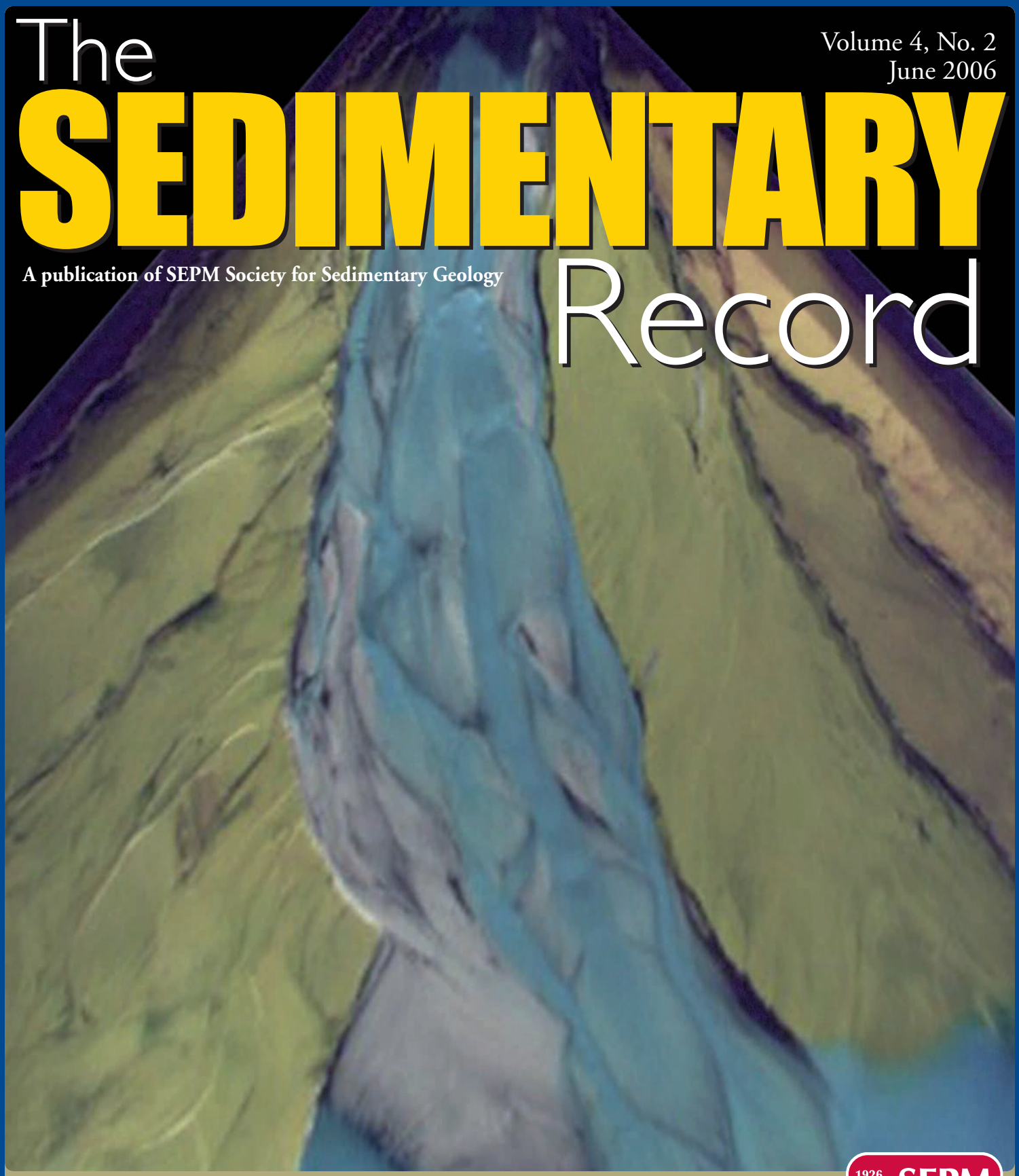
Volume 4, No. 2
June 2006

The SEDIMENTARY Record

A publication of SEPM Society for Sedimentary Geology



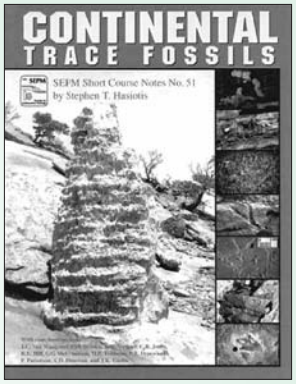
INSIDE: FLUVIAL LANDSCAPES AND STRATIGRAPHY IN A FLUME

PLUS: PRESIDENT'S COMMENTS:
VOLUNTEERISM AND PROFESSIONALISM
EDITORIAL STATEMENT

1926 SEPM
Society for Sedimentary Geology

SEPM Short Course Notes #51

Continental Trace Fossils



By: Stephen T. Hasiotis

The type, distribution, and tiering of continental tracefossils (ichnofossils) are useful tools for deciphering continental environments in both outcrop and core. This atlas presents the latest ichnological concepts and provides a comprehensive photocatalogue of nearly the entire suite of major terrestrial and freshwater trace fossils that geoscientists will encounter. The book is separated into two sections:

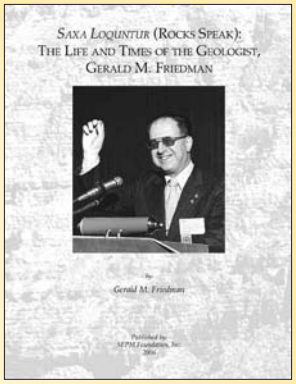
1) concepts and fundamental principles that explain how terrestrial and freshwater trace fossil behavior is interpreted and used to define environments of deposition; and 2) a photocatalogue of outcrop and core examples of continental tracefossils with explanations and idealized line drawings. Section one formulates fundamental concepts of continental ichnology by examining the life cycle of organisms in modern depositional systems. It discusses some of the shortcomings in the current philosophy of ichnology and elaborates on the differences between continental and marine organisms and resultant differences in their traces. Section two is a photocatalogue of outcrop and core examples of continental trace fossils. Each type of trace fossil is presented with a description, interpretation of the architecture and surficial burrow morphologies, geologic range, trophic classification, and environmental and climatic settings. The trace fossils are illustrated with idealized line drawings as seen in outcrop and in core. Color photographs are used to show the trace fossils as hand specimens, in outcrop, and core from different geologic formations and ages.

Catalog Number: 60051
List Price: $62.00
SEPM Member Price: $48.00 **Student Price: $31.00**

Redesigned for 2006!

