

UNIVERSITY of HOUSTON

CULLEN COLLEGE of ENGINEERING

Department of Civil & Environmental Engineering

Professor Giovanna Biscontin

Texas A&M University

Seismic Triggering of Submarine Landslides

About the speaker:

Monday, April 2, 2012

11:15 a.m. Refreshments

11:30 – 12:30 p.m. Seminar

Room 102-D Engineering Bldg. 1, UH



Abstract

In recent years, increasing attention has been focused on the problem of submarine slope stability. The global economy requires a better, wider reaching infrastructure, able to quickly distribute resources, such as oil and gas, from the point of production to the points of use. An expanding network of telecommunication cables is also crossing the oceans floors and breakages caused by slope failures would interrupt or delay the flow of information around the world. Large submarine slides can cause tsunamis, which can be devastating for the coastal communities on the wave's path.

A new multi-directional simple shear device developed at Texas A&M University allows loading along three independent axes, two perpendicular horizontal directions to allow any stress or strain paths in the horizontal plane, and a third in the vertical direction. This prototype provides the ability to apply shear stresses and complex loading paths to soil samples. The experimental program focused on investigating the effects of anisotropy of Gulf of Mexico clay subjected to cyclic loading.

Although simplified, the SIMPLE DSS model formulation can handle the generation of excess pore pressure as a by-product of stress-strain-strength relationships that require a small number of basic parameters. Examples of predictions and comparisons with test data will illustrate the potential of the SIMPLE DSS model. Different scenarios for slide initiation will be identified and predictions of slope response analyses with a one-dimensional finite element code implementing SIMPLE DSS will be presented.

Giovanna Biscontin earned her bachelor's degree from the University of Padova (Italy) and both her MS and PhD in geotechnical engineering from the University of California, Berkeley. She joined the Department of Civil Engineering at Texas A&M University in 2002 and holds the rank of associate professor. Dr. Biscontin's work focuses on characterizing and modeling the response of soils, especially when subjected to cyclic loading. Her interests are also related to offshore deposits and soft marine clays in particular. Her experimental research has been related primarily to simple shear testing and the effects of anisotropy and multi-directional loading. Giovanna's work also included numerical modeling of field experiments to evaluate shear modulus nonlinearity directly, constitutive modeling of Venice Lagoon compressive response, and seafloor-riser interaction. More recently, Dr. Biscontin has extended her research to foundations for offshore wind towers and DEM modeling.

Parking: Go to UH Entrance No. 1 (Exit I-45 South to Spur 5 and take a right at University Blvd.). At the Visitors Information Center, ask for the Cullen College of Engineering and parking instructions. For more information call Elaine Gildea at (713) 743-4251.

RSVP BY FAX TO (713) 743-4260 with information below by March 30, 2012

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