



SINCE 1950

Four Corners  
Geological Society

*May / June Meeting:*

**Living Dangerously: Life on the Shelf and Shoreline of the Cretaceous Western Interior Seaway, A Study of Shelf Processes and Deposits**

<b>SPEAKER:</b>	Dr. Lesli J. Wood, Colorado School of Mines.
<b>DATE / TIME:</b>	Friday, June 3 <sup>rd</sup> , Social starts at 5:30pm, dinner at 6:00pm, talk at 7:00pm.
<b>LOCA-TION:</b>	Courtyard Marriott, 560 Scott Avenue, Farmington, NM
<b>COST:</b>	\$20.00/person, \$2.00/person talk only, Students free. You can RSVP & pay online at: <a href="http://www.fourcornersgeologicalsociety.org/Events/events.asp">http://www.fourcornersgeologicalsociety.org/Events/events.asp</a>
<b>RSVP:</b>	By Tuesday, May 31 <sup>st</sup> at 5pm to Kim Gerhardt, <a href="mailto:kim@mydurango.net">kim@mydurango.net</a> or 970-375-2700. (Students, please RSVP by email as the online PayPal system doesn't work for free admission).



**ABSTRACT:** Shelf sand of many varieties are ubiquitously present in modern seaways and ancient seaway deposits. The Western Interior is no stranger to shelf sands, however the processes active in moving these sediments around the ancient WIC were much more dynamic than once thought. Today, due to technological advances in exploration and development, attention has moved from high net:gross shelf sand occurrences to low net:gross shelf sands. The distal Frontier Formation, the Mancos B, the “Gallup Sands” are all examples of productive low net:gross sands that have been distributed broadly across their respective Cretaceous shelves, often more broadly than one would expect. In addition, hummocky cross-stratification in the WIC is unusually large and the preservation of hummocky cross-stratification is unusually widespread. These

anomalous characteristics regarding WIC shelf deposits, have informed a series of studies to improve our understanding of how sediments move across shelves and the processes that may have been active in the WIC during what was a warm and even super-Greenhouse climate in the Cretaceous. This talk will investigate shelf processes through experimental models of plunging plumes and turbidite-wave interactions, cross-shelf subaqueous channel development, calculations of wave energies using hummocky sedimentary structures and examination of modern hummock fields generated by super storm Sandy. Results reveal that the shelf is a dynamic and sometimes scary place to be living.

PLEASE RENEW YOUR MEMBERSHIP: *Membership in the Four Corners Geological Society runs on the calendar year. Please either renew online at [www.fourcornersgeologicalsociety.org](http://www.fourcornersgeologicalsociety.org) or fill in the form on the last page and mail it with your check to FCGS / P.O. Box 1501 / Durango / CO 81302.*

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## SPEAKER'S BIOGRAPHY: LESLI J. WOOD, PH.D.

Colorado School of Mines



Dr. Wood is the Weimer Distinguished Chair and Professor in Sedimentary and Petroleum Geology, in the Department of Geology and Geological Engineering, Colorado School of Mines. Dr. Wood's major interests are in morphometrics used in risking, modeling clastics systems, quantitative seismic geomorphology, shale tectonics and martian landscapes & processes. She directs an industry consortium at CSM called, SAND: the Sedimentary Analogs Database and Research Program.

Dr. Wood came to CSM from the Bureau of Economic Geology at UT Austin, where she worked on Pleistocene to Holocene stratigraphy as part of a deep marine depositional margins consortium.

She worked with contiguous 3D seismic surveys from offshore Trinidad and Venezuela to determine depositional processes.

Prior to coming to UT, Lesli worked as a Senior Geoscientist for Amoco Production Co. as a sequence stratigrapher integrating well log and seismic (stratigraphy, attributes and facies) data in exploration and production settings around the world. She has a Ph.D. from Colorado State University, a Master's Degree from University of Arkansas and a B.S. from Arkansas Tech University.

She has many publications in peer-reviewed journals and is also an author of AAPG Memoir 93 on Shale Tectonics (2010), and GSA Special Publication #277 on Seismic Geomorphology.

On another note, Lesli plays music with her band (they have 2 albums out) and has a pig named Bartley.

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FIELDTRIP: Dr. Wood is leading a fieldtrip, "*The Tocito, El Vado and Gallup Sands of the San Juan Basin*" on Saturday, June 4th—Sunday, June 5th. This trip is sold out. Participants please meet at 8am on Saturday morning in the parking lot of the San Juan College School of Energy, 5301 College Drive, Farmington, NM. Please eat breakfast before arriving. We will drop our extra cars there (there is 24/7 security) and get into our carpools.

