

# The Ocean Floor Reveals our Climate History



Howard Spero  
Professor, Earth and Planetary Sciences

## CURRENT RESEARCH

### Understanding how the climate system operates

Tens of thousands of feet below the ocean's surface, the ocean's seafloor accumulates the shells of tiny marine organisms that allow scientists to travel back millions of years to figure out what the Earth's climate was like before humans walked on the planet. Through the study of small chemical variations in the fossil shells, it is possible to determine characteristics of ancient oceans such as temperature, salinity and pH. Dr. Howard Spero, of the University of California, Davis, uses these tools, and develops novel methods to understand how our climate system operates. By studying the record and mechanisms that control climate in Earth's past via geochemical analysis of shells of fossil marine organisms obtained from deep sea core sediment, his research group operates at the interface between geology and biology. Identifying the underlying mechanisms and feedbacks that control the Earth's climate system is critical if we expect to be able to accurately predict the consequences of elevated greenhouse gases and global warming over the next century; therefore, Dr. Spero's research is of notable significance.

Dr. Spero's philosophy has guided his research career: "Although we cannot see into the future, we can study the history of climate change in the past through careful chemical analyses of marine fossils that grew during past ice ages and warm periods." His group is one of only three in the world conducting geochemical experiments on living planktonic foraminifera and developing and calibrating the chemical tools used by the research community to reconstruct the climate history of Earth's past. This leads to constant development within Dr. Spero's research. For example, he and his team are now...

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## AFFILIATION



University of California, Davis

## EDUCATION

- Ph.D., in Biology, 1986 , University of California, Santa Barbara

## AWARDS

- Fellow of the American Geophysical Union, 2014
- UC Davis Academic Senate Faculty Research Award, 2014
- Cesare Emiliani Lecture – American Geophysical Union Fall Meeting, 2013
- Humboldt Research Award from Germany, 2013
- Fellow of the American Association for the Advancement of Science, 2012

## RESEARCH AREAS

Environment, Chemical, Geology, Oceanic

## FUNDING REQUEST

Your contributions will support the continued research of Dr. Howard Spero, of the University of California, Davis, as he develops, calibrates, and applies geochemical tools to the study of Earth's past climate history. Donations will support the necessary \$250K/year required for personnel and analytical and field costs. In choosing to donate, you will play a role in developing the scientific foundation to more accurately predict the consequences of elevated greenhouse gases and global warming over the next century.