

Geology Lecture Series

7p.m. Thursday, October 24, 2000

Spokane Community College
Lair-Student Center Auditorium

1810 N Greene Street, Spokane, Washington

Snowball Earth and Early Animal Evolution

by

Dr. Paul Hoffman

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Presentation

Geology tells us that Earth's climate is subject to change on various timescales, but what are the limits to climatic variability? Over the last million years that constitute the Pleistocene epoch, the time in which humans evolved, continents bordering the North Atlantic Ocean were periodically glaciated at intervals governed by changes in Earth's orbit around the Sun. At the height of the last ice age, a mere 21,000 years ago, much of North America and Europe were covered by glaciers over 2 kilometers thick, causing sea levels to drop by 120 meters. The chill was global: land and sea ice combined to cover 30 percent of Earth's surface, more than at any other time in the last 500 million years.

Although these are dramatic examples of the variability of Earth's climate, they pale by comparison with climatic events near the end of the Neoproterozoic eon (1000-543 million years ago), events that immediately preceded the first appearance of recognizable animal life around 600 million years ago. It is now postulated that the Neoproterozoic glacial event ended violently under extreme greenhouse conditions. These climate shocks could possibly have fostered the explosive radiation of multi-cellular animal life, and challenge long-held assumptions concerning the limits of global change.

Speaker

Paul Hoffman is the Sturgis Hooper Professor of Geology at Harvard University in Cambridge, Massachusetts. His devotion to Earth history stems from 40 years of fieldwork in northwestern Canada and southwestern Africa. A well known and respected lecturer, he is an elected Fellow of the Royal Society of Canada and the American Association for the Advancement of Science, and a Foreign Member of the National Academy of Sciences and the American Academy of Arts and Sciences.



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