

Dr. Edmund Medley, PE, CEG Geological Engineer
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EDMUND MEDLEY, PhD, PE, CEG, F.ASCE

Geological Engineering
Geotechnical Engineering
Characterization of Bimrocks
Investigation and Analysis of Geo-Failures



PROFESSIONAL PROFILE

Dr. Edmund (Ed) Medley, Ph.D., PE, CEG, F.ASCE has over 30 years of unusually varied international experience in geotechnical and geological engineering consulting, mineral exploration prospecting, failure investigation, project management, litigation testifying, academic research, teaching, and lecturing. Dr. Medley specializes in the engineering and geological characterization of bimrocks (block-in-matrix rocks), complex geological mixtures of rock and soil such as melanges, fault rocks, weathered rocks, tills, and colluvium.

Dr. Medley is experienced in evaluating geotechnical/geological engineering vulnerabilities and the causes of civil engineering failures, and has provided testimony for attorneys, insurance companies, contractors, and municipal clients. Projects include investigation of major landslides, rockfall hazards, expansive/collapsing soils, tunnel failures, coastal erosion, sinkholes and other ground movements in California, Nevada, District of Columbia, Hawaii, Guam, and Papua New Guinea. He is licensed/shartered/registered as a both professional engineer and geologist in the USA, United Kingdom and Canada.

Dr. Medley has authored/co-authored over 50 professional contributions, and presented over 230 professional and academic lectures, Short Courses and MCLE Credit courses. He was the 2009 *Richard H. Jahns Distinguished Lecturer* in Engineering Geology, a distinction awarded by the Geological Society of America and the Association of Environmental and Engineering Geology for career achievements as a Geological Engineer and Engineering Geologist.

Dr. Medley is concurrently the Chief Geologist of Geothermic Solution, LLC, based in Palo Alto. The firm, in start-up stage of development, is focused on an innovative technology to recover geothermic heat from deep borings using patented closed-circuit single phase technology.

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He is profiled on LinkedIn, with Recommendations: <http://www.linkedin.com/in/edmedley>. He has developed four web sites: bimrocks.com (and mirror site bimrocks.geoengineer.com) – both being resources for bimrock information; geopractitioner.com, his professional portal and; edmedley.com, a collection of personal memorabilia. He has also developed a webpage on the use of [stereo photos](#) in geopractice.

PROFESSIONAL HISTORY

2009-current: Consulting Geological Engineer, Oakland, California, consulting on characterization, design and construction aspects of projects located in melanges, and similar block-in-matrix rocks (bimrocks) such as weathered rocks, fault rocks and other chaotic geological mixtures of soil and rock. Provided consulting services on engineering geology, geological and geotechnical engineering for terrain hazard assessments, dams, landslides, sinkholes, and mine/quarry slopes. Provide litigation support services in geotechnical and geological engineering.

2005-2009: Senior Consultant, Geosyntec Consultants, Oakland, CA. Established a Geological Engineering practice for this multi-disciplinary firm of about 700 geo-professionals. In 2006, I worked on one of the most interesting projects in my career as a Court Appointed Expert for the US District Court in Honolulu. The world-famous Forbes Collection of Hawaiian cultural artifacts, had been borrowed from the Bishop Museum in Honolulu and then buried and sealed in lava tube burial caves. I advised the Court on lava tube cave stability and, with the help of another Geological Engineer retrieved the Forbes Collection. During my time at Geosyntec, I also performed investigations of rock slope stability in bimrocks, performed geological engineering investigations for landfills, provided litigation support services.

2002-2005: (concurrent with Exponent position) - Director and occasional Consultant to **Condor Earth Technology**, Sonoma, California, a geo-firm of about 80 multi-disciplinary consultants with world-leading capabilities in the deployment and use of Differential GPS systems. Identified the scope for 3D tracker GPS-based techniques to monitor ground deformation at a gold mine in Papua New Guinea.