SEPM Foundation Publication

Saxa Loquntur (Rocks Speak): The Life and Times of the Geologist, Gerald M. Friedman



By: Gerald M. Friedman

This book, about the life of Gerald M. Friedman, in reality spans a time period far greater than his current 85 years. It includes his family roots and the roots of geology in America. It includes his personal views on the impact of World War IIon him and his family and the impact of plate tectonics and Cretaceous impacts on the earth sciences and the earth scientistsof the day. The strongest message from this book should be 'sharing'. The book is an overwhelming demonstration of what teaching, volunteering and giving back to your profession can do for that profession, for a career and a person.

All proceeds from this book go to the SEPM Foundation.

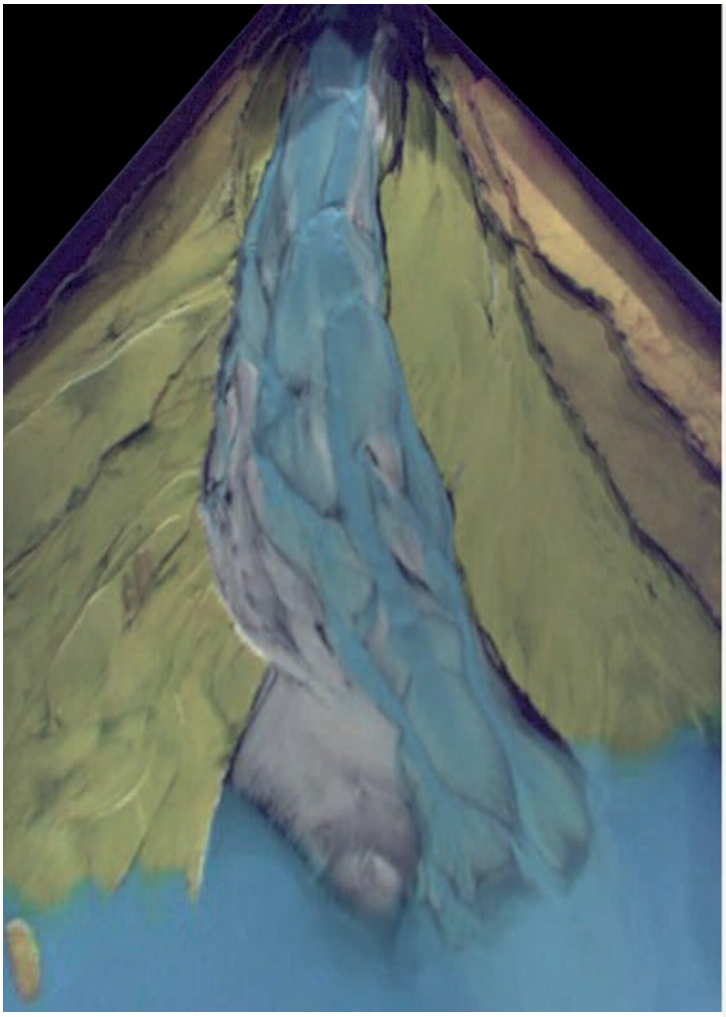
Catalog Number 55006
List and Member Price: $15.00

You can order publications online at our secure website

www.sepm.org

or you can contact SEPM Headquarters at
6128 East 38th Street #308
Tulsa, OK 74135-5814

Tel: 800-865-9765 ext 100 (N America) or 918-610-3361 ext 100 (worldwide)
Fax: 918-621-1685



On the Cover: Incised valley in the experimental landscape

CONTENTS

The Sedimentary Record (ISSN 1543-8740) is published quarterly by the Society for Sedimentary Geology with offices at 6128 East 38th Street, Suite 308, Tulsa, OK 74135-5814, USA.

Editors

Steven Goodbred
Vanderbilt University, Dept of Earth and Environmental Sciences, Nashville, TN 37235
<steven.goodbred@vanderbilt.edu>
Molly Miller
Vanderbilt University, Dept of Earth and Environmental Sciences, Nashville, TN 37235
<molly.f.miller@vanderbilt.edu>
David Furbish
Vanderbilt University, Dept of Earth and Environmental Sciences, Nashville, TN 37235
<david.j.furbish@vanderbilt.edu>

SEPM Staff

6128 East 38th Street, Suite #308, Tulsa, OK 74135-5814
Phone (North America): 800-865-9765
Phone (International): 918-610-3361

Dr. Howard Harper, Executive Director
<hharper@sepm.org>
Theresa Scott, Associate Director & Business Manager
<tscott@sepm.org>
Bob Clarke, Publications Coordinator
<rclarke@sepm.org>
Michele Woods, Membership Services Coordinator
<mwoods@sepm.org>
Edythe Ellis, Administrative Assistant
<eellis@sepm.org>

SEPM Council

www.sepm.org

Fluvial Landscapes and Stratigraphy in a Flume

Nikki Strong and Chris Paola
National Center for Earth-surface Dynamics (NCED)
Department of Geology and Geophysics
University of Minnesota
St. Anthony Falls Laboratory
23rd Ave SE
Minneapolis MN 55414 USA

ABSTRACT

We use data from an experiment conducted in the Experimental EarthScape (XES) facility, National Center for Earth-surface Dynamics (NCED), St. Anthony Falls Laboratory (SAFL), University of Minnesota, to demonstrate why incised valleys preserved in the stratigraphic record probably bear little resemblance to the actual valleys as they appeared in the paleolandscape. In an experiment designed to study fluvial response to changes in sea level, we find that preserved incised-valley structures are typically broader and have more gentle side slopes, than the topographic features from which they develop. Also, because of widening driven by valley wall erosion during both relative sea-level rise and fall, there is virtually no remnant of terraces formed during falling relative sea level preserved in the stratigraphic record. The process of filling an incised valley due to rising relative sea level is not a passive depositional process that simply buries and preserves the original shape of the valley; rather, it includes an energetic erosional component that substantially reshapes the original valley form.

INCISED VALLEY EVOLUTION AND PRESERVATION

The geological community has long recognized the significance of identifying incised valleys in the stratigraphic record as well as understanding the relationships between the filling of incised-valleys and their geomorphologic evolution. Incised valley geometries and fill are often used to infer the record and effects of sea level change on coastal environments, both as a tool in petroleum exploration (e.g. Van Wagoner et al. 1988, 1990; Posamentier and Allen 1999) and to better understand the environmental consequences of sea level change (Warrick et al. 1993; Nicholls and Leatherman 1994). Furthermore, incised valleys typically comprise basin scale erosional unconformities that can be identified in seismic sections, well logs, and outcrops, and thus are used to correlate stratigraphic facies and time (e.g., Van Wagoner et al. 1990).

Previous work on both modern and preserved incised valleys has illustrated the complexity of incised valley fill. A common interpretation of the stratigraphic record in such fills is that detailed layering reflects discrete external (allogenic) forcing mechanisms, including high frequency climate change, (low amplitude) high frequency tectonic movement, eustatic sea level and lake level fluctuations, and local faulting (Kraus and Middleton 1987; Bromely 1991; Lopez-Gomez and Arche 1993; Blum and Tornqvist 2000). The question of whether there are other mechanisms that could potentially produce the same geomorphic and stratigraphic signatures as these external factors is difficult to address from field data alone. Here we use experimental data to illustrate the role of autogenic (internal) processes in producing this complexity.

