

Climate change: We're acting, but are we making a difference?

October 29 2021



Credit: Pixabay/CC0 Public Domain

It's a big question: Is the world doing enough to adapt to the effects of climate change?

According to University of Delaware disaster researcher A.R. Siders, there are no easy answers, but scientists are looking at this problem from a variety of angles.

One approach, reported in *Nature Climate Change* on Thursday, Oct. 28, analyzed academic studies to create a first-of-its-kind data repository documenting how much adaptation is occurring globally and to explore whether these efforts have been effective. Siders, an assistant professor in the Joseph R. Biden, Jr. School of Public Policy and Administration and the Department of Geography and Spatial Sciences, co-authored the study with an international group of colleagues.

The study revealed growing evidence that people and organizations are responding to [climate](#) change with a wide range of actions, but noted that far fewer studies explore whether these adaptation actions actually reduce risks associated with climate change.

As [world leaders](#) prepare for the United Nations Climate Change Conference (COP26) that begins next week, UDaily connected with Siders, whose expertise lies in climate change adaptation, to learn about the study.

Q: How did this study come about?

Siders: The global climate change agreement adopted at the 2015 Paris climate conference (COP21)—termed the Paris Agreement—calls for what's known as a "global stocktake" of adaptation to determine if society is doing enough to adapt to climate change. This is an enormous task and currently no good datasets exist to identify adaptation actions across the world at scale. So, a group of 126 global scientists and researchers, including me, got together to see if we could answer this question through the lens of academic studies.

We screened approximately 48,000 scientific journal articles on climate change and adaptation and filtered that down to 1,682 [academic papers](#) that document adaptation actions around the world. We analyzed those papers to figure out how much adaptation is happening, what types of adaptations are occurring and whether there is any evidence that these adaptation actions are reducing risks associated with climate change. The result is a massive database of all these studies that can help us begin to quantify and document global adaptation actions that are occurring and their effects.

Q: What did you learn?

Siders: We found that all over the world, in almost every sector, people are taking action to adapt to climate change, and that's really encouraging. Less encouraging is that the actions people are taking tend to be fragmented, representing small adjustments to business-as-usual rather than the type of transformation that may be needed. For example, in response to warmer temperatures, farmers are planting crops earlier and people are using air conditioning when it's hot. This raises a concern about whether what we're doing is enough to deal with the [expected] effects of climate change.

Q: How can we measure whether our adaptation efforts will be enough?

Siders: We expect that climate change will make life harder in a lot of ways. It's going to make it too hot to grow crops; there will be more droughts, heat waves, floods. Using floods as an example, the question becomes does elevating your home one foot actually make you safer from the floods or did you need to elevate three feet? Does building a floodwall actually reduce losses in the next hurricane or does it just push those losses somewhere else? This is difficult to assess but that's what we

want to know, including how long these actions are effective ... will elevating three feet be enough to keep you safe for the next decade or the next century? Scientists are working on ways to assess whether adaptation is enough, but right now, there isn't a uniform approach or tool for measuring how well adaptation actions reduce risks related to climate change. Complicating matters, whether we're doing 'enough' depends on how bad [climate change](#) is going to get, which depends on whether we cut emissions, so it's a whole feedback cycle.

Q: How do we address this lack of data about adaptation actions and their effects?

Siders: If we start identifying what tools are out there, then we can start seeing which ones could apply to other situations. For example, can a tool that addresses flood risk in the Solomon Islands also be used to address drought in Arizona? This new data set is a first step in gathering evidence, including how researchers are currently measuring risk reduction and how they are measuring and defining successful adaptation. For instance, do we only count risk reduction, meaning whether or not it kept you safer, or do we also account for whether it hurt or helped the economy, the environment or culture? These are questions that need answers.

Q: Where do you hope to see this work lead?

Siders: The goal of this paper is to provide some of the evidence that can inform the Intergovernmental Panel on Climate Change's (IPCC) sixth assessment report. We know the data doesn't tell the whole story because it only looks at academic studies, not government reports, nonprofit reports, etc. But it is one data set that didn't exist before that we hope can be used as a baseline, now and in the future. Already, the project has led to a lot of spin-off papers. I was involved in papers on equity and

adaptation, heat adaptation, and I'm working on other papers related to policy tools, ocean adaptation, climate migration and climate heritage using this database.

We hope to inspire new research into gap areas where we just don't have enough information or studies to be able to say conclusively what's happening, say, in under-researched regions of the world or under different warming levels or timespans. Hopefully, this is just the beginning of data that can help governments and practitioners make evidence-based decisions that take global efforts into account.

More information: Lea Berrang-Ford et al, A systematic global stocktake of evidence on human adaptation to climate change, *Nature Climate Change* (2021). [DOI: 10.1038/s41558-021-01170-y](https://doi.org/10.1038/s41558-021-01170-y)

Provided by University of Delaware

Citation: Climate change: We're acting, but are we making a difference? (2021, October 29) retrieved 19 April 2024 from <https://phys.org/news/2021-10-climate-difference.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.