



Grand Junction Geological Society

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



This Month's Presentation

Dr. Paul Baldauf

Dept. of Marine and Environmental Sciences
Halmos College of Natural Sciences and
Oceanography
Nova Southeastern University
Fort Lauderdale, FL 33314

Will Speak on

Exploration of an aeolian record of
climate change, Last Glacial Period to
the Modern Era, northern Great Plains,
USA

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

February 21, 2024

Joint meeting with the CMU Geology Students

7:30 p.m.

Saccomanno Lecture Hall (Room 131 in the Wubben
Science Building at Colorado Mesa University)

Zoom Details

Andres Aslan is inviting you to a scheduled Zoom
meeting.

Topic: GJGS Feb meeting

Time: Feb 21, 2024 07:00 PM Mountain Time
(US and Canada)

Join Zoom Meeting

<https://coloradomesa.zoom.us/j/98746681124>

Meeting ID: 987 4668 1124

Important Announcements

If you have not yet paid your yearly dues, please do so
now. You can mail a check to our P.O. Box, or by credit
card at our website (GJGS.org), or hand in a check or cash
to our treasurer at the meeting. Our P.O. address is:

Grand Junction Geological Society
P.O. Box 4045
Grand Junction, CO 81502-4045

Please make checks payable to:
Grand Junction Geological Society Foundation

Abstract

Title: Exploration of an aeolian record of climate change, Last Glacial Period to the Modern Era, northern Great Plains, USA

Paul Baldauf

This presentation reports on an ongoing investigation of climate change and landscape development in the White River Badlands (WRB), South Dakota, USA. The White River Badlands, located in southwestern South Dakota, is an ecoregion famous for its dramatically sculpted landscapes and its Oligocene mammalian fossil record. The less studied Quaternary geological record preserves considerable evidence of environmental change, especially drought, in sand dunes and loess deposits found in upland mesas throughout the region. Our previous research on parabolic dune activity in this area supports at least three episodes of drought that caused dune migration at ~21 to 12 ka, ~9 to 6 ka, and the most recent from 700 to 200 years ago. Currently, we are investigating the Red Dog Loess, a last glacial desert loess, as much as 30 m thick, that appears to be equivalent to the Peoria-Brady Soil-Bignell Loess of southern Nebraska and western Iowa. This presentation includes discussions of the use of optically stimulated luminescence (OSL) in dating of aeolian sediment, high-resolution drone imagery to analyze aeolian geomorphology, and geochemistry and particle size analysis in the determination of sediment provenance.

Bio Dr. Paul Baldauf is a long-time member of the Badlands Working Group, a research collaborative including faculty and students from Nova Southeastern, Colorado Mesa, and Slippery Rock Universities working in the White River Badlands of southwestern South Dakota. Currently, Baldauf's research focusses on Late Pleistocene-Holocene climate change on the Great Plains of North America. He is investigating periods of exceptional drought that have affected the midcontinent in the past 50,000 years through the study of dune fields and last glacial loess. In addition, he collaborates on geological projects local to South Florida, including investigations of contaminated marine sediments and the search for novel antibiotics in soils.

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