

J. Frederick “Rick” Sarg

EDUCATION: Ph.D., Geology
University of Wisconsin, 1976

 B.S. and M. S., Geology
University of Pittsburgh, 1969, 1971

WORK EXPERIENCE:

2005 - Present

William M. Cobb & Associates, Inc.

Senior Advisor and Instructor - Geosciences

- Develop and conduct carbonate sequence stratigraphy program for the petroleum industry
- Seismic, well log, and rock interpretation of carbonates applied to both exploration and production problems
- Conduct geological field trips to classic carbonate outcrops used as analogs applied to the subsurface

2000 - 2005

ExxonMobil Exploration Company

Stratigraphy Coordinator

- Lead stratigrapher for upstream companies
- Responsible for technical application of stratigraphy and stewardship of career development for all stratigraphers across upstream companies
- Developed in-house Stratigraphy Intern Program to maintain and grow expertise in carbonate and siliciclastic stratigraphy
- Partnered with upstream research to coordinate and develop research program in stratigraphy

1992 - 2000

Mobil Technology Company

Scientist – Upstream Strategic Research Center

- Member of integrated geophysical-geological-engineering research team with objective of improving reservoir prediction
- Research comprised collaborative work to develop 3D forward stratigraphic models and to validate lithofacies predictions using outcrop sedimentology and stratigraphy tied to seismic data
- Served as in-house exploration consultant on stratigraphy
- Helped identify and evaluate exploration opportunities in offshore Nova Scotia, Malaysia, Kalimantan, and Angola with results that included three discoveries in offshore Kalimantan
- Developed and conducted an in-house Sequence Stratigraphy Seminar

1990 - 1992

Independent Consulting Geologist/Geophysicist

- Specialized in reservoir, source, and seal prediction in siliciclastics and carbonates using sequence stratigraphy, and in carbonate facies/diagenesis

1988 - 1990

Exxon Company U.S.A.

Exploration Supervisor

- Responsible for Midland Basin exploration

1976 - 1988

Exxon Production Research Company

Research Supervisor

- Supervised carbonate research group
- Helped formulate sequence stratigraphic concepts that have now become standard practice in the oil and gas industry
- Taught two to three seismic and/or sequence stratigraphy workshops per year for both domestic and foreign affiliates

- Led development of in-house Advanced Stratigraphic Seminar that combined and integrated subsurface analysis with outcrop analogs

TECHNICAL AND PROFESSIONAL SOCIETIES:

- GSA Fellow
- Active member of AAPG and SEPM
- Life member Permian Basin Section, SEPM
- Member Ocean Drilling Program (ODP)
 - Served on Sediments and Ocean History Panel, 1984-88
 - Member Editorial Review Board for Scientific Results ODP Leg 133 - Northeast Australia Continental Margin, 1991
 - Member Sediments & Geochemical Processes Panel, Ocean Drilling Program, 1993-95
 - Member, SCICOM (Scientific Committee) Ocean Drilling Program 2000-03
- Co-editor SEPM Special Publication No. 44, Controls on Carbonate Platform Development, 1989
- Co-editor AAPG Memoir 57 Carbonate Sequence Stratigraphy, 1993
- Associate Editor, AAPG Bulletin, 1985-1993
- Visiting Professor, Baylor University, Waco, Texas, Spring Semester 1992 - taught graduate course in Seismic/Sequence Stratigraphy
- Secretary/Treasurer Society for Sedimentary Geology (SEPM), 1998-2000
- President-elect and President Society for Sedimentary Geology (SEPM), 2003-2005
- Member, Division Review Committee, Earth & Planetary Sciences Division, Los Alamos National Laboratory, 1997-2000
- Member, External Advisory Board, National Center for Earth Dynamics, headquartered at Saint Anthony Falls Laboratory, University of Minnesota, Minneapolis, MN, 2002 – present.

