

TRANSPORTATION RESEARCH BOARD
97th ANNUAL MEETING
AFP10(1) - SUBCOMMITTEE ON ROCKFALL MANAGEMENT

MEETING MINUTES

The meeting was convened in the Marriott Marquis Ballroom, Salon 10, Washington, D.C., at 7:30 P.M. Sunday, January 7, 2018. Sixty-six people signed the attendance sheet that follows.

A. Keith Turner	Colo School of Mines	kturner@mines.edu
Ahren Bichler	Trumer	a.bichler@trumer.cc
Aine Mings	Landslide Technology	ainem@landslidetechnology.com
Andrew Salmaso	Ameritech	asalmaso@ameritech.pro
Ben Arndt	RJ Engineering	ben@rj-eng.net
Ben George	Landslide Technology	benjaming@ccilt.com
Bill Gates	McMillen Jacobs Assoc	gates@mcmjac.com
Bob Forbes	Ameritech	bforbes@ameritech.pro
Bob Lyne	Geobrugg	bob.lyne@geobrugg.com
Brent Black	Landslide Technology	brent@landslidetechnology.com
Bret Gardner	Juniper Unmanned	bret.gardner@juniperunmanned.com
Brian Collins	FHWA	brian.collins@dot.gov
Callie Ewald	Vermont DOT	callie.ewald@vermont.gov
Chris Benda	Golder	cbenda@golder.com
Colby Barrett	Geostabilization	colby@GSI.us
Dan Colwell	CN Rail	dan.colwell@cn.ca
Daniel Journeaux	Geostabilization	daniel@gsi.us
Darren Beckstrand	Landslide Technology	darrenb@landslidetechnology.com
Dave Gauthier	BGC Engineering	dgauthier@bgcengineering.ca
Dave Stanley	D.A.Stanley Consulting	Dastanley44@gmail.com
Eli Cuelho	Tri-Environmental	ecuelho@tri-env.com
Elizabeth Peggs	AGHP	Epeggs@geohazardassociation.org
Erik Rorem	Geobrugg	erik.rorem@geobrugg.com
Ghislain Brunet	Maccaferri, Inc.	gbrunet@maccaferri-usa.com
Jeff Lloyd	Golder	Jlloyd@golder.com
Jennifer Bauer	Appalachian Landslide Con	jennifer@appalachianlandslide.com
Jim Sheahan	HDR	jim.sheahan@hdrinc.com
Joe Wartman	Univ of Washington	wartman@uw.edu

John Duffy	Yeh and Associates	jduffy@yeh-eng.com
John Metzger	IDS	j.metzger@idscorporation.com
John Pilipchuk	North Carolina DOT	jpilipchuk@ncdot.gov
John Szturo	HNTB	jszturo@hntb.com
John Thornley	Golder	john_thornley@golder.com
Kaye Chancellor Davis	ALDOT	chancellor@dot.state.d.us
Kevin Coyle	Geobrugg	Kevin.coyle@geobrugg.com
Khalid Mohamed	FHWA	khalid.mohamed@dot.gov
Krystle Pelham	NHDOT	kpelham@dot.state.nh.us
Lee Petersen	Itasca	lpetersen@itascag.com
Lijun Zhang	MDSHA	lzhang2@sha.state.md.us
Manuel Eicher	Geobrugg	manuel.eicher@geobrugg.com
Marco Deana	Maccaferri	m.deana@maccaferri.com
Mario Ruel	CN Rail	mario.ruel@cn.ca
Mark Vessely	Shannon and Wilson	mjv@shanwil.com
Martin Woodard	GSI	marty@gsi.us
Massiro Ciarla	MC 5 Consulting Group	massirociarla5@gmail.com
McCain McMurray	Juniper Unmanned	mccain.mcmurray@juniperunmanned.com
Michael Koutsourais	Maccaferri	mkoutsourais@maccaferri-usa.com
Michael McDonnell	Connecticut DOT	michael.mcdonnell@ct.gov
Nate Beard	GSI	nate@gsi.us
Nicole Oester	Colorado DOT	nicole.oester@state.co.us
Orion Graham	Maccaferri	ograham@maccaferri-usa.com
Paolo Mazzanti	NHAZCA SRL	paolo.mazzanti@nharza.com
Paul Hale	Geobuild	phale@geobuild.com
Peter Ingraham	Golder, New Hampshire	pingraham@golder.com
Pierce Runnels	Geobrugg N.A.	pierce.runnels@geobrugg.com
Robert Kimmerling	PanGeo	rkimmerling@pangeoinc.com
Robin Lim	Geolabs, Inc	robin@geolabs.net
Scott Anderson	BGC	scanderson@bgc.engineering.ca
Steve Farrand	Geovert	steve.farrand@geovert.com
Sunil Sharma	Univ. of Idaho	ssharma@uidaho.edu
Suzana Svetlicic		suzana.svetlicic@dri.si
Tim Shevlin	Geobrugg N.A.	tim.shevlin@geobrugg.com
Todd Reccord	Ameritech	treccord@ameritech.pro
Tom Krzewiask	Golder	tkrzewiask@golder.com
Ty Ortiz	Colorado DOT	ty.ortiz@state.co.us
Willy Mopita	Bekaert	willy.mopita@bekaert.com

