

Center for Sedimentary Basin Studies 2002-2003 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) has been selected to receive an award from GCAGS for outstanding research contributions.
- Researcher (Mancini) is invited to be a presenter at the AAPG/SPE Eastern Section Annual Meeting.
- Researcher (Mancini) is invited to be a speaker at the East Texas Geological Society Meeting.
- CSBS is cooperating with 20 participating organizations, including other universities, federal and state agencies and industry.

2. Funding Support

- CSBS secured 3 new contracts totaling \$2,420,501.
- Annual external support for CSBS is more than \$1 million annually.

3. Faculty and Student Support

- CSBS has 17 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, 6 Ph.D. students and 10 M.S. students.

4. Productivity

- Researchers associated with CSBS have published 34 papers and abstracts, made 18 presentations and have been awarded 6 new or continuation research contracts/grants in 2002-2003.

5. Outreach

- CSBS is the recognized leader in the Eastern Gulf Region for oil and gas technology transfer and information dissemination, conducting 7 technology workshops in 2002-2003, publishing a quarterly newsletter, maintaining a Web Site and answering information requests.

Statistics

1. Participating Faculty (17)

- Geological Sciences/Geophysics
 - Ernest A. Mancini
 - Joe Benson
 - Rick Groshong
 - Dennis Harry
 - Rick Major (U. Miss.)
 - Bruce Hart (McGill)
 - Wayne Ahr (TAMU)
 - Don Goddard (LSU)
 - Ron Zimmerman (LSU)
 - William Parcell (WSU)
- 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 (16)

- Geological Sciences
 - Marcello Badali (Ph.D.)
 - William Tedesco (Ph.D., U. Miss.)
 - Jamal Obid (Ph.D.)
 - Kaiyu Liu (Ph.D.)
 - Juan Carlos Llinas (Ph.D.)
 - Peng Li (Ph.D.)
 - 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 (20)

- Universities
 - Texas A&M University
 - University of Mississippi
 - Mississippi State University
 - McGill University
 - Louisiana State University
 - Wichita State 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
 - Smackco Operating
 - Pruet Production
 - Paramount Petroleum
 - Strago Petroleum
 - Wayne Stafford & Associates
 - George Puckett Consulting
 - Platte River
 - Landmark
 - Seismic Micro-Technology

