



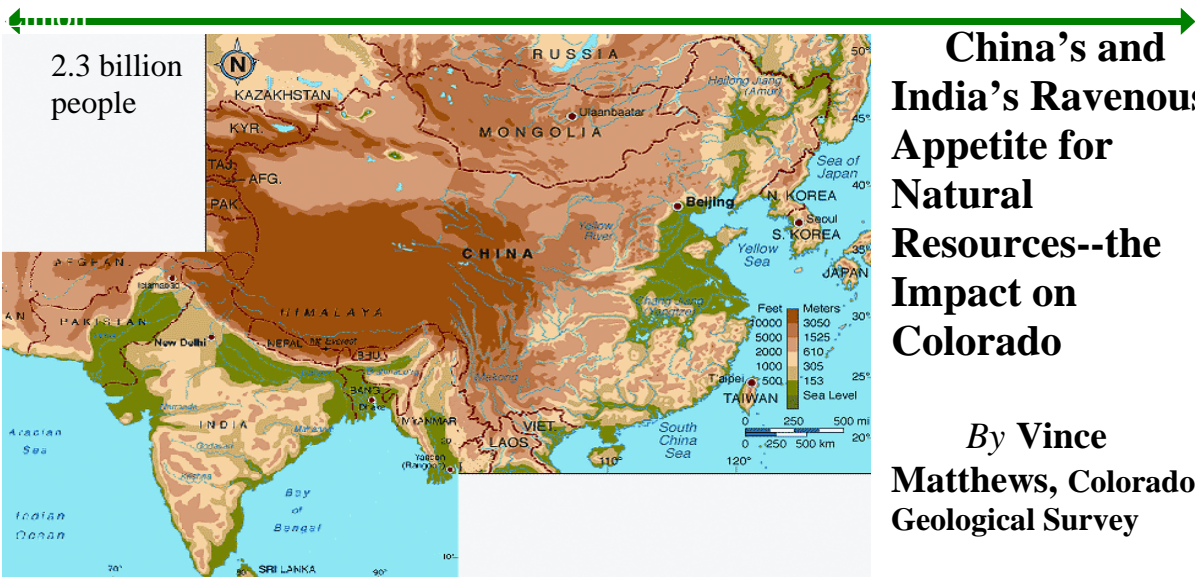
Colorado Scientific Society

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



Flood Regulations and Flood Insurance in Debris Flows and Alluvial Fans

By Brian Hyde,
Colorado Water Conservation Board



Thursday, October 20, 2005
American Mountaineering Center
710 10th St. (NE corner with Washington), Golden
Social half-hour – 6:30 pm. Meeting time – 7:00 pm.

Abstract

Flood regulations and flood insurance in debris flows and alluvial fans

By Brian Hyde, Colorado Water Conservation Board

Many Colorado municipalities and counties are affected by flood hazards associated with alluvial fans (including debris flows). The counties affected include Clear Creek, Boulder, El Paso, Eagle, Garfield, Pitkin, Gunnison, Hinsdale, Ouray, San Miguel, and Montezuma. At least two other counties, Rio Grande and La Plata, have had such problems greatly exacerbated by recent wildfires. All of the above counties (and many municipalities within them) participate in the National Flood Insurance Program (NFIP).

Alluvial fans are acknowledged by the NFIP, but mapping or regulating these hazards is not explicitly mandated. Flood insurance is available, but it does not fully recognize the unique character of alluvial fans. Alluvial fans have been mapped in detail by FEMA in three Colorado communities (Glenwood Springs, Ouray, and Telluride). No model regulations have been developed by the State of Colorado or FEMA to provide local governments or property owners with specific guidance for managing these hazard areas. There is a significant void in technical and administrative direction for mapping of hazards, design or review of proposed mitigation measures, or determination of appropriate insurance rates.

Mapping must include a combination of geologic and engineering methodologies. Both disciplines must join with planners and building officials to develop standards for the design and review of mitigation measures. Technical criteria for approving or disapproving mitigation measures for conventional riverine flooding have existed in Colorado for many years, but they do not exist for debris flows and alluvial fans. Probabilistic analysis guides flood insurance rates. A “100-year” flood has a 1% chance of occurring in any year, and a “10-year” flood has a 10% chance. Alluvial fans involve a complication. Within the 100-year fan a single 100-year flood event may go to the left, to the right, or down the center. The center is typically higher in elevation because historic events have deposited more debris there. However, gravity may make the lower flow paths to the sides preferable for future floods. Quantifying risk in alluvial fans is not for the faint-hearted.

Brian Hyde is a Senior Water Resource Specialist in the Flood Protection Section of the Colorado Water Conservation Board, where he has worked for 25 years. He is currently managing river watershed restoration projects for the Alamosa River and Fountain Creek

(Brian is very interested in feedback)



Abstract

China's and India's ravenous appetite for natural resources-- the impact on Colorado

By Vince Matthews, Colorado Geological Survey

Colorado's history is steeped in its rich horde of natural resources. Today the state is still a major provider of mineral and mineral fuels. However, worldwide shortages of many resources caused by the explosive and unprecedented economic growth of the two most populous nations on earth, China and India, will put increasing strains and pressures on Colorado's rapidly expanding and rapidly urbanizing population. An already strong demand for Colorado's rich reserves of oil, natural gas, coal, uranium and metals will only increase as unparalleled competition for Earth's limited resources grows.

Bio: Jim Reed studied geology at the University of Wyoming and Washington University in St. Louis. He has worked for NASA, Freeport Exploration, AMAX Exploration, and Wold Minerals. In 1983, Jim founded RockWare, a geological software company that services the mining, petroleum, civil engineering, and environmental industries. Jim's role in NecroSearch typically involves the integration and synthesis of disparate data sets into exploration targets.

