

# BGA Touring Lecture 2014

4<sup>th</sup> – 6<sup>th</sup> November 2014

## RAPID LANDSLIDES

**Speaker: Prof Eduardo Alonso**

Universitat Politècnica de Catalunya

**Abstract:** When estimating the potential damage from landslides the travel distance and velocity are key variables whose determination requires a dynamic analysis. Landslide displacements and velocity in nature are often moderate, but known cases of high velocity (>10 m/s) have attracted considerable attention following the extremely destructive Vaiont landslide (Italy) in 1963. Other examples include: Goldau, Switzerland, 1843; La Josefina, Ecuador, 1993; Qianjiangping, China, 2003; San Juan de Grijalva, Mexico, 2007.

The lecture is limited to those landslides whose evolving geometry is characterized by soil volumes which essentially maintain their original bulk stiffness and strength. The motion is explained by shearing surfaces where strains localize and accumulate, often involving clay materials in the vicinity of the shearing surfaces. The lecture focuses on thermo-hydraulic and mechanical interactions in the sliding surfaces. The widely documented Vaiont landslide is taken as a benchmark reference case. Topics covered include the derivation of practical criteria to estimate the risk of rapid slide acceleration, the scale effects and the relationship between the triggering of a rapid landslide and pre-existent creep-like motions.

**Speaker:** Professor Eduardo Alonso is Professor of Geotechnical Engineering at the Universidad Politècnica de Catalunya, in Barcelona, Spain. He received his Engineering degree from the Universidad de Madrid and his PhD from Northwestern University (USA).

His main topics of interest are Reliability and Risk in Geotechnical Engineering; behaviour of partially saturated soils; expansive soils and rocks; numerical analysis of geotechnical problems; field measurements and geotechnical back analysis; slope stability; earth and rockfill dams.

He has had over 450 papers published and currently chairs the ISSMGE Technical Committee TC6 on Unsaturated Soils. His most prestigious awards include the Telford Medal from the ICE, the Premio Jose Toran from the Comité Espanol de Grandes Presas in Spain, and the Conference Coulomb from the Comité Francais de Mécanique des Sols in France.



**BGA Touring Lecture hosted by the Yorkshire Geotechnical Group at the University of Sheffield**

**Date & Time: Tuesday 4<sup>th</sup> November 2014**

- 17:30 refreshments available in Room D119, Sir Frederick Mappin Building, Mappin Street, Sheffield, S1 3JD, <http://www.sheffield.ac.uk/visitors/mapsandtravel/university>
- 18:30 Lecture commences in Lecture Theatre 5, Sir Frederick Mappin Building
- Contact: Clare Brint, Clare.Brint@networkrail.co.uk, 01904 389805

**BGA Touring Lecture hosted by the North West Geotechnical Group at the University of Manchester**

**Date & Time: Wednesday 5<sup>th</sup> November 2014**

- 18:00 refreshments available in the Enigma Cafe, 1st Floor, Renold Building, Altrincham St, Manchester M1 7JA <http://www.manchester.ac.uk/discover/maps/interactive-map/?id=5>
- 18:30 Lecture commences in Renold Building
- Contact: Gareth Belton, gareth.belton@pbworld.com, 0161 200 9863

**BGA Touring Lecture hosted by the Northern Geotechnical Group at Central Square Newcastle Upon Tyne**

**Date & Time: Thursday 6<sup>th</sup> November 2014**

- 17:45 refreshments available in Central Square, Forth Street, Newcastle, NE1 3PL, <http://goo.gl/maps/O1wnb>
- 18:15 Lecture commences in Central Square
- Contact: Andrew Richmond, Andrew.Richmond@arup.com, 0191 261 6080

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