



AGS NEWSLETTER

ARIZONA GEOLOGICAL SOCIETY, INC., TUCSON, ARIZONA

January 2009

JANUARY 6, 2009 DINNER MEETING

Dust in Western North America

Richard Reynolds, U.S. Geological Survey

ABSTRACT—Contemporary dust emission within North America is volumetrically minor on a global scale, but it is important for many reasons: for ecosystem health and as an indicator of landscape change (loss of soil nutrients via wind erosion with gains elsewhere); for its role in visibility reduction (bearing on protected air quality and transportation hazards); and for its effects on human health. Current studies of global dust center on its climatic effects. Future work will be increasingly driven by concerns about the regional connections among desertification, dust, water availability linked with the influence of dust on the melting rates of snowpack, human health, and poverty.

Investigations by earth scientists to elucidate the conditions that promote or suppress dust emission in American drylands focus on interactions among geologic processes, settings, and materials; vegetation dynamics; hydrology; climate; and human activities. The variety of these conditions can be illustrated from dust-emission and meteorological monitoring of shrublands in the Mojave Desert, grasslands having different grazing histories on the Colorado Plateau, and dry lakes.

In North America, as elsewhere, the influences of changing climate and land uses on dust emissions are concerns that can be addressed through understanding past responses of dust generation to these factors along with modeling future climate, soil moisture, vegetation change, and land use. Studies of sediment in remote, high-altitude lakes near the margins of western deserts reveal enormous influences

of human activities on dust composition and flux in western North America during the past 150 years. Increases in certain metals, metalloids, and soil components, typically by more than five times above pre-settlement levels, point to a variety of new dust sources, some of which can be attributed to mining, fossil-fuel combustion (power generation and transportation), agriculture, and water diversion. In the future, a warmer West with higher rates of evapotranspiration, coupled with continued or increased human disturbance of desert landscapes, would result in more dust emission relative to recent decades.

—Reynolds is chief of the USGS project, Effects of Climatic Variability and Land Use on American Drylands.

2009 CALENDAR OF EVENTS

- | | |
|---------|--|
| 02/3/09 | Vince Matthews: <i>China and India's Ravenous Appetite for Natural Resources</i> |
| 03/3/09 | Mike Clarke, Augusta Resource Corp.: <i>Geology of the Rosemont Cu-Mo-Ag deposit</i> |
| 04/7/09 | Bill Chavez, New Mexico Tech: <i>Geochemical Controls on the Intensity and Maturity of Development of Supergene Enrichment Profiles</i> |
| 05/5/09 | Michael A. McKibbin, UC Riverside: <i>Hydrothermal Mineralization in the Salton Trough, Ancient and Modern</i> |
| 06/2/09 | Keith Long, USGS, <i>Petro-realities: Why Gas Prices Are So High</i> |

Dinner Meeting Information — InnSuites, 475 North Granada Avenue, Tucson

To reserve your place for dinner, call 520-663-5295 before 5 pm, Friday, January 2, 2008.

Cost: Members \$24, Guests \$27, Students \$10 (+\$3 for late registration)

Cash Bar @ 6 pm

Dinner @ 7 pm

Talk @ 8 pm

For dinner selection, indicate if a low-salt or vegetarian meal is required. Please cancel if you are unable to attend.

AGS CAN NO LONGER GUARANTEE DINNER SEATING FOR THOSE WHO SHOW UP WITHOUT A RESERVATION.



Bob Powell, Chairman of the Courtright Scholarship Fund, presented a check for \$1,000 to 2008 co-winner Jesse Einhorn at the AGS December dinner meeting.

