Applications of Geophysics: A Non-Invasive Solution to Environmental and Engineering Challenges

Presented by: Hans van de Vrugt & Andrew Baird

The rapidly developing field of geophysics provides a cost effective and noninvasive way to image the subsurface, reducing uncertainty and risk and ultimately creating a safer working environment for a wide array of projects. Discover real applications of geophysical methods, such as electromagnetics, seismics, ground penetrating radar (GPR), magnetics, electrical resistivity, and gravity, as we discuss case studies where such techniques have enabled the detection of illegal border tunnels, allowed for the imaging of slope failures and subsurface geometries, provided critical data to environmental assessment studies, and played crucial roles in forensic and unexploded ordnance studies.


Mr. van de Vrugt received a B.S. degree in Geological Sciences with an emphasis in Geophysics from SDSU in 1988, and a M.S. Degree in Geological Sciences specializing in Seismology from SDSU in 1995. He has been practicing engineering geology and geophysics since 1989. In 2004 he formed Southwest Geophysics, Inc. and in 2018 they were acquired by Atlas Technical Consultants. He is a registered Professional Geologist in California, Arizona, Missouri, and Washington; a Certified Engineering Geologist in California, and a registered Professional Geophysicist in California.

Mr. van de Vrugt’s geotechnical, geological, and geophysical experience has included a variety of project types, including bridges, tunnels, highways, mines/quarries, hotels, pipelines, wastewater treatment facilities, landfills, power plants, and industrial, commercial, and residential developments. Projects have included fault hazard evaluations, landslide and slope stability studies, geologic reconnaissance evaluations, mineral resource studies, waste and contaminant delineation, groundwater studies, forensic evaluations, archaeological studies, and construction testing and inspection services.
Bio: Andrew S. Baird

Mr. Baird received a B.S. degree with Honors in Geological Sciences from University College Dublin, Ireland in 2016. His introduction to practicing geophysics was with the School of Cosmic Physics at the internationally renowned Dublin Institute of Advanced Studies https://www.dias.ie/. He carried out research associated with teleseismic studies and assisted with the maintenance of the Irish National Seismic Network. He relocated to the USA to join Southwest Geophysics, and now is leading the northwest geophysical practice for Atlas Technical Consultants. Mr. Baird’s geological and geophysical experience has contributed to the advancement of a variety of projects within the industrial, academic, commercial, and residential sectors. Completed projects have included seismic tomography, unexploded ordnance studies, site characterization, landslide and slope stability studies, geologic reconnaissance evaluations, mineral resource studies, waste and contaminant delineation, groundwater studies, forensic evaluations, archaeological studies, and construction testing and inspection services.

Message from the Chair

We had a great meeting last month, the first of our most likely virtual year, with a great talk on east coast earthquakes by former AEG President David Fenster. I think the talk illustrated the difficulties in finding and interpreting earthquake related surface features. Dave gave his talk from the east coast. I look forward to the talks we are getting ready for you this year. The opportunity that isolating at home has provided us is a much larger pool of speakers and topics for us to enjoy. This month we will be looking at some geophysical methods presented by Hans van de Vrugt and Andy Baird of Atlas Technical Consultants LLC. December brings Dr. Gennaro G. Marino, P.E., D.GE who will be discussing Mine Subsidence - Cause, Effect, Mitigation. Be sure to not miss these sure to be great talks. If you have a talk idea or know of someone that gave a great talk that you would be interested in, please contact Jasmin Toro (email below) to coordinate. Give us a name and our dedicated volunteers can make the arrangements.

As the planets axis tilts us to cooler temperatures and the sun dims to a solar minimum, I hope to encourage everyone to start thinking about how you can bring light to your community in the coming dark and wet charitable season. A great way to give back and share your well-honed skills developed through your career is to volunteer about 3 or 4 hours a month with a non-profit organization. These groups through the kindness and dedication to the betterment of their community spend time volunteering to take notes, make phone calls, prepare emails, assembling

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Chair Message Continued . . .

photos and text into documents, and generally help make things happen. Volunteering can fill you with joy and accomplishment. And may I suggest for a moment a great non-profit that would be worth your time. Consider raising your hand and volunteering for the Oregon Chapter of AEG. We need charitable individuals that are interested in putting a few hours each month into making this thing happen. Please contact me if you would like to offer your time to the group and support our mission.

I hope to see you at our virtual October meeting.

Be well,

Mike

Interested in presenting for the Oregon Chapter?

The Oregon Chapter is looking for great topics and presenters to provide content to share with the chapter. As we continue to navigate the virtual world, we will be holding the next foreseeable meetings through webinars. We currently have opportunities to present in November and December. Please consider presenting your exciting project to the Oregon Chapter. We look forward to hearing from all of you and especially appreciative of those willing to present to the Chapter. If you are interested in presenting please feel free to contact any board member. Our contact information is at the end of the newsletter.
“The earth is large and old enough to teach us modesty.”

Hans Cloos
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“A soil adapted to the growth of plants, is necessarily prepared and carefully preserved; and, in the necessary waste of land which is inhabited, the foundation is laid for future continents, in order to support the system of the living world.”

James Hutton
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The Oregon Chapter is also on the web at
http://www.aegoregon.org
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The AEG Oregon Chapter Newsletter

The Association of Engineering Geologists (AEG) contributes to its members' professional success and the public welfare by providing leadership, advocacy, and applied research in environmental and engineering geology. AEG's values are based on the belief that its members have a responsibility to assume stewardship over their fields of expertise. AEG is the acknowledged international leader in environmental and engineering geology, and is greatly respected for its stewardship of the profession.

AEG OREGON CHAPTER NEWSLETTER is published monthly from September through May. Subscriptions are for members of AEG affiliated with the Oregon Chapter or other Chapters, and other interested people who have requested and paid a local subscription fee of $10.00. E-mail subscriptions are free. News items are invited and should be sent to: Ben George, AEG Oregon Chapter Chair-Elect, Cornforth Consultants, Inc., 10250 SW Greenburg Road, Suite 111, Portland, OR 97223, e-mail: bgeorge@ccilt.com, phone (503) 452-1100. Electronic media is preferred. Deadline for submission is the 25th of the month. Advertising: business card size $100/yr; ¼ page $200/yr; ½ page $350/yr; 1 page $450/yr.