CIRES research
## Science to BENEFIT society

CIRES scientists conduct world-class Earth system and data science research. Our work helps people and communities build resilience in the face of a changing environment.

Examining pollutants and air quality

In 2023, a CIRES scientist measured air pollutants at street level in neighborhoods throughout New York City. Results from the project will provide New York residents with actionable information they need to advocate for better air quality.

CIRES scientists and federal colleagues published new findings on air quality in Las Vegas, Nevada, and found cooking emissions can account for nearly a quarter of human-made volatile organic compounds in cities. Their work will help decision-makers better understand the sources of air pollution in large cities.
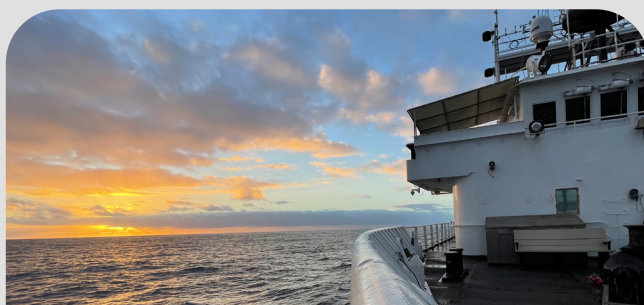
Supporting public policy and making discoveries

The U.S. Department of State used marine geophysics data analyzed by CIRES scientists to define the outer limits of the U.S. Extended Continental Shelf: areas of the seafloor the United States has sovereign rights to conserve, manage, and explore. The completion of this 20-year project in 2023 added one million square kilometers of seafloor to U.S. territory and resulted in discoveries of new undersea features that can now be studied.

Protecting lives and property

CIRES scientists helped dissect the forecasting challenges posed by the mountain wave windstorm that contributed to Colorado's 2021 Marshall Fire, the most destructive wildfire in Colorado's history. Their work could change how Red Flag Warnings are issued to inform residents of dangerous fire-starting conditions and improve communication of risk levels once a wildfire is burning.

Understanding climate change

CIRES scientists analyze greenhouse gas levels in Earth's atmosphere every year and assess the gases' warming potential. In 2024, their analysis found levels of the three most impactful human-made greenhouse gases (carbon dioxide, methane, and nitrous oxide) climbed to record highs in 2023.

University of Colorado Boulder

CIRES

NOAA

cires.colorado.edu

CIRES at a glance

The Cooperative Institute for Research in Environmental Sciences at the University of Colorado Boulder has partnered with NOAA since 1967.

CIRES composition

Cooperative Institute for Earth Systems Research and Data Science

Office of Education

National Centers for Environmental Information

Chemical Sciences Laboratory

Global Monitoring Laboratory

Global Systems Laboratory

Physical Sciences Laboratory

Weather Prediction Center

Space Weather Prediction Center

Council of Fellows

Members Council

10 academic departments

Earth Lab

Center for Microbial Exploration

Center for Social and Environmental Futures

Center for Education, Engagement, and Evaluation

North Central Climate Adaptation Science Center

Environmental Data Science Innovation and Inclusion Lab

Earth Science and Observation Center

National Snow and Ice Data Center

Western Water Assessment

CIRES Administration

CIRES by the numbers

More than

900

people
including researchers, faculty, students, and staff

More than

$100M

in award funding
from NOAA, NASA, NSF, and others

More than

600

papers
published in academic journals each year

#1

Largest research institute at CU Boulder and largest of NOAA's cooperative institutes