

## **Center for Sedimentary Basin Studies 2001-2002 Statistical Report**

### **Center Mission**

The purpose of the Center for Sedimentary Basin Studies (CSBS) is to provide a structure and program for interdisciplinary research and education in the sciences and engineering for the study of sedimentary basins. The CSBS focuses on basin analysis and modeling; petroleum system modeling; reservoir characterization, modeling and simulation studies; and the effective transfer of research findings and technology to the public and industry.

### **Center Objectives**

- Recognition nationally and internationally as a premier interdisciplinary research and education program in the study of sedimentary basins.
- Establishment of an integrated research team of scientists and engineers who are competitive in securing external funding nationally at the \$1 million level.
- Recruitment and education of graduate students nationally and internationally who are funded through CSBS.
- Establishment of an outreach program for the Eastern Gulf Region.

### **Accomplishments**

#### **1. Recognition**

- Researcher (Ernest Mancini) received an award from GCAGS for outstanding research contributions.
- Researcher (Mancini) is invited to be a presenter at an International Conference on Life and Climate in the Paleogene.
- Researcher (Mancini) is invited to be a speaker at the DOE Class II Petroleum Reservoir Review.
- Researcher (Mancini) is invited to be a speaker at the East Texas Geological Society Meeting.
- CSBS is cooperating with 19 participating organizations, including other universities, federal and state agencies and industry.

#### **2. Funding Support**

- CSBS secured continuation of 3 contracts totaling \$1,281,116.
- CSBS secured continuation of 3 software grants with a total value of \$1,911,676.
- Annual external support for CSBS is at \$1.3 million.

#### **3. Faculty and Student Support**

- CSBS has 14 participating faculty researchers in geology, geophysics, biology, petroleum engineering, chemical engineering, computer engineering, and civil engineering.
- CSBS is providing funding support for 3 research scientists, 4 Ph.D. students and 11 M.S. students.

#### **4. Productivity**

- Researchers associated with CSBS have published 28 papers and abstracts, made 21 presentations and have been awarded 8 new or continuation research contracts/grants in 2001-2002.

#### **5. Outreach**

- CSBS is the recognized leader in the Eastern Gulf Region for oil and gas technology transfer and information dissemination, conducting/organizing 9 technology workshops in 2001-2002, publishing a quarterly newsletter, maintaining a Web Site and answering information requests.

## Statistics

### 1. Participating Faculty (14)

- Geological Sciences/Geophysics
  - Ernest A. Mancini
  - Joe Benson
  - Rick Groshong
  - Dennis Harry
  - Rick Major (U. Miss.)
  - Bruce Hart (McGill)
  - Wayne Ahr (TAMU)
- Chemical Engineering
  - Eric Carlson
- Civil Engineering
  - Charles Haynes
- Computer Engineering
  - Hannah Chen
- Petroleum Engineering
  - Tom Blasingame (TAMU)
  - Rosalind Archer (TAMU)
  - Alex Vadie (MSU)
- Biology
  - Lou Brown (MSU)

### 2. Participating Research Scientists (3)

Mark Puckett  
 Brian Panetta  
 Leo Lynch (MSU)

### 3. Participating Graduate Students (15)

- Geological Sciences
  - Marcello Badali (Ph.D.)
  - William Tedesco (Ph.D., U. Miss.)
  - Jamal Obid (Ph.D.)
  - Kaiyu Liu (Ph.D.)
  - Juan Carlos Llinas (M.S.)
  - Tiffany Hopkins (M.S., TAMU)
  - Dylan Morgan (M.S., TAMU)
  - Juliana Tebo (M.S., McGill)
- Petroleum Engineering
  - Juan Avila (M.S., TAMU)
  - Ekene Chijuka (M.S., TAMU)
  - Ammi Tan (M.S., TAMU)
- Biology
  - Todd French (M.S., MSU)
  - Karen Thompson (M.S., MSU)
  - Magan Green (M.S., MSU)
  - John Sorrell (M.S., MSU)

