



Arizona Geological Society Newsletter

JANUARY 2020

AGS and Tucson SME Members and Friends,

Please join us for the next Monthly Dinner Meeting! For this month, SME Tucson and AGS will proudly co-host the event.

Please note that the meeting is scheduled for **Tuesday, February 4th**, 6:30 PM—9:00 PM!

Program: SME & AGS Joint Dinner Meeting - Hexagon Integrated Portfolios

Registration: This month's dinner meeting registration will be done through Tucson SME at <http://www.smetucson.org/event-3717176>. Use registration code "**AGSMEMBER**" for member pricing and "**AGSSTUDENT**" for student member pricing.

Registration Deadline: **Thursday, Jan 30th, 2020**

The February dinner meeting is sponsored by:



If you are interested in sponsoring future AGS dinner meetings, please contact:

info@arizonageologicalsoc.org

Arizona Geological Society & Tucson SME Presents:

Hexagon Integrated Portfolios

By Jose Sanchez, Product Marketing Specialist, Hexagon

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Hexagon Integrated Portfolios

By

Jose Sanchez, Product Marketing Specialist, Hexagon

Presentation:

Successful mines recognize that a unified digital strategy is essential to improve support for business decision-making. Increased productivity, lower costs and improved safety depend on it. Hexagon is helping mining companies adopt a unified digital strategy to improve their business decision making. From geological modeling to operations and safety all tied together through data acquisition, this presentation will walk you through the many ways that Hexagon is filling in all the gaps to reach a completely integrated mine.

ABOUT THE SPEAKER

Jose Sanchez graduated from the University of Toronto with a Bachelor degree in Applied Sciences (Geological Engineering). He has enjoyed working in the mining industry now for 18 years. Jose started out on the technical side of the MinePlan portfolio providing technical support and training to Hexagon clients around the world. He then moved to the Marketing department where he is a Product Marketing Specialist for the MinePlan, MineEnterprise and Monitoring and Survey portfolios

Society Announcements

AGS Executive Committee 2020

The Arizona Geological Society is seeking volunteers for this year's AGS Executive Committee. We are looking for a:

- **Vice Treasurer**
- **Secretary**
- **Vice President of Programs**
- **Vice President of Marketing**

For more information, please contact us at:

info@arizonageologicalsoc.org

Student Dinner Sponsor for 2020

Arizona Geological Society is grateful to Skyline Assayers & Laboratories for their generous support of our student members!

Skyline Assayers & Laboratories has sponsored student dinners for the 2020 AGS monthly meetings.



If you are interested in sponsoring one of our dinner meetings, please contact:

info@arizonageologicalsoc.org

Examining a small rockfall along the I-17 corridor

by Arizona Geology e-Magazine, Arizona Geological Survey



Subject: Summary of observations of rockfall along Highway I-17 southbound, mile-marker 250, that occurred ~4:30 a.m. 12/28/19.

This is a brief summary of observations of a rockfall that occurred around 4:30 am on Dec. 28, 2019. These observations were made following a site visit by Brian Gootee (Arizona Geological Survey - AZGS) with Arizona Dept. of Transportation (ADOT) personnel on 12/30/19. Debris was moved off the highway on 12/28 in order to reopen I-17 and removed on 12/30 from the inside shoulder and ditch. Additional field observations were conducted by AZGS staff the week of Jan. 6, 2020.

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The rockfall failure was restricted to the roadcut in weathered and metamorphosed Proterozoic granitic rock (Xt) and diabase (Xdb), or basement, which is highly fractured and exhibits near-vertical foliation and shear oblique to the roadcut. The rockfall measures about 75 ft (23 m) in height, 52 ft (16 m) wide at the head of the rockfall scar, and around 32 ft (9.7 m) wide at the base near the base of roadcut (Figure 1). Possible factors leading to the failure include approximately 1.8 to 2.2 in of rainfall that fell between Cordes Junction and New River between Dec. 24th and 27th combined with the steep slope of the roadcut. We deployed a small unmanned aerial vehicle (UAV) to document the rockfall and surrounding area for potential landslide features along the roadcut, along the crown ditch above the roadcut, and hillslope up to Black Mesa. No open cracks or fissures were observed via UAV on the hillslope above the rockfall or in the crown ditch.



Between New River and Cordes Junction landslides are common in Neogene basalt flows (Tb) and associated deposits (Ts) that overlie basement rock (Figure 1). This portion of I-17 has been previously investigated and mitigated for slope failure in March 2010, not related to this rockfall event (Terracon, 2008; Wood, 2019) (outlined in Figure 1). Basement rocks were mapped by Anderson (2017), and by Ferguson (2007) south of this area, however, overlying Neogene and Quaternary deposits in this area have not been mapped in detail. Field mapping above the roadcut revealed late Pleistocene Quaternary colluvial (Qc) deposits with variable clay content are present on the hillslope above the crown ditch and below capping basalt (Figure 1). A head scarp is outlined by a 1 to 1.5 meter vertical face and wedge-fissure, filled with debris and vegetation, and cuts across Qc deposits (about 0.5 to 1.5 meters thick). Some vegetation is disturbed, and hydraulic piping is present, however, this feature is visible in 1992 Google Earth imagery, suggesting minimal movement since then. Translational movement of Qc deposits is suggested and may be an indicator of similar types of small-scale movement in this setting. The northernmost extent of this roadcut also marks a boundary where Neogene basalt and sediments are exposed along the highway, and Xt bedrock is exposed along several roadcuts south to about mile-marker 248.

This assessment is the result of collaboration between AZGS and ADOT and is related to ongoing mapping by AZGS of landslides in the I-17 corridor between Flagstaff and Phoenix, funded by the Arizona Department of Emergency and Military Affairs (DEMA).

By Brian Gootee, AZGS Research Scientist



Read original blog post here:

<https://blog.azgs.arizona.edu/blog/2020-01/examining-small-rockfall-along-i-17-corridor>



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AGS MEMBERSHIP APPLICATION OR RENEWAL FORM

YOU CAN RENEW OR SIGN UP as a new member and pay online. Please go to our website, arizonageologicalsoc.org. Or use the form below if you are more comfortable with the old school approach.

Please mail check with membership form to: Arizona Geological Society, PO Box 40952, Tucson, AZ 85717

Dues (check box) 1 year: \$35; full-time student (membership is free)

NEW MEMBER or RENEWAL? (circle one) Date of submittal _____

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All newsletters will be sent by email. If you do not have an email address, we will mail a hard copy to you, but we cannot guarantee timeliness.

If registered geologist/engineer, indicate registration number and State: _____

Enclosed is a _____ tax-deductible contribution to the J. Harold Courtright or the M. Lee Allison Scholarship Funds.