Vancouver Geotechnical Society
A Local Section of the Canadian Geotechnical Society

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NOTICE OF UPCOMING TECHNICAL PRESENTATION
Wednesday, 23 February 2022

TOPIC: **Efficiency of ground motion intensity measures with earthquake-induced earth dam deformations**

SPEAKER: **Richard J. Armstrong, Ph.D., P.E. – Associate Professor, Department of Civil Engineering, California State University, Sacramento.**

Dr. Richard Armstrong is an Associate Professor in the Department of Civil Engineering at California State University, Sacramento (CSUS). Dr. Armstrong completed civil engineering degrees at the University of Manitoba (B.S., 2003), Stanford University (M.S., 2005), and the University of California, Davis (Ph.D., 2010). Prior to joining CSUS in 2015, Dr. Armstrong worked six years at the California Division of Safety of Dams.

Specializing in computational mechanics and earthquake engineering, Dr. Armstrong has research and project experience in the seismic evaluation of dams and other water-resource structures. Dr. Armstrong teaches undergraduate and graduate courses at CSUS in mechanics, computer programming, and earthquake engineering. Dr. Armstrong also serves as the instructor and administrator at Geoanalysis Support, providing training and support for geotechnical analyses, especially using FLAC®.

CONTENT: Earthquake ground shaking characteristics have profound and varying impacts on civil engineering infrastructure. Traditional descriptors of earthquake shaking, such as peak ground acceleration and pseudo-spectral acceleration, have a strong history of use in seismic hazard assessment and post-earthquake damage prediction. More recently, however, other earthquake ground shaking characteristics (often called ground motion intensity measures, or *IM*s), which may be able to better characterize the relationship between ground shaking and civil infrastructure response, have gained traction in research and practice.

This presentation will focus on the results and conclusions of a multi-year research project that involved evaluating the best ground motion intensity measures for embankment dam response. In this work, data from strong ground motion recordings during the 1989 Loma Prieta earthquake were used to evaluate the reasonableness of nonlinear deformation analysis (NDA) models of Lenihan and Anderson dams. These models were subsequently used to assess the efficiency of ground motion *IM*s with embankment dam deformations. A suite of 342 recorded ground motions was used with these NDA models to assess the relationship between ground motion characteristics and embankment dam deformations. The article begins with a summary of the NDA of Lenihan and Anderson dams during the 1989 Loma Prieta earthquake. Subsequently, the ground motion database used in the analysis is described, followed by the presentation of the results in the context of the efficiency of each *IM*.

DETAILS: **Technical Presentation: 5:30 p.m. to 6:30 p.m.**
Link: https://attendee.gotowebinar.com/register/5013099442992835855