### 4. Participating Organizations (19)

- Universities
  - Texas A&M University
  - University of Mississippi
  - Mississippi State University
  - McGill University
- Federal Agencies
  - U.S. Department of Energy
  - U.S. Minerals Management Service
- State Agencies
  - Alabama Geological Survey
  - Mississippi Office of Geology
- Industry
  - Petroleum Technology Transfer Council
  - Mobil Oil
  - Chevron Oil
  - Smackco Operating
  - Pruet Production
  - Paramount Petroleum
  - Strago Petroleum
  - Wayne Stafford & Associates
  - Platte River
  - Landmark
  - Seismic Micro-Technology

## 5. Publications (28)

- Badali, Marcello, Lower Cretaceous rudist outcrop analog for Washita reefs in the northeastern Gulf of Mexico, Am. Assoc. Petroleum Geologists 2001 Abstract Volume, p. A9, 2001.
- Badali, Marcello, Sequence stratigraphy and seismic stratigraphy of the Lower Cretaceous section in the northeastern Gulf of Mexico, Geol. Soc. America Abs. with Programs (Ann. Mtg.), v. 33, no. 6, p. A322, 2001.
- Badali, Marcello, Sequence stratigraphy and seismic stratigraphy of the Lower Cretaceous section in the northeastern Gulf of Mexico, Am. Assoc. Petroleum Geologists 2002 Abstract Volume, p. A11, 2002.
- Hopkins, Tiffany L., and Ahr., W. M., Determining reservoir quality by combined stratigraphic, petrographic and petrophysical methods as part of optimized recovery programs: Womack Hill Smackover Field, Clarke and Choctaw Counties, Alabama, Am. Assoc. Petroleum Geologists 2002 Abstract Volume, p. A80, 2002.
- Llinas, Juan C., New perspectives in the geological interpretation and reservoir characterization of Vocation Field, Alabama, USA, Am. Assoc. Petroleum Geologists 2002 Abstract Volume, p. A105, 2002.
- Mancini, Ernest A. (ed.), Sequence stratigraphic and allostratigraphic principles and concepts, AAPG Hedberg Research Conference, Program and Abstracts Volume, 61 p., 2001.
- Mancini, Ernest A., Badali, M., Puckett, T.M., Llinas, J.C., and Parcell, W.C., Mesozoic carbonate petroleum systems in the northeastern Gulf of Mexico area, GCS-SEPMF Program and Abstracts, p. 27, 2001.
- Mancini, Ernest A., Badali, M., Puckett, T.M., Parcell, W.C., and Llinas, J.C., Mesozoic carbonate petroleum systems in the northeastern Gulf of Mexico, Petroleum Systems of Deep-Water Basins: Global and Gulf of Mexico Experience, Proceedings of the 21st Annual Research Conference, Gulf Coast Section, SEPM Foundation, p. 423-451, 2001.
- Mancini, Ernest A., Cate, D., Blasingame, T., Major, R.P., Brown, L., and Stafford, W., Improved oil recovery from Upper Jurassic Smackover carbonates through the application of advanced technologies at Womack Hill oil field, Choctaw and Clarke Counties, eastern Gulf Coastal Plain, U.S. Department of Energy, DE-FC26-00BC15129, 89 p., 2001.
- Mancini, Ernest A., and Parcell, W.C., Integrated carbonate exploration approach for Upper Jurassic Smackover reef and shoal reservoirs, northeastern Gulf of Mexico, Am. Assoc. Petroleum Geologists 2001 Abstract Volume, p. A124, 2001.
- Mancini, Ernest A., and Parcell, W.C., Outcrop analogs for reservoir characterization and modeling of Smackover microbial reefs in the northeastern Gulf of Mexico area, Gulf Coast Association of Geological Societies Trans. 51: 207-228, 2001.
- Mancini, Ernest A., and Parcell, W.C., Upper Jurassic Smackover carbonate shoal and reef reservoirs of the eastern Gulf Coastal Plain and outcrop analogs from western Europe, Am. Assoc. Petroleum Geologists 2002 Abstract Volume, p. A110, 2002.
- Mancini, Ernest A., and Parcell, William C., Outcrop analogs for reservoir characterization and modeling of Smackover microbial reefs in the northeastern Gulf of Mexico area, Am. Assoc. Petroleum Geologists Bulletin, v. 85, p. 1704, 2001.
- Mancini, Ernest A., Parcell, W.C., Badali, M., Llinas, J.C., and Puckett, T.M., Mesozoic thrombolitic reef play, northeastern Gulf of Mexico, Am. Assoc. Petroleum Geologists 2002 Abstract Volume, p. A111, 2002.
- Mancini, Ernest A., and Puckett, T.M., Cretaceous transgressive-regressive cycles for intrabasin and interbasin chronostratigraphic correlation, U.S. Gulf Coastal Plain, Am. Assoc. Petroleum Geologists 2002 Abstract Volume, p. A110, 2002.
- Mancini, Ernest A., and Puckett, T.M., Sequence stratigraphy of Lower Cretaceous strata, U.S. eastern Gulf Coastal Plain, Sequence stratigraphic and allostratigraphic principles and concepts, Program and Abstracts Volume, AAPG Hedberg Research Conference, p. 35, 2001.
- Mancini, Ernest A., and Puckett, T.M., Transgressive-regressive cycles in Lower Cretaceous strata of the U.S. eastern Gulf Coastal Plain, Geol. Soc. America Abs. with Programs (Ann. Mtg.), v. 33, no. 6, p. A322, 2001.