PUBLICATIONS:

- Sarg, J. F., 1971, Depositional Environments of the Ames Limestone (Conemaugh Group) in the Pittsburgh, Pennsylvania area; MS thesis, University of Pittsburgh, 47 pages.
- Sarg, J. F., 1976, Sedimentology of the Carbonate-Evaporite Facies Transition of the Seven Rivers Formation (Guadalupian, Permian) in Southeast New Mexico; Ph.D. Dissertation, University of Wisconsin, Madison, 313 pages.
- Sarg, J. F., 1977, Sedimentology of the carbonate-evaporite facies transition of the Seven Rivers Formation (Guadalupian, Permian) in Southeast New Mexico; *in*, Upper Guadalupian Facies, Permian Reef Complex Guadalupe Mountains, New Mexico and West Texas, Field Conference Guidebook, 1977, Permian Basin Section-SEPM, Pub. 77-16, p. 451-478.
- Sarg, J. F., 1981 Petrology of the carbonate – evaporite facies transition of the Seven Rivers Formation (Guadalupian, Permian) Southeast New Mexico: Jour. Sed. Pet., v. 51, p. 78-96.
- Sarg, J. F., 1982, Off-reef deposition (Silurian) Southern Michigan basin - implications for reef genesis: SEPM Core Workshop Notes, The Depositional Spectrum of Evaporites, AAPG-SEPM National Meeting, 1982, Calgary, Canada.
- Sarg, J. F., and Skjold, L. J., 1982, Stratigraphic traps in Paleocene sands in the Balder area, North Sea, *in*, The Deliberate Search for the Subtle Trap, M.T. Halbouty (ed.), AAPG Memoir 32, p. 197-206.
- Sarg, J. F., 1984, Sedimentology of the Ames limestone (Conemaugh Group) in the Pittsburgh, Pennsylvania area – evidence for Virgilian eustatic rise in sea level in Compte Rendu Ninth International Congress of Carboniferous Stratigraphy and Geology, 1979, Champaign-Urbana, Ill., v. 3, p. 554-560.
- Sarg, J. F., 1985, Permian shelf calcrete, Shattuck Member, Queen Formation (Southeast New Mexico) - shelfal expression of Middle Guadalupian fall in sea level: West Texas Geol. Soc. Bulletin, v.24, p. 8-16.
- Sarg, J. F., and Lehmann, P. J., 1986, Lower and Middle Guadalupian facies and stratigraphy San Andres/Grayburg formations Guadalupe Mountains, New Mexico: Field Conference Guidebook Permian Basin Section SEPM, Publication No. 86-25.
- Sarg, J. F., 1988, Carbonate sequence stratigraphy; *in*, Sea-Level Changes: An Integrated Approach, C. Wilgus (ed.), SEPM Special Publication No. 42, p. 155-181.
- Sarg, J. F., 1989, Middle-Late Permian depositional sequences, Permian Basin, West Texas - New Mexico; *in*, Atlas of Seismic Stratigraphy, A.W. Bally (ed.), AAPG Studies in Geology No. 27, v.3, p. 140-155.

- Sarg, J. F., Weber, L. J., Markello, J. R., Southwell, J. K., Thomson, J. M., Kmeck, J. J., Christal, M. E., and Tanaka, Y., 1996, Carbonate sequence stratigraphy - a summary and perspective with case history, Neogene, Papua New Guinea; in Proceedings of International Symposium on Sequence Stratigraphy in Southeast Asia, Indonesian Petroleum Assoc., Jakarta, Indonesia.
- Sarg, J. F., Weber, L. J., and Markello, J. R., 1996, Carbonate Sequence Stratigraphy-Application to Exploration and Development; Carbonate Sequence Stratigraphy Short Course Notes, AAPG-SEPM Annual Meeting, San Diego, CA. 197 pages.
- Sarg, J. F., Markello, J. R., and Weber, L. J., 1999, The second-order cycle, carbonate platform growth, and reservoir, source, and trap prediction; *in*, Advances in Carbonate Sequence Stratigraphy: Applications to Reservoirs, Outcrops, and Models, SEPM Spec. Pub. No. 63, p. 11-34.
- Sarg, J. F., 2001, The sequence stratigraphy, sedimentology, and economic importance of evaporite-carbonate transitions: a review; *Sedimentary Geology*, v. 140, p. 9-42.
- Sarg, J. F., and Schuelke, J. S., 2003, Integrated seismic analysis of carbonate reservoirs: from the framework to the volume attributes: *The Leading Edge*, v. 22, no. 7, p. 640-645.

