25-50 deaths in the U.S. [each year](#). Moreover, as climate change increases the likelihood of wildfires and heavy rains, landslides are [becoming more common](#) in the Western U.S.
- Higher temperatures can lead to [increased allergens and pollutants](#) in the air, which can exacerbate asthma and allergies. Air quality issues tend to disproportionately affect the young, the poor and those with compromised immune systems.
- The climate crisis is harming the [mental health and well-being](#) of individuals and communities, both through the acute impacts of climate-influenced disasters and through the chronic impacts of extreme heat, climate-related environmental changes, and associated social and economic dislocation. Support for science will help us understand the effects of a changing climate crucial for identifying vulnerable populations, potential health risks and preparing for future challenges.

The value of science for addressing climate and natural hazards requires robust investment.

- Climate change can affect [human health](#) in myriad ways: by intensifying heat waves, floods, and other extreme weather events; by degrading air quality; and by increasing the risk of infectious disease emergence and spread. Increased and continuous funding is needed for research into how climate, pollution, hazards, ecosystems, and agriculture shape human and ecological health in order to help ensure a sustainable future.
- Natural hazards are inevitable, but disasters are not. Scientific research improves our understanding of the ways in which our society is affected by natural hazards and plays a vital role in developing and improving technologies to assist in national security. Investments in risk reduction research and measures will help mitigate (if not prevent) disasters and promote resilience.
- Weather events can impact the United States by up to a total of \$485 billion a year as a result of [weather variability](#). Better forecasting and predictability could influence this number.
- Actions to reduce carbon pollution and build climate resilience can improve public health, save lives, and generate hundreds of billions of dollars in [health-related economic benefits](#) each year by the end of the century.