Bay Area Geophysical Society Seminar Series

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Multichannel Analysis of Surface Waves

Doug Crice

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265 McCone Hall

UC Berkeley Campus

Abstract: MASW, Multichannel Analysis of Surface Waves, was developed in the mid 1990's and is now emerging as an important tool in seismic exploration for engineering geophysics. It is able to create vertical depth plots and cross-section images of subsurface shear wave velocities, which are an indirect measurement of the shear strength of materials. They provide information to predict earthquake response and the engineering geologist can use it to estimate bearing capacity. Another advantage is that they can correlate with data from standard penetration tests, a time honored and universal method used in foundation studies. Some argue that they should perhaps be used in advance to plan a drilling program, particularly when the subsurface may be non-uniform. The talk will explain the basic science of MASW, followed by several case histories.

Doug Crice, has been a witness to the evolution of seismic surveys for engineering applications for over 50 years. As an instrument designer, he contributed to some elegant products that enhanced their capabilities in shallow seismic exploration. He received the Hal Mooney Award from the Society of Exploration Geophysics for his contributions, unusual for an equipment manufacturer. As part of the process, he has followed closely, as well as facilitated, many of these developments from rudimentary refraction surveys, borehole shear wave surveys, shallow reflection surveys, and now Multichannel Analysis of Surface Waves. He is the author of the definitive paper on borehole shear wave surveys, and some survey articles on MASW.

He received his BSEE from Sacramento State University in 1971 and started at Nimbus Instruments as President and chief engineer. Nimbus was merged into Geometrics Inc in 1978 where he became Vice President of Marketing. He had forays in startups in ground penetrating radar and founded Wireless Seismic Inc, a distributed wireless acquisition system for oil and gas exploration. He is now owner of a small company, Geostuff, **www.geostuff.com** which produces equipment for near-surface seismic surveys.

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