Colorado Scientific Society President's Note—October 2005

By Vince Matthews

Autumn is a great time for geologists. The CSS field trip to Gunnison County in September combined a laccolith and fall colors. Earth Science Week, sponsored by the American Geological Institute October 9-15, will include many activities, statewide (<http://www.earthsciweek.org/>). And, the annual meeting for the Geological Society of

America will be held in Salt Lake City, October 16-19.

Don't forget to mark your calendars for student night, November 17. The student participants have put a lot of work into their projects and will appreciate feedback from a professional audience.

Fall Field Trip to Gunnison County



West Elk Volcano



Cottonwood Pass



Taylor Dam



Folsom Site



Maroon Bells



Pinnacles at Blue Mesa



Powderhorn

Earth Science Meetings and Talks

Newsletter items must be received by the 25th of each month.

Items may include special events, open houses, etc...thanks!



Colorado Scientific Society's regular meetings are held the 3rd Thursday of the month at the American Mountaineering Center in Golden (unless otherwise advertised). Social time begins at 6:30 p.m. and talks start at 7:00 p.m. For more information, contact Vince Matthews at 303-866-3028 or

vince.matthews@state.co.us

Friends of Dinosaur Ridge. Admission is free, but donations are welcome. Oct 11, Clare Marshall, "Geological, cultural, and esthetic aspects of the Yule Marble", Morrison Town Hall, 7 p.m. Oct 15, 10-2:30, free public tour day of "Triceratops Trail at Parfet Prehistoric Preserve" (off 19th Street and 6th Avenue, Golden, adjacent to the north end of the Fossil Trace Golf Course). Guides along a short interpretive trail through the old clay pits here will show off dinosaur tracks (Iguanodon and Triceratops), plant fossils, geology, as well as tracks of birds, mammals, and insects! For more information contact the FODR Visitor Center at (303) 697-3466. Web page: <http://www.dinoridge.org>.

Earth Week Activities Oct 10, 9 am, bikeride Boulder Creek with Pete Birkeland and Phil Verplank, 303-541-3080, plv@usgs.gov. Oct 15, 4-7 pm, geology and nature hike on Green Mountain, with Pete Modreski, pmodreski@usgs.gov, 303-202-4766.

Denver Mining Club meets every Monday (except when noted) at Country Buffet near Bowles and Wadsworth (at 8100 W. Crestline Ave.) 11:30-1:00. Oct 17, Steve Collings, Power Resources, "Uranium solution mining operations in the US and Kazakhstan"; Oct 24, Douglas Tobler, Anatolia Minerals, "Raising the gold bar in Turkey". <http://china-resources.net>.

Denver International Petroleum Society meets the second Friday of each month at the Wynkoop Brewing Co., 18th and Wynkoop Streets. Reception begins at 11:30, luncheon at noon, program at 12:30. 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 Wednesday 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) 932-0137, 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. Oct 18, Austin Boyd, "Carbonate characterization at Schlumberger-Doll Research". Call Eleice Wickham at 303-573-2781 for res. <http://dwls.spwla.org>.

Rocky Mountain Association of Geologists (RMAG) Social at 11:30, lunch at noon, talk at 12:30. Reservations are taken at 303-623-5396 until 10:30 am, Wed. before the lunch. Cancellations are taken until 11 am on Wed. at 303-573-8621. Lunch--\$20 at the door. Talk only (no res)—\$3. Location: Denver Petroleum Club, Anaconda Tower, 555-17th St, 37th floor. Oct 21, G. Randy Keller, "Gravity and magnetic studies of the southern Rocky Mountain crust, basins to basements". <http://www.rmagg.org>

Rocky Mountain SEPM Reception at 11:30, lunch at noon, speaker at 12:30. Reservations, Dave Uhl:303-389-5092 before noon of preceding Friday. \$15.00 lunch, \$3 talk only. Oct 25, Steve Sturm, Schlumberger, "Geologic constraints on restimulation of the Blair Formation, Brady Field, SW Wyoming". Wynkoop Brewing Company, 1634 18th St., Denver. David.uhl@EnCana.com.

Co-AIPG 11:30-social, noon-1:30-lunch and speaker. Cost-\$25. University Club, 1673 Sherman St, Denver. Reservations: Tom Cavanaugh, 303-458-5550, tcavanaugh@ascg.com.

University of Colorado at Boulder, Geological Sciences Colloquium Wednesdays, 4:00-5:30, Rm. 180.Refreshments at 3:30 on the 3rd floor. 303-492-8141. Web page: <http://www.colorado.edu/GeolSci>.

Colorado State University, Dept of Geosciences, Rm 320 Natural Resources Bldg, 4:10 pm. 970-491-5661. <http://www.cnr.colostate.edu/geo/seminars/fall2005.html>

Colorado School of Mines, Van Tuyl Lectures Fri, from 3:00-4:00 in Berthoud Hall room 108. Sep 9, Paul Heller, "Late Cenozoic tilt of the Rky Mtns". <http://www.mines.edu/academic/geology.html>

USGS Geologic Division Colloquium. Thursdays, 1:30, Foord Room, Building 20, Denver Federal Center.. Contact: Pete Modreski, USGS, 303-202-4766, email pmodreski@usgs.gov.

Western Interior Paleontological Society. www.wipsppc.com or call 303-663-5868

For a constantly updated, online geo-calendar, visit the Colorado Geological Survey at <http://geosurvey.state.co.us>

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