EXPERIMENTAL FACILITIES

The experimental data presented in this paper come from an experiment conducted in the Experimental EarthScape (XES) facility, National Center for Earth-surface Dynamics, St. Anthony Falls Laboratory, University of Minnesota, Twin Cities. The XES facility is a large (6 m x 3 m x 1.3 m) experimental basin with a programmable subsiding floor. Water discharge and sediment discharge into the basin as well as the experimental equivalent of eustatic sea level (ESL) are also fully controllable. XES Run 02 modeled basin filling by a braided river system prograding into a standing body of water. Since the objective of XES Run 02 was to isolate and identify the effects of changes in sea level on basin geomorphology and stratigraphy, sediment and water supply were held constant during the run as well as rates and geometry of subsidence A schematic diagram of the experimental basin in dip section (parallel to the mean flow direction) and of the experiment in plan view is shown in Figure 1. The experiment was divided into two stages: Stage I (isolated slow and rapid cycles), which was intended as a study of basic geomorphic response as a function of cycle period, and Stage II: (superimposed slow and rapid cycles), which was intended to investigate the nonlinear interaction between two (ESL) cycle periods. Here we use data only from the isolated rapid cycle of Stage I. For a more detailed description of the XES facility and further discussion on this experiment as well as others conducted in the facility, see Paola et al. (2001), Heller et al. (2001), Sheet et al. (2002), Cazanacli, et al. (2002), Violet et al. (2005), Strong et al. (2005), and Kim et al. (2006) as well as the NCED, SAFL, University of Minnesota's Sedimentology Research Group web sites at www.nced.umn.edu, www.safl.umn.edu, and http://www.geo.umn.edu/orgs/seds/, respectively.

EXPERIMENTAL OBSERVATIONS

The advantage of using experimental work to answer the question posed above is that an experiment allows observation of the complete process of valley incision, filling, and preservation as layers of sedi-

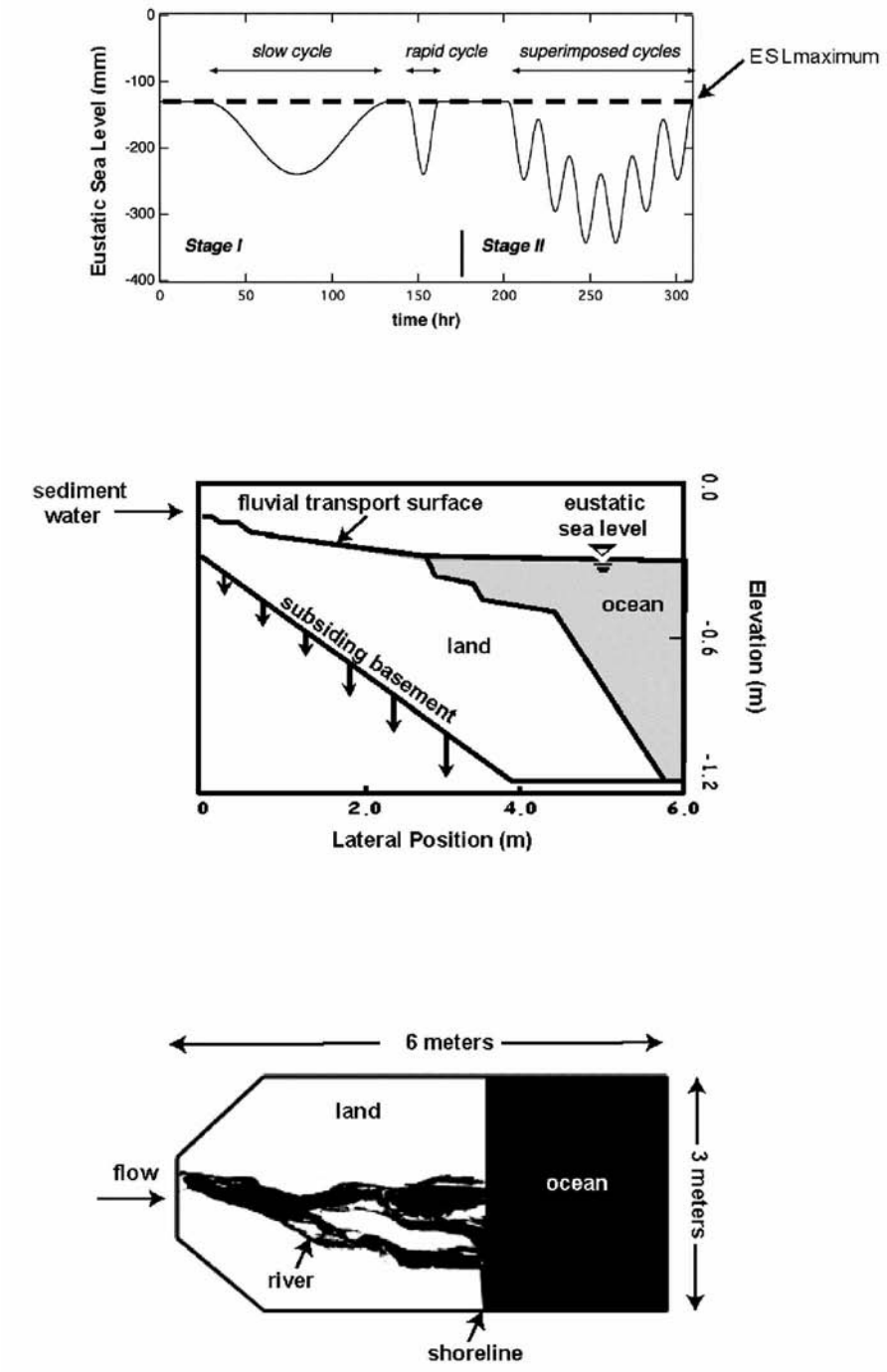


Figure 1. a) XES Run 02 eustatic sea level (ESL) curve. b) Schematic diagram of the experimental basin in dip section (parallel to the mean flow direction). Flow is from left to right. c) Schematic diagram of the experiment in plan view. White is exposed sediment and black is water.

ment. What the experiment demonstrates is that autogenic effects, such as fluvial avulsion, superimposed on a single continuous allogenic forcing, in this case relative sea level change, can produce a geomorphologically complex and time-transgressive valley form that easily could be misinterpreted as representing multiple high frequency, smaller scale allogenic forcing events.