- Mancini, Ernest A., Puckett, T.M., Parcell, W.C., and Llinas, J.C., Topical Reports 5-8, Smackover petroleum system (source, reservoir, seal and trap) and underdeveloped Smackover reservoirs in the Mississippi Interior Salt Basin, U.S. Department of Energy Report, 442 p., 2001.
- Mancini, Ernest A., W.C. Parcell, T.M. Puckett, and J.C. Llinas, Topical Report 4, Basin and petroleum migration modeling of the Mississippi Interior Salt Basin, U.S. Department of Energy Report, 50 p. 2001.
- Parcell, William C., Correlation of Upper Jurassic carbonate and reef facies across Burgundy and Ardennes Platforms, eastern Paris Basin, France, Am. Assoc. Petroleum Geologists 2002 Abstract Volume, p. A136, 2002.
- Parcell, William C., Recognizing condensed sections and their significance in the development of reservoir-scale microbial reefs in Upper Jurassic carbonate sequences, sequence stratigraphic and allostratigraphic principles and concepts, Program and Abstracts Volume, AAPG Hedberg Research Conference, p. 38, 2001.
- Parcell, W.C., and Mancini, Ernest A., Integrated approach for correlation of Upper Jurassic (Oxfordian and Kimmeridgian) strata between the U.S. Gulf Coastal Plain and western Europe, Geol. Soc. America Abs. with Programs (Ann. Mtg.), v. 33, no. 6, p. A78, 2001.
- Parcell, W.C., and Mancini, Ernest A., Upper Jurassic microbial reef outcrop analogs for Smackover reefs in the eastern Gulf Coastal Plain, Am. Assoc. Petroleum Geologists 2001 Abstract Volume, p. A150, 2001.
- Puckett, T. Markham, B.L. Bearden, Ernest A. Mancini, and B.J. Panetta, Topical Report 3, Petroleum plays and underdeveloped reservoirs in the Mississippi Interior Salt Basin, U.S. Department of Energy Report, 107 p., 2000.
- Puckett, T. Markham, and Ernest A. Mancini, Sequence stratigraphy of Jurassic and Lower Cretaceous strata in the northeastern Gulf of Mexico region, Minerals Management Service Report, 50 p., 2001.
- Puckett, T.M., and Mancini, Ernest A., Asymmetry in Upper Cretaceous depositional sequence of the northeastern Gulf Coastal Plain, Alabama, Mississippi and Tennessee, Geol. Soc. America Abs. with Programs (Ann. Mtg.), v. 33, no. 6, p. A100, 2001.
- Puckett, T.M., and Mancini, Ernest A., Upper Cretaceous sequence stratigraphy, U.S. eastern Gulf Coastal Plain, Sequence stratigraphic and allostratigraphic principles and concepts, Program and Abstracts Volume, AAPG Hedberg Research Conference, p. 42-44, 2001.
- Tedesco, William A., and Major, R. P., Stratigraphic and diagenetic controls on production from Smackover Formation reservoirs, Womack Hill Field, eastern Gulf Coastal Plain, Am. Assoc. Petroleum Geologists 2002 Abstract Volume, p. A174, 2002.

