# **GCAGS** Journal

# A Publication of the Gulf Coast Association of Geological Societies

(A Section of the American Association of Petroleum Geologists)

# **Volume 2 2013**

### **Editor**

**Tucker F. Hentz** 

**Managing Editor** 

James J. Willis

#### **Associate Editors**

Howard Creasey, Thomas E. Ewing, Andrew M. Goodliffe, Barry J. Katz, R. P. Major, Michael J. Nault, and Jean-Philippe Nicot





## GCAGS Journal, Vol. 2 (2013)

Copyright © 2013
Gulf Coast Association of Geological Societies
All rights reserved.

ISBN 978-0-9883883-2-1

Printed September 2013.

#### **Special Fair Use Permission**

If you want to use a single figure, a brief paragraph, or a single table from the *GCAGS Journal* in a paper in another publication, GCAGS considers this to be fair usage, and you need no formal permission. In that case, you should print a copy of this document and present it to your publisher. You are, however, required to provide proper citation (see Condition of Grant of Permission below). Permission for more extensive reproduction of GCAGS material can be requested from the Executive Director or Managing Editor (see www.gcags.org).

#### **Condition of Grant of Permission**

As a condition of the grant of permission contained under the **single use only or multiple item usage**, GCAGS requires: 1) a full citation in your bibliography for each GCAGS publication from which a table or figure or text is taken; and 2) a statement or citation in figure and title captions, including a) the author name(s) and year of original publication, followed by b) the phrase "reprinted by permission of GCAGS, whose permission is required for further use."

**Cover:** Examples of micropore systems. Insets represent photomicrographs of *Dictyoconus* foraminera in grainstone cemented by fine- to medium-crystalline equant calcite in plain-polarized light (left) and in blue UV light (right), which allows areas of micropores to luminesce blue, and top background image illustrates mercury UV-light mosaic of photomicrographs showing micropore network (light blue) in grainstone, all from the Lower Cretaceous strata at Pawnee Field, South Texas (see Loucks et al. herein). Lower background image shows broken surface SEM photograph of minimicrite from core from the western slope of the Great Bahama Bank (see Lucia and Loucks herein).

## **CONTENTS**

Micropores in Carbonate Mud: Early Development and Petrophysics	1
Velocity Model Building Using Tilted Orthorhombic Depth Imaging for Full Azimuth Seismic Data	11
Regional Controls on the Formation of the Ancestral DeSoto Canyon by the Chicxulub Impact	17
Origin and Description of the Micropore Network within the Lower Cretaceous Stuart City Trend Tight-Gas Limestone Reservoir in Pawnee Field in South Texas  R. G. Loucks, F. J. Lucia, and L. E. Waite	29
Comparative Stratigraphy of the Eagle Ford Group Strata in Lozier Canyon and Antonio Creek, Terrell County, Texas	42
Flow and Salinity Patterns in the Low-Transmissivity  Upper Paleozoic Aquifers of North-Central Texas  Jean-Philippe Nicot, Yun Huang, Brad D. Wolaver, and Ruth A. Costley	53
Diagenetic Evolution and its Influence on Petrophysical Properties of the Jurassic Smackover Formation Thrombolite and Grainstone Units of Little Cedar Creek Field, Alabama	68

#### GCAGS Executive Committee (2012–2013)

President	Tom Klekamp
Vice President	Mary Broussard
General Chairman	Art Johnson
Vice Chairman	Tom Klekamp
Secretary	Jack Gross
Treasurer	Mike Fein
Past President	Scott Tinker
Executive Director	Kate Kipper
Finance Committee Chairman	

#### GCAGS Journal Editorial Board (2012–2014)

#### Editor

Tucker F. Hentz, Bureau of Economic Geology, University of Texas at Austin, Austin, TX

#### **Associate Editors**

Howard Creasey, Apache Corp., Houston, TX

Thomas E. Ewing, Frontera Exploration Consultants, San Antonio, TX

Andrew M. Goodliffe, Department of Geological Sciences, University of Alabama, Tuscaloosa, AL

Barry J. Katz, Chevron Energy Technology Company, Houston, TX

Brian E. Lock, Department of Geology, University of Louisiana at Lafayette, Lafayette, LA

R. P. Major, Department of Geology and Geological Engineering, University of Mississippi, University, MS

Michael J. Nault, Applied Biostratigraphix, Houston, TX

Jean-Philippe Nicot, Bureau of Economic Geology, University of Texas at Austin, Austin, TX

GCAGS sincerely acknowledges the substantial financial support of Shell Energy Resources Company.