Complexity in the experiment resulted from the fact that the width of the incised valley was influenced by two competing processes: narrowing during incisional events, a phenomenon also documented by Cantelli et al. (2004) during a series of dam-removal experiments, and widening associated with erosion of the valley walls (Fig. 2). By enhancing lateral channel mobility, deposition tends to accelerate valley widening. In addition, autogenic processes of channel incision, deposition, and migration act to localize and randomize the incision and widening process. The general trend is of valley incisional narrowing during accelerating rates of relative sea level fall and deposition and widening during decelerating rates of relative sea level fall and during relative sea level rise. Therefore during falling relative sea level, episodes of valley incision and narrowing produced a complex step-like morphology of unpaired autogenic terraces (Fig. 3) despite the fact that sea level fall was continuous, albeit with varying rates, a phenomenon also observed in experiments conducted by Muto and Steel (2004).

These terraces are, however, not well preserved in the stratigraphic record due to valley widening during valley filling. The incised valley that formed during the isolated rapid eustatic sea level cycle fall is not visible in the final deposit. What is visible is a composite, valley-shaped unconformity surface that formed due to a series of erosion-narrowing and widening-filling events during the entire relative sea level cycle. The apparent "valley walls" visible in strike section comprise a highly diachronous erosional surface that bears little resemblance to any paleogeomorphic surface that existed during the experiment.

CHANGE IN RIVER VALLEY MORPHOLOGY WITH CHANGE IN RELATIVE SEA LEVEL (RSL)

The major consistent trend in the evolution of the experimental valleys is that rivers, and thus river valleys, tend to deepen and narrow with a positive acceleration in falling RSL and to widen when the rate of RSL fall decelerates and during RSL rise (Cantelli et. al.,2004; Wong et al. 2004). These observations can be summarized by considering a hypothetical river valley evolving in response to a simple RSL curve symmetrical and sinusoidal in shape like the one in Figure 4.

Because of the sinusoidal shape of the RSL curve, the rate of fall in RSL accelerates, from the beginning of RSL fall until it reaches its maximum rate of fall midway down the curve. During this period of increasingly rapid RSL fall, the river valley tends to narrow as it incises (Fig. 4a-c.) As RSL continues to fall, but at a progressively slower rate, the valley tends to widen and continues to incise until the end of the fall at the local minimum in the RSL curve (Fig. 4d). With rising RSL the valley floor aggrades and the valley continues to widen (Fig. 4e-f) due to both trapping of

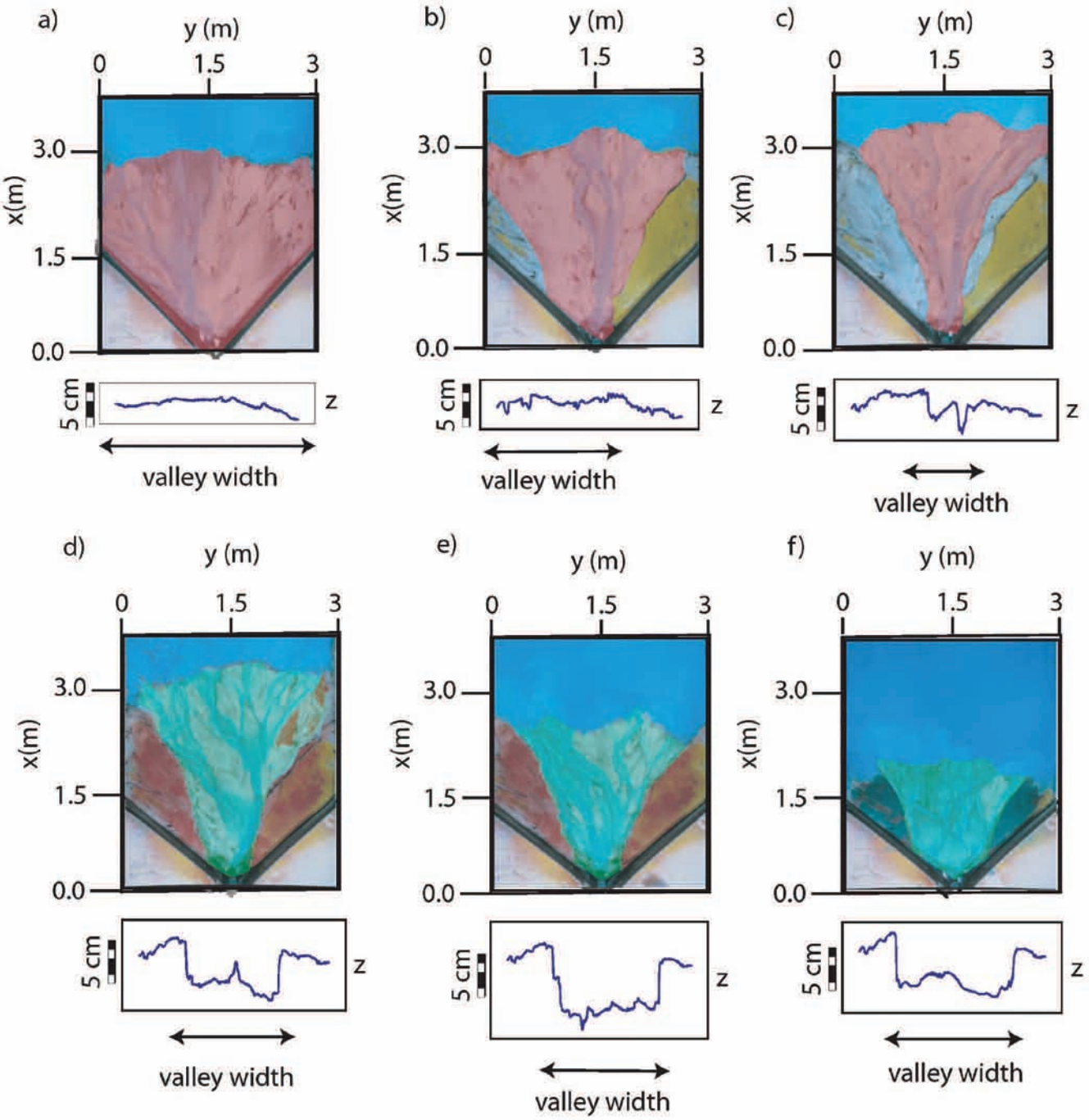


Figure 2. Maps of incised valleys in plan view and topographic profiles of the experimental deposit surface (at a downstream distance of x = 2000 mm) for the falling and rising stages of the isolated rapid eustatic sea level cycle a) before the eustatic sea level cycle began, b) 3 hours into the eustatic sea level cycle fall, c) 4.5 hours into the isolated eustatic sea level cycle fall, when the rate of relative sea level fall was greatest, d) 9 hours into the eustatic sea level cycle fall at the end of the fall, e) 3 hours into the eustatic sea level cycle rise, f) the end of the eustatic sea level cycle rise. The valley is mapped in red for the falling and in green for the rising stages of the sea level cycle.

upstream-supplied sediment and sediment supplied by valley wall erosion. At the end of the RSL cycle rise an unconformable surface in the shape of a valley is visible in the subsurface (Fig. 4g). This widened erosional surface, preserved in stratigraphic strike section as an erosionally bounded fill, forms due to a series of widening and filling events during the decelerating-fall and rising phases of RSL. These apparent "valley walls" visible in strike section comprise a highly diachronous erosional surface that does not represent any paleogeomorphic surface that existed during the evolution of the valley; in particular, it is wider and has lower sidewall gradients than any synoptic valley.