Web Sites for Geological Professionals

- Look up the exact location of millions of places: (www.lat-log.com)
- Convert lat/lon to UTM coordinates or UTM to lat/lon: (www.rcn.montana.edu/resources/). Click on "RCN Utilities and Tools."
- Free digital maps and related GIS data (www.libremap.org/)
 - 24k scale USGS DRG's** - detailed topographic maps for all 50 states.
 - SVG boundary border files** for all US states (including state, county, and town boundaries)
 - TIGER/Line** - All 2003 data is available.
 - GeoNames** - All USGS place names are available for searching. The data can be used to find appropriate DRG's.
- UMI has published dissertations and theses since 1938: (www.umi.com/en-US/products/dissertations/)
- Long-term daily and monthly climate records (U.S.): (<http://cdiac.ornl.gov/epubs/ndp/ushcn/newushcn.html>)
- FEMA flood maps and GIS flood data: (<http://msc.fema.gov/>)

The most exciting phrase to hear in science, the one that heralds new discoveries, is not 'Eureka!' but 'That's funny...'

—Isaac Asimov (1920-1992)

ANNOUNCEMENTS

2009 Annual Arizona Hydrological Society Symposium

The 2009 Annual AHS Symposium, "Managing Hydrologic Extremes," will be held August 30 through September 2, 2009 at The Westin Kierland Resort & Spa in Scottsdale, Arizona. The event will be a joint symposium with the 2009 national conference of the American Institute of Hydrology.

Please make your dinner-meeting reservation BEFORE Friday, January 2, 2009. Call 520-663-5295 today!

Renew your dues for 2009. A renewal form is on the back of each newsletter and can be downloaded from the AGS web site. Dues are \$20 for 1 year, \$35 for 2 years, and \$50 for 3 years.

Digest 22 Update

Jon Spencer, Digest 22 editor, reports there are 40 manuscripts, about evenly divided between economic geology and tectonics. Publication of the digest is now scheduled for January 2009.

American Institute of Professional Geologists (AIPG) February Meeting

The Arizona Section of AIPG will have a social hour and dinner meeting in Tucson on Friday, February 13, 2008, followed by a business meeting at 9:00 AM on Saturday, February 14, 2008 at the Arizona Geological Survey office. The dinner meeting location is to be announced. An update will be presented on geology events and the geologic profession in Arizona and at the national level at Saturday's meeting. Contact Barb Murphy (bmurphy@clearcreekassociates.com) for more information.

AZGS Publications of Interest:

- Richard, S.M., T.C. Shipman, L.C. Greene and R.C. Harris, 2007, *Estimated Depth to Bedrock in Arizona*, DGM-52 v.1. \$15.00 (CD-ROM), 1:1,000,000 Scale Map Sheet \$9.00.
- Spencer, J.E., C.A. Ferguson, P.A. Pearthree and S.M. Richard, 2007, *Geologic Map of the Boundary Cone 71/2' Quadrangle, Mohave County, Arizona*, DGM-54. 1:24,000 Scale Map Sheet, (CD-ROM) \$15.00.



**Merry Christmas and
Happy New Year
from the
Officers and Councilors of AGS**



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FOR INFORMATION
ABOUT THE
ARIZONA GEOLOGICAL SOCIETY
AND UPCOMING EVENTS
VISIT OUR WEBSITE
www.arizonageologicalsoc.org

AGS books and maps are sold at the monthly dinner meeting and by the Arizona Geological Survey. Visit the AZGS website www.azgs.state.az.us and click on Non-AZGS Publications



As always, please keep us up to date as you move, change jobs, or change your e-mail address.

2009 AGS MEMBERSHIP APPLICATION OR RENEWAL FORM

Please mail check with membership form to: Arizona Geological Society, P.O. Box 40952, Tucson, AZ 85717. Dues (circle one): 1 year: \$20; 2 years: \$35; 3 years: \$50. (Full-time students receive free membership. The newsletter is by e-mail only, and a membership application form must be returned to AGS annually to remain on the membership list.)

Name: _____

Position: _____

Company: _____

Mailing Address: _____

Street City State Zip Code

Work Phone: _____ Home Phone: _____

Fax Number: _____ Cellular Phone: _____

E-Mail (business) _____ E-Mail (home) _____

Please send the newsletter by e-mail only by regular mail only by e-mail AND regular mail

If registered geologist or engineer, indicate registration number and state: _____

If American Institute of Professional Geologists member, indicate registration number: _____

Enclosed is a _____ tax-deductible contribution to the J. Harold Courtright Scholarship Fund.