



Climate Research at Stanford

Stanford University



How can we provide for humanity without harming the natural systems we depend on? How can we solve environmental challenges on a global scale? Stanford researchers are pursuing answers to these critical questions about climate change and the risks it poses.

For two decades, Stanford scholars have been global leaders in research to understand the consequences of climate change for people and ecosystems, including:

- Quantifying the influence of warming oceans and ocean acidification on coral reefs and phytoplankton
- Evaluating consequences of change in carbon dioxide and warming on plants and ecosystem function
- Assessing implications of rising temperatures for crop yields
- Evaluating relationships between climate change, social unrest and human health
- Testing relationships between extreme weather events and climate change
- Predicting effects of saltwater intrusion on freshwater aquifers as oceans rise
- Examining economic and environmental costs of climate inaction
- Studying how existing energy systems impact climate and solutions to reduce greenhouse gas emissions
- Identifying people, species and regions vulnerable to the changing climate, and what can be done to increase resilience

This work gives climate research the specificity needed to understand risks and inform action.

Stanford's legacy of studying the human relationship with the global environment dates to the 1970s, when Paul Ehrlich and his colleagues began to focus on the role of humans in driving environmental changes. Other pioneering research by Stanford faculty articulated the rapid rise and effect of environmental changes on human wellbeing, and helped make the case for the 2015 global climate agreement forged in Paris.

Today, Stanford supports research that cuts across disciplines and sectors to assess the impact of climate disruption on people and planet. We connect that knowledge to action.



Recent studies by Chris Field, Noah Diffenbaugh and others have highlighted the connection between rising global temperatures and increased frequency and severity of extreme events, such as droughts and hurricanes. Researchers are focused on better understanding these connections and managing resources, such as groundwater and water infrastructure, in response to water scarcity and extreme weather.

Melting glaciers contribute to rising sea levels, which threaten coastal communities and coastal resilience. Researchers with the Stanford Woods Institute for the Environment, the Stanford Center for Ocean Solutions and Stanford's Hopkins Marine Station are focused not only on understanding rising seas and increased storm surge, but how coastal communities can become more resilient, adapt to new threats, and, if necessary, relocate.

Ongoing work on climate impacts to human health, such as increases in vector-borne illnesses like malaria highlights the interdisciplinary collaboration of biologists, engineers, climate scientists and doctors. Stanford researchers are also focused on new revelations of climate's impact on mental health, such as the correlation between higher temperatures and higher suicide rates.

For an expanded overview of Stanford's climate research, read Finding Climate Solutions: stanford.io/2CD7qWI or browse recent peer-reviewed climate research at: stanford.io/2NxIEMQ

■ Experts

From scientists to engineers, doctors to lawyers, Stanford is home to a host of experts in environmental research, economics and policy. Learn more and connect with experts: stanford.io/2Qholk9

For more information:

School of Earth, Energy & Environmental Sciences/EEES:
pangea.stanford.edu/ess/research/climate-system-dynamics

Stanford Precourt Institute for Energy
energy.stanford.edu/research/environmental-impacts/climate

Stanford Woods Institute for the Environment
woods.stanford.edu/research/climate

