

Dr. John Eiler Reconstructs the Past to Teach the Caltech Associates About the Future

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Pasadena, Calif— One of the most pressing challenges for scientists today is to develop an understanding of global climate change. Dr. John M. Eiler, the Robert P. Sharp Professor of Geology and Professor of Geochemistry at Caltech, discussed his work on reconstructing past climate and how determining the past can help us understand the future with the Caltech Associates at the Athenaeum in Pasadena.

It is difficult to understand the ways in which earth's climate responds to the combined influences of greenhouse gases, variability in the sun's rays and cloud cover, and other factors. Reconstruction of past climate plays an important role in providing examples of ways in which Earth's climate has responded in the past to these factors.

For many years, earth scientists have tried to reconstruct past climates using the distributions of isotopes between seawater and carbonate fossils, like corals and shelly planktonic organisms. These methods have provided great insight into the ice ages in the geologically recent past, but have failed to provide meaningful constraints on the relatively warm climates of the deep geological past—the times that could potentially inform our understanding of a world warmed by greenhouse gases. Dr. Eiler presented the results of a new approach to reconstructing past climate; one that examines the extents to which rare isotopes bond with one another in fossil carbonates. This method can be used to determine surface temperatures hundreds of millions of years ago, and has shown a relationship between exceptionally warm climates and times of high atmospheric CO₂.

“Dr. Eiler's work, studying the makeup of ancient marine fossils, to determine Earth's past climate changes, was an eye opener,” said Associates guest William Rogers. “Digging into the geological past, to determine temperature and CO₂ levels, provides us with solid evidence of why our planet is warming. There are still many doubters out there, and a lack of resolve by governments around the world, to work out this problem. Solid scientific research like this will help.”

“I was most concerned with Dr. Eiler's final comments, pertaining to the next 100 years, and a 3 to 4 degree, projected temperature increase,” said Rogers. “The changes on the land may become very dramatic. River flows might be drastically reduced, and the west as we know it, may become a thing of the past.”

For more information about the Associates and their events and programs please visit associates.caltech.edu/ or contact the Associates at 626-395-3919.

About the Associates: Founded in 1926, the Associates is a support organization for the California Institute of Technology (Caltech) with over 1,475 members throughout the United States and abroad - a diverse cross section of members of the local & business community, Caltech alumni and faculty, and philanthropists.

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