CONCLUSIONS

What is preserved in the sedimentary record after the incised valley fills is the outline of a valley that never existed in the landscape. The

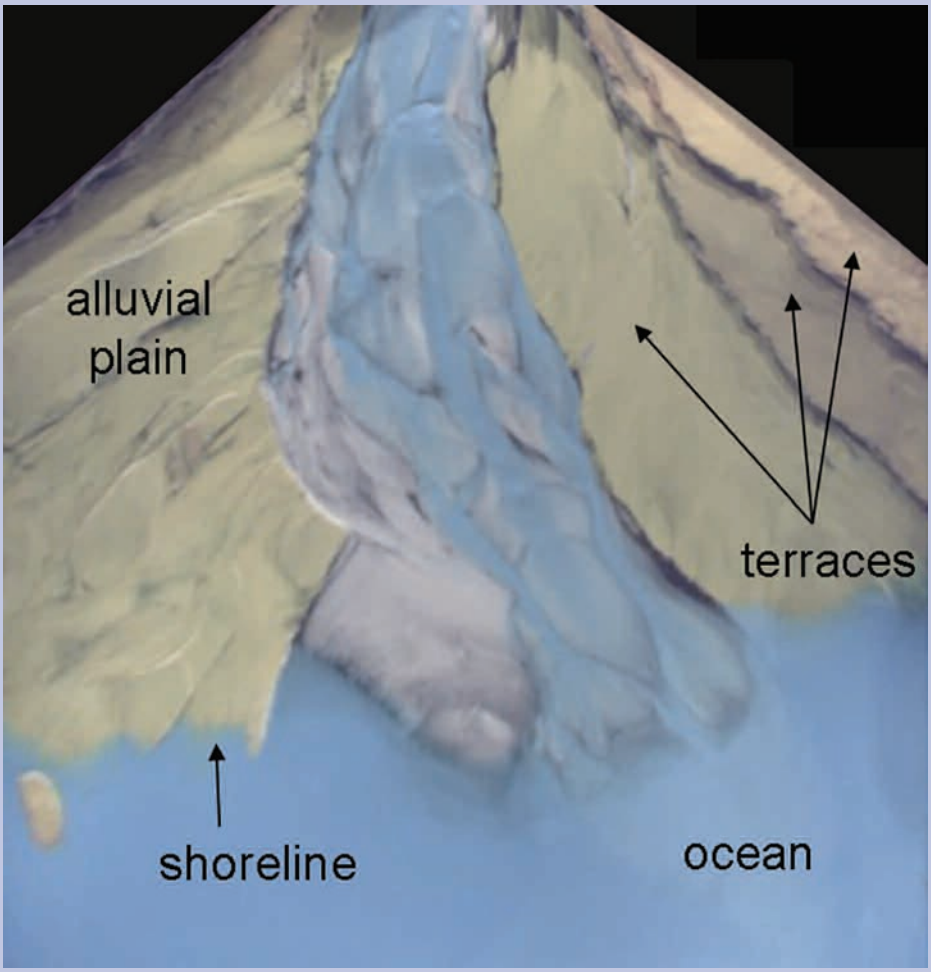


Figure 3. Incised valley in the experimental landscape.

evolution of the incised valley during the sea level cycle is represented in the stratigraphic record by a composite surface formed during numerous widening and filling events, representing the superposition of autogenic deposition and incision on overall allogenic valley cutting and filling.

ACKNOWLEDGMENTS

The authors would like to thank Jim Mullin, Chris Ellis, Dick Christopher, Ben Sheets, Wonsuck Kim, John Swenson, Tom Hickson, Dan Cazanacli, Linciln Pratson, and numerous others unmentioned for help with the enormous task of running these experiments. The authors would also like to thank our sponsors, the National Center for Earth-surface Dynamics (NCED), a Science and Technology Center funded by the Office of Integrative Activities of the National Science Foundation (under agreement Number EAR-0120914) and the St. Anthony Falls Industrial Consortium (Anadarko, ChevronTexaco, ConocoPhillips, ExxonMobil, Japan Oil, Gas and Metals Corporation).

REFERENCES

Blum, M. D., and T. E. Tornqvist, 2000, Fluvial response to climate and sea-level change: a review and look forward. Sedimentology. v. 47 (Supplement), p. 1-48.

Bromely, M. H., 1991, Architectural features of the Kayenta Formation (Lower Triassic), Colorado Plateau, USA: relanshionship to salt tectonicsin the Paradox Basin, Sedimentary Geology, v. 73, p. 77-99.

Cantelli, A., C. Paola, and G. Parker, 2004, Experiments on upstream-migrating erosional narrowing and widening of an incisional channel caused by dam removal, Water Resources Research, v. 40, no. 3.

Cazanacli, D.A., Paola, C., and Parker, G., 2002, Experimental steep, braided flow: application to flooding risk on fans: Journal of Hydraulic Engineering, v. 128, p. 322-330.

Heller, P., L., Paola, C., Hwang, I.-J., John, B., and Steele, R., 2001, Geomorphology and sequence stratigraphy due to slow and rapid base-level changes in an experimental subsiding basin (XES96-1). American Association of Petroleum Geologists Bulliten, v. 85, p. 817-838.

Kim, W., Paola, C., Voller, R.V., and Swenson, B.J., 2006, Experimental measurement of the relative importance of controls on shoreline migration: Journal of Sedimentary Research, v. 76

Kraus, M. J., and L. T. Middleton, 1987, Dissected paleotopography and base-level changes in a Triassic fluvial sequence. Geology, v. 15, p. 18-21.

Lopez-Gomez, J., and A. Arche, 1993,Architecture of the Canizar fluvial sheet sandstones, Early Triassic, Iberian Ranges, eastern Spain. In Marzo, M., and C. Puigdefabregas, eds., Alluvial Sedimentation. International Association of Sedimentologists Special publication, v. 17, p. 363-381.

Muto, T., and R. J. Steel R., 2004, Autogenic response of fluvial deltas to steady sea-level fall; implications from flume-tank experiments, Geology, v.32, no. 5, p. 401-404.