## 6. Presentations (21)

- Badali, Marcello, Lower Cretaceous rudist outcrop analog for Washita reefs in the northeastern Gulf of Mexico, AAPG Annual Meeting, Denver, Colorado, June 6, 2001.
- Badali, Marcello, Sequence stratigraphy and seismic stratigraphy of the Lower Cretaceous section in the northeastern Gulf of Mexico, GSA Annual Meeting, Boston, Massachusetts, November 7, 2001.
- Badali, Marcello, Sequence stratigraphy and seismic stratigraphy of the Lower Cretaceous section in the northeastern Gulf of Mexico, AAPG Annual Meeting, Houston, Texas, March 13, 2002.
- Hopkins, Tiffany L., Determining reservoir quality by combined stratigraphic, petrographic and petrophysical methods as part of optimized recovery programs: Womack Hill Smackover Field, Clarke and Choctaw Counties, Alabama, AAPG Annual Meeting, Houston, Texas, March 11, 2002.
- Llinas, Juan C., New perspectives in the geological interpretation and reservoir characterization of Vocation Field, Alabama, USA, AAPG Annual Meeting, Houston, Texas, March 12, 2002.
- Mancini, Ernest A., Application of research to reef detection and exploration, EGR-PTTC Technology Workshop, Jackson, Mississippi, July 18, 2001.
- Mancini, Ernest A., Cretaceous transgressive-regressive cycles for intrabasin and interbasin chronostratigraphic correlation, AAPG Annual Meeting, Houston, Texas, March 12, 2002.
- Mancini, Ernest A., Integrated carbonate exploration approach for Upper Jurassic Smackover reef and shoal reservoirs, northeastern Gulf of Mexico, AAPG Annual Meeting, Denver, Colorado, June 4, 2001.

- Mancini, Ernest A., Mesozoic carbonate petroleum systems in the northeastern Gulf of Mexico area, GCS-SEPMF Research Conference, Houston, Texas, December 4, 2001.
- Mancini, Ernest A., Mesozoic thrombolitic reef play, northeastern Gulf of Mexico, AAPG Annual Meeting, Houston, Texas, March 13, 2002.
- Mancini, Ernest A., Outcrop analogs for reservoir characterization and modeling of Smackover microbial reefs in the northeastern Gulf of Mexico area, Shreveport, Louisiana, October 18, 2001.
- Mancini, Ernest A., Sequence stratigraphy of Lower Cretaceous strata, U.S. eastern Gulf Coastal Plain, AAPG Hedberg Research Conference, Dallas, Texas, August 29, 2001.
- Mancini, Ernest A., Smackover reef outcrop analogs, EGR-PTTC Technology Workshop, Jackson, Mississippi, July 18, 2001.
- Mancini, Ernest A., Transgressive-regressive cycles in Lower Cretaceous strata of the U.S. eastern Gulf Coastal Plain, GSA Annual Meeting, Boston, Massachusetts, November 7, 2001.
- Mancini, Ernest A., Upper Jurassic Smackover carbonate shoal and reef reservoirs of the eastern Gulf Coastal Plain and outcrop analogs from western Europe, AAPG Annual Meeting, Houston, Texas, March 14, 2002.
- Parcell, William C., Correlation of Upper Jurassic carbonate and reef facies across Burgundy and Ardennes Platforms, eastern Paris Basin, France, AAPG Annual Meeting, Houston, Texas, March 12, 2002.
- Parcell, William C., Modeling controls on microbial reefs, EGR-PTTC Technology Workshop, Jackson, Mississippi, July 18, 2001.
- Parcell, William C., Recognizing condensed sections and their significance in the development of reservoir-scale microbial reefs in Upper Jurassic carbonate sequences, AAPG Hedberg Research Conference, Dallas, Texas, August 29, 2001.
- Parcell, William C., Microbial reef fabric and growth classification, EGR-PTTC Technology Workshop, Jackson, Mississippi, July 18, 2001.
- Puckett, T.M., Upper Cretaceous sequence stratigraphy, U.S. eastern Gulf Coastal Plain, AAPG Hedberg Research Conference, Dallas, Texas, August 29, 2001.
- Tedesco, William A., Stratigraphic and diagenetic controls on production from Smackover Formation reservoirs, Womack Hill Field, eastern Gulf Coastal Plain, AAPG Annual Meeting, Houston, Texas, March 13, 2002.