1995-2005: Principal Engineer in the Civil Engineering Practice at **Exponent Failure Analysis Associates**, Menlo Park, California, an internationally recognized engineering and science consultantancy practising in over 70 engineering and science disciplines. Determine geotechnical/geological engineering vulnerabilities and causes of civil engineering failures and provide testimony for attorneys, insurance companies, contractors and municipal clients. Projects include investigation of major landslides, rockfall hazards, expansive/collapsing soils, tunnel failures, coastal erosion, sinkholes and other ground movements in California, Nevada, DC; Hawaii, Guam and Papua New Guinea. Developed and managed several projects individually accruing fees to more than \$1 million. Recruited 29 staff for the firm and was the leading

manager in development of the firm's Geotechnical, Geological and Geomechanical Engineering practice.

1990-1994 Academic Researcher and Lecturer at University of California at Berkeley, USA; Royal School of Mines, Imperial College/University of London, and University of Cambridge, UK. Researched and lectured on the characterization of chaotic melanges and other bimrocks, and taught graduate-level Short Courses.

Pre-1990 Geological and Geotechnical Engineer consultant for residential developments, large industrial facilities and tailings dams in Hawaii, California, Canada, Iran, Taiwan and U.K. Employers and clients included Dames & Moore (Vancouver, Canada; Honolulu, Hawaii, Sydney, Australia and London, UK offices), Harding Lawson (Hawaii) and PSC Associates (Hawaii and San Francisco). Performed geotechnical/geological engineering investigations for residences and landslides; identified and mapped deposits of potential construction aggregates; supervised field teams observing earthwork construction, of sub-divisions, roads, tailing dams, buried utilities, and hazard analysis/repairs of several landslides. Performed geotechnical/geological engineering investigations, preliminary design and field observations at commercial sites in Vancouver; the Syncrude oil-sands mine in Alberta; and at mine tailings dams in BC and Idaho. Managed a 70-person team performing a \$5 million geotechnical investigation at Ok Tedi, Papua New Guinea. Pioneered and managed geotechnical consulting offices in Maui and Honolulu.

Previous experience includes **Coastal Engineering Researcher** for **Geological Survey of Canada** in Vancouver, researched hydrodynamic/sediment response of the Fraser River and Kitimat River deltas to engineering structures. Also several years as a **Mineral Exploration Prospector** for **Texasgulf, McIntyre Mines, Kaiser Resource Explorations, Scintrex, and UMEX** in remote regions of northern Canada.

ACADEMIC CREDENTIALS and HONORS

University of California at Berkeley: Ph.D., Geotechnical Engineering, 1994

University of California at Berkeley: M.S., Geotechnical Engineering Eng, 1991

University of British Columbia: B.Appl.Sc., Geological Engineering (Geotech. Option), 1978

Association of Environmental and Engineering Geologists (AEG)

- *2009 Richard H. Jahns Distinguished Lecturer in Engineering Geology* (awarded jointly by AEG and the Geological Society of America, Engineering Geology Division)
- *Marliave Scholar* (1993)

PROFESSIONAL LICENSES/CHARTERS/REGISTRATIONS/CERTIFICATIONS

PE Professional Civil Engineer, California, #C47602
PE Professional Civil Engineer, Hawaii, #PE-6405
P.Eng Registered Professional Engineer, British Columbia, #12230
C.Eng Chartered Civil Engineer, United Kingdom, #473050 (MICE)
CEG Certified Engineering Geologist, #EG-1604, California
PG Professional (Registered) Geologist, #5091, California
P.Geo Professional Geoscientist, British Columbia, #12230 (dual-Registered with P.Eng.)
C.Geol Chartered Geologist, United Kingdom, #1002811 (FGS)
Certified Record Holder, National Council of Engineering Examiners and Surveyors, #24697

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers, Fellow
American Geophysical Union
Association of Environmental and Engineering Geologists (AEG)

- San Francisco Section Membership Committee Chairman (1991-1993)
- San Francisco Section Short Course Chairman (1995-1996)

British Institution of Civil Engineers, Member
Geological Society of London, Fellow
Geological Society of America, Engineering Geology Division
Geothermal Resources Association

Peer Reviewer: *Geotechnique; International Journal of Rock Mechanics and Mining Sciences; Engineering Geology; Felsbau- J. Austrian Society for Geomechanics and Tunneling; Int. Journal of Geoengineering Case Histories*