Co-Authored

- Carothers, M. C., and Sarg, J. F., 1984, Burrow constructed bioherms in Cambridge (Pine Creek) limestone (Conemaugh Group) of the Appalachian basin - a nearshore indicator: *in*, Comptes Rendus Ninth International Congress of Carboniferous Stratigraphy and Geology, 1979, Champaign-Urbana, Ill., v.3, p. 421-426.
- Van Wagoner, J.C., Posamentier, H. W., Mitchum, R. M., Vail, P. R., Sarg, J. R., Loutit, T. S., and Hardenbol, J., 1988, An overview of the fundamentals of sequence stratigraphy and key definitions; *in*, Sea-Level Changes: An Integrated Approach, C. Wilgus (ed.), SEPM Special Publication No. 42, p. 39-45.
- Rossen, C., P. Lehmann, J., Sarg, J. F., and Pray, L. C., 1989, Geological Guide to the Western Escarpment, Guadalupe Mountains, Texas, Permian Basin Section, SEPM Publication No. 88 – 30.
- Harris, D. G., and Sarg, J. F., 1989, Seismic modeling of a mixed carbonate-siliciclastic prograded system, Middle Permian, Permian Basin; *in*, Search For The Subtle Trap-Hydrocarbon Exploration in Mature Basins, J.E. Flis, R.C. Price, and J.F. Sarg (eds.), West Texas Geological Soc. Pub. No. 89-85, p. 119-138.
- Kennard, J., Southgate, P., Jackson, J., O'Brien, P., Christi-Block, N., Holmes, A., and Sarg, J. F., 1992, Devonian Reef Complex and the Frasnian-Famennian Boundary, Canning Basin, Australia: A New Sequence Perspective, *GEOLOGY*.

- Weber, L. J., Wright, F. M., Sarg, J. F., Shaw, E., Harmon, L. P., Vanderhill, J. B., and Best, D. A., 1995a, Reservoir delineation and performance: application of sequence stratigraphy and integration of petrophysics and engineering data, Aneth Field, Southeast Utah, USA; in Stoudt, E. L., and Harris, P. M., eds., Hydrocarbon Reservoir Characterization: Geologic Framework and Flow Modeling: SEPM Short Course No. 34, p. 31-51.
- Weber, L. J., Sarg, J. F., and Wright, F. M., 1995b, Part 3. sequence stratigraphy and reservoir delineation of the Middle Pennsylvanian (Desmoinesian), Paradox basin and Aneth Field, Southwestern USA; *in* Read, J. F., and others, eds., Milankovitch Sea-Level Changes, Cycles, and Reservoirs on Carbonate Platforms in Greenhouse and Ice-House Worlds: SEPM Short Course No. 35, p. 1-81.
- Snedden, J. W., Sarg, J. F., Clutson, M. J., Maas, M., Okon, T. E., Carter, M. H., Smith, B. S., Kolich, T. H., and Mansor, Md. Y., 1996, Using sequence stratigraphic methods in high-supply deltas: examples from the ancient Mahakam and Rajang-Lupar deltas: Proceedings, Indonesian Petroleum Association, 25th Annual Convention, p. 281-295.
- Mansor, Md. Y., Snedden, J. W., Sarg, J. F., Smith, B. S., Kolich, T. H., Carter, M. H., 1999, Pre-drill predictions versus post-drill results: use of sequence stratigraphic methods in reduction of exploration risk, Sarawak deep-water blocks, Malaysia: Journal of Asian Earth Sciences, vol. 17, p. 247-254.
- Peters, K. E., Snedden, J. W., Sulaeman, A., Sarg, J. F., and Enrico, R. J., 2000, A new geochemical-sequence stratigraphic model for the Mahakam Delta and Makassar Slope, Kalimantan, Indonesia; AAPG Bull., v. 84, p. 12-44.
- O'Grady, D. B., Syvitski, J. P. M., Pratson, L., and Sarg, J. F., 2000, Categorizing the morphologic variability of siliciclastic passive continental margins; Geology, v. 28, p. 207-210.
- Snedden, J. W., Peters, K. P., and Sarg, J. F., 2001, A new geochemical-sequence stratigraphic model for the Mahakam delta and slope, Kalimantan, Indonesia: reply, AAPG Bulletin, vol. 85, no. 6, p. 1102-1105.
- Snedden, J. W., Sarg, J. F., and Ying, Xudong (Don), 2002, Exploration Play Analysis from a Sequence Stratigraphic Perspective: Gulf Coast Section SEPM Foundation Research Conference Proceedings-2002, p. 79-97.
- Snedden, J. W., Sarg, J. F., and Ying, Xudong (Don), 2003, Exploration Play Analysis from a Sequence Stratigraphic Perspective: AAPG Search and Discovery Website, www.searchanddiscovery.org.