Nicholls, R. J., and S. P. Leatherman, 1995, Global sea-level rise, Strzepek, K. and Smith, J. B., eds., in As Climate Changes: Potential Impacts and Implications, Cambridge University Press, Cambridge, p. 92-123..

Paola, C., J. Mullin, C. Ellis, D. C. Mohrig, J. B. Swenson, G. Parker, T. Hickson, P. L. Heller, L. Pratson, J. Syvitski, B. Sheets, and N. Strong, 2001, Experimental stratigraphy. GSA Today, v. 11, p. 4-9.

Posamentier, H.W., and G. P. Allen, 1999, Siliciclastic sequence stratigraphy: concepts and applications. SEPM Concepts in Sedimentology and Paleontology no. 7, p. 210.

Sheets, B., T. Hickson, and C. Paola, 2002, Assembling the stratigraphic record: depositional patterns and time-scales in an experimental alluvial basin. Basin Research v. 14, no. 3, p. 287-301.

Schumm, S., 1977, The Fluvial System. John Wiley and Sons, New York: p. 338.

Strong, N., B.A. Sheets, T.A. Hickson, and C. Paola, 2005, A mass-balance framework for quantifying downstream changes in fluvial architecture, Blum, M., Marriott, S., Leclair, S., eds., Fluvial Sedimentology VII, International Association of Sedimentologists, IAS, Special Publication No. 35, p. 243-253.

Warrick, R. A., E. M. Barrow, and T. M. L. Wigley, eds., 1993, Climate and sea level change: observations, projections, and implications, Cambridge U. Press, Cambridge.

Wong, M., A. Cantelli, C. Paola, and G. Parker, 2004, Erosional narrowing after dam removal: Theory and numerical modeling, Proceedings, EWRI World Water and Environmental Resources Conference, American Society of Civil Engineers, Salt Lake City, USA.

Van Wagoner, J.C., H.W. Posamentier, R.M. Mitchum, P.R.Vail, J.F.Sarg, T.S.Loutit, and J. Hardenbol, 1988. An overview of sequence stratigraphy and key definitions. In: Wilgus, C.K., B.S. Hastings, C.G. Kendall, H.W. Posamentier, C.A. Ross, and J.C. Van Wagoner, eds., Sea Level Changes—An Integrated Approach, v.42. SEPM Special Publication, p. 39–45.

Van Wagoner, J.C., R.M. Mitchum Jr., K.M. Campion, and V. D. Rahmanian, 1990. Siliciclastic sequence stratigraphy in well logs, core, and outcrops: concepts for high-resolution correlation of time and facies. American Association of Petroleum Geologists Methods in Exploration Series 7, p. 55.

Accepted 7 April 2006

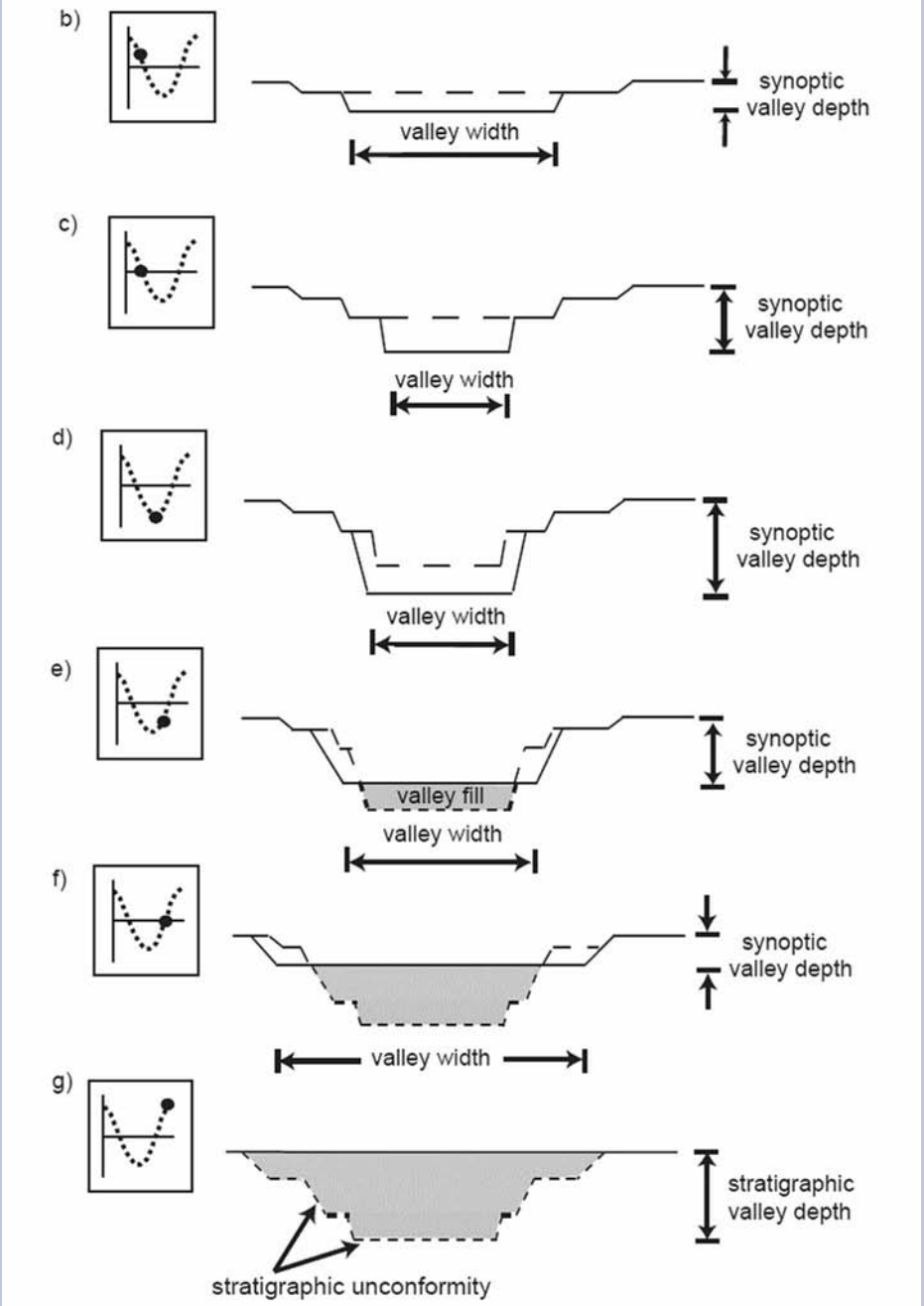


Figure 4. Hypothetical incised valley evolution in response to falling and rising RSL.

SEPM Presentation Winners

The awards listed below were earned from presentations at the SEPM Annual Meeting in Houston, Texas, April 2006. The awardees will be recognized at the SEPM Annual Meeting in 2007.

