



Newsletter of the
Utah Geological Association

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<http://utahgeology.org>

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January UGA Luncheon Meeting
January 18, 2010

2009-10 AAPG Distinguished Lecture



Abstract

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Isolated Carbonate Platforms and Mounds (ICPM): Initiation, Growth and Demise

This talk focuses on Tertiary and modern ICPM from Southeast Asia, drawing general conclusions on ICPM initiation, growth and demise.

Isolated carbonate platforms and mounds (ICPM) originate on topographic highs in shallow marine waters and are surrounded on all sides by deeper-water environments. Comparative studies of modern and ancient isolated platforms allow insights into mechanisms that control the platforms. Modern examples provide information especially relevant to Tertiary platforms because the carbonate-secreting organisms that built the platforms are very similar and occupied similar ecologic zones.

In the modern detailed information on the organisms and environments of deposition can provide insights into the dominant controls on facies type and dimensions today. However, there is a challenging lack of information

regarding how the facies and size change through time. This challenge can be addressed through high-resolution seismic images, which provide sequential and spatial information and allow for comprehensive analysis on ICPM initiation, amalgamation, and demise. A unique combination of insights gathered from modern and ancient datasets on isolated carbonate platforms and mounds can be used to make predictions, create conceptual models, and guide geologic model inputs.

Two- and three-dimensional seismic surveys from SE Asia show internal seismic geometries and positions of margins, providing clues on the evolution of the ICPM. Mounds initiate as small positive features that amalgamate to form platforms of different sizes and geometries prior to

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drowning. The distance between the mounds appears to be the first-order control on amalgamation and ultimate platform size. However, amalgamation may be inhibited if strong currents redistribute sediment transported off-bank and away from the mounds, leaving unfilled accommodation space.

Understanding the feedbacks between mound amalgamation and carbonate production will have implications for predicting control mechanisms and building conceptual models. High amalgamation rates imply large areas of shallow-water carbonate deposition and high carbonate production resulting in the formation of mega-platforms. Smaller areas of shallow water deposition tend to drown faster when environmental conditions deteriorate and platforms cannot keep up with increased accommodation.

Satellite images over several modern platforms in SE Asia provide an opportunity to investigate the importance of oceanographic processes such as tides and currents as well as tectonic subsidence and chemistry on carbonate deposition and the impact on ICPM evolution. In the Tertiary, however, special consideration is needed for sea-surface temperature and salinity residence times. These parameters are thought to be the major difference in biologic controls on the types of organisms building shallow-water platforms in the Tertiary versus today.

Modern and ancient datasets are used in parallel to evaluate what and how certain processes control initiation, growth, and demise of isolated carbonate platforms and mounds. This allows us to predict the controls for ancient ICPM, thus establishing a framework of rules for predictive conceptual models.

Toni Simo

Education:

- 1985 Ph.D. in Geology, University of Barcelona.
- 1982 MS in Geology, University of Barcelona.
- 1981 BS Geology (1976-81), University of Barcelona.



Employment, Scholarships and Affiliations

- 2006- Research Associate, URC, ExxonMobil
- 2002-2006 Full professor, University Polytechnic Barcelona
- 1999-2006 Full Professor, University of Wisconsin
- 1994-98 Associate Professor, University of Wisconsin
- 1998- Research Associate, UW-Extension, WGNHS, Geological Survey
- 1989-94 Assistant Professor, University of Wisconsin
- 1987-88 MEC Post-doctoral Fellow, USA
- 1985-87 Fulbright Post-doctoral Fellowship, USA

Publications

- 2008 Lukasik, L., and J.A. Simo, *Controls on Carbonate Platform and Reef Development* SEPM Special Publication N 89 364 p.
- 1999 Harris P.M., A. Saller and J.A. Simo, *Advances in Carbonate Sequence Stratigraphy*, SEPM Special Publication 62.
- 1993 Simo, J.A., R.W. Scott, and J.P. Masse, *Cretaceous Carbonate Platforms: American Association of Petroleum Geologists, Memoir 56*, 486 p.
- 2006 Cooke, M.L., Simo J. A., Underwood, C.A., and Rijken, P., *Mechanical Stratigraphic Controls on Fracture Patterns within Carbonates and Implications for Groundwater Flow, Sedimentary Geology*, 184, p 225-239.
- 2005 Essam Sharaf, J.A. (Toni) Simo, A. R. Carroll, and M. Shields, *Stratigraphic Evolution of Oligocene-Miocene Carbonates and Siliciclastics, East Java Basin, Indonesia, AAPG Bulletin*, 89, 799-819 p.

***** **NEW LUNCHEON LOCATION** *****

The January luncheon meeting will be at 12:00 noon, **Monday January 18th**, 2010, at the Sinclair office, a "terraced" concrete building at 550 E. South Temple. There are a few visitor parking stalls behind the building (enter on the east driveway). There is also parking on 500 and 600 East. Be sure to phone or email your reservation before the deadline so our lunch count is close. Check in with the receptionist on the west side of the 1st floor.