5. Publications (34)

- Badali, Marcello, 2002, A simple methodology for carbonate sequence stratigraphic and seismic interpretation: examples from the Lower Cretaceous section in offshore Alabama and Mississippi, 2002 GCS-SEPMF Research Conference Program and Abstracts, p. 44.
- Badali, Marcello, 2002, Sequence stratigraphy and seismic stratigraphy of the Lower Cretaceous section in the northeastern Gulf of Mexico, GCAGS Abstracts with Program, p. 69-70.
- Badali, Marcello, 2002, Sequence and seismic stratigraphy of the Lower Cretaceous strata in the northeastern Gulf of Mexico area, Ph.D. dissertation, University of Alabama, 214 p.
- Badali, Marcello, 2002, Sequence and seismic interpretation: Lower Cretaceous strata, northeastern Gulf of Mexico, EGR-PTTC Workshop, 156 p.
- Badali, Marcello, 2002, A simple methodology for carbonate sequence stratigraphic and seismic interpretation: examples from the Lower Cretaceous section in offshore Alabama and Mississippi, GCS-SEPMF 2002 Research Proceedings Volume, p. 681-707.
- Badali, Marcello, 2002, Sequence stratigraphy and seismic stratigraphy of the Lower Cretaceous section in the northeastern Gulf of Mexico, GCAGS Transactions, v. 52, p. 13-24.
- Hopkins, T., 2002, Integrated petrographic and petrophysical study of the Smackover Formation, Womack Hill Field, Clarke and Choctaw Counties, Alabama, M.S. thesis, Texas A&M University, 96 p.
- Llinas, J. C., 2002, Influence of paleotopography, eustasy and tectonic subsidence: Upper Jurassic Smackover Formation, Vocation Field, Manila Sub-basin (eastern Gulf Coastal Plain), GCS-SEPMF 2002 Research Proceedings Volume, p. 383-401.
- Llinas, J. C., 2002, Diagenetic history of the Upper Jurassic Smackover Formation and its effects on reservoir properties: Manila Sub-basin, eastern Gulf Coastal Plain, GCAGS Transactions, v. 52, p. 631-644.
- Llinas, J. C., 2002, Reservoir characterization and modeling, Vocation and Appleton Fields, EGR-PTTC Technology Workshop on Reservoir Characterization and Modeling, 31 p.
- Llinas, J. C., 2002, Influence of paleotopography, eustasy and tectonic subsidence: Upper Jurassic Smackover Formation, Vocation Field, Manila Sub-basin (eastern Gulf Coastal Plain), 2002 GCS-SEPMF Research Conference Program and Abstracts, p. 27.
- Llinas, J. C., 2002, Diagenetic history of the Upper Jurassic Smackover Formation and its effects on reservoir properties: Manila Sub-basin, eastern Gulf Coastal Plain, GCAGS Abstracts with Program, p. 92.
- Llinas, J. C., 2003, Reservoir facies in the Upper Jurassic Smackover Formation and identification of the factors that control their distribution in the Vocation Field structure, Manila Sub-basin, eastern Gulf Coastal Plain, AAPG 2003 Abstract Volume, p. A106.
- Mancini, E.A., 2002, 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, DOE Shallow Shelf Carbonates Abstract Volume, p. 59-60.
- Mancini, E.A., 2002, Thrombolitic reef play, northeastern Gulf of Mexico, East Texas Geological Society Publication, p. 2.
- Mancini, E.A. et al., 2002, 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, DOE Topical Technical Report, Year 2, DE-FC26-00BC15129, 165 p.
- Mancini, E.A. et al., 2002, Integrated geologic-engineering model for reef and carbonate shoal reservoirs associated with paleohighs: Upper Jurassic Smackover Formation, northeastern Gulf of Mexico, DOE Project Technical Report, Year 2, DE-FC26-00BC15303, 229 p.
- Mancini, E.A. et al., 2002, 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, DOE Shallow Carbonate Class II Project Review Meeting, CD, p. 508-550.
- Mancini, E.A., et al., 2002, Reservoir characterization and modeling, Smackover Formation, Womack Hill field, EGR-PTTC Technology Workshop on Reservoir Characterization and Modeling, 35 p.
- Mancini, E.A. and Panetta, B.J., 2002, Reservoir characterization and modeling of Upper Jurassic Smackover carbonate shoal complex reservoirs, Womack Hill oil field, Choctaw and Clarke Counties, Alabama, GCAGS Transactions, v. 52, p. 707-716.

