



Grand Junction Geological Society

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



This Month's Presentation

Mark Kirschbaum

U.S.G.S. (retired) and Colorado School of Mines

will present a talk on

Duration of events and cycles in Campanian age strata, Book Cliffs, Colorado and Utah

The speaker will be here in person so come to the campus and meet him.

Meeting Time and Location

April 16, 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: April GJGS meeting

Time: Apr 16, 2025 06:00 PM Mountain Time

Join Zoom Meeting

<https://coloradomesa.zoom.us/j/97088140347>

Meeting ID: 970 8814 0347

Note: Zoom meeting opens earlier than regular meeting to allow time for people to log on.

Important Announcements

Next month we will have the student presentations and the meeting will be in early May before the Spring semester ends.

Each year the GJGS gives out scholarships to help some of the students attending field camp cover part of their expenses. Last year we gave out five \$800 scholarships which reduced our Scholarship Fund down to \$1553. That means we will have to tap our general fund this year, which we can afford to do. But if anyone remembers their field camp experience and would like to contribute, donations are always welcome!

Abstract

Duration of events and cycles in Campanian age strata, Book Cliffs, Colorado and Utah Mark Kirschbaum

In my almost fifty years as a geologist, there have been moments of wonder when I've found a sedimentary feature that records some extraordinary event: a dinosaur footprint, a trackway from a small reptile or dinosaur, a shell accumulation, an altered volcanic ash containing leaf fossils, or cross stratification containing mud drapes, each recording seconds to weeks of time. In Roberts Dott's 1982 paper on episodic sedimentation published in Journal of Sedimentary Petrology, he addresses such sedimentation and quotes Marshall Kay, late of Columbia University, "Could bedding planes represent more time than the preserved rocks?". Kay is undoubtedly correct. Thicker more extensive deposits represent larger-scale cycles preserved during 10's or 100's of millions of years in Dott's view.

This study considers episodic sedimentation in Campanian strata of the Wasatch Plateau in Utah, and the Book Cliffs in Colorado and Utah. I have had the great fortune of visiting most of the canyons from where I-70 passes through the Plateau south of Emery, Utah to where I-70 separates the Book Cliffs from Grand Mesa near Palisades, Colorado. I studied shoreface and deltaic rocks and coals of the Star Point Sandstone, Blackhawk Formation, Castlegate Sandstone, Sege Sandstone, Neslen Formation, and Iles Formation. Using personal knowledge and extensive literature, I have estimated about 75 transgressive/regressive cycles deposited over about 8-10 million years or about 120,000 years per cycle. Counting cycles is fraught with uncertainty and the timing is even more uncertain, but it seems worth the attempt. Smaller parts of the section, which have the best age control, yield results in the range of 30,000 to 50,000 years per cycle. Most likely the cycles range from 10,000 to 200,000 years, and it is tempting to invoke Milankovitch cyclicity to explain them, but there is no reason to infer that all cycles were deposited in the same duration of time. To better constrain the duration of cycles, more precise information is required on biostratigraphy, absolute ages, and how cycles are defined.

Bio

Mark Kirschbaum worked for 33 years at the U.S. Geological Survey on coal, oil, and gas in the Rocky Mountain region and Colorado Plateau. After retiring from USGS, he worked as a research associate at Colorado School of Mines for three years on similar subjects. He was first introduced to wetland deposits as a student at the University of Miami working in a carbon-14 laboratory dating peat cored from the Everglades.