## **8. Grants Awarded (8)**

- Mancini, Ernest A., Basin Analysis of the Mississippi Interior Salt Basin and Petroleum System Modeling of the Jurassic Smackover Formation, Eastern Gulf Coastal Plain, U.S. Department of Energy, \$1,400,000, 1996–2001.
- Mancini, Ernest A., Jurassic-Cretaceous Hydrocarbon Play Characterization and Jurassic Petroleum System Modeling, Eastern Gulf of Mexico, Minerals Management Service and Industry, \$450,000, 1997-2002.
- Mancini, Ernest A. and Parcell, William C., BasinMod Software-Platte River Academic Software Loan Agreement, Platte River Associates, \$96,877, 1998-2002.
- Mancini, Ernest A. and Bearden, Bennett L., University Grant Software Partnership Program, Landmark Graphics Cooperation, \$1,851,804, 1998-2002.
- Mancini, Ernest A. and Bearden, Bennett L., Seismic Micro-Technology Software Loan Agreement, Seismic Micro-Technology, \$85,495, 1999-2002.
- Mancini, Ernest A., Information and Technology Transfer, Eastern Gulf Region, Petroleum Technology Transfer Council and U.S. Department of Energy, \$1,254,000, 1999-2003.
- Mancini, Ernest A., Integrated Geologic-Engineering Model for Reef and Carbonate Shoal Reservoirs Associated with Paleohighs: Upper Jurassic Smackover Formation, Northeastern Gulf of Mexico, U.S. Department of Energy, \$1,296,022, 2000-2003.
- Mancini, Ernest A., Improved Oil Recovery from Upper Jurassic Smackover Carbonates through the Application of Advanced Technologies at Womack Hill Field, Choctaw and Clarke Counties, Alabama, Eastern Gulf Coastal Plain (Class II Reservoir), U.S. Department of Energy, \$8,117,000, 2000-2006.

## Outreach

### 1. Technology Workshops (9)

<u>Type of Workshop</u>	<u>No. of Attendees</u>
Seismic Micro-Technology	12
Oil and Gas Activities	240
Geohydrology Applications	68
Field-Oriented Projects	31
Open Hole Log Interpretation	51
Cross-Section Generation	10
Optimized Horizontal Technology	15
Reef Detection	30
Sequence Stratigraphy	<u>53</u>
	510

2. **Newsletter**—circulation of 650 quarterly.
3. **Web Site**—average 1,574 users per month
4. **Information Requests**—average 66 requests per month.

## Awards

1. Ernest A. Mancini, with William C. Parcell, received Second Place Grover E. Murray Best Published Paper Award, Gulf Coast Association of Geological Societies.

## Other Activities

1. Director is Organizer of International AAPG Hedberg Research Conference on Origin of Petroleum—Biogenic or Abiogenic.
2. Director is an Invited Participant to International Conference on Life and Climate in the Paleogene.
3. Director is an Invited Speaker to the 2002 DOE Class II Petroleum Reservoir Review.
4. Director is an Invited Speaker at the East Texas Geological Society Meeting.