Oral Presentation:
Winner
Simon Lang, M. Reilly, J. Fisher, C. Krapf, T. Payenberg, and J. Kassan, *A New Facies Model for Terminal Splays in Dryland Fluvial-Lacustrine Basins*

Honorable Mention:
Mark Rowan and K. Inman, *Shallow and Deep Structural Provinces of the Northern Gulf of Mexico*

Poster Presentation: (3 way tie)
Lisa Ashabranner, R. C. Shipp, and N. B. Stillman, *A Mass Transport Fairway in Block BS-4, Santos Basin, Deepwater Brazil: Implications for Field Development*

William Dawson and W. R. Almon, *Shale Facies and Seal Variability in Deepwater Depositional Systems*

Linda Hinnov, *CHRONOS Cyclostratigraphy Tools: Astronomical Calibration of Geologic Time at 0.02 to 0.40 Myr Resolution*

Online Journal Email Alerts

Members of SEPM have online access as part of their basic subscription to either of the journals or both as you have chosen. Journal email alerts or **eTOCs** are a benefit of the online journal experience. Email alerts notify you at an email address of your choice when a new issue has been posted or if articles that meet your search criteria have been uploaded. To set up the email alerts go to www.geoscienceworld.org. Setting up alerts is an open access process, you should not login through your SEPM member access link. Next, click on the "Register" link in the upper-right hand area. Here you can set up a name and password. GSW will assign you a registration number such as REG#### in case you need to correspond with them. Once registered, go to "My GSW Alerts", which is located in the title bar across the top, there you can follow the directions to set up whatever alerts interest you. If you have any questions about the online journal please contact Michele Woods at mwoods@sepm.org

PRESIDENT'S COMMENTS

Volunteerism and Professionalism

As I assume the Presidency of SEPM, an organization to which I have belonged proudly for 25 years, I am humbled by the trust that SEPM's members have placed on me and excited by the challenges that face the organization over the next year, and beyond. I am also reminded that SEPM is essentially a volunteer organization that depends for its success on the selfless dedication of professionals and students who donate their time in order to advance our science. Such volunteers deserve our sincerest thanks for their efforts.

Specifically, I'd like to thank the outgoing members of Council for their dedicated service over the course of their two-year terms: **Bill Morgan**, now Past-President, who has helped to map out the future of the Society by means of the Strategic Planning Meeting that he convened this past January (see his report in the previous issue of *The Sedimentary Record*); **Lesli Wood**, Secretary-Treasurer, for her careful oversight of the Society's finances, which have seen healthy positive balances; **Vitor Abreu**, Research Councilor, who spearheaded a revitalization of our Research Conference program, which is one of the foremost means by which our science is advanced (through the lively discussion and interchange of ideas that occurs in these less formal gatherings of like-minded people); and **Serge Berné**, International Councilor, for his assistance in the promotion of SEPM internationally, a subject that will continue to receive the attention of Council over the coming year. Of the outgoing Council members, **Chris Maples**, Editor of *PALAIOS*, deserves special thanks, not only because he served the Society for four years instead of two, but also because the job of journal editor is more onerous than that of other positions on Council. Thank you everyone! Each of you has contributed in your own way to the continued health of SEPM. In addition, I would like to acknowledge those who are coming onto, or will continue to serve on, Council over the coming year; their names appear elsewhere in this issue. SEPM's dedicated staff also deserves thanks from all of us for their many efforts on behalf of the organization.

At its meeting at the AAPG/SEPM Annual Convention in Houston, Council began to explore those issues that will be the focus of its activities over the coming year. The background for these was set out nicely by Bill Morgan in his *President's Comments* column in the last issue: the challenges of the progressive move to digitization and digital access of our journals, and of an aging and potentially declining membership. Although these issues may appear to be separate, they are intertwined because of the changing role that our journals have as an inducement to join SEPM. In the past, when our journals were available only in selected libraries, the delivery to one's office of the printed journal represented a significant benefit of membership. More recently, the expanding availability of digital access "at your desk", especially through the *GeoScienceWorld* or *BioOne* journal aggregates, makes a personal subscription to the journal less necessary. This may be a contributing factor to the continuing attrition of members (that has been offset over the last two years by a surge of student membership) and is likely to be an growing problem as the number of members reaching retirement age increases over the next few years.

This suggests that it may be time to consider the possibility of separating the price of a subscription to *JSR* and/or *PALAIOS* from membership in the Society. This has both potential benefits and uncertainties. On the positive side, we might retain members who would otherwise leave because they can get the journal(s) by other means, *and* the lower cost of membership alone might attract new members. Of course the potential decrease in the number of subscriptions and the corresponding loss of revenue could create a serious negative impact on the Society's bottom line. What do you think?

Other issues also suggest that it is time for an even more sweeping review of the structure of membership dues. These include the desirability of easing the transition from student to full member, and of making it easier for sedimentary geologists in the developing world to participate in the activities of the Society. A revolutionary approach that has been tried by at least one international organization is the institution of an income-based dues structure. In such a structure, applicants are asked to select their dues to be paid on the basis of their monthly income. Proof of income is not required. Council and the Headquarters and Business Committee will be examining these and other ideas to make belonging to SEPM financially easy for individuals around the world.

The cost of membership is only one part of the equation: the benefit of membership is equally, if not more, important. As a Society, we probably need to do a better job of articulating what one gets from belonging, both in terms of direct benefits (e.g., reduced cost for attendance at our meetings and for our publications) and also with respect to the intangible benefit of being part of the premier scientific organization in the field of sedimentary geology. In fact, one could argue that we need to promote membership as a way of demonstrating one's professionalism: membership in SEPM is an important way to show a commitment to one's profession and of keeping abreast of the latest developments in the field, something that is becoming a professional requirement in most disciplines. I encourage you to promote SEPM in this way to colleagues and students who are not members. The professional contacts that one makes by participating actively in an organization such as SEPM represent one of the more important benefits of belonging.

This brings me back to the subject of volunteerism. One of the ways to maximize the benefit of your membership is to volunteer. Specifically, Council wishes to establish *ad hoc* committees to provide input on two important issues. The first is a committee to provide input on various matters relating to digital publishing, website matters and other related issues. The second is a committee to provide suggestions for new publications, especially in the Special Publication and Concepts in Sedimentology and Paleontology series. If you are interested in either of these matters, please contact Howard Harper hharper@sepm.org or myself dalrymple@geol.queensu.ca. We also welcome your opinions on any of the topics discussed in this column or in Bill Morgan's column in the previous issue of *The Sedimentary Record*. Get involved in your Society.

