

Climate change impacts

 noaa.gov/education/resource-collections/climate/climate-change-impacts

A complex issue

The impacts of climate change on different sectors of society are interrelated. Drought can harm food production and human health. Flooding can lead to disease spread and damages to ecosystems and infrastructure. Human health issues can increase mortality, impact food availability, and limit worker productivity. Climate change impacts are seen throughout every aspect of the world we live in. However, climate change impacts are uneven across the country and the world — even within a single community, climate change impacts can differ between neighborhoods or individuals. Long-standing [socioeconomic inequities](#) can make underserved groups, who often have the highest exposure to hazards and the fewest resources to respond, more vulnerable.

The projections of a climate change-impacted future are not inevitable. Many of the problems and [solutions](#) [offsite link](#) are known to us now, and ongoing research continues to provide new ones. Experts believe there is still time to avoid the most negative of outcomes by [limiting warming](#) [offsite link](#) and reducing emissions to zero as quickly as possible. Reducing our emissions of greenhouse gases will require [investment](#) in new technology and infrastructure, which will spur job growth. Additionally, lowering emissions will [lessen](#) harmful impacts to human health, saving countless lives and billions of dollars in health-related expenses.

Our changing climate

We see climate change affecting our planet from pole to pole. NOAA monitors global climate data and here are some of the changes NOAA has recorded. You can explore more at the [Global Climate Dashboard](#).

- [Global temperatures](#) rose about 1.8°F (1°C) from 1901 to 2020.
- [Sea level rise](#) has accelerated from 1.7 mm/year throughout most of the twentieth century to 3.2 mm/year since 1993.
- [Glaciers](#) are shrinking: average thickness of 30 well-studied glaciers has decreased more than 60 feet since 1980.
- The area covered by [sea ice](#) in the Arctic at the end of summer has shrunk by about 40% since 1979.
- The amount of [carbon dioxide](#) in the atmosphere has risen by 25% since 1958, and by about 40% since the Industrial Revolution.

Water

Changes to water resources can have a big impact on our world and our lives.

Flooding is an increasing issue as our climate is changing. Compared to the beginning of the 20th century, there are both stronger and more frequent abnormally heavy precipitation events across most of the United States.

Conversely, drought is also becoming more common, particularly in the Western United States. Humans are using more water, especially for agriculture. Much like we sweat more when it is hot out, higher air temperatures cause plants to lose, or transpire, more water, meaning farmers must give them more water. Both highlight the need for more water in places where supplies are dwindling.

Snowpack is an important source of fresh water for many people. As the snow melts, fresh water becomes available for use, especially in regions like the Western United States where there is not much precipitation in warmer months. But as temperatures warm, there is less snow overall and snow begins to melt earlier in the year, meaning snowpack may not be a reliable source of water for the entire warm and dry seasons.

Food

Our food supply depends on climate and weather conditions. Although farmers and researchers may be able to adapt some agricultural techniques and technologies or develop new ones, some changes will be difficult to manage. Increased temperatures, drought and water stress, diseases, and weather extremes create challenges for the farmers and ranchers who put food on our tables.

Human health

Climate change is already impacting human health. Changes in weather and climate patterns can put lives at risk. Heat is one of the most deadly weather phenomena. As ocean temperatures rise, hurricanes are getting stronger and wetter, which can cause direct and indirect deaths. Dry conditions lead to more wildfires, which bring many health risks. Higher incidences of flooding can lead to the spread of waterborne diseases, injuries, and chemical hazards. As geographic ranges of mosquitoes and ticks expand, they can carry diseases to new locations.

The environment

Changes are also occurring in the ocean. The ocean absorbs about 30% of the carbon dioxide that is released into the atmosphere from the burning of fossil fuels. As a result, the water is becoming more acidic, affecting marine life. Sea levels are rising due to thermal expansion, in addition to melting ice sheets and glaciers, putting coastal areas at greater risk of erosion and storm surge.