Technical Advisor: Rock Engineering Research Project TUBITAK Grant 108Y002; Principal Investigator Prof. Harun Sönmez, Dept. Geological Engineering, Applied Geology Div., Hacettepe University, Ankara, Turkey

Former Member: ASCE Geo-Institute Site Characterization and Engineering Geology Committee; Editorial Board of *International Journal of Geoengineering Case Histories*; Editorial Board *Felsbau - Journal of the Austrian Society for Geomechanics and Tunneling*; Steering Committee, Berkeley GeoEngineering Alumni Association. Univ. of Calif., Berkeley

SELECTED PUBLICATIONS and PRESENTATIONS

Dr. Medley has contributed to some 50 articles, reviews, technical papers and posters. During his career, he has also presented more than 230 professional lectures, Short Courses and MCLE Credit courses. A complete list of his professional publications and presentations is available upon request: many contributions are freely available at Dr. Medley's websites.

Selected Publications

“Report on the Field Trip of a Lifetime”, *AEGNews* magazine of the Association of Engineering and Environmental Geologists, Vol. 56, No. 1, March 2013, pp. 17-22.

“Geopractitioner Approaches to Working with Antisocial Mélanges”, in Special Publication *"Mélanges: Processes of Formation and Societal Significance"* ed. Wakabayashi and Y. Dilek, Geological Society of America, Boulder CO, pp 263-279, 2011 (with D. Zekkos).

“Commentary: Engineering Geology-A Vital Phase of Geoengineering”, *Geo-Strata* magazine of the Geo-Institute of the ASCE, March/April 2009 edition.

“The Motley View: On Geonudity and Some Benefits of Your Geoengineering Graduate Education” *Motley View* column, Newsletter of the Berkeley Geoengineering Alumni Association, Issue 5, May 2008¹.

“Engineering the Geological Chaos of Franciscan and Other Bimrocks”, Paper 08-316, Proc. Of the American Rock Mechanics Association Conference, San Francisco, California June 29 – July 2, 2008.

“Seismic Performance of Rock Block Structures With Observations from the October 2006 Hawaii Earthquake”, Proceedings of the 4th Int. Conf. Earthquake Geotechnical Engineering, Thessaloniki, Greece, June 25, 2007 (with D. Zekkos).

“Bimrocks – Part 1: Introduction” and “Bimrocks – Part 2: Case Histories and Practical Guidelines”, Newsletter of the Hellenic Society of Soil Mechanics and Geotechnical Engineering, Athens, Greece, February and April 2007.

“Considerations in Developing an Empirical Strength Criterion for Bimrocks”, Proceedings Session T3-A Rock Properties, 4th Asian Rock Mechanics Symposium and ISRM International Symposium 2006, Nov. 6-10, 2006, Singapore (with H. Sonmez, H. Altinsoy, and C. Gokceoglu).

“Geological Engineering Reconnaissance of Damage Caused by the October 15, 2006 Hawaii Earthquakes”, *Int. Journal of Geoengineering Case Histories*, v. 1., No. 2, paper 3: (with expanded Google Earth database of photos).

¹ For this and other Motley View articles see: <http://edmedley.com/blog/motley-views/>

“The Engineering Characterization of Melanges and Similar Block-in-Matrix Rocks (Bimrocks)”, Ph.D. Dissertation, University of California, Berkeley, CA, 1994.

Selected Presentations

2009 Jahns Distinguished Lectures

Dr. Medley was the **2009 Richard H. Jahns Distinguished Lecturer in Engineering Geology**². The distinction was awarded by the Association of Environmental and Engineering Geologists (AEG) and the Engineering Geology Division of the Geological Society of America (GSA). The intent of the funded Lectureship was to encourage student and professional awareness of Engineering Geology through a series of lectures presented to University students and Geology/Engineering/ Professional Groups across North America during the award year (October 2008 to October 2009). During the award year 85 Lectures were presented³ at about 70 venues. Seven Lectures were offered⁴.

