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CLIMAS is a leader in directing integrated climate-related research to address the unique human and ecological needs of the semiarid Southwest U.S. and border region with Mexico and promoting the exchange of ideas and information among members of the public, private, nonprofit and academic communities.



The **Climate Assessment for the Southwest**, or CLIMAS, program at the University of Arizona has received a nearly \$3.5 million grant from the National Oceanic and Atmospheric Administration, or NOAA, for multi-faceted research designed to improve the region's resiliency to changes in weather and climatic extremes.

The five-year award, which began Sept. 1, will allow scientists to examine how society in the rapidly growing U.S. Southwest and border region can plan for and adapt to climate-related changes involving drought, vector-borne diseases, air quality, warming temperatures and water scarcity.

"The Southwest – particularly Arizona and New Mexico, where CLIMAS is primarily focused – is facing substantial climate challenges in the 21st century," said Daniel Ferguson, CLIMAS program director and one of the program's co-principal investigators. "It's become clear that the warming trend we've been experiencing for the last several decades is already impacting and will continue to impact resources and livelihoods in the region. We're working hard to continually advance knowledge to help the region better understand those impacts, plan for them and adapt as they continue to occur."

Research over the last several years indicates the Southwest is a potential bulls eye for climate change impacts in the 21st century. The average annual temperature in the Southwest

could rise by about 4 to 7 or more degrees Fahrenheit during this century, according to the Intergovernmental Panel on Climate Change 2007 Summary for Policymakers.

A regional drought has persisted for more than a decade – exacerbated by warming, snowpack reductions and landscape change – and has been linked to unprecedented forest mortality aggravated by heat, insects and wildfire.

In addition, water-resource managers face decreasing supply and increasing demand. Public health officials must grapple with multiple climate impacts already under way, as well as several that are expected, including reduced air quality from high temperatures and increased dust storms and an increasing probability of outbreaks of mosquito-borne diseases like West Nile virus.

The energy sector in the region faces complex supply and demand challenges as population grows, temperatures rise and precipitation declines, all of which are combining to create more pressure to find alternatives.

The new CLIMAS funding will support work in six key areas: improving knowledge about climate, climate change and drought in the Southwest; planning for a sustainable regional water supply in the face of persistent drought and warming; examining how climate change can influence human health; exploring economic trade-offs among protecting ecosystems and competing water and energy uses, and opportunities for future energy production; better understanding how socially vulnerable populations, including the poor and ethnic minorities, experience climate extremes and how to make them more resilient; and providing guidance to regional decision makers about adaptation planning.

Jonathan Overpeck, a UA geosciences and atmospheric sciences professor and co-director of the **Institute of the Environment**, is the program's lead investigator. In addition to Ferguson and Overpeck, other UA members of the multidisciplinary team include Bonnie Colby and George Frisvold, agriculture and resource economics; UA Provost Andrew Comrie, Margaret Wilder and Connie Woodhouse, School of Geography and Development; Michael Crimmins, soil, water and environmental science; Gregg Garfin, Institute of the Environment and School of Natural Resources and the Environment; and Holly Hartmann, Arid Lands Information Center. David DuBois, an atmospheric scientist and state climatologist for New Mexico, also is a researcher on the project.

"The approach we've developed over our 14-year partnership with NOAA has been to work closely with the people of the Southwest to identify and address research questions that are important to the region," Ferguson said. "This approach reflects our core emphasis on ensuring that our work is timely and relevant for public and private sector stakeholders throughout the region so that they have the best information available to them as they make vital resource allocation and planning decisions."

CLIMAS will continue to publish its monthly Southwest Climate Outlook, a snapshot of recent and forecasted weather and climate conditions. CLIMAS also has led the production of the

Southwest section of the ongoing National Climate Assessment – a status report on climate change science and impacts – and the 2012 Southwest Climate Assessment, focusing dozens of scientists from across the region on defining what is known about Southwest climate variability, change and impacts.

Housed in the Institute of the Environment, CLIMAS was established in 1998 as part of NOAA's **Regional Integrated Sciences and Assessments** program. Since then, the program has advanced as a leader in directing integrated climate-related research to address the unique human and ecological needs of the semiarid Southwest U.S. and border region with Mexico and promoting the exchange of ideas and information among members of the public, private, nonprofit and academic communities.

The most recent research – the fourth phase in CLIMAS' ongoing partnership with NOAA – builds on extensive social, physical and natural science research and outreach conducted by CLIMAS faculty, staff and graduate students.

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