



West Virginia Geological and Economic Survey Colloquium Series

Presenting

Thomas Kammer, Ph.D.

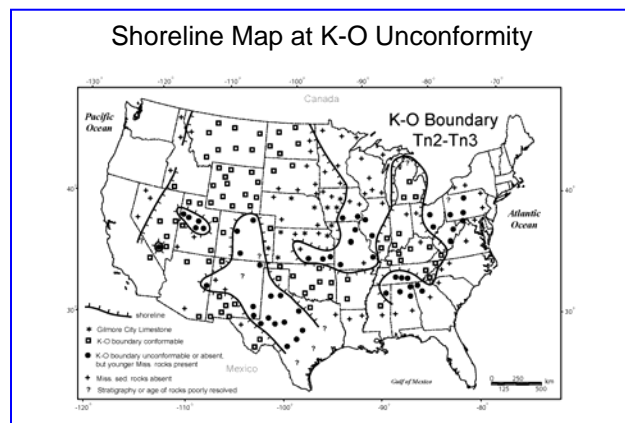
Department of Geology and Geography
West Virginia University

Date: Monday August 25, 2008

Place: **Large Conference Room behind Publication Sales**

Presentation: **Begins around Noon**

Sea Level Changes in the Early Mississippian of the U.S. Resulting from Gondwanan Glaciation



Evidence for eustasy (global sea level changes) at the Kinderhookian-Osagean (K-O) boundary is presented in a new synthesis based on detailed analysis of the boundary in the central Appalachian basin and regional mapping of the K-O boundary unconformity in the conterminous United States. Detailed stratigraphic analysis within the central Appalachian basin shows coarse-grained, fluvial sandstones (Black Hand, Burgoon, Big Injun, Purslane) are associated with valley incision up to 60 m and a widespread sequence boundary (SB2) inferred to have resulted from a forced

regression at the K-O boundary interval. The extent of unconformity at the K-O boundary was evaluated by mapping the inferred positions of shorelines during the Kinderhookian, K-O boundary interval, and early Osagean based on stratigraphic data from the COSUNA charts. This analysis shows areas of extensive unconformity at the K-O boundary across the U.S. inferred to be the result of sea level fall and recovery during a period of approximately 2 m.y. or less, based on missing conodont zones. The K-O boundary is equivalent in age to the global Tn2-Tn3 boundary, and supporting evidence for global regression and eustasy at this boundary is also reviewed.

Combining this evidence for eustasy with recently reported middle to early late Tournaisian (Tn2a-Tn3b) diamictites in South America permits the inference of continental glaciation at this time. Previous studies of oxygen and carbon isotope data for marine carbonates and fossils show strong positive anomalies suggestive of global cooling at the K-O/Tn2-Tn3 boundary, providing further support for the hypothesis of continental glaciation in the late Tournaisian.

Our speaker, Dr. Thomas Kammer, is Eberly College Centennial Professor of Geology at West Virginia University and specializes in Paleozoic paleontology and Mississippian stratigraphy. More information on Dr. Kammer, his research, and the classes he teaches at WVU can be found at <http://www.geo.wvu.edu/~kammer/welcome.htm>.