

Center for Sedimentary Basin Studies
2004-2005 Statistical Report
April 25, 2005

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) was appointed Distinguished Research Professor by the University of Alabama Board of Trustees.
- CSBS is cooperating with 19 participating organizations, including other universities, federal and state agencies and industry.

2. Funding Support

- CSBS secured 1 new (phase 2) contract totaling \$3,319,832.
- Annual external support for CSBS is more than \$1 million annually.

3. Faculty and Student Support

- CSBS has 16 participating faculty researchers in geology, geophysics, biology, petroleum engineering, chemical engineering and civil engineering.
- CSBS is providing funding support for 4 research scientists, 6 Ph.D. students and 1 M.S. student.

4. Productivity

- Researchers associated with CSBS have published 24 papers and abstracts, made 12 presentations and have been awarded 5 new or continuation research contracts/grants in 2004-2005.

5. Outreach

- CSBS is the recognized leader in the Eastern Gulf Region for oil and gas technology transfer and information dissemination, conducting 8 technology workshops in 2004-2005, 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
 - Paul Aharon
 - Tony Rodriguez
 - 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
- Petroleum Engineering
 - Tom Blasingame (TAMU)
 - Rosalind Archer (Auckland)
 - Alex Vadie (MSU)
- Biology
 - Lou Brown (MSU)

2. Participating Research Scientists (4)

Juan Carlos Llinas	Brian Panetta
Bennett Bearden	Leo Lynch (MSU)

3. Participating Graduate Students (7)

- Geological Sciences
 - Brian Panetta (Ph.D.)
 - Jamal Obid (Ph.D.)
 - Kaiyu Liu (Ph.D.)
 - Juan Carlos Llinas (Ph.D.)
- Peng Li (Ph.D.)
 - Sandy Keller (Ph.D.)
 - Monica Williams (M.S., Wichita)

4. Participating Organizations (19)

- 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
 - Platte River
 - Landmark
 - Seismic Micro-Technology
 - Geoplus

5. Publications (24)

Li, Peng, Modeling of the burial and thermal histories of strata in the north Louisiana salt basin, GSA Abstracts with Programs, v. 36, no. 5, p. 73, 2004.

Liu, Kaiyu, Seismic and sequence stratigraphy of Upper Cretaceous strata, offshore Alabama and Mississippi area, GCAGS Transactions, v. 54, p. 347-360, 2004.

Liu, Kaiyu, Late Cretaceous ocean anoxic events II and III in the northeastern Gulf of Mexico shelf area, GSA Abstracts with Programs, v. 36, no. 3, p. 292, 2004.

