GRAND JUNCTION GEOLOGICAL SOCIETY

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FEBRUARY MEETING
Joint meeting with the CMU Geology Students

WEDNESDAY, FEBRUARY 16, 2022
7:30 PM
Saccomanno Lecture Hall
(Room 131 in the Wubben Dr. Science Building)

Nathan Rogers
Colorado Geological Survey
Golden, Colorado

Will Speak On
"The Stratigraphic Framework for the Mancos-Niobrara of the Piceance Basin Western Colorado."

Guests Are Always Welcome
Abstract on Next Page.

The meeting will also be conducted by Zoom.
The Zoom invitation is on the page following the abstract and Nate's bio.

The Stratigraphic Framework for the Mancos-Niobrara of the Piceance Basin, Western Colorado.

Nathan Rogers. Colorado Geological Survey. Golden, Colorado.
narogers@mines.edu

A stratigraphic framework Mancos-Niobrara horizontal play in the Piceance Basin has been developed regionally from wireline logs of oil and gas wells. Developments in regional stratigraphic correlations have allowed operators to better understand the heterogeneity of this play. The Mancos Shale is an Upper Cretaceous succession that easily weathers in outcrops along the flanks of the Piceance Basin with well penetrations in over 1800 wells within the basin. A series of cross sections and isochore maps provide a stratigraphic framework for this thick predominately shale interval. The Mancos interval extends from the top Dakota (middle Cenomanian) to the Rollins Sandstone (Upper Campanian). The thickness of the Mancos unit within this study varies from under 1500 feet in the southeast to more than 5000 feet in the north of the basin. In this study, the Mancos is divided into four informal units in the subsurface: Lower, Middle, Upper, and Uppermost. Each of these units are further divided into more detailed subunits based upon internal stratigraphy which approximate chronostratigraphic entities.

The “Lower Mancos” consists of 3 subunits from the top of the Dakota Group to the base of the Niobrara Formation and includes the Dakota Silt, Mowry, Frontier, Juana Lopez, and Storm King Mountain members. The “Middle Mancos” consists of 12 subunits, and is equivalent to the Niobrara Formation, with informal units informally called the Fort Hays Chalk, Rangely, sand prone Wolf Mountain, Tow Creek, and Buck Peak benches. The “Upper Mancos” consists of seven subunits and extends from the Mancos “B”/Prairie Canyon zone in the area of the Douglas Creek Arch to the Castlegate condensed section. This condensed section is a prominent high gamma-ray marker which correlates to the very organic-rich Sharon Springs in the Denver Basin. The “Uppermost Mancos” consists of eight shale intervals intertonguing with the eight upper Cretaceous sandstones of the Morapos, Castlegate, Loyd, lower Sego, upper Sego, Corcoran, Cozzette, and Rollins. The Rollins Sandstone marks the end of the Mancos seaway in the Piceance Basin.

The utilization of this detailed stratigraphic zonation is beneficial to better predict and classify hydrocarbon source and reservoir potential. Production from the Mancos-Niobrara is either oil from fractured Niobrara in the Rangely Field, gas from the “Upper Mancos” Mancos B mainly on the Douglas Creek Arch, or gas from the more recent drilling of various horizontal targets in the Niobrara.

NATE ROGERS BRIEF CV

Education (much of it from Western CO)
High School - Hotchkiss Highschool 2003
Western State College- 2007 (BA Environmental studies) (BA petroleum Geology)
University of Colorado Boulder – 2012 (MS Geology) – MS thesis on Mancos Shale. Piceance basin

Employment (~15 years in O&G)
Antero Resources – Arkoma basin Oklahoma Hz. Woodford Shale play, Piceance Basin tight gas sands
Cabot Oil and Gas – Marcellus Hz Sh. play Appalachian basin
Newfield Exploration – Anadarko Basin Hz SCOOP/STACK plays
ConocoPhillips – Hz. Niobrara play, Global new ventures unconv. team, sed strat technology team
Crescent Point Energy – Uinta Basin Hz lacustrine play
Colorado Geological Survey – Surface geologic mapping quadrangles and assist in mineral dept.

Zoom Meeting invitation

Andres Aslan is inviting you to a scheduled Zoom meeting.

Topic: GJGS

Time: Feb 16, 2022 07:00 PM Mountain Time (US and Canada)

Join Zoom Meeting

https://coloradomesa.zoom.us/j/97535606070?pwd=dDd4RnN5eFlSMHJCQVRSVzNCdzZxZz09

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