

# USU Part of New Institute to Understand Climate Change, Other Disasters | College of Engineering

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October 1, 2021 — USU Part of New Institute to Understand Climate Change, Other Disasters.

A team from Utah State University is creating tools to better understand the global impact of climate change and other disasters.

The multi-disciplinary team is made up of David Tarboton, the director of the [Utah Water Research Laboratory \(UWRL\)](#); Jeff Horsburgh, an associate professor in [Civil and Environmental Engineering](#) and at the UWRL; and Courtney Flint, a professor in Environment and Society in the [Quinney College of Natural Resources](#).



*David Tarboton (left), Jeff Horsburgh (center), Courtney Flint (left) are collaborating with nine other partner institutions to create tools to better understand the global impact of climate change and other disasters. (USU)*

The USU team is collaborating with nine other partner institutions as part of the [University of Illinois Urbana-Champaign's newly formed Institute for Geospatial Understanding through an Integrative Discovery Environment \(I-GUIDE\)](#). The institute will receive \$15 million in funding over five years as part of the National Science Foundation's [Harnessing the Data Revolution initiative](#).

The project aims to harness geospatial data to understand the connections and complex interactions that result from climate change and other natural disasters. This understanding can help communities find solutions to improve resilience and sustainability.

"Much of the research related to floods and droughts focuses on local impacts," Tarboton said. "The institute will research cascading effects of floods and droughts beyond their locations of origin, acting through the translation of economic and social shocks around the world."

The institute will advance information technology, software and computer systems, often referred to as cyberinfrastructure, to bring diverse types of geospatial data together to address this problem.

"By integrating social and physical sciences with advanced geospatial and cyberinfrastructure tools, we will be able to put some puzzle pieces together that have too often been unconnected," Flint said.

One way the cyberinfrastructure will increase understanding of climate change and other disasters is by helping researchers explore connections between global events.

"The institute's cyberinfrastructure will make it easier to build the types of integrated modeling and geospatial analysis workflows that are required to explore these types of large-scale problems," Horsburgh said.

For example, Tarboton said if there was flooding in the Midwestern United States that destroyed soybean crops and led to an unmet global demand for soybeans, the software could help people understand how these events may impact deforestation in Brazil where soybean production would increase to meet global demand.

Tarboton said although people understand that disasters like floods in one part of the globe can have significant consequences in other places, there isn't a system available with the necessary information to allow individuals to explore the connections and implications of these events deeply.

"There is no easy way to have the data to ask those questions," he said. "Coming up with an easy way to ask those questions and then being able to answer them, this is what we're trying to enable with this project."

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