



## Colorado Scientific Society

*The objective of the Society is to promote  
the knowledge and understanding of Earth science,  
and its application to human needs*



### “Kon-Tiki Revisited: Observations of a Geologist “

*by Susan M. Landon, Petroleum Geologist*

“Geologic, Hydrologic, and Geochemical  
Processes Controlling the Formation and  
Weathering of Mineral Deposits—  
Examples at a Variety of Spatial Scales”



*by Richard Wanty, USGS*

Thursday, February 15, 2001

Colorado Mountaineering Center  
710 10th Street (NE corner with Washington)  
Golden, Colorado  
Social half-hour – 7:00 pm  
Meeting time – 7:30 pm

# February Abstracts



## **Kon-Tiki Revisited: Observations of a Geologist**

*Susan M. Landon*

It has been several decades since Thor Heyerdahl wrote *Kon-Tiki*, dramatizing his theories on the connection between the Inca of South America and the early inhabitants of Easter Island. Certainly, these two populations shared a strong affinity for geology and working with rock. The Inca constructed elegant stone structures and produced more than enough food to feed their population with the assistance of sophisticated irrigation projects. The Rapa Nui, residents of Easter Island, carved magnificent statues of impressive size that were moved across the island to stand as sentries staring for hundreds of years across the ocean.

As a youth, I remember visiting friends of my parents where a coffee table book of mysterious places provided my entertainment while the adults talked. There were two photos in that book that captured my imagination completely, Machu Picchu and the staring statues on Easter Island. I decided then that I would have to see these places myself. In travel log style, we will explore these almost mystical places, through the camera and observations of an inquisitive geologist. As to an answer for the question of whether or not residents of Easter Island were early tourists from South America, I will let you decide.



## **Geologic, Hydrologic, and Geochemical Processes Controlling the Formation and Weathering of Mineral Deposits-Examples at a Variety of Spatial Scales**

*by Richard Wanty, Byron Berger, and Michele Tuttle*

Although studies of environmental issues abound in the recent literature, no set protocol exists for designing and executing an environmental study that is truly representative of any particular natural system. For example, few, if any, studies consider the scale dependence (spatial or temporal) of natural or man-made processes acting in a system, and design sampling and analytical strategies to represent those scale dependencies. This, despite the fact that nearly every “environmental” study implicitly comprises some spatial and temporal properties. Mineral deposits provide convenient objects of study for a variety of reasons: they represent a “point source” of constituents in ground and surface water (usually metals and sulfate) that may be traced through the environment; most of them document the existence of paleo-hydrologic systems, many of which are hydraulically conductive today; they occur in spatially limited bodies of rock, allowing for a convenient spatial scale for study; they occur in a variety of climatic and hydrologic settings around the world. Examples of spatial scales of natural mineral-forming and -weathering processes ranging from millimeters to kilometers will be presented, with discussions of the appropriate types of data needed to characterize such processes.



## 128 Unpaid Members for 2001

In mid-December, the Society sent all members an invoice for annual dues and Memorial Fund contributions. We appreciate the returns we have received so far, but unfortunately there are still 128 unpaid members. We work hard to recruit and keep members, so please return your dues form. Please contact us if you need another form, or you can download a copy from our web site at:

[http://home.rmi.net/~css/forms/css\\_dues.pdf](http://home.rmi.net/~css/forms/css_dues.pdf)

Michael Machette, Treasurer



### News from the hinterland! *A few words from Ken Pierce...*

My wife Linda and I moved to Bozeman last March. I am the first geologist to be officially stationed at the recently established USGS Northern Rocky Mountain Science Center. I joined an existing group of USGS biologists that includes the Grizzly Bear Study team. I have continued my Yellowstone studies, especially the relation between ecology and geology. The winters are darker, colder, and longer, but Bozeman is a neat place with lots of music, art, and goings on in town, and wonderful landscapes around town to explore.

We are developing wetlands work on National Wildlife Refuges in the northern Rockies, particularly Grays Lake NWR in Idaho, and in a new refuge in northwest Montana. Later this month, I am going with Joe Rosenbaum and a USGS group from Denver, Cathy Whitlock, and a NSF funded University group to core through the ice and 90 feet of water and sample the varved sediments of Crevice Lake in northern Yellowstone. I enjoy working with the biologists here at the Center and Montana State University geologists, but it would be nice to have more geologists and perhaps hydrologists here with me at the Center.

*Ken Pierce may be reached at:*

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## *A View Through the Brown Cloud*

Once again it is that time of year, February! When use or lose is all but a memory. February! When wise men present their life-love with Valentines chocolates and gifts much like suppliants bearing offerings to a She-God to forestall her angry wrath. February! When Puxatawny Phil emerges from his slumber and gets more credit for Climate Change than all of the USGS scientists put together.

