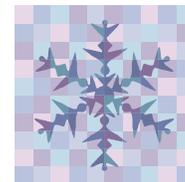




PBS-SEPM NEWSLETTER



December, 2009

Highlights in this Newsletter

2009-10 - PBS-SEPM
Executive Board and
Sponsors 2

Dec 8, 11:30 am
WTGS Luncheon.
Rick Sarg. Topic: The
Sequence Stratigraphy,
Sedimentology and Eco-
nomic Importance of
Evaporites and
Evaporite—Carbonate
Transitions.

Jan 19—11:30 am 3
PBS-SEPM Luncheon
Mtg, Speaker: Dr. Mer-
lynd Nestell, UT at Ar-
lington. Topic: Bell Can-
yon in the Apache Mtns.

NO PBS-SEPM Lunch
Mtg in DECEMBER

PBS-SEPM Calendars 4
Information and they are
now available

PBS-SEPM Digital Publi- 7
cation Project DVD or-
der form

Individual Sponsors of 8
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President's Column:

Fred H. Behnken

The November PBS-SEPM Newsletter did not get out. A cardiac ablation in late October, a stress test in November and angioplasty to open a nearly blocked cardiac artery "somehow" filled my time. As you can see, I am back at the computer and feeling better. I will be able to start some serious exercise walking by the time you get this Newsletter.

My comments in the October Newsletter reviewed the constancy of geologic change, particularly in regards to scientifically documented global climate changes over the last twenty-five hundred years. From oldest to youngest these climatic shifts are termed, the Roman Warm Period, Dark Ages Cold Period, Medieval Warm Period, Little Ice Age, and the Current Warming cycle, demonstrate nothing unusual about episodic climate change. I indicated that the Current Warming Period has not yet reached the temperature peaks of the previous Roman Warm Period, or the following Medieval Warm Period.

Since the October Newsletter, some folks have challenged the global nature of Roman and Medieval Warm Periods, asserting that they were only regional in extent. However, that premise neglects continuing studies of extensive ice cores in both Greenland and in Antarctica that document at least four major climatic shifts. The analysis of long (up to 3,080 m) continuous ice cores as part of the Greenland Ice Core Project (GRIP) and

the Greenland Ice Sheet Project Two (GRIP2) are reported on a CD-ROM^{1,2,3,4,5}. The Vostok ice core from Antarctica (in the Southern Hemisphere for the geographically challenged) recovered a 3,623 m continuous ice core. The summaries of this research indicate that over 400,000 yrs are presented and document four climatic cycles using O₁₆/O₁₈ ratios.

Research published by Cullen, et al (2000)⁶ and Curtis, et al (1996)⁷ document climate change concurrent with the collapse of the Akkadian Empire (Mesopotamia in the Tigris-Euphrates region) and development of the Maya cultural dominance in South America, respectively. Hodell, et al (2005, 2001, 1995)^{8,9,10} studied sediment cores showing fluctuations of fresh water diatom populations from several sediment cores in Lake Chichancanab, Mexico to document a drought forcing a collapse of the dominant Maya culture. Additional lake sediment cores in Peru (Chepstow-Lusty, et al. (2009)¹¹ tie a 400 yr warming trend with increased agricultural productivity in the Andes. Warming enabled increased agricultural productivity by planting higher upon the former ice-covered slopes of the Andes and lasted beyond the arrival of the Spanish in 1532 CE.

This discussion and the literature are just a "taste" of the scientifically documented climatic shifts supporting a Roman and Medieval Warm Periods. The broad based geomorphology, glaciology, meteorology, paleoclimatology, and archeology scientific studies demonstrate that global climate changes occurred long before our human cultural contributions of CO₂ and other gases from

¹ The Greenland Summit Ice Cores CD-ROM.1997. Available from the National Snow and Ice Data Center, University of Colorado at Boulder, and the World Data Center-A for Paleoclimatology, National Geophysical Data Center, Boulder, Colorado.

² Petit, J. R. et al., 1997. Four climate cycles in Vostok Ice Core. *Nature* 387:359-360.

³ Pettit, J. R., et al., 1999. Climate and atmospheric history of the past 420,000 years from the Vostok Ice Core, Antarctica. *Nature* 399:429-436.

⁴ Sowers, T., et al., 1993. 135,000 year Vostok – SPECMAP Common Temporal Framework. *Paleoceanography*, 8:737-766.

⁵ Brook, E.J., et al. 2000. Accretion of the interplanetary Dust in Polar Ice. *Geophysical Research Letters*, 27: no 19: p. 3145.

⁶ Cullen, H.M., et al. 2000. Climate change and the collapse of the Akkadian Empire; evidence from the deep sea, *Geology* 28: 379-382.