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## "PREZ SEZ" by John Youle



I have enjoyed serving as President for the last year and would like to take this opportunity to thank the officers who make the FCGS function. *Rebecca Helms* did an excellent job organizing our fall picnic and finding speakers for our monthly dinner meetings. Her choices reflect her dedication to the high scientific standards that keep the

FCGS an association of professionals. *Tom Staatz* is a wizard. He keeps track of all the income from your membership fees, dinner meetings, publication purchases, etc. and writes the checks to our venues, storage locker, PO box and more. More than this, he buys ALL the items that are raffled off every month to support student dinners out of his own pocket. We are very grateful for his dedica-

tion to the geology program at Fort Lewis College and to keeping the bridge between the society and the school. *Tom Ann Casey* and *Kim Gerhardt* deserve the membership's heartfelt thanks for putting in the volunteer effort to make our June field trip with Dr. Wood a reality. Like gifted athletes in sport, they make the difficult look easy.

Our society is only as strong as the variety of members that actually volunteer. Speaking of volunteering, the ultimate in supporting your society is to become an officer for a year, or nominate someone else you feel would make a good officer. Please submit your officer nominations to Kim Gerhardt ASAP.

Thanks,

John

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## Volunteer to be an Officer!

The Four Corners Geological Society and the FCGS Foundation have been running since 1959 on the efforts of volunteers who are elected to the various officer positions every year. This year is no exception. Please consider volunteering to keep our organization strong. The openings most in need of support right now are the President-Elect (finds speakers), the Secretary (maintains the membership list) and a Foundation officer (stewards our Permanent Fund). The following is a summary of the officer duties as described in our Constitution and Bylaws.

**Past-President:** Currently *Paul Spear*, soon to be *John Youle*, the current president. The Past-President has an advisory role and facilitates the transition from one administration to the next.

**President:** Currently *John Youle*, soon to be *Rebecca Helms* the current President-Elect (Rebecca is out on maternity leave). Under our bylaws, the VP succeeds automatically to the position of President. The President presides over all meetings of the Society and coordinates the Society's activities with other groups. The President can appoint committees and delegate members to special assignments.

**President-Elect:** Currently *Rebecca Helms*. **WE NEED A VOLUNTEER FOR THIS POSITION!!!** The President-Elect serves

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as the Program and Entertainment Chairman and fills in for the President in his/her absence. This position is really the meat of the society. The PE arranges for speakers for our monthly meetings, from September through May, and also organizes our summer picnic. Although this seems like a daunting assignment, the PE gets a lot of help from the other officers.

**Secretary:** Currently *Kim Gerhardt*. **WE NEED A VOLUNTEER FOR THIS POSITION!!!** The Secretary maintains the records of the society including current copies of the Constitution and Bylaws and the membership roster. The secretary also records the actions of the Executive Committee. The FCGS & Foundation have a P.O. Box in Durango. The Secretary checks this box once or twice a week and forwards the mail to the relevant officers.

**Treasurer:** Currently *Tom Staatz*. Tom has agreed to stand for re-election, although if you are interested in this position please notify the Executive Committee. The Treasurer supervises the receipt of all funds and is responsible for disbursing funds under the direction of the Executive Committee. He/she advises the EC of the current financial status of the Society, especially when a project or program is being planned. The Treasurer makes an annual report to the EC and arranges for the Society's income tax filings.

**(Newsletter) Editor:** Currently *Kim Gerhardt*. Kim has agreed to stand for re-election, although if you are interested in this position please notify the Executive Committee. The Editor ensures that the Newsletter is published in a timely manner and that it includes the necessary notices, forms and ballots. The Editor also oversees the Society's website (although in reality this is done by Tom Ann Casey).

**Book Chairperson:** Currently *Tom Ann Casey*. Tom Ann has agreed to stand for re-election, although if you are interested in this position please notify the Executive Committee. The Society owns a storage locker in Farmington containing our publications. The Book Chairman receives the orders from online publication purchases and mails the volumes out.

THE FCGS FOUNDATION has a similar need for officers. The Foundation is managed by a President, Vice-President, Treasurer and Secretary. Joe Hewitt, Gary Gianniny and John Mercier have filled these positions since ~2012. **WE NEED A VOLUNTEER FOR A FOUNDATION SLOT.** To insure the stability of the Foundation, only one new officer is elected per year and only one leaves. Officers rotate through the positions, coming in as Secretary and rotating out after having been President. The Foundation officers invest the monies in the Permanent Fund (established in 1988) and use the income from this capital to fund a scholarship program. One of the more pleasant duties in this organization is to read and evaluate the applications that come in every spring from graduate students looking for a grant to help fund their research on some aspect of geology in the Four Corners region.