- Mancini, E.A. and Panetta, B.J., 2002, Reservoir characterization and modeling of Upper Jurassic Smackover carbonate shoal reservoirs, Womack Hill oil field, Choctaw and Clarke Counties, Alabama, GCAGS Abstracts with Program, p. 93-94.
- Mancini, E.A. and Puckett, T.M., 2002, Transgressive-regressive cycles in Lower Cretaceous strata, Mississippi Interior Salt Basin area of the northeastern Gulf of Mexico, USA, *Cretaceous Research*, v. 23, p. 409-438.
- Mancini, E.A. and Puckett, T.M., 2002, Transgressive-regressive cycles: application to petroleum exploration for hydrocarbons associated with Cretaceous shelf carbonates and coastal and fluvial-deltaic siliciclastics, northeastern Gulf of Mexico, GCS-SEPMF 2002 Research Conference Proceedings Volume, p. 173-199.
- Mancini, E.A. and Puckett, T.M., 2002, Transgressive-regressive cycles in Upper Cretaceous strata, northeastern Gulf of Mexico, GSA Abstract with Programs, v. 34, no. 6, p. 277.
- Mancini, E.A. and Puckett, T.M., 2002, Transgressive-regressive cycles: application to petroleum exploration for hydrocarbons associated with Cretaceous shelf carbonates and coastal and fluvial-deltaic siliciclastics, northeastern Gulf of Mexico, 2002 GCS-SEPMF Research Conference Program and Abstracts, p. 13.
- Mancini, E.A., Aurell, M., Badenos, B., Parcell, W.C., and Llinas, J.C., 2003, Upper Jurassic microbial outcrop analogs for characterization of thrombolitic reservoirs in the northeastern Gulf of Mexico, AAPG 2003 Abstract Volume, p. A112.
- Mancini, E.A. et al., 2003, 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, DOE Topical Technical Report, Year 3, DE-FC26-00BC15129, 97 p.
- Mancini, E.A., and Panetta, B.J., 2003, DOE Class II Project-Improved oil recovery from Upper Jurassic Smackover carbonates, Womack Hill Field, Alabama, eastern Gulf of Mexico, AAPG 2003 Abstract Volume, p. A112.
- Morgan, D., 2003, Mapping and ranking flow units in reef and shoal reservoirs associated with paleohighs: Upper Jurassic (Oxfordian) Smackover Formation, Appleton and Vocation fields, Escambia and Monroe County, Alabama, M.S. thesis, Texas A&M University, 157 p.
- Morgan, D. and Ahr, W.M., 2003, Characterization of complex grainstone-microbial reef reservoirs, Vocation and Appleton fields, Escambia County, Alabama, AAPG 2003 Abstract Volume, p. A123.
- Panetta, B.J., 2002, Characterization and modeling, North Blowhorn Creek field, EGR-PTTC Technology Workshop on Reservoir Characterization and Modeling, 22 p.
- Panetta, B.J., 2003, Reservoir characterization and modeling, North Blowhorn Creek oil field, Lamar County, Alabama, AAPG 2003 Abstract Volume, p. A132.
- Tebo, J.M., 2003, Use of volume-based 3-D seismic attribute analysis to characterize physical property distribution: a case study to delineate reservoir heterogeneity at the Appleton Field, SW Alabama, M.S. thesis, McGill University, 169 p.
- Tedesco, W.A., 2002, Dolomitization and reservoir development of the Upper Jurassic Smackover Formation, Womack Hill Field, eastern Gulf Coastal Plain, Ph.D. dissertation, University of Mississippi, 251 p.

6. Presentations (18)

- Badali, M., A simple methodology for carbonate sequence stratigraphic and seismic interpretation: examples from the Lower Cretaceous section in offshore Alabama and Mississippi, GCS-SEPMF Research Conference, Houston, Texas, December 10, 2002.
- Badali, M., Sequence stratigraphy and seismic stratigraphy of the Lower Cretaceous section of the northeastern Gulf of Mexico, GCAGS Annual Meeting, Austin, Texas, October 31, 2002.
- Badali, M., Sequence and seismic interpretation: Lower Cretaceous strata, northeastern Gulf of Mexico, EGR-PTTC Workshop, Jackson, Mississippi, November 20, 2002.
- Llinas, J.C., Influence of paleotopography, eustasy and tectonic subsidence: Upper Jurassic Smackover Formation, Vocation Field, Manila Sub-basin (eastern Gulf Coastal Plain), GCS-SEPM Research Conference, Houston, Texas, December 10, 2002.

