Everything Changes, but Remains the Same: Persistent and Repeating Ecosystems in Earth's History

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Geological events and processes have had profound effects on the history of life on Earth. These effects have occurred on the largest of biological scales, ranging from ecological communities, to ecosystems, to the entire biosphere, and include both increases and declines of biodiversity. In this presentation I will address questions of how ecological systems have responded to major Earth processes in the past, focusing on large igneous provinces, global climate change, and mass extinctions. How do ecological systems resist those processes? Or alternatively, why do they collapse, and if they do, how does the biosphere recover? Using examples from the end-Permian mass extinction and Late Cretaceous climate change, I will discuss those questions and the lessons and uncertainty that they provide for addressing the current climate and biodiversity crises.

Biography: Dr. Peter Roopnarine is the Curator of Geology at the California Academy of Sciences. He has a B.Sc. in Biology, M.S. in Oceanography, and Ph.D. in Geology. His research is multidisciplinary, including the evolution of ecological systems and complexity on geological timescales, molluscan paleontology and evolution, and the application of paleontology to understanding modern ecological systems. He was born in the United Kingdom, grew up on the Caribbean islands of Jamaica and Trinidad, and has called California home for more than 25 years. Aside from geology, his other passions include human histories, dogs, warm water, and the San Jose Sharks.