- Liu, Kaiyu, Seismic and sequence stratigraphy of Upper Cretaceous strata, offshore Alabama and Mississippi area, GCAGS Abstracts with Programs, v. 54, p. 28, 2004.
- Llinas, J.C., Carbonate reservoir characterization and modeling, Vocation and Appleton Fields, in Reservoir Modeling and Simulation, EGR-PTTC Workshop Book, p. 37-71, 2004.
- Llinas, J.C., Geologic characterization and modeling of the updip basement ridge play of the Smackover Formation in Vocation and Appleton field areas, southwest Alabama, University of Alabama, Ph.D. dissertation, 291 p., 2004.
- Mancini, E.A., Use of discontinuity/unconformity-bounded units for correlation of Mesozoic strata in the subsurface, northeastern Gulf of Mexico, USA, International Geological Congress 2004 Abstract Volume, Part 2, p. 1504, 2004.
- Mancini, E.A., Carbonate reservoir modeling and simulation, Womack Hill Field, in Reservoir Modeling and Simulation, EGR-PTTC Workshop Book, p. 72-112, 2004.
- Mancini, E.A., Establishment of a chronostratigraphic framework for stratal correlation, sedimentary basin geohistory reconstruction, and petroleum exploration, northern Gulf of Mexico, International SEPM-NAMS 2005 Abstract Volume, p. 21, 2005.
- Mancini, Ernest A., Aurell, M., Llinas, J.C., Parcell, W.C., Badenas, B., and Benson, D.J., Upper Jurassic thrombolite reservoir play, northeastern Gulf of Mexico, Am. Assoc. Petroleum Geologists Bull., Am. Assoc. Petroleum Geologists Bull., v. 88, p. 1573-1602, 2004.
- Mancini, Ernest A., Blasingame, T.A., Archer, R., Panetta, B.J., Haynes, C.D., and Benson, D.J., Improving hydrocarbon recovery from mature oil fields producing from carbonate facies through integrated geoscientific and engineering reservoir characterization and modeling studies, Upper Jurassic Smackover Formation, Womack Hill Field (Eastern Gulf Coast, USA), Am. Assoc. Petroleum Geologists Bull., Am. Assoc. Petroleum Geologists Bull., v. 88, p. 1629-1651, 2004.
- Mancini, Ernest A., Obid, J., and Puckett, T.M., Upper Jurassic transgressive-regressive sequences, Mississippi Interior Salt Basin area, Gulf Coast Association of Geological Societies Trans., v. 54, p. 415-424, 2004.
- Mancini, E.A., Obid, J., and Puckett, T.M., Upper Jurassic transgressive-regressive sequences, Mississippi Interior Salt Basin, Gulf Coast Assoc. Geological Societies, Abs. with Program (Ann. Mtg.), p. 32, 2004.
- Mancini, E.A., and others, Basin analysis and petroleum system characterization and modeling, interior salt basins, central and eastern Gulf of Mexico, DOE Topical Technical Report, Year 1, DE-FC26-03NT15395, 89 p., 2004.
- Mancini, E.A., and others, T-R cycle characterization and imaging: advanced diagnostic methodology for petroleum reservoir and trap detection and delineation, DOE Project Technical Report, Year 1, DE-FC26-03NT15409, 38 p., 2004.
- Mancini, E.A., and others, Resource assessment of the in-place and potentially recoverable deep natural gas resource of the onshore interior salt basins, north central and northeastern Gulf of Mexico, DOE Project Technical Report, Year 1, DE-FC26-03NT41875, 117 p., 2004.
- Mancini, E.A., and Puckett, T.M., Integrated chronostratigraphic framework for correlation of Upper Cretaceous strata, Gulf of Mexico, Geol. Soc. America Abs. with Programs (Ann. Mtg.), v. 36, no. 5, p. 73, 2004.

Mancini, E.A., and Puckett, T.M., Use of transgressive-regressive cycles for sequence stratigraphic analysis of continental and coastal strata of USA Gulf of Mexico and Western Europe, International Geological Congress 2004 Abstract Volume, Part 1, p. 130, 2004.

Mancini, E.A., and Puckett, T.M., Upper Jurassic and Cretaceous transgressive-regressive (T-R) cycles, northern Gulf of Mexico, USA, International Geological Congress 2004 Abstract Volume, Part 2, p. 1527, 2004.

Mancini, E.A., Scott, R.W., and Llinas, J.C., Lower Cretaceous carbonate petroleum reservoir characterization, northeastern Gulf of Mexico, Final Technical Report, U.S. Minerals Management Service, 71 p., 2005.

Orndorff, R.C., Edwards, L.E., Jordan, R.R., Mancini, E.A., and others, Allostratigraphy and unconformity-bounded units: towards a unified nomenclature, International Geological Congress, 2004 Abstract Volume, Part 2, p. 1501, 2004.

Panetta, B.J., Sandstone reservoir modeling and simulation, North Blowhorn Creek Field, in Reservoir Modeling and Simulation, EGR-PTTC Workshop Book, p. 1-36, 2004.

Panetta, B.J., Reservoir characterization, 3-D geological modeling, and reservoir simulation of North Blowhorn Creek Oil Field, Lamar County, Alabama, University of Alabama, Ph.D. dissertation, 329 p., 2004.

Scott, R.W., and Mancini, E.A., Early Cretaceous sea level in carbonate-siliciclastic shelf of Texas, International Geological Congress 2004 Abstract Volume, Part 2, p. 887, 2004.

6. Presentations (12)

Li, Peng, Modeling of the burial and thermal history of strata in the North Louisiana Salt Basin, Geological Society of America Annual Meeting, Denver, Colorado, November 7-10, 2004.