- Llinas, J.C., Diagenetic history of the Upper Jurassic Smackover Formation and its effects on reservoir properties: Manila Sub-basin, eastern Gulf Coastal Plain, GCAGS Annual Meeting, Austin, Texas, October 31, 2002.
- Llinas, J.C., Reservoir characterization and modeling, Vocation and Appleton Fields, EGR-PTTC Technology Workshop, Jackson, Mississippi, August 14, 2002.
- Llinas, J.C., Reservoir facies in the Upper Jurassic Smackover Formation and identification of the factors that control their distribution in the Vocation Field structure, Manila Sub-basin, eastern Gulf Coastal Plain, AAPG Annual Meeting, Salt Lake City, Utah, May 13, 2002.
- Mancini, Ernest A., Transgressive-regressive cycles in Upper Cretaceous strata, northeastern Gulf of Mexico, GSA Annual Meeting, Denver, Colorado, October 29, 2002.
- Mancini, Ernest A., Improved oil recovery from Upper Jurassic Smackover carbonates through application of advanced technologies at Womack Hill oil field, Choctaw and Clarke Counties, Alabama, eastern Gulf Coastal Plain, DOE Shallow Shelf Carbonate Project Review Meeting, Odessa, Texas, December 12, 2002.
- Mancini, Ernest A., Reservoir characterization and modeling of Upper Jurassic Smackover carbonate shoal reservoirs, Womack Hill oil field, Choctaw and Clarke Counties, Alabama, GCAGS Annual Meeting, Austin, Texas, November 1, 2002.
- Mancini, Ernest A., Transgressive-regressive cycles: application to petroleum exploration for hydrocarbons associated with Cretaceous shelf carbonates and coastal and fluvial-deltaic siliciclastics, northeastern Gulf of Mexico, GCS-SEPMF Annual Research Conference, Houston, Texas, December 9, 2002.
- Mancini, Ernest A., Thrombolitic reef play, northeastern Gulf of Mexico, East Texas Geological Society, Tyler, Texas, July 29, 2002.
- Mancini, Ernest A., Reservoir characterization and modeling, Womack Hill Field, EGR-PTTC Technology Workshop, Jackson, Mississippi, August 14, 2002.
- Mancini, Ernest A., DOE Class II Project-Improved oil recovery from Upper Jurassic Smackover carbonates, Womack Hill Field, Alabama, eastern Gulf of Mexico, AAPG Annual Meeting, Salt Lake City, Utah, May 13, 2002.
- Mancini, Ernest A., Upper Jurassic microbial outcrop analogs for characterization of thrombolitic reservoirs in the northern Gulf of Mexico, AAPG Annual Meeting, Salt Lake City, Utah, May 14, 2003.
- Morgan, D., Characterization of complex grainstone-microbial reef reservoirs, Vocation and Appleton fields, Escambia County, Alabama, AAPG Annual Meeting, Salt Lake City, Utah, May 12, 2003.
- Panetta, B.J., Reservoir characterization and modeling, North Blowhorn Creek Field, EGR-PTTC Technology Workshop, Jackson, Mississippi, August 14, 2002.
- Panetta, B.J., Reservoir characterization and modeling, North Blowhorn Creek oil field, Lamar County, Alabama, AAPG Annual Meeting, Salt Lake City, Utah, May 13, 2003.

7. Grants Awarded (11)

- 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, 1998-2003.
- Mancini, Ernest A. and Bearden, Bennett L., University Grant Software Partnership Program, Landmark Graphics Cooperation, \$1,851,804, 1998-2003.
- Mancini, Ernest A. and Bearden, Bennett L., Seismic Micro-Technology Software Loan Agreement, Seismic Micro-Technology, \$85,495, 1999-2003.
- Mancini, Ernest A., Information and Technology Transfer, Eastern Gulf Region, Petroleum Technology Transfer Council and U.S. Department of Energy, \$1,356,900, 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.

Mancini, Ernest A., Lower Cretaceous Carbonate Petroleum Reservoir Characterization, Northeastern Gulf of Mexico, Minerals Management Service, 2003-2004, \$142,000.

Mancini, Ernest A., T-R Cycle Characterization and Imaging: Advanced Diagnostic Methodology for Petroleum Reservoir and Trap Detection and Delineation, U.S. Department of Energy, 2003-2006, \$919,448.

Mancini, Ernest A., Basin Analysis and Petroleum System Characterization and Modeling, Interior Salt Basins, Central and Eastern Gulf of Mexico, U.S. Department of Energy, 2003-2008, \$1,359,053.

Outreach

1. Technology Workshops (7)

<u>Type of Workshop</u>	<u>No. of Attendees</u>
Geohydrology Applications	40
Coalbed Methane	256
Fractured Reservoirs	47
KINGDOM Suite	9
Exploration & Production	103
Reservoir Characterization and Modeling	29
Sequence Stratigraphy	<u>30</u>
TOTAL	514

2. **Newsletter**—circulation of 650 quarterly.

3. **Web Site**—average 3,177 user sessions per month

4. **Information Requests**—average 75 requests per month.

Awards

1. Ernest A. Mancini has been selected to receive Honorary Membership in the 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 the AAPG/SPE Eastern Section Annual Meeting.

3. Director is an Invited Speaker at the East Texas Geological Society Meeting.