Other Selected Lectures

“The Bottom-up/Top-Down Jig-Saw Puzzle Landslide, Santa Cruz County, California””, Annual Meeting of Assoc. Environmental and Engineering Geologists, Seattle, WA, September, 2013.

“Discrimination of Ancient Buried Valleys Deposits from Franciscan Complex Melange; San Francisco, California”, Annual Meeting of Assoc. Environmental and Engineering Geologists, Seattle, WA, September, 2013.

“Development of a Disciplined Protocol for Investigation of Sinkhole Activity”, Annual Meeting of Assoc. Environmental and Engineering Geologists, Salt Lake City, UT, September, 2012 (with J.R. Raines).

“ WYTYSINWYG – Recognizing Certain Uncertainties in the Characterization of Bimrocks”, Annual Meeting of Assoc. Environmental and Engineering Geologists, Salt Lake City, UT, September, 2012.

² <http://edmedley.com/blog/jahns-lectures/>

³ Details at <http://edmedley.com/blog/jahns-lectures/jahns-jaunts-venues-and-lectures/>

⁴ “The Comforts of Ignorance and the Benefits of Arrogance - Lessons of the Failure Kind for the Geopractitioner”; “Of Elephants, Earthquakes, Caves and Hot Rock - Recent Geological Engineering; Adventures; “Something to Chew on- Rock is More Nutritious than Dirt.”; “An Introduction to the Use of Ground-Based Stereo Photography in Geopractice”; “Forensic Investigation of the Sea Cliff Incident, an Urban Catastrophe”; “Reflections and Snapshots from a 40 year Geo-Odyssey –“Shoot! This Has Been Delightful! Abstracts at: <http://edmedley.com/blog/jahns-lectures/2009-jahns-lectures-abstracts/>

- “Development of a Disciplined Protocol for Investigation of Sinkhole Activity”, Annual Meeting of Assoc. Environmental and Engineering Geologists, Salt Lake City, UT, September, 2012 (with J.R. Raines).
- “Recycling Ancient Technology – The Perennial Benefits of Aerial and Ground-Based Stereo Photography in Modern Geopractice”, Annual Meeting of Assoc. Environmental and Engineering Geologists, Salt Lake City, UT, September, 2012.
- “Engineering the Geological Chaos of Franciscan and Other Bimrocks”, Session 12: Melanges, Mixed Materials and Chaotic Rocks; American Rock Mechanics Association Conference, San Francisco, California, July 1, 2008.
- “Evaluation of Simple Claims in a Complex Melange”, Annual Meeting of Assoc. Environmental and Engineering Geologists, New Orleans, Louisiana, Sept 18, 2008 (with C.B. Snell).
- “Melanges – So What? Who Cares? – A Geoenvironmental Engineer’s Perspective”, Paper No. 168-7; Session T168: Mélanges: Processes of Formation and Societal Significance”, 2007 GSA Denver Annual Meeting October 30, 2007.
- Got Curiosity, Humility, and Honesty? - On Being an Effective Investigator of Geo-Failures”; Paper 73-1, Session No. 73: Forensic and Engineering Geology Case Studies: A Tribute to James E. Slosson; 2007 GSA Denver Annual Meeting, October 29, 2007.
- “Internal Structure of the San Andreas Fault Zone at the A.R. Wilson Quarry, Aromas, California, as Inferred from 3-D Digital Outcrop Modeling; Paper 168-8; Session T168: Mélanges: Processes of Formation and Societal Significance”, 2007 GSA Denver Annual Meeting October 30, 2007 (with W. Haneberg).
- “Dining With Melange: Characterization of Bimrocks in Three Easy Courses,” Dinner Meeting, ASCE San Francisco Section. Jan 19 2006.
- “Observations on Chaotic Failure Surface Trajectories in Bimrocks (Block-in-Matrix Rocks),” Annual Meeting of the Ass. Eng. Geologists, Las Vegas, Nevada, Sept. 2005.
- “From Moist Through Damp, Wet, Saturated, and Inundated: The Role of Water in Geo-Failures”, MCLE Credit Course for the County of Santa Cruz, September 12, 2005.