⁷ Curtis, J.H., Hodell, D.A. and Brenner, M. 1996. Climate Variability on the Yucatan Peninsula

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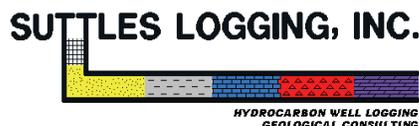
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“In a time of universal deceit, telling the truth is a revolutionary act”
George Orwell
(1903-1950)

Do you have an idea for an interesting luncheon talk? Have a core workshop you'd like to present? Have some suggestions on how PBS-SEPM can better serve the geologic community? Just click on the e-mail above and drop us a note—your PBS-SEPM Executive Board would love to hear from you!

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References Continued from page 1

(Mexico) during the last 3500 years, and implications for Maya cultural evolution. *Quaternary Research* 46: 37-47.

⁸ Hodell, D.A., Brenner, M. and Curtis, J.H. 2005. Terminal Classic drought in the northern Maya Lowlands inferred from multiple sediment cores in Lake Chichancanab (Mexico). *Quaternary Science Reviews* 24: 1413-1427.

⁹ Hodell, D.A., Brenner, M., Curtis, J.H., and Guilderson, T. 2001. Solar forcing of drought frequency in the Maya lowlands. *Science* 292: 1367-1370.

¹⁰ Hodell, D.A., Curtis, J.H. and Brenner, M. 1995. Possible role of climate in the collapse of the Classic Maya Civilization. *Nature* 375: 391-394.

¹¹ Chepstow-Lusty, A.J., et al., 2009. Putting the rise of the Inca Empire within a climatic and land management context. *Climate of the Past*, 5:375-388. [an interactive open access journal of the European Geosciences Union, http://www.clim-past.net/volumes_and_issues.html]

NO PBS-SEPM Luncheon Talk In December

PBS-SEPM Luncheon Talk: January 19, 2010

TITLE: The Bell Canyon (Capitanian, Guadalupian, Middle Permian) in the Apache Mountains: Its Biostratigraphy and Problems in Correlation.

SPEAKER: Dr. Merlynd K. Nestell, Dept. of Earth and Environmental Sciences, UT at Arlington, TX

ABSTRACT: The six members (Hegler, Pinery, Rader, McCombs, Lamar Limestone, and Reef Trail) of the Bell Canyon Formation (Capitanian, Upper Guadalupian, Middle Permian) were established in the Guadalupe Mountains of West Texas. The recognition of these members and their corresponding name usage away from this area (e.g., in the Apache or Glass Mountains) is certainly questionable. The most biostratigraphically useful fossils for the correlation of these members to other areas are conodonts, foraminifers (in particular, fusulinaceans) and radiolarians. In the Guadalupe Mountains Middle Permian Stratotype section, the lower boundary of the Capitanian (GSSP) has been defined at a changeover from the Wordian conodont species *Jinogondolella aserrata* to Capitanian *J. postserrata* found in the upper part of the Pinery Member near the top of a prominent topographic feature known as Nipple Hill and within Guadalupe Mountains National Park. This conodont species transition has recently been found in strata in the Apache Mountains. Extensive bed by bed sampling of the carbonate units in a number of stratigraphic sections in the Apache Mountains has established a conodont succession in strata that are biostratigraphically equivalent to the Hegler through Reef Trail Members of the Bell Canyon Formation and that parallels the conodont succession known from the Middle Permian stratotype area. However, the lithofacies present in these sections in the Apache Mountains do not allow the straightforward usage of the Bell Canyon member names as introduced in the Guadalupe Mountains. Several thick debris in the Bell Canyon succession in the Apache Mountains have been considered as "Rader slides" like the well known one in the Guadalupe Mountains, but they are clearly not the same. For example, a thick debris slide at the base of a Reef Trail equivalent succession (based on conodonts and the fusulinaceans *Paraboultonia splendens*) contains in clasts the fusulinacean *P. splendens*, a well known marker for the Reef Trail Member in the Guadalupe Mountains. This Reef Trail equivalent succession contains the conodont species *Clarkina postbitteri hongshuiensis* in the uppermost part, a species that marks the very end of the Guadalupian succession at the Chinese GSSP section. Two student theses that produced geologic maps of two several square mile areas on the east and west sides of FM 2185 in the Apache Mountains have recently been completed by the University of Texas at Arlington graduate students Walter Kennedy and Michael Sweatt. This project has revealed that the debris flows in the Bell Canyon Formation sequence in the Apache Mountains (with proper conodont control of the intervening carbonate successions) can be used as a basis for mapping and also serve as reliable markers for revealing the correct succession of Bell Canyon age strata.