1. INTRODUCTIONS

The meeting began with self-introductions. This year's agenda was discussed. No changes were proposed.

2. 2017 MINUTES

The 2017 minutes were accepted.

3. SUMMARY PAST SUBCOMMITTEE AND RELATED ACTIVITIES

- Peter Ingraham gave a 2017 HGS Marietta, Georgia summary.
- Peter Ingraham gave a 2017 Landslide Symposium summary.
- Ben Arndt gave a Scaling Workshop summary.
- Other announcements: AGHP - Ghislain gave a description of AGHP and the committees of the group who are meeting in DC during TRB. Dave Stanley gave update on liability of unstable slope research.

4. SUMMARY OF FUTURE SUBCOMMITTEE AND RELATED ACTIVITIES

- 2018 HGS in Portland, ME. - Krystal Pelham
- Landslide Sub-committee- Brent Black. Reviewing the Landside Investigation Book and possibly updating and/or revising.
- Meeting with Congressman Lamborn pertaining to landslide preparedness mapping- John Metzger.
- Virtual Outcrop 22-24 August 2018 Kingston, Canada- Scott Anderson

5. PRESENTATIONS

Five informative presentations were given that included:

1. *Rotational Rockfall Dynamics Applied to Attenuator Design* Helene Hofmann
Presentation on rotational rockfall dynamics applied to attenuators.
2. *DEM Simulation of Punch Tests* Marco Deana
Presentation illustrated DEM simulations of punch testing in meshes.
3. *PUF and Rock Bolting* Ben George
Presented ideas of using polyurethane foam to address heavily jointed rock when installing anchors.
4. *Drone Services Utilized for Mapping Assets* Brett Gardner
Presented drone LiDAR techniques used to collect rockslope data in Colorado.
5. *Tsunami Generated by Landslide* Scott Anderson
Presented effects of large tsunami that was generated from a landslide.

6. ROCKFALL RESEARCH NEEDS AND FUTURE SESSION TOPICS

Research Needs Statement (RNS)

Guidelines for Rockfall Scaling including measuring the completeness of scaling activity and providing a scaling approach guideline that shows a clear added benefit for a possible synthesis.

Volunteers: Ty Ortiz, Brent Black, John Duffy, Bill Gates, Daniel Journeaux, Scott Anderson, Marty Woodard, Pete Ingraham.

Further PUF research in varying conditions and applications
Volunteers: Brent Black, Ben George.

Marty Woodard Provided an update on Dowel research. Welds on #4 Bar snapped at 30-34kips with no strain on bar. Further testing has not occurred because test frame broke. Currently rebuilding.

Proposed Sessions and Topics

- Continuing the Scaling Synthesis in 2018.

10. ADJOURNMENT

The meeting was adjourned with further discussion occurring after 10 P.M. End of a productive meeting and well attended with 66 attendees.