Speaking of which, have we all recovered from a most interesting Emmons Lecture by Paul Hoffman? The talk set a record for length, and most certainly for stamina. There was something for everyone, all in one spiel. Testimony at a Senate committee hearing on climate change was never so sage, or abounding in tautology. Paul did give the climate crowd a tip for funding attainment. He stated that early Soviet research was prompted by hopes for a global warming bonus: that the frozen north would thaw, giving easy naval access to our country tis of thee. Maybe someone could point this out to one of our more hawkish pols and research funds would treble! It gives new meaning to the phrase "Cold War".



...a gentle reader's fond memories of the USGS publication process:





# Earth Science Meetings and Talks



**Colorado Scientific Society's** regular meetings are held the third Thursday of the month at the Colorado Mountaineering Center in Golden (unless otherwise advertised). Social time begins at 7:00 p.m. and talks start at 7:30 p.m. For info., contact Michele Tuttle at (303) 236-1944 or [mtuttle@usgs.gov](mailto:mtuttle@usgs.gov)  
March 15—Aerogeophysical measurements of collapse-prone hydrothermally altered zones at Mount Ranier volcano, by Dr. Carol Finn, USGS; Science in the international hot seat: Assessing mining-related environmental issues on Marinduque Island, The Philippines, Geoff Plumlee, USGS.

**Colorado Mountaineering Center** March 2: Dr. Robert Reynolds, Denver Museum of Nature and Science and Lorraine Yeatts, Denver Botanical Gardens, "From fossils to flowers"; 710 10th St., Golden. Reception w/photo displays 6:00 to 7:00 p.m.; talk from 7:00 to 9:00 p.m.

**Colorado School of Mines Lectures** For Heiland Lectures at 4:00 p.m. on Fridays, contact Michelle Szobody (303) 273-3451. For Van Tuyl Lectures, call the Dept. of Geology at (303) 273-3800.

**Colorado State University Geology Lectures** Mondays, 4:10 p.m., room 316 of the Natural Resources Bldg. Feb. 19, Linda Joyce, CSU, Climate Change and Variability: Forest Ecosystem Restructuring, Natural Disturbances, and Land Use. Feb. 26, Carol Frost, Univ. of Wyoming Fingerprints on Wyoming's Rock of Ages: Clues to the Growth of Continents. Call the Dept. of Earth Resources at (970) 491-5661 for details, or go to: <http://www.cnr.colostate.edu/ER/> (main page, click *seminars*).

**Denver International Petroleum Society (DIPS)** meets the 2<sup>nd</sup> Friday of each month at the Wynkoop Brewing Co., 18<sup>th</sup> and Wynkoop Sts. Reception begins at 11:30 a.m., lunch at 12 p.m., program at 12:30 p.m. Make reservations (required) by leaving message at (303) 623-5396. Reservations accepted after 8 a.m. on Friday until 10:30 a.m. on Wednesday prior to the meeting. Cancellations accepted until 11:00 am Wed. prior to the meeting. Cost: \$15 for lunches; talk only is available for \$2 (make checks payable to "D.I.P.S."). Contact Keith Murray at (303) 986-8554 for information.

**Denver Region Exploration Geologists' Society (DREGS)** meets in the Mutual Consolidated Water Building, 12700 West 27th Avenue, Lakewood. Social hour 6:00-7:00 p.m. Technical presentation at 7:00 p.m. Meetings are normally scheduled for the first Monday of each month. For information contact Jim Piper, (303) 932-0134, or the website <http://www.dregs.org>.

**Denver Well Logging Society (DWLS)** meets on the third Tuesday of each month, Sept. through May. Lunch and a technical talk at the Wynkoop Brewery begins at 11:30 a.m., 18th and Wynkoop Sts. in Denver. Subject matter usually deals with the application of well logs to oil and gas exploration. Call Elice Wickham at 303-573-2781 for reservations. Web page: <http://dwls.spwla.org>  
**Rocky Mountain Association of Geologists (RMAG)** Reception at 11:30 a.m., lunch at 12:00 p.m., talk at 12:30 p.m. Reservations taken by recording at 303-623-5396 until 10:30 a.m., Wed. before the luncheon. Cancellations are taken until 11:00 a.m. on Wed. at 303-573-8621. Luncheon cost is \$20 payable to RMAG at the door. Reservations are not required for talk only---cost is \$3. Meeting location: Denver Petroleum Club, Anaconda Tower, 555-17<sup>th</sup> St, 37th floor. *Next talk:* February 16, 2001, Richard W. Moore, Independent. Distribution of hydrocarbons in the Williston Basin.

## **University of Colorado at Boulder, Geological Sciences Colloquium**

Wednesdays, 4:00-5:30 p.m., Rm. 180. For schedule, contact Kathy Madsen 303-492-8141.

**University of Northern Colorado, Greeley, Earth Science Seminar** Fridays, 4:00-5:00 p.m., Ross Hall, Rm. 3310. For a schedule, call UNC Dept. of Earth Sciences: 970-351-2647.

**U. S. Geological Survey, Geologic Division Colloquium** Foord Conference Room, Bldg, 20, Denver Federal Center. For more information contact Laura Strickland: (303) 236-5302.



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