

# **38th Annual GCSSEPM Foundation Perkins-Rosen Research Conference and Core Workshop 2022**

The Cenomanian-Turonian Stratigraphic  
Interval Across the Americas

Houston, Texas, USA  
5-9 December 2022

ISBN: 979-8-3313-2494-0

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2025) by Gulf Coast Section SEPM (GCSSEPM)  
All rights reserved.

Printed with permission by Curran Associates, Inc. (2025)

For permission requests, please contact Gulf Coast Section SEPM (GCSSEPM)  
at the address below.

Gulf Coast Section SEPM (GCSSEPM)  
2016 Peppermill Road  
Houston, TX 77080-5541  
USA

Phone: 832-492-5541

[www.gcssepm.org](http://www.gcssepm.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

## TABLE OF CONTENTS

### Front Matter

- Acknowledgments
- About GCSSEPM
- Conference Overview
- Core Workshop Overview

Unique insight to the Cretaceous OAE1d, Mid-Cenomanian Event, and OAE2 from long-line drillcores along the eastern cratonic margin of the Western Interior Basin

*Kate A. Andrzejewski, Anthony L. Layzell, Greg A. Ludvigson, R.M. Joeckel, Andreas Möller, Rolfe D. Mandel*..... 1

Recognizing primary production signatures in mudstones: the role of provenance and the modifying effects of early diagenesis: A Cenomanian–Turonian example

*Antonio Buono, William Horn, Joe Macquaker*..... 15

Using calcareous nanofossil paleoecology as a proxy for paleoproductivity and paleoceanographic reorganization of the southern Western Interior Sea during OAE2

*Shamar C. Chin and Richard A. Denne* ..... 19

Along-strike variations in Late Cretaceous carbonate deposition along the eastern Brazilian Atlantic margin from the Pelotas Basin to Sergipe–Alagoas Basin, eastern Brazil

*Sharon L. Cornelius*..... 23

Bridging the gap between the northern and southern Western Interior Seaway

*Serena Dameron, R. Mark Leckie, Elana Leithold, Libby Robinson, Jessica Whiteside* ..... 29

Organic- and coccolith-rich mudstones as dual carbon sinks: the Cenomanian–Turonian Eagle Ford of Texas

*Richard A. Denne*..... 30

Insights into the presence, distribution, thickness, and duration of the CTBE (OAE2), due to erosion by an Early Turonian sequence boundary across Texas

*A.D. Donovan, R. Bryant, M.C. Pope, M. McCreary, L.S. Dangtran, L. Evans, A. Pramudito*..... 34

Cenomanian–Turonian sediment dispersal patterns in Utah and Wyoming: a product of spatially and temporally variable accommodation

*Christopher R. Fielding, Andrew J. Hutsky, Jesse T. Korus*..... 35

Late Cretaceous Gulf of Mexico Basin dysoxic benthic foraminiferal biomes seen against a backdrop of changing climates and sealevels, episodic connections to the North American Western Interior Seaway, with waning Pacific and waxing South Atlantic ocean connections

*Richard H. Fillon* ..... 44

Facies identification through lithologic and geochemical observation of the Oceanic Anoxic Event 2 interval in the Cretaceous Western Interior Seaway—examples from the Rebecca K. Bounds core