Oral and Poster Presentations

- Sarg, J. F., 1983, Eustatic control of cyclic carbonate-evaporite deposition (Silurian) southern Michigan basin: GSA National Meeting, Indianapolis, IN.
- Sarg, J. F., and Pray, L. C., 1984, Unconformities and depositional sequences of seismic stratigraphic scale, Permian of Western Guadalupe Mountains, Texas-New Mexico: SEPM Annual Mid-Year Meeting, San Jose, CA. (Best Paper Award).
- Sarg, J. F., 1986, Carbonate sequence stratigraphy - a case study from West Texas-New Mexico: GSA Annual Meeting, San Antonio, TX.
- Sarg, J. F., 1989, Carbonate sequence stratigraphy and the controls on carbonate platform development-case study from the Permian of West Texas-New Mexico: AAPG Distinguished Lecture.
- Sarg, J. F., and Harris, D. G., 1990, Seismic modeling of a mixed carbonate-siliciclastic prograded system, Middle Permian, Midland Basin; SEG Midwest Meeting, Midland, TX.
- Weber, L. J., Wright, M., Markello, J. R., and Sarg, J. F., 1991, Stratified carbonate reservoirs - parasequences as barriers to vertical fluid flow: an example from the Greater Aneth Field, Paradox basin of Southeastern Utah: poster presentation AAPG National Meeting, Dallas, TX.
- Sarg, J. F., 1991, Tectonics, eustasy, and sequence stratigraphy - the Pennsylvanian-Wolfcampian of the Permian basin; GSA Rocky Mountain/South-Central Regional Meeting, Albuquerque, NM.
- Sarg, J. F., 1992, Tectonics, eustasy, and sequence stratigraphy - the Middle Pennsylvanian-Wolfcampian of the Permian basin; Southwest Section AAPG Meeting, Midland, TX.
- Candelaria, M. P., and Sarg, J. F., 1992, High Resolution Seismic Characterization of a Wolfcampian Carbonate Platform Margin, Poster Presentation AAPG-SEPM National Meeting, Calgary, Canada.
- Sarg, J. F., 1995a, Carbonate sequence stratigraphy – a current assessment; keynote address International Symposium on Sequence Stratigraphy in Southeast Asia, Indonesia Petroleum Assoc., Jakarta, Indonesia.
- Southwell, J. K., Thomason, J. M., Kmeck, J. J., Christal, M. E., Sarg, J. F., Weber, L. J., and Tanaka, Y., 1995b, Sequence stratigraphy, tectono-stratigraphic history, and evolution of Miocene 'reefs', Gulf of Papua, Papua New Guinea; International Symposium on Sequence Stratigraphy in Southeast Asia, Indonesian Petroleum Assoc., Jakarta, Indonesia.
- Sarg, J. F., Weber, L. J., and Markello, J. R., 1996, The second-order cycle, paleoclimate, paleoceanography, and carbonate platform growth - clues from the ancient; keynote address

Carbonates and Global Change: An Interdisciplinary Approach, SEPM/IAS Research Conference, Wildhaus, Switzerland.