Liu, Kaiyu, Seismic and sequence stratigraphy of Upper Cretaceous strata, offshore Alabama and Mississippi area, Gulf Coast Association of Geological Societies Annual Meeting, San Antonio, Texas, October 10-12, 2004.

Liu, Kaiyu, Late Cretaceous ocean anoxic events II and III in the northeastern Gulf of Mexico shelf area, Geological Society of America Annual Meeting, Denver, Colorado, November 7-10, 2004.

Llinas, J.C., Carbonate reservoir characterization and modeling, Vocation and Appleton Fields, Eastern Gulf Region, Petroleum Technology Transfer Council Workshop, Jackson, Mississippi, September 2, 2004.

Mancini, E.A., Upper Jurassic and Cretaceous transgressive-regressive (T-R) cycles, northern Gulf of Mexico, USA, International Geological Congress, Florence, Italy, August 20-28, 2004.

Mancini, E.A., Use of transgressive-regressive cycles for sequence stratigraphic analysis of continental and coastal strata of USA Gulf of Mexico and Western Europe, International Geological Congress, Florence, Italy, August 20-28, 2004.

Mancini, E.A., Use of discontinuity/unconformity-bounded units for correlation of Mesozoic strata in the subsurface, northeastern Gulf of Mexico, USA, International Geological Congress, Florence, Italy, August 20-28, 2004.

Mancini, E.A., Integrated chronostratigraphic framework for correlation of Upper Cretaceous strata, Gulf of Mexico, Geological Society of America Annual Meeting, Denver, Colorado, November 7-10, 2004.

Mancini, E.A., Carbonate reservoir modeling and simulation, Womack Hill Field, Eastern Gulf Region, Petroleum Technology Transfer Council Workshop, Jackson, Mississippi, September 2, 2004.

Mancini, E.A., Upper Jurassic transgressive-regressive sequences, Mississippi Interior Salt Basin, Gulf Coast Association of Geological Societies Annual Meeting, San Antonio, Texas, October 10-12, 2004.

Mancini, E.A., Establishment of a chronostratigraphic framework for stratal correlation, sedimentary basin geohistory reconstruction, and petroleum exploration, northern Gulf of Mexico, International SEPM-NAMS, Houston, Texas, March 6-11, 2005.

Panetta, B.J., Sandstone reservoir modeling and simulation, North Blowhorn Creek Field, Eastern Gulf Region, Petroleum Technology Transfer Council Workshop, Jackson, Mississippi, September 2, 2004.

7. Grants Awarded (14)

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., Resource Assessment of the In-Place and Potentially Recoverable Deep Natural Gas Resource of the Onshore Interior Salt Basins, North Central and Northeastern Gulf of Mexico, U.S. Department of Energy, 2003-2006, \$954,753,

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.

Mancini, Ernest A., Petroleum Information and Technology Transfer for Independent Companies, Petroleum Technology Transfer Council and U.S. Department of Energy, 2003-2008, \$1,500,000.

Mancini, Ernest A., Landmark Strategic University Grant, Landmark Graphics, 2004-2008, \$2,279,200.

Outreach

1. Technology Workshops (8)

<u>Type of Workshop</u>	<u>No. of Attendees</u>
Reservoir Modeling	25
Seismic Attributes	24
U.S. Oil & Gas Forum (Miocene)	126
Alabama Oil & Gas Workshop	115
Sequence Stratigraphy	36
KINGDOM Suite	7
PETRA Beginners	20
Environmental	<u>31</u>
TOTAL	384

2. **Newsletter**—circulation of 600 quarterly.

3. **Web Site**—average 5,072 user sessions per month.

4. **Information Requests**—average 90 requests per month.

Awards

1. Ernest A. Mancini was appointed as Distinguished Research Professor by the University of Alabama Board of Trustees.

Other Activities

1. Regional Director is organizer for a session on sequence stratigraphy for the 2005 GSA meeting.

2. Regional Director is organizer for a session on the origin of petroleum at the 2005 AAPG meeting.

3. Regional Director was an invited speaker at the 2005 SEPM/NAMS Conference on Geologic Problem Solving with Microfossils.