



**UNIVERSITÉ
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FACULTÉ DES SCIENCES

Section des sciences de la Terre



Association Suisse des Géologues et
Ingénieurs du Pétrole

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salle 001, 18.00 h.

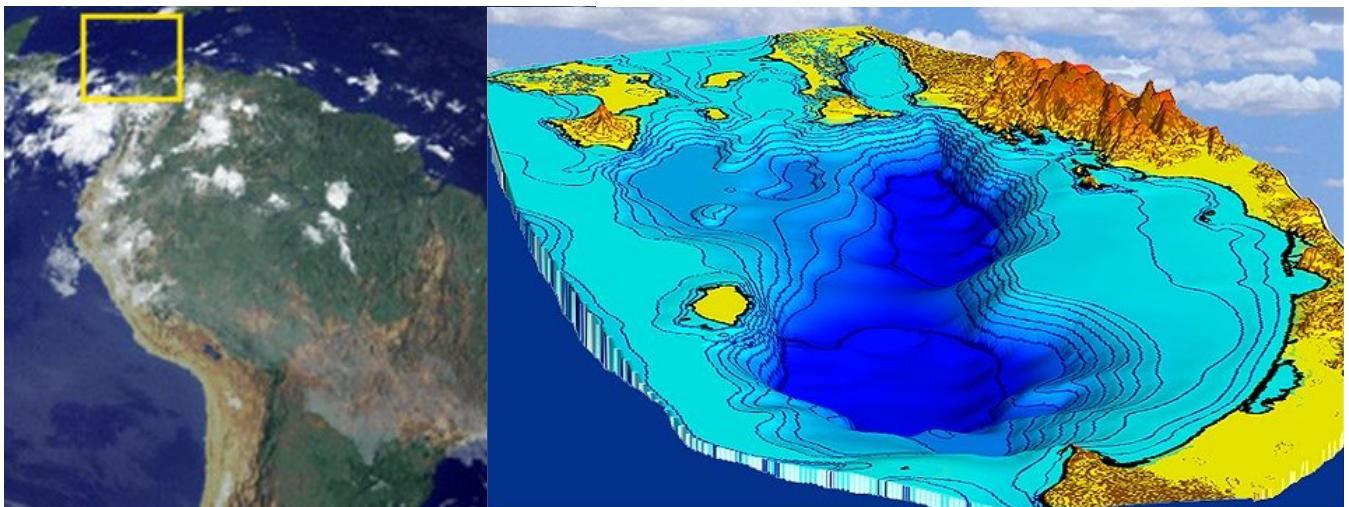
13, rue des Maraîchers, 1205 Genève

Contribution of the Geological Record to the Understanding of Global Climate Change: Past Climate Clues from Anoxic Basin Sediments

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2007-08 AAPG Distinguished Lecture



Anoxic basins are typically considered good models for understanding the accumulation of organic-rich source rocks. However, anoxic basins can also be valuable for the study of past climates since oxygen-free conditions on the sea floor can lead to virtually undisturbed sediment sequences that preserve high-frequency climate information.

The Cariaco Basin, a modern pull-apart basin on the northern continental margin of Venezuela, is the second largest anoxic basin on Earth today after the Black Sea. Here, high sedimentation rates, a strong seasonal depositional signal, and the lack of biological mixing has produced an annually laminated sediment sequence which has yielded one of our most important records of tropical climate history and abrupt climate change in the late Pleistocene.

Our understanding of the nature of late Pleistocene climate variability has changed dramatically during the last decade. We now know that the climate system can undergo large amplitude fluctuations on much shorter timescales than previously thought, an observation that has important implications for future climate change. This talk will review the evidence for abrupt climate change as first identified in Greenland ice cores and subsequently from around the world, summarize current thinking as to its origins, and discuss how the Cariaco Basin sediment record fits into a growing global picture of how climate and oceanographic conditions can shift rapidly between states.