Please make your reservations (537-3300) no later than 4:00 p.m. on Thursday January 14th. Click to make reservations for the Luncheon Meeting by sending email to reservations@utahgeology.org.

Lunch at 12:00 noon. Meeting begins at 12:30. Cost: \$10.00 w/ reservations; \$5.00 for students. Cash or Checks only please.

President's Message

Happy New Year to all Utah Geological Association members!

Even though it has been quite cold, I hope this new year finds each of you in good health and busy with numerous projects (at work or school).

It should be a busy year for the UGA. As I write this note, Publication 38 (2009 Guidebook) should be going to "press". Work is also underway on the 2010 Guidebook (Grand Staircase Area) and the editors are busy reviewing papers. We are pleased that the Association will also be involved (both technically and with a financial contribution) to an updated Geologic Road Sign project on the south slope of the Uintas.

Also of note is that the UGA board has authorized the editors of Guidebook 28 (Geology of Utah's Parks and Monuments) to begin work on preparing a third edition. This outstanding publication has sold nearly 8000 copies in ten years and continues to be very popular with students, visitors and professionals who enjoy the geology and scenery of Utah.

None of these projects just mentioned could be put together without a lot of dedicated time and effort from numerous volunteers. Thanks to all of you!

Randy G. White

Welcome New UGA Member

The UGA would like to welcome the following new Active Members:

Jan Morse – Environmental Scientist, State of Utah Division of Oil, Gas, and Mining

Neil Burk
2010 UGA Secretary

Association of Engineering Geologists

AEG monthly dinner meeting Thursday, **January 14, 2010**

Jeff Hirst, CIC, Account Executive, American Insurance & Investment, and **Adam Mow**, AIA, Esq., Attorney, Babcock, Scott, and Babcock will talk about "Contracts."

Dinner/Social – 5:30 to 6:30 PM; Program begins at 6:30 PM; Place – Rocky Mountain Pizza 3977 S. Wasatch Blvd. (north of Dan's at the Olympus Hills Shopping Center), Salt Lake City, UT. Please R.S.V.P. with Jessica Castleton at eolianwanderer@msn.com or 801-390-3665 by 3 pm on the day of the meeting for a reservation. The costs for the dinner meeting is as follows; students: \$4, members: \$12 w/reservations, \$13 w/out reservations, non-Members: \$14, and the talk only: \$5.



Call for Papers

AAPG Rocky Mountain Section Meeting in DURANGO, COLORADO, June 13-16, 2010

Abstract deadline February 1, 2010

(go to www.fourcornersgeologicalsociety.org for more information)

Technical Program

Oral, Poster, and Poster/Core Sessions

- Shale Gas and Fractured Shale Plays of the Rockies
- Tight Gas Sands and Fractured Sandstone Reservoirs
- New Insights into the Paradox Basin
- San Juan Basin – Mature Basin?
- New Concepts and New Discoveries in the Rocky Mountain Overthrust Belt
- Uranium Geology in the Rockies
- CO₂ Sequestration – What Have We Learned So Far?
- Geothermal Energy – From Hot Springs to Produced Water
- Advances in Completion Technologies & Microseismic Monitoring
- Geomechanics / Deformation Styles in the Rockies
- Multi-scale Observations and the Application of Remote Sensing and Lidar to Rocky Mountain Petroleum Exploration
- Sedimentology and Stratigraphy of Rocky Mountain Basins
- Structure of Rocky Mountain Basins
- Student Papers

Field Trips

- Pennsylvanian Hermosa Fm., from Shelf to Basin
- Upper Cretaceous Reservoirs of the San Juan Basin
- From the San Juan Basin to the San Juan Mountains:
Part I: Paleozoics of the Animas Valley North
- From the San Juan Basin to the San Juan Mountains:
Part II: Cretaceous to Paleogene of the Animas Valley South
- Aeolian Reservoir Analogs

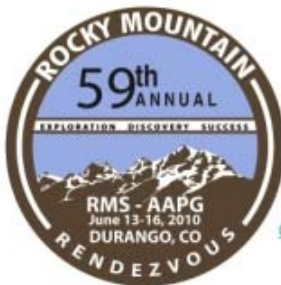
Short Courses

- Source Rocks 101
- Uranium Geology
- Logging while Drilling

Submit Abstracts Online at:

www.fourcornersgeologicalsociety.org
or, www.aapg.org/meetings/rms/

Presenting authors can submit their research for possible publication in the New Mexico Geological Society's 2010 Fall Field Conference Guidebook which will focus on the Four Corners Area. Deadline for manuscript submission is March 1, 2010. Contact Jim Fassett (below) or Kate Ziegler (bluedragon@gmail.com) for more information.



CONTACT INFORMATION

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Hosted by



**The Four Corners
Geological Society**

UGA VOLUNTEERS

UGA Board

(unless otherwise indicated, area code is 801)

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