BIO: Merlynd K. Nestell, Ph. D

For the past 30 years, I have held a joint appointment in the Mathematics and Geology (now Earth and Environmental Sciences) departments at The University of Texas at Arlington. My mathematical interest centers on integral equations and their applications and my geological interest has focused primarily on the biostratigraphy of accreted terranes in the Pacific Northwest with emphasis on the distribution of conodonts and fusulinids. For the past 10 years, I have been working with Galina Pronina Nestell on Middle and Late Permian foraminifer faunas from the Crimea, Greece, North Caucasus, and West Texas. In the past few years, Galina and I have been working on the integration of the biostratigraphic data concerning foraminifers, conodonts, and radiolarians present in strata of the Bell Canyon Formation (late Middle Permian) and its stratigraphic equivalents in the Guadalupe and Apache mountains. A long monograph on the conodont biostratigraphy of the Lower Permian of Kansas with Darwin Boardman (Oklahoma State) and Bruce Wardlaw (USGS) (Sequence stratigraphy and conodont taxonomy and biostratigraphy of Late Carboniferous and Early Permian strata in Mid-Continent North America) is in press at the Kansas Geological Survey for publication. Many of my former graduate students have worked on stratigraphic problems relating to the Middle-Upper Pennsylvanian and Lower Permian strata in north-central Texas. Currently (2008), I have two students, M. Sweatt working on Permian rocks in the Apache Mountains, and C. Leyva working on Pennsylvanian (Virgilian) rocks in North Central Texas.

"You can fool too many of the people too much of the time"

James Thurber, (1894–1961) New Yorker, Apr. 29, 1939, "The owl who was God"

"About the time we think we can make ends meet, someone moves the ends."

Herbert Hoover (1874-1964)



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The calendars are 8.5x11" (folds out to 11x17") and are offered at the same price of \$15.00 / calendar. There is a special volume discount available – one free calendar for every 5 that are purchased.

The calendar helps to support educational programs offered by PBS-SEPM, a non-profit organization, and a portion of the proceeds from the calendar sales are dedicated to the financial aid of full-time geoscience college majors wanting to attend PBS-SEPM sponsored events. So each dollar spent not only helps PBS-SEPM to serve the professional geologic community with excellence, but also is an investment in the lives of future geoscience professionals.

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"It is not worth an intelligent man's time to be in the majority. By definition, there are already enough people to do that."

G. H. Hardy (1877-1947).

"Whenever you find that you are on the side of the majority, it is time to reform"

Mark Twain (1835-1910).

PBS-SEPM is the Permian Basin Section of SEPM—the Society for Sedimentary Geology. However, you do not need to be a SEPM member or a geologist to join PBS-SEPM.

Our non-profit society relies upon the efforts of dedicated volunteers to serve the geological community—primarily through educational events. These events include monthly luncheon talks, core workshops, annual field trips, and special geological publications. Thanks to our Education Committee we are involved in MISD 5th grade geology presentations to interest elementary students in pursuing a career in geosciences. We would like to increase our exposure on college campuses—reaching out to future earth scientists through scholarships, discounted memberships, and offering full-time geology students the ability to participate in professional-grade field trips at little to no cost.

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The following lists of portals and core repository facilities represent our first compilation

PORTALS TO INFORMATION

PTTC has a portal to the holdings of several public repositories. You can sort by repository and display their holdings in map view. <http://inside.mines.edu/Research/PTTC/Core%20Locator/>

AGI has a list of repositories of various geologic data, including cores. It provides contact information and accesses data through a map interface. <http://www.agiweb.org/ngdrs/overview/datadirectory.html>

Tony Troutman's website <http://www.carbonates.us/cores.htm> has a list of storage sites, including several state repositories.

PUBLIC AND COMMERCIAL STORAGE FACILITIES

The **USGS** has a storage facility in Denver that has Permian Basin material. Their collection can be searched online at <http://geology.cr.usgs.gov/crc/>. 303-202-4851.

The **Bureau of Economic Geology (BEG)** holds Permian Basin cores in their Midland, Houston, and Austin facilities. See <http://www.beg.utexas.edu/facilities.php> for information and contacts. Their catalog is called **IGOR** which has a link on above address. IGOR will be replaced soon by a more advanced database.

New Mexico Bureau of Geology and Mineral Resources has Permian Basin cores in Socorro. Request a list of the collection at <http://geoinfo.nmt.edu/libraries/subsurface/home.html>

CEED (Center for Energy and Economic Diversification) at **UT Permian Basin** (<http://ceed.utpb.edu/>) has Texas and New Mexico cores. 432-552-2020.

The **International Sample Library at Midland** has cores and core chips. Their collection is not in a database and must be searched through index cards. 707 Connell St, Midland, TX , 79701. 432-682-2682.