

# IGT-Kolloquium

**Thursday, 27 September 2018**

## **Seismic Landslide Assessments: Bridging the Gap between Engineers and Earth Scientists**

Dr. Ellen M. Rathje  
University of Texas

5 pm, ETH Zurich, Hönggerberg, HCI G7

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Earthquake-induced landslides represent a significant seismic hazard, as evidenced by recent earthquakes in Kaikoura, New Zealand and Gorkha, Nepal, and proper planning/mitigation requires accurate evaluation of the potential for seismic landslides. Engineers often tackle this problem through a detailed evaluation of individual slopes and more recently have introduced performance-based engineering (PBE) concepts into the analysis. Recognizing the compounding effects of multiple landslides across an area, earth scientists often evaluate seismic landslides at a regional scale. This approach sacrifices details, but provides a broader assessment of the impacts of earthquake induced landslides. This presentation will describe the integration of performance-based engineering concepts into regional-scale seismic landslide assessments. The basic PBE framework for seismic landslides will be introduced along with the modifications required to apply it at a regional scale. The application of the approach for a seismic landslide hazard map will be presented. The use of seismic landslide inventories to validate regional landslide assessments will be discussed, along with advancements in developing seismic landslide inventories using remote sensing techniques. Finally, research needs required to further advance regional seismic landslide assessments will be presented.



Landslide from the 2016  
Kaikoura, NZ Earthquake

**Dr. Ellen M. Rathje** is the Warren S. Bellows Centennial Professor in the Department of Civil, Architectural, and Environmental Engineering at the University of Texas at Austin (UT), and Senior Research Scientist at the UT Bureau of Economic Geology. She has expertise in the areas of seismic site response analysis, engineering seismology, seismic slope stability, field reconnaissance after earthquakes, and remote sensing of geotechnical phenomena. Dr. Rathje is a founding member and current Co-Chair of the Geotechnical Extreme Events Reconnaissance (GEER) Association and she was a member of the Board of Directors of the Earthquake Engineering Research Institute (EERI) from 2010-2013. She is the Principal Investigator for the DesignSafe-ci.org cyberinfrastructure for the NSF-funded Natural Hazards Engineering Research Infrastructure (NHERI) and co-PI for the Center for Integrated Seismicity Research (CISR) at the Bureau of Economic Geology. She has been honored with various research awards, including the 2018 William B. Joyner Lecture Award from the Seismological Society of America and the Earthquake Engineering Research Institute and the 2010 Huber Research Prize from the American Society of Civil Engineers. She was named a Fellow of the American Society of Civil Engineers in 2016.

