

MGS Luncheon Meeting

Thursday, April 12th

11:45 AM PM Billings Petroleum Club

Save the Date!

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- Lunch is \$10 for MGS members, \$17 for non-members
 - Talk is always free
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RSVP – montanageologicalsociety@gmail.com



CHRISTOPHER SCHOLZ

AAPG DISTINGUISHED LECTURER

Magmatic Versus Amagmatic Continental Extension, and the Sedimentary Sequence Architecture of Rifts

Continental rifts have long been important for hosting lacustrine source rocks in many hydrocarbon provinces, and in recent years rifts have seen accelerated exploration for syn-rift reservoirs. The application of sequence stratigraphy to rift-lake systems requires special consideration, in light of 1) heightened and spatially variable subsidence accompanying normal faulting; and 2) sensitive lake levels driven by climatic shifts over geological time scales. This presentation provides examples of sequence stratigraphy applied to rift-lake systems, especially considering the roles of rift segmentation, magmatism (or lack thereof), and varying continental hydroclimates. The wide geochemical variability of lake systems in rifts is in part driven by the different styles of magmatism observed in different extensional environments, which influences the occurrences of lacustrine carbonates. Predictive models of siliciclastic reservoir facies in extensional basins are grounded in our understanding of structural controls of drainage systems. Stacking patterns and lithofacies variability are commonly complicated by climatic processes. Many tropical lakes are hypersensitive to changing evaporation-precipitation ratios, and therefore lake level changes are amplified through subtle changes in climate. Accordingly, lake level shifts in many tropical basins are dramatic, with documented changes of hundreds of meters over timeframes of a few thousand years. This presentation includes extensive overviews of nested seismic reflection data sets, ranging in scope from high-resolution data to basin- and crustal-scale imagery.

Biography

“The lakes of Africa’s Great Rift Valley are among the world’s great natural laboratories. They are the sites of significant hydrocarbon resources and they sit within the best modern example of a continent undergoing tectonic break-up.”

“My research focuses on recovering records of past climate from lake basins, and on the sedimentary basin analysis of extensional system – with emphasis on lacustrine basins.”

Christopher Scholz is a professor of Earth Sciences at Syracuse University. His research focus is the evolution of continental rift basins and the sedimentary fill of large lacustrine systems.

For the past 30 years, Scholz has undertaken studies of many large lakes and active rifts around the world, including most of the large lakes of Africa, Lake Baikal (Siberia) and the North American Great Lakes. He also studies the paleoclimate record of tropical Africa over time frames of several thousand to several million years.

His work is providing the environmental background to hominid evolution, migrations and population changes, mainly from studies of the sediments found on the bottom of the largest lakes in Africa's Great Rift Valley.