



## INSTITUTE OF CLIMATE CHANGE, OCEANS AND ATMOSPHERE

### Meeting Regional Needs



Central California's economy and environment are closely tied to climate. Dependence on agriculture, historic land use, development patterns, population growth and decreasing supplies of natural resources combine to make the region especially vulnerable to climatic fluctuations. Research shows Central California is getting dryer and warmer and faces the likelihood of reduced water supply from other parts of the state. In concert with a fragile international economy, legal decisions affecting species habitat and river restoration, these factors place the entire region at a crossroads for sustainability.

Failure to reduce the region's use of natural resources when population is growing rapidly and climate is changing, risks exacerbating challenges of unemployment, poor air quality and declining fresh water supplies. California State University, Fresno formed the Institute of Climate Change, Oceans and Atmosphere (ICOA) to better understand this vulnerability and develop sustainable solutions for the region.

ICOA's purpose is to foster interdisciplinary research and teaching in climate change, oceanography and atmospheric science, as well as such closely related fields as sustainable development and energy policy. The study of physical, chemical and biological processes in oceans and the atmosphere is integral to understanding climate change and its impact on Central California. ICOA brings together diverse campus resources to effectively address sustainability issues from multiple perspectives. The institute also serves as a single point of contact for anyone outside of campus looking for assistance on these topics.

### Why Fresno State?

Solutions to today's environmental and energy problems depend on teams of expert researchers working collaboratively from their perspectives on climate change, energy and sustainability. Fresno State represents a neutral entity with abundant multidisciplinary resources to conduct research, review and summarize published literature and make recommendations to policy makers. The university can objectively examine resource issues and tradeoffs not typically addressed by single-purpose agencies and organizations.

Central California leads the entire nation in gross agricultural production, making it of prime economic importance well beyond the region. The adverse impact of growth, climate change and dwindling natural resources on Central California agriculture jeopardizes the local economy along with the state and nation's food supply. Fresno State's location, strong agricultural education and research programs and close affiliation with the agricultural industry make it uniquely suited to address climate change and food supply issues.

## Delivering Results



During its first year, ICOA obtained contract funding to prepare the first climate impact assessment for the City of Fresno, presented to the City Council in early 2009. The document details what the climate change literature means for Fresno and the region. It also describes how Fresno can mitigate and adapt to climate change.

ICOA obtained funds through a competitive grant solicitation conducted by the Fresno Regional Foundation in the area of air quality and climate change. Through ICOA, Fresno State is partnering with Fresno Metro Ministry in 2009 to develop a climate change communication program for use in marginalized communities.

ICOA has organized interdisciplinary teams of campus faculty to develop grant applications and proposals under various programs, including those of the California Energy Commission and Air Resources Board.

ICOA also was involved in a grant to Fresno State from the National Oceanic and Atmospheric Administration under the Interdisciplinary Scientific Environmental Technology program. The grant funded research in atmospheric science and climate change. ICOA helped Fresno State win a grant under the Fulbright Scholar-in-Residence program for the area of atmospheric science.

## Project Scope

### Faculty      \$5 million endowment

A key component of the success of ICOA will be the faculty leading its work. ICOA is currently led by a director co-funded by multiple colleges. An endowment would support a full-time director with an executive team comprised of faculty from different colleges who would hold endowed professorships. These areas could include: atmospheric chemistry; environmental economics; green design and construction; energy technology and policy; climate health science; climatology; sustainable agriculture or geohydrology.

### Equipment      \$3 million

State-of-the-art equipment to support the research, development and program operation of ICOA is critical to its success and to providing cost-effective solutions to improve sustainability in the region.

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