- Snedden, J. W., Sarg, J. F., Faber, J. A., and Brown, J., 1996, Downdip plays: highstand versus lowstand exploration: Luncheon keynote address, Gulf Coast Association of Geological Societies 1996 Annual Meeting, San Antonio, TX.
- Mansor, Y. D., Sneed, J. W., Sarg, J. F., Smith, B. S., Kolich, T., and Carter, M., 1997, Pre-drill predictions vs post-drill results: use of sequence stratigraphic methods in reduction of exploration risk, Sarawak Deepwater Blocks, Malaysia: *In*, Tectonics, Stratigraphy, and Petroleum Systems of Borneo, Conference University of Bornei Darussalam, June 22-25th, 1997, p. 60.
- Schuelke, J. S., Quirein, J. A., and Sarg, J. F., 1997, Reservoir architecture and porosity distribution, Pegasus Field, West Texas - an integrated sequence stratigraphic-seismic attribute study using neural networks: 67th Annual International Meeting, Soc. Expl. Geophys., Expanded Abstracts, p. 668-671.
- Sarg, J. F., 1998, The sequence stratigraphy, sedimentology, and economic importance of evaporite-carbonate transitions; IAS Congress, Spain.
- Markello, J. R., and Sarg, J. F., 1998, Late Permian (Guadalupian) LST/TST mud-rich sponge bioherms: their sequence stratigraphic architecture and occurrence on an over-steepened, gullied ramp-margin; San Andres Fm., Last Chance Canyon, Guadalupe Mountains, New Mexico, USA; IAS Congress, Spain.
- Snedden, J. W., and Sarg, J. F., 1998, Large scale synsedimentary tectonic control upon stratigraphic sequences in two petroleum provinces of Borneo: AAPG Annual Meeting, Salt Lake City, UT.
- Snedden, J. W., and Sarg, J. F., 1998, Reducing reservoir and source rock risk in deepwater plays: examples from Southeast Asia: American Association Petroleum Geologists Bulletin, v. 82/10 p. 1968 (abstract for AAPG International Meeting in Rio de Janeiro, Brazil, November, 1998).
- Bateman, J. A., Davies, E. H., Sarg, J. F., and Snedden, J. W., 1999, Lowstand exploration plays of the Jeanne D'Arc Basin (Jurassic-Lower Cretaceous), Offshore Newfoundland, Canada: AAPG International Meeting in Birmingham, England, September, 1999, p. 39-43.
- Peters, K. E., Sneed, J. W., Sulaeman, A., Sarg, J. F., Enrico, R. J., 1999, A new geochemical-sequence stratigraphic model for the Mahakam Delta and Makassar Slope, Kalimantan, Indonesia: AAPG International Meeting in Birmingham, England, September, 1999, p. 393-396.

- Sarg, J. F., and Weber, L. J., 1999, Carbonate platform growth in an active tectonic setting sequence stratigraphy, tectonic history, and evolution of Miocene reefs, Gulf of Papua, Papua New Guinea; poster, Bathurst Conference, Cambridge, MA.
- Snedden, J. W., Sarg, J. F., and Ying, D., 1999, Exploration Play Analysis from a Sequence Stratigraphic Perspective, Norsk Petrol. For., March, 1999.
- Sarg, J. F., 2000, The saline giants – sedimentary extremes that are part of the earth's rhythms; abstract with programs, GSA Annual Meeting, Reno, NV.
- Snedden, J. W., Sarg, J. F., and Peters, K., 2002, Major deltas as complete petroleum systems: a sequence stratigraphic perspective: AAPG Annual Meeting, Houston, TX., March 10-13, 2002.
- Sarg, J. F., 2003, Saline giants and carbonate-evaporite transitions; 12th Bathurst Meeting, International Conference of Carbonate Sedimentologists, Durham, U.K.
- Weber, L. J, and Sarg, J. F., 2005, Play element prediction: carbonate plays in subaqueous evaporate settings, AAPG Annual Meeting, Calgary, Canada.

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