



# Everglades Geological Society

# **BULLETIN**

Volume 4, Number 4

December 1997

Next Meeting: December 16, 1997  
6:30 P.M. at the French Connection  
*(social hour starts at 5:30)*

**Speaker: Thomas M. Missmer, Ph.D.,**  
**Late Oligocene to Pliocene Evolution of the Central Portion of**  
**the South Florida Platform:**  
**Mixing of Siliciclastic and Carbonate Sediments**

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**Everglades Geological Society**  
**P.O. Box 61684**  
**Fort Myers, FL 33906**

The Everglades Geological Society is an organization which seeks to promote interest in and understanding of Geology and the related Earth Sciences, and to provide a common organization for those individuals interested in geology and the related earth sciences.

The Bulletin is a monthly (September-June) publication of the Everglades Geological Society, Inc.

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### **Advertising Rates**

Advertisements may be purchased in the Bulletin at the following rates for ten issues of the newsletter.

Business Card Size .....\$25.00  
1.8 x 3.5 inches

One-Quarter Page .....\$80.00  
3.5 x 4.5 inches

One-Half Page ..... \$175.00  
7 x 5 inches

For Additional advertising information.

Write to:  
Everglades Geological Society  
P.O. Box 61684  
Fort Myers, FL 33906

## **Presidents Message**

Dan Acquaviva

Last month while in Denver I stopped in at the Rocky Mountain Association of Geologists (RMAG) office to buy one of their recent publications. The RMAG, which is one of the more active of the AAPG member societies, has averaged one publication per year for the last 25 years. Each of those publications is of excellent quality. I also noted with interest the Miami Geological Society's advertisement in the November AAPG Explorer for their publications. The Miami Society has generated 11 publications in its 33 year history. All of which brings me to the point of this letter, which is that, although it may be a little ambitious for the EGS to produce a publication in its third year of existence, its time to start seriously planning to do so.

Because our committee system has fallen into a state of inactivity, I have asked each Board member to assume the responsibility for chairpersonship of one committee. Those assignments are published elsewhere in this Bulletin. Each chairperson will be responsible for recruiting members to their respective committees, volunteers are encouraged.

I have also asked the Publications Committee to meet and generate a short list of potential topics for publications. After agreeing on a final topic, hopefully one in which the membership has some considerable expertise, we will issue a Call for Papers. Our free one-quarter page annual advertising space in the AAPG Explorer could provide a good venue for this announcement. I hope that the membership can strongly support this project and that we can produce a valuable contribution to the scientific literature, as well as a product that will also provide some long-term income to the Society.

As always, feedback from the membership, on this or any other topic, is appreciated. In the meantime, I hope to see you all at the December meeting. For those who cannot attend - Happy Holidays.

Dan

### **EGS MEETING CALENDAR**

**1998**

**January 20**  
**February 17**  
**March 17**  
**April 21**  
**May 19**  
**June 16**

### **EGS COMMITTEE CHAIRPERSONS**

Paul Attwood - Technical Program/Field Trip  
Clyde Dabbs - Bulletin/Publications  
Duane Dungan - Advertising  
Jack McCoy - Finance  
Elizabeth Shawkey - Employment  
Dan Acquaviva - Continuing Ed./Academic Liason  
Lloyd Fox - Nominating/Awards  
Buzz Walker - Special Events/Entertainment

# Late Oligocene to Pliocene Evolution of the Central Portion of the South Florida Platform: Mixing of Siliciclastic and Carbonate Sediments

Thomas M. Missmer, Ph.D.

*(Abstract of a doctoral dissertation at the University of Miami. Dissertation supervised by Professor Robert N. Ginsburg No. of pages in text 406 (and 587 in data appendix)).*

Synchronous deposition of carbonate and siliciclastic sediments occurred on the South Florida Platform during the late Oligocene to early Pliocene, produced a large number of complex mixed carbonate/siliciclastic lithologies, some perhaps unique to the region. All 14 defined subfacies contain a mix of carbonate and siliciclastic sediments along with quartz sand and phosphorite grains. Only a small percentage of the stratigraphic section contains sediments with a solely carbonate or solely siliciclastic composition. Transitions between subfacies are both transitional and abrupt. The hypothesis that carbonate and siliciclastic mixed sediment sequences show mostly abrupt boundaries (Mount, 1984) is not supported.

Based on the interpretations of the depositional environments for the 14 subfacies found in the Hawthorn Group, the entire stratigraphic section was deposited on a ramp with a high percentage of the sediments containing a carbonate mud component. Homoclinal ramp deposits are characterized by low, rather uniform slopes from shallow water into the basin with continuous grading of sediment types from nearshore sands to deep water sands and muds. Many described ramp deposits contain little or no mud in the open inner or outer ramp subfacies, such as the eastern Florida ramp, the current west Florida ramp, and other wave-dominated ramps, such as southern Australia (James et al., 1994; Boreen and James, 1995). Modern ramp deposits bordering restricted water bodies, such as the Arabian Gulf do contain a belt of muddy open-water inner and outer ramp deposits. Ancient epeiric-sea ramp deposits

also produced wackestone and mudstone deposits in the open shelf area. Therefore, the southern Florida ramp deposited during the late Oligocene to early Pliocene was more similar to a restricted sea ramp than a wave-dominated ramp.

