Global Warming 56 Million Years Ago and What It Means For Us

Presented by Dr. Scott Wing, Curator of Fossil Plants,
Smithsonian Museum of Natural History, Washington, DC, USA

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Abstract:
Human emissions of greenhouse gases will alter conditions on earth for many thousands of years into the future. The past event that best mirrors present-day warming occurred 56 million years ago and is called the Paleocene-Eocene Thermal Maximum, or PETM. The PETM was initiated by the sudden release (in a few thousand years or less) of an amount of carbon roughly similar to that in modern fossil fuel reserves, causing global warming of 4-8 °C. I will talk about the PETM, explaining what we know about its causes, and what we have learned about its effects on ecosystems in North America and elsewhere, effects that included rapid extirpation of local populations of plants, colonization of new areas by other species, and, interestingly, rapid evolution. The lessons of deep time have ever more relevance as we rapidly mold our planet in the ongoing geological epoch some call the Anthropocene, or Age of Humans.

Bio:
Scott Wing is a Research Paleobiologist and Curator of Fossil Plants at the National Museum of Natural History of the Smithsonian Institution. He received his B.S. in Biology from Yale University in 1976, and completed his Ph.D. in the same department in 1981. Following graduate school Wing was a National Research Council Postdoctoral Fellow at the U.S. Geological Survey in Menlo Park, California for one year; then a Geologist working for the U.S.G.S. for an additional year. In 1984 he moved to the Department of Paleobiology at the Smithsonian Institution as a research scientist and curator. He holds adjunct or honorary positions at University of Maryland, University of Michigan, University of Birmingham, and the Florida Museum of Natural History, and is a Fellow of both the Paleontological Society and the Geological Society of America. Wing’s research focuses on fossil plants, with an emphasis on understanding how climate has changed in the past and how ecosystems have responded to climate change. In addition to his work on the Paleocene-Eocene Thermal Maximum, Wing has also researched the deep-time origins of tropical rainforests, and the paleoecology of flowering plants during the last part of the Age of Dinosaurs. Wing is now working with the team planning for the complete renewal of the Smithsonian’s exhibits on the history of life, a six-year project that will renovate >2,7000 m² of gallery space.