The Importance of Deep-Time Geologic Records for Understanding Climate Change Impacts

Committee

Isabel P. Montanez

Chair

Isabel P. Montañez is a professor in the Department of Geology at the University of California, Davis. Dr. Montañez is a field geologist and geochemist whose research focuses on the sedimentary archive of paleoatmospheric composition and paleoclimatic conditions, in particular in reconstructing records of greenhouse gas-climate linkages during periods of major climate transitions. Her past work has involved study of marine and terrestrial successions of Cambrian through Pleistocene age. Dr Montañez is a Fellow of the Geological Society of America. She received her Ph.D. in geology from Virginia Polytechnic Institute and State University.

Thomas J. Algeo

Member

Thomas J. Algeo is an associate professor in the Department of Geology at the University of Cincinnati. Prior to joining the faculty at Cincinnati, Dr. Algeo worked as a petroleum geologist at both Exxon and Amoco exploration companies. His research focuses on the processes driving long-term development of Earth’s ocean-atmosphere-biosphere systems, using stratigraphic and geochemical proxies from marine carbonates and black shales. Dr. Algeo received his Ph.D. in geological sciences from the University of Michigan.

Mark A. Chandler

Member

Mark A. Chandler is an associate research scientist at the Center for Climate Systems Research at Columbia University. Dr. Chandler’s primary research involves the use of global climate models to analyze Earth's past climates, from previous times of global warming to snowball earth episodes. His other major research focus is on improving the usability and accessibility of 3-D computer climate models. Dr. Chandler directs the Educational Global Climate Modeling Project (EdGCM), which develops, distributes, and supports a fully functional version of the NASA/GISS GCM Model II for use in pre-college and university level science courses. He received his Ph.D. in geological sciences from Columbia University.

Kirk R. Johnson

Member

Kirk R. Johnson is Vice President of Research and Collections and Chief Curator at the Denver Museum of Nature and Science. Dr. Johnson’s research interests span paleobotany, paleoecology, biogeography, geochronology, and biostratigraphy with a particular focus on the Cretaceous to Eocene period. As well as his research publications, Dr Johnson is the lead author of several popular science books and he has appeared on numerous television programs to popularize geoscience concepts. Dr Johnson received his Ph.D. in geology and paleobotany from Yale University, and he is a Fellow of the Geological Society of America.

Martin J. Kennedy

Member

Martin J. Kennedy is a professor in the Department of Earth Sciences at the University of California, Riverside. Previously, he was a Senior Research Geologist at Exxon Production Research Co. His research interests are focused on paleoceanographic and paleoclimate events recorded in the stratigraphic record, using sedimentological and geochemical data integrated with high resolution sequence and isotope stratigraphic techniques to understand controls of the ancient carbon cycle and biogeochemical feedbacks within the biosphere. Dr. Kennedy received his Ph.D. from the University of Adelaide, Australia.

Dennis V. Kent

Member

Dennis V. Kent (NAS) is a professor in the Department of Geological Sciences at Rutgers University and an adjunct Senior Research Scientist at Lamont-Doherty Earth Observatory. Dr. Kent’s research interests focus on the use of Cenozoic and Mesozoic magnetostratigraphy and geomagnetic polarity time scales to address geological problems, including paleoclimatology and paleogeography. Dr. Kent is a Fellow of the American Association for the Advancement of Science, the American Geophysical Union, and the Geological Society of America. He received his Ph.D. in marine geology and geophysics from Columbia University.

Jeffrey T. Kiehl

Member

Jeffrey T. Kiehl is a senior scientist in the Climate Change Research Section of the National Center for Atmospheric Research in Boulder, Colorado. Dr. Kiehl's current research focuses on using climate modeling to understand Earth's warm greenhouse climates for deep time periods ranging between 300 to 50 million years ago, and on understanding climate feedback processes in Earth's climate system. Dr Kiehl has served on the NRC's Committee on Global Change Research and the Climate Research Committee, and he was a contributing author for the IPCC Third Assessment Report. He received his Ph.D. in atmospheric science from the State University of New York, Albany.

Lee R. Kump

Member

Lee R. Kump is a professor of geosciences at The Pennsylvania State University, and is also currently associate director of the Earth System Evolution Program at the Canadian Institute for Advanced Research. Dr. Kump's research focuses on the long-term evolution of the oceans and atmosphere and the dynamic coupling between global climate and biogeochemical cycles. He is a Fellow of the Geological Society of America and the Geological Society of London. Dr. Kump received his Ph.D. in marine sciences from the University of South Florida.

Richard D. Norris

Member

Richard D. Norris is professor of paleobiology at the Scripps Institute of Oceanography of the University of California, San Diego. Dr. Norris's research interests focus on the use of biogeochemical and paleoceanographic data to understand earth-ocean-biosphere linkages, with particular emphasis on Cretaceous and Paleogene warm climates and the Cretaceous Thermal Maximum. Dr. Norris received his Ph.D. from Harvard University, and he is a Fellow of the Geological Society of America.

A. C. Ravelo

Member

A. Christina Ravelo is a professor of ocean sciences in the Department of Ocean Sciences at the University of California, Santa Cruz. She is also director of the Santa Cruz branch of the Institute of Geophysics and Planetary Physics (IGPP) at UCSC, and chair of the U.S. Science Advisory Committee for Scientific Ocean Drilling. Previously, she was director of the IGPP's Center for the Dynamics and Evolution of the Land-Sea Interface. Dr. Ravelo's research interests are focused on understanding Cenozoic paleoclimates and paleoceanography using stable isotope geochemistry. She received her Ph.D. in geological sciences from Columbia University.

Karl K. Turekian

Member

Karl K. Turekian (NAS) is the Sterling Professor of Geology and Geophysics at Yale University. Dr. Turekian's research focuses on the use of radioactive and radiogenic nuclides for deciphering the environmental history of Earth. He received his Ph.D in geochemistry from Columbia University and has served on the faculty at Yale since 1956. Dr. Turekian is a Fellow of the American Academy of Arts and Sciences, the American Geophysical Union, and the Geological Society of America.