**ARE YOU INTERESTED IN ONE OF THESE POSITIONS?** We will be electing new officers this summer. Please contact Kim Gerhardt ([kim@mydurango.net](mailto:kim@mydurango.net)) if you would like to put your name forward.

## EVENTS, MEETINGS & COURSES (by date)

PTTC / RPSEA Onshore Technology Workshop: Denver, CO, May 26<sup>th</sup>. "Interactive Workshop Focusing on Emissions from Unconventional Resources Development Activity". Kent Perry, instructor. For information and to register: <http://www.rpsea.org/events/514/>.

CALL FOR PAPERS, AAPG PACIFIC & ROCKY MTN. JOINT MEETING: Abstract submission deadline June 1<sup>st</sup>. Meeting will be October 2-6, Las Vegas, NV. For more information go to: <http://aapgrms.org/annual-meeting>.

ROCKY MT ASSOC. OF GEOLOGISTS JUNE LUNCHEON: Denver CO, June 1<sup>st</sup>., Maggiano's Little Italy - 500 16th Street Mall #150, 11:30am. Speaker Michael Leibovitz, "Kurdistan's Exploration Frontier Past and Present" To register go to: <https://rmag.memberclicks.net/upcoming-luncheons> .

SEISMIC INTERPRETATION FOR GEOSCIENTISTS: Golden, CO, June 1 & 2<sup>nd</sup>. Instructor Dr. Bruce Trudgill. Run by PTTC-Rockies. For more information and to register go to: <https://www.eventbrite.com/e/seismic-interpretation-for-geoscientists-tickets-23192654855> . (Half-price for unemployed professionals).

BASIC PETROLEUM GEOLOGY FOR THE NON-GEOLOGIST: Denver, CO, June 7-9<sup>th</sup> . Instructor, Norman J. Hyne. Run by TU-CSE (University of Tulsa). For more information go to:

<http://www.cese.utulsa.edu/programdetail.php?ID=121> . To register contact [cese@utulsa.edu](mailto:cese@utulsa.edu) or 918-631-3088.

TECTONICS OF THE ROCKY MOUNTAIN REGION: Golden, CO, June 8<sup>th</sup>. Instructor Dr. Bruce Trudgill. Run by PTTC-Rockies. For more information and to register go to: <https://www.eventbrite.com/e/tectonics-of-the-rocky-mountain-region-tickets-23194470285> (Half-price for unemployed professionals).

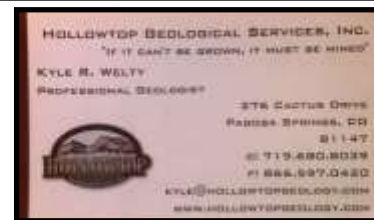
MINING HISTORY ASSOCIATION 2016 ANNUAL CONFERENCE: June 9-12, 2016. Telluride, CO. Talks, exhibits, plus field trips. For more info, see the web site: [www.mininghistoryassociation.org](http://www.mininghistoryassociation.org).

AAPG ANNUAL CONVENTION AND EXHIBITION: June 19-22, Calgary, Alberta Canada. Abstract submission closed. More information at: <http://www.aapg.org/events/conferences/ace/announcement/articleid/5662/aapg-2016-annual-convention-exhibition>.

2ND E. F. FOORD PEGMATITE SYMPOSIUM. Golden, CO, July 15-19, 2016. Lectures, field trips and reception. Sponsored by Colorado Chapter Friends of Mineralogy, Friends of the CSM Geology Museum, and Denver Region Exploration Geologists Society. For more information, see [www.facebook.com/LikeCSMGeoMuseum/](http://www.facebook.com/LikeCSMGeoMuseum/)

WMMI GEM & MINERAL SHOW. Colorado Springs, CO, July 15-17, 2016. Plus gold panning, gem & mineral vendors, and operating stamp mill & other engines at the Western Museum of Mining & Industry, 225 North Gate Road,. See the web site for more info: [www.wmmi.org/events](http://www.wmmi.org/events).

PETROLEUM ENGINEERING FOR NON-ENGINEERS: Denver, CO, August 30-Sept 1<sup>st</sup>. Instructor Mark Klins. Run by TU-CSE (University of Tulsa). For more information go to: <http://www.cese.utulsa.edu/programdetail.php?ID=127> . To register contact [cese@utulsa.edu](mailto:cese@utulsa.edu) or



### 2015-2016 OFFICERS OF THE FOUR CORNERS GEOLOGICAL SOCIETY

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**Secretary:**

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**Treasurer:**

Joe Hewitt  
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**Secretary**

John Mercier  
(505) 324-1166  
[mercierjohn007@gmail.com](mailto:mercierjohn007@gmail.com)