*Jason A. Flaum and Jay Kalbas*..... 66

Integration of lithofacies and geochemical observation to interpret depositional processes and environments associated with carbon burial during Oceanic Anoxic Event 2 <i>Jason A. Flaum, Justin E. Birdwell, Katherine L. French</i> .....	74
Lithologic and geochemical observations of the lower Eagle Ford from the USGS GC-2 core in the East Texas Basin <i>Jason A. Flaum, Stanley T. Paxton, Justin E. Birdwell, Katherine L. French</i> .....	93
An integrated geochemical perspective of paleoenvironmental conditions before and during OAE-2 at the southern gateway to the Western Interior Seaway <i>Katherine L. French and Justin E. Birdwell</i> .....	100
Litho-and chemostratigraphic response and recovery from OAE2 in the Maverick Basin of the drowned Comanche Platform in south Texas <i>Kathryn Fry, Toti E. Larson, Lucy ‘Tingwei’ Ko, J. Evan Sivil</i> .....	103
Time-transgressive transition from oxic to anoxic bottom waters during the Cenomanian in the Greater East Texas Basin <i>Gunnar M. Gregory, Richard A. Denne, Marissa English, Samantha Patterson</i> .....	104
Shale compositional trends in the Cenomanian–Turonian Cretaceous Western Interior Seaway: facies and sequence stratigraphic models <i>Bruce S. Hart, Michael Hofmann, Guy Plint, Michelle Nicolas</i> .....	107
Lithologic response to OAE2 across the drowned Comanche Platform, south Texas <i>Toti E. Larson, Lucy ‘Tingwei’ Ko, Katherine Fry, Michael Nieto, J. Evan Sivil, Harry Rowe</i> .....	122
A neritic record of Ocean Anoxic Event 2 from coastal Utah: new insights into US Western Interior Seaway paleoceanography and foraminiferal paleoecology <i>R. Mark Leckie, Amanda Parker, F. Garrett Boudinot, Timothy J. Bralower, Raquel Bryant, Victoria Fortiz, Matthew M. Jones, Kenneth G. MacLeod, Bradley B. Sageman, Julio Sepúlveda</i> .....	124
Rock fabric variations preserved in close association with OAE events: a study of diverse delivery, dispersal, and diagenetic mechanisms operating to preserve organic carbon in fine-grained marine sedimentary rocks <i>John Lien, Eiichi Setoyama, Sudeep Kanungo, Joe Macquaker</i> .....	125
Using the delta log R method to predict TOC in the Tuscaloosa marine shale, Mississippi, U.S.A. <i>Celeste D. Lohr and Matthew D. Merrill</i> .....	140
Predicted paleoceanographic reconstructions for the Mid-Cretaceous Seaway in the Cenomanian and some end-member calibration points: implications for regional natural carbon sequestration <i>Joe H. Macquaker, Paul Markwick, John Suter</i> .....	145
The Earth system during the Cenomanian and Turonian (Upper Cretaceous) <i>Paul Markwick, John Suter, Carmen Fraticelli</i> .....	162

The value of integrated high-resolution studies: the Eagle Ford example <i>Daniel Minisini, Steven C. Bergman, James S. Eldrett</i> .....	177
Marine extinction severity was decoupled from environmental change during Oceanic Anoxic Event 2 <i>Manuel Paez-Reyes, Swapan S. Sahoo, Jeremy Owens, Peter Sadler, Kathleen E. Wilson, Humberto Carvajal-Ortiz, Seth Young, John Ortiz, Peter Copeland</i> .....	184
Facies heterogeneity of ‘Black Shales’—implications for depositional processes of organic-carbon-rich sediments in the Turonian Second White Specks Formation, Alberta, Canada <i>Emma L. Percy, Per K. Pedersen, Dane Synott</i> .....	185
Organic-rich mudstone deposited under shallow-water anoxic and euxinic conditions on continental shelves and epicontinental seaways: an example from the Late Cretaceous Eagle Ford Group, west Texas, USA <i>Michael Pope, Matthew Wehner, Aris Pramudito, Rand D. Gardner, Trey Lyon, Roy Conte, Art D. Donovan, Michael M. Tice</i> .....	206
Cenomanian–Turonian source rocks of the Gulf of Mexico, Part 1: ultimate expellable potential mapping of source rock Acmes 95 and 93MY: an outcrop to basin center study <i>Aditya Pradono and Andrew Pepper</i> .....	207
Cenomanian–Turonian source rocks of the Gulf of Mexico, Part 2: petroleum systems of source rock Acmes 95 and 93MY <i>Aditya Pradono and Andrew Pepper</i> .....	212
The SH-1 core: insights into the Cenomanian–Turonian OAE2 <i>B.Sageman and M. Jones</i> .....	217
Biostratigraphy, geochemistry, and documentation of OAE2 at the Cenomanian–Turonian boundary of the Biloxi Marshlands O-1 core, eastern Louisiana, U.S.A. <i>Jean M. Self-Trail, Augusta Warden, Matthew D. Merrill, Celeste D. Lohr, William H. Craddock</i> .....	218
Planktonic community changes in the Early Cretaceous OAEs in Cretaceous Western Interior Seaway, south Texas, USA <i>Xun Sun, Swapan Sahoo, Rob Forkner, Tongwei Zhang</i> .....	222
Characterization, stratigraphy, depositional environments and paleogeography across the Cenomanian–Turonian boundary in Colombia and Venezuela: back to the basics <i>Tomas Villamil</i> .....	223
Evidence of transport within a distal foreland basin mudstone: lenticular fabric in the Hue Shale of northern Alaska <i>Katherine J. Whidden, Richard O. Lease, James Macquaker, Jason A. Flaum, Palma J. Botterell, Christina DeVera, Julie A. Dumoulin, David W. Houseknecht, William A. Rouse, Margaret M. Sanders, Rebecca A. Smith</i> .....	235