



Grand Junction Geological Society

<http://www.gjgs.org/>



This Month's Presentation

Rolf Ganahl

Grand Junction, CO

Will present a talk on

First Continental Size Glaciation Reaching Mississippi Drainage Area of North America

The speaker will present in person
although we will also have Zoom
available.

Guests Are Always Welcome

Abstract and Speaker's Bio Are on The
Next Page

Meeting Time and Location

October 15, 2025

Joint meeting with the CMU Geology Students

6:30 p.m.

Saccomanno Lecture Hall (Room 141) in the Wubben
Science Building at Colorado Mesa University

Zoom Details

Andres Aslan is inviting you to a scheduled Zoom meeting.

Topic: GJGS Oct meeting

Time: Oct 15, 2025 06:00 PM Mountain Time (US and Canada)

Join Zoom Meeting

<https://coloradomesa.zoom.us/j/94398738477>

Meeting ID: 943 9873 8477

The Zoom connection will be active about 30 minutes before
the actual meeting starts to allow time for folks to connect.

Important Announcements

Next month, November, is the month that we select our
officers for the following year. If you have any interest in
being an officer, please let one of the current officers
know.

Abstract

First Continental Size Glaciation Reaching Mississippi Drainage Area of North America

Rolf Ganahl

Interpretation of ODP 100 core 625B — drilled in eastern Gulf of Mexico (GoM) — generally assumes presence of multiple glacial melt-water events during Early Matuyama Chron. Reports of Joyce et al. (1990, 1993) and of Roof et al. (1991) document many aspects related to this pilot ODP mission, but original conclusions were based on planktonic species alone. Based on benthic data now available for parts of this core, a new globally related timing is presented for ~1.0-2.6 Ma. Using the terrigenous proxies — quartz, dolomite, and dilution (of carbonates) provided in Roof et al. (1991), it is shown that 1st glacial event to reach the Mississippi River (MR) drainage basin occurs in Late-Middle Matuyama Chron, followed by a 2nd group of glacial advances about 0.415 Ma later. These revisions are supported by diverse proxies from the Great Plains, Baffin Bay, and Greenland. Furthermore, the often quoted ‘melt-water spikes’ during Early Matuyama period are shown to result from carbonate enrichment in surface water during drainage change erosion episodes. Negative $\delta^{18}\text{O}$ excursions for true melt-water discharges — from the MR — never reach the magnitude or duration of anomalies seen during Early Matuyama Chron. It is shown that these apparent ‘melt-water spikes’ lack a coincident quartz signature — and are thus an invalid indicator for glaciations. Other evidence reveals that meltwater from the MR occurs during late glacial stages — with most of the negative planktonic $\delta^{18}\text{O}$ anomalies occurring during interglacial peaks, while two occur during peak cold periods. A Blancan V (NALMA) warm Period (BVwP) from ~2.4-1.8 Ma (MIS 95 to MIS 65) is presented that likely coincides with ‘El Niño-like’ conditions over parts of North America. All apparent ‘meltwater’ incidents during and prior to Olduvai subchron are attributed to drainage changes, while 1st continental size glaciation is shown to occur during MIS 50 (~1.5 Ma). This report concludes that multiple drainage changes — in the Missouri, Upper Mississippi and Upper Ohio River basins — enabled the occurrence of larger and more persistent ice sheets in northern North America and Greenland

Bio

A Brief Biographical Sketch for Rolf Ganahl

Rolf was born and raised in Zürich, Switzerland. After obtaining a degree in Electronics in 1965 (with emphasis on Vacuum Tubes of that time!) he joined NCR to learn his first Computer. In 1969/70, while learning new equipment in Dayton (Ohio), he met his future wife Donna. After marriage, they lived in Switzerland, England and Switzerland (again). Joining Sperry-Univac in 1971, Rolf worked on some of the largest Computers of that time. Emigrating to the USA in 1984, Rolf and Donna lived near Dayton until 2018, when they relocated to Grand Junction.

While in Ohio, Quaternary geology became one of Rolf’s primary interests, as the glacial Lake Tight area of Ohio (and Kentucky and West Virginia) was where they lived. Since 2005 Rolf has spent much time learning more about continental glaciations of North America – glaciers that are quite incomparable with the valley glaciers of the European Alps. This learning journey then led beyond Ohio to studies of glacial deposits in Nebraska, Kansas, Iowa and Missouri and to an ocean core in the Gulf of Mexico – where such glacial events are also recorded.