# CALL FOR PAPERS

Oil and Gas Fields of the  
Four Corners, Volume IV  
1983 to 2017



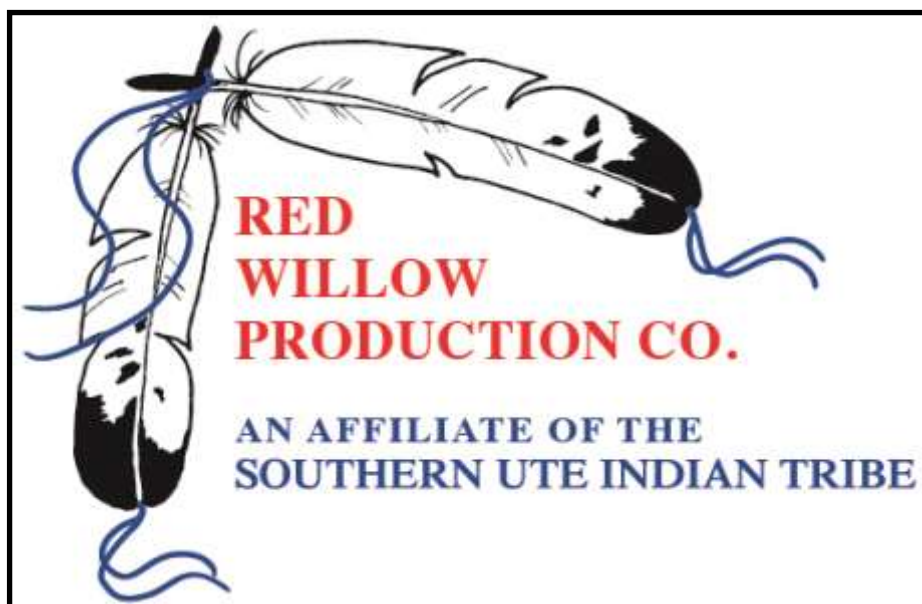
The publication will consist of two types of papers:

*Field Studies.* Short format field summaries similar to those in previous volumes, for fields discovered since 1983. Format to include: data table of field & reservoir attributes, brief descriptions of trap and discovery methods, type log, type cross section, key structure and isopach maps, and a field narrative. A template will be available to download from the FCGS website by April 15<sup>th</sup>.

*Special Studies.* Papers covering a wide range of topics describing innovations applicable to hydrocarbon production in the Four Corners area over the past 33 years (post Vol. III). Topics of interest may include: new coal facies models and technologies to develop CBM, 3D reservoir modeling and/or tertiary recovery methods, use of 3D seismic, new fields or discoveries, new sequence stratigraphic interpretations, horizontal drilling applications, new petrophysical methods and models for unconventional reservoirs, and new completion designs and methods.

Please contact Tom Ann Casey at [tcasey@rwpc.us](mailto:tcasey@rwpc.us) if you are interested in submitting a paper or have questions.

Abstract Deadline: September 15<sup>th</sup>, 2016





Four Corners Geological Society  
P.O. Box 1501  
Durango, CO 81302

Membership Renewal or Application

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Employer: \_\_\_\_\_

Contact Phone: \_\_\_\_\_ Email: \_\_\_\_\_

**Please Identify a Membership Category:**

- |                          |                             |           |   |
|--------------------------|-----------------------------|-----------|---|
| <input type="checkbox"/> | Active Member 1             | \$20      | Person holding a degree in geology or an allied science and receiving the FCGS Newsletter via <b>email</b>        |
| <input type="checkbox"/> | Active Member 2             | \$25      | Person holding a degree in geology or an allied science and receiving the FCGS Newsletter via <b>U.S. mail</b>    |
| <input type="checkbox"/> | Associate Member 1          | \$20      | Person whose interests are closely associated with geology and receiving the FCGS Newsletter via <b>email</b>     |
| <input type="checkbox"/> | Associate Member 2          | \$25      | Person whose interests are closely associated with geology and receiving the FCGS Newsletter via <b>U.S. mail</b> |
| <input type="checkbox"/> | Student Member              | Free      | Undergraduate student majoring in geology or an allied science. Year expect to graduate: _____                    |
| <input type="checkbox"/> | Emeritus or Honorary Member | No charge | Year Honorarium or Emeritus Status was awarded _____  |

My professional interests are: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

*The dues year begins on January 1<sup>st</sup>. For dues paid after March 1, add a \$5 late fee (does not apply to new members).*

- I am making a donation to the FCGS Foundation! Amount \$\_\_\_\_\_.  
(Please enclose a separate check).

Please print, complete and return this form with your check for dues made payable to: Four Corners Geological Society and mail to the address above. OR go online to [www.fourcornersgeologicalsociety.org](http://www.fourcornersgeologicalsociety.org) to join or renew.