Robert Dalrymple, President

SEDIMENTARY RECORD EDITORS

EDITORIAL STATEMENT

The breadth of issues related to sediments, sedimentary processes, and sedimentary rocks is astounding. Science articles in ***The Sedimentary Record*** will continue to reflect diverse aspects of sedimentary geoscience, including but not restricted to the formation of sediment; transport and depositional processes; interpretation of depositional environments,depositional histories, and past climates; the history of life; sediments and sedimentary rocks as reservoirs of fluids; diagenetic processes; and human manipulation of sedimentary processes. They may deal with processes or products on any scale, they may focus on new questions or discoveries, or they may present new ideas related to long-standing problems. All will be timely, interesting, and significant. Our goal is for each issue to include a clear, concise article that will expand every SEPM member's understanding of the sedimentary record.

NEW EDITORS OF THE *SEDIMENTARY RECORD*

A trio from the Department of Earth and Environmental Sciences of Vanderbilt University takes over the editorship of ***The Sedimentary Record*** as of this issue. They are eager to build upon the fine tradition established by the founding editors Loren Babcock, Stephen Leslie, and Marilyn Wegweiser. A brief introduction to new editors David Furbish, Steven Goodbred, and Molly Miller follows; for more, see www.vanderbilt.edu/ees. Manuscript submissions are welcome - contact any of the editors.

Molly Miller uses modern and ancient biogenic structures to answer questions about the evolution of marine and freshwater benthic ecosystems and about depositional histories of the enclosing sediments. She is particularly partial to interpreting high latitude climate and ecosystem change recorded in the superbly exposed Permian and Triassic rocks of the Transantantarctic Mountains, as well as to watching modern animals wallow in intertidal and lake sediments. Molly is a former Science Editor of ***GSA Today***.

David Furbish focuses on environmental fluid mechanics and transport theory applied to problems in hydrology and geomorphology, and the intersection of these fields with ecology. He is especially interested in processes of sediment transport in rivers, coastal marshes and soil-mantled hillslopes. David is author of the text, "Fluid Physics in Geology," published by Oxford University Press.

Steven Goodbred investigates sediment dispersal, strata formation, and system development along continental margins, particularly within rivers, deltas, and wetlands. A current focus of his research is the response of South Asia's large fluvial delta systems to orbital-scale climate changes, as well as how such responses are manifested in the stratigraphic record. Steve is also co-leader of IGCP Project #475 Deltas in the Monsoon Asia-Pacific Region (DeltaMAP), which is aimed at synthesizing research across traditional terrestrial, coastal, and marine boundaries.

New editors of **The Sedimentary Record**, *representing the Department of Earth and Environmental Sciences at Vanderbilt University. From left, Steven Goodbred, Molly Miller, and Department Chair David Furbish.*

SEPM Society for Sedimentary Geology
www.sepm.org

UPCOMING EVENTS

Application of Earth System Modeling to Exploration
July 11—13, 2006 Snowbird, Utah, USA

The Pursuit of Science: Building on a Foundation of Discovery
GSA Annual Meeting
October 22—25, 2006 Philadelphia, Pennsylvania, USA

LATEST PUBLICATIONS AVAILABLE AT THE SEPM BOOKSTORE

Continental Trace Fossils
Author: Stephen Hastiotis Redesigned for 2006!

Saxa Loquntor (Rocks Speak)
The Life and Times of the Geologist Gerald M. Friedman
Author: Gerald M. Friedman

PUBLICATIONS COMING SOON!

Facies Models Revisited
Editors: Henry Posamentier and Roger Walker

Incised Valleys in Space and Time
Editors: Robert W. Dalrymple, Dale A. Leckie and Roderick W. Tillman

Proterozoic Geology of western North America and Siberia
Editors: Paul Link and Reed S. Lewis

Cross-bedding, Bedforms and Paleocurrents
A revised edition of Concepts in Sedimentology and Paleontology #1 with an animated eBook
Editors: David M. Rubin and Carissa L. Carter

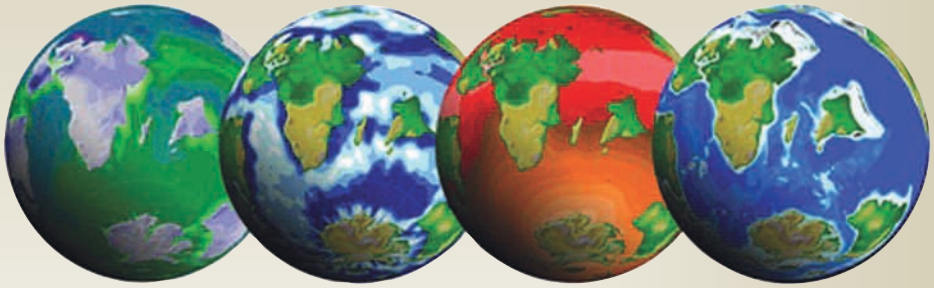
Applied Ichnology
Short Course Notes #52 from the course presented at the 2005 Calgary Annual Meeting
Editors: James A. MacEachern, Kerrie L. Bann, Murray K. Gingras, and S. George Pemberton

SEPM/GSL Joint Research Conference

The Application of Earth System Modeling to Exploration

Snowbird, Utah, USA

July 11-13th, 2006



Maastrichtian climate model results courtesy of Paul Valdes, Univ of Bristol

Conference Purpose

Computer modeling of the Earth System provides a means of predicting the past distribution of depositional systems through time, and is therefore a powerful tool for oil and gas explorationists to use for assessing the nature and extent of source, reservoir and seal facies, especially in frontier areas where data may be sparse and exploration risk is high. This Research Conference is being organized to bring together the leading international experts in the fields of Earth Systems Modeling and Frontier Exploration in order to explore and discuss these issues. Through the keynote lectures and submitted posters and talks, we hope to provide the following: an overview of the current status of applied Earth System Modeling; case histories in exploration, an indication of model uncertainties; and, in particular, an environment in which to facilitate greater inter-disciplinary and industry- academia collaboration.

Keynote Speakers

Alain-Yves Huc & Frans Van Buchem (Institut Français du Petrole) source rocks in a modeling perspective

Paul Valdes (University of Bristol) coupled ocean-atmosphere modeling

Chris Paola (University of Minnesota) fluvial erosion and transport modeling

Martin Wells & Peter Allison (Imperial College, University of London) palaeotide modeling

Richard Tyson (University of Newcastle) organic carbon modeling

Joe MacQuaker (University of Manchester) mudstones, anoxia and source rocks

Technical Convenors

Paul Markwick (GETECH) pjm@getech.com

John Suter (ConocoPhillips) john.r.suter@conocophillips.com

Joe Cuiale (Chevron) jcuriale@chevron.com

Further information about can be found on the SEPM and Geological Society of London websites:

SEPM http://www.sepm.org/events/researchconferences/rconferencehome.htm

GSL http://www.geolsoc.org.uk

Registration is OPEN

Register for the conference at www.sepm.org