A new chronostratigraphy was developed for the upper Paleogene and Neogene sediments on the central part of the South Florida Platform. The ages of the sediments were determined by the combined use of calcareous nannofossils, planktonic foraminifera, diatoms, strontium-isotope stratigraphy, magnetostratigraphy, and carbon and oxygen isotope variations. Based on these integrated dating techniques, the following age constraints using the Berggren (1995) time scale were placed on the formations in this region: the Suwannee Limestone is constrained from between 33.7(?) to 28.5 Ma, the Arcadia Formation of the Hawthorn Group is constrained from between 26.5 to 12.4 Ma, the Peace River Formation of the Hawthorn Group is constrained to between 11 (?) to 4.3 Ma, the Tamiami Formation is constrained between 4.29 to 2.15 Ma, and the Caloosahatchee Formation is constrained from 2.14 to 0.6 Ma. Eleven third-order sea-level events were recognized in the stratigraphic record between the late Oligocene and early Pliocene. With the exception of the early Miocene sea-level events, the remaining seven events corresponded closely in time with the global sea-level curve of Haq et al. (1988). However, the depth of flooding on the Florida Platform differed from the relative depths predicted by the Haq curve. During the late Aquitanian and Burdigalian, Haq observed three third-order sea-level events, but four events were recorded in the cores studied. It is hypothesized that two of the events correlate to event 2.1 of Haq et al. (1988), which is a revision of the global curve.

## 1998 CALENDAR

Latin American Energy Summit	Houston	Jan. 22-23
Water Reuse Conference	Lake Beuna Vista, Fl.	Feb. 1-4
Ninth Congress of Union of African Water Suppliers	Casablanca, Morocco	Feb. 16-20
Latin American Energy Conf.	Miami	March 4
International Water Technology Conference	Alexandria, Egypt	March 20-23
American Chemical Society Annual Meeting	Dallas	March 21-26
Geological Soc. of America Southeastern Section Mtg.	Charleston, W.V.	March 30-31
AAPG Annual Meeting	Salt Lake	May 17-20
GSA Rcky Mtn Sec. Mtg.	Flagstaff	May 25-26
Soc. of Professional Well Log Analysts	Keystone, Co.	May 25-28
Georgia Section AWWA	Atlanta	August 16-19
Assessing and Managing Health Risk for Drinking Water Contamination	Santiago, Chile	Sept. 7-10
GCAGS Annual Convention	Corpus Christi	Oct. 21-23
GSA Annual Mtg.	Toronto	Oct. 26-29
NGWA 50th Anniversary Annual Convention	Las Vegas	Dec. 13-16

## STUDENT SECTION

At its November Meeting the EGS Board approved creation of a Student Section with annual dues of \$5.00. In order to qualify an individual must be actively enrolled in an undergraduate Geology program at an accredited college or university.

We are looking for a student contributor to the EGS Bulletin to handle the Student Section News. Please call Clyde Dabbs at 338-2929.

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## STUDENT SECTION NEWS

Travel Grants - available from the Geological Society of America for travel by students to GSA section and annual meetings. Call Mr. Harold Stowell, GSA Section Secretary (205) 348-5098 [hstowell@wgs.geo.us.edu](mailto:hstowell@wgs.geo.us.edu) for information.

Graduate Student Research Grants - numerous grants are available through the AAPG Foundation. Call (918) 560-2664 for more information.

## EMPLOYMENT FILE

The following are a random selection of geological positions culled from advertisements in other publications dated within the last 30 days. Contact the EGS Employment Committee for more details.

Professor of Groundwater Hydrology - State University of N.Y. at Buffalo

Professor of Hydrogeology - Pennsylvania State University

Assistant Professor of Geology - Ball State University

Environmental Geoscience Professor - Amherst College

Asst. Prof. of Environmental Geology - University of Michigan

Water Conservation Program Specialist - Dekalb County, Georgia

Senior Hydrogeologist - Layne GeoSciences, Mission Woods, Ks.

Director of Hydrogeology - Northern Environmental Technologies, Mequon, Wi.

Asst. Prof. of Hydrogeology - University of Rhode Island

Professor of Hydrogeology - University of Neuchatel, Switzerland

Exploration Geologist/Geophysicist - Aramco Services, Houston

Sequence Stratigrapher - Texaco Explor & Prod., Houston

Geoscientist - Dynamic Graphics, Alameda, Ca.

Reservoir Geologist - Kansas Geol. Survey, Lawrence

Environmental Analyst - SFWMD, Ft. Myers

Environmental Scientist - Ball Corp., Broomfield, Co.

Environmental Scientist - Blue Mtn. Energy, Rangely, Co.

Environmental Scientists - Rust Envr.&Infrastruct., Englewood, Co.

Emergency Planning/Response Specialist - National Older Worker Career Center, Golden, Co. (must be older than 55)

Environmental Editor - Elsevier Science, Highlands Ranch, Co.

Petroleum Engineer Associate - City of Long Beach, Ca.

Geologists - Unocal, Houston

Geoscientists - Amerada Hess, Houston

Geologist - Unimin Corp., New Canaan, Ct.

## CALLS FOR PAPERS

GCAGS Annual Convention - abstracts by January 12, 1998, maximum 250 words, topics: tectonic framework of Gulf of Mexico, chronostratigraphy of Gulf Coast sequences, depositional models for active plays, structural styles and histories, future plays, groundwater - future reserves, environmental concerns, applied biostratigraphy and paleoecology.

GSA Annual Convention - abstracts by July 13, 1998

Geo-Triad'98 - [www.geotriad98.ab.ca](http://www.geotriad98.ab.ca)

# THIS MONTH'S CONTEST

Can you name this geological feature? The first EGS member to correctly identify the feature schematically illustrated below to an EGS Board member at the December meeting will receive a free T-shirt (extra credit - one free beer - if you can also identify the paper or author from which it came). **You must be present to win.**

*Board members are not eligible.*

## EGS FOUNDATION CONTRIBUTIONS

Last Spring the EGS established a foundation to provide assistance in the form of grants to deserving local Geology students. All contributions are tax deductible. As you are reviewing your tax situation before year-end, please consider this worthy cause.