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16th Arthur Casagrande Memorial Lecture *Hazard, Risk and Reliability in Geotechnical Practice*



Suzanne Lacasse, ScD

Norwegian Geotechnical Institute

Thursday, February 2, 2017

**Hyatt Regency Hotel
575 Memorial Drive
Cambridge, MA**

Event Schedule

5:30 PM – 6:30 PM Cocktail Reception

6:30 PM – 7:30 PM Dinner

7:30 PM – 7:45 PM Welcome & Introduction

7:45 PM – 8:45 PM 16th Arthur Casagrande Memorial Lecture

8:45 PM – 9:15 PM Question & Answer/Discussion

More and more, society requires to know the risk which people, property and the environment are exposed to. The role of the geotechnical engineering profession should increasingly be reducing exposure to threats, reducing risk and protecting people. The objective of the 16th ACML is to convince you that it is beneficial to implement the concepts of hazard, risk and reliability in design, decision-making and engineering recommendations. After an overview of basic concepts, the lecture discusses the advances of hazard, risk and reliability in geotechnical engineering, and explains several "real life" case studies. In these examples, specific engineering questions had to be answered, and risk and reliability applications provided insight for informed decision-making.

The factor of safety remains the main indicator of safety in practice, and its significance and that of key parameters used for design, e.g. the characteristic strength, are discussed. The examples presented are taken from a wide realm of geotechnical problems, including the selection of soil properties, the mapping of hazard and risk, as well as hazard and risk assessment associated with slope stability, dams, offshore installations and code calibration.

The contributions of risk assessment and management to geotechnical engineering, the strengths and drawbacks of the approach and issues such as tolerable and acceptable risk cascading hazards are discussed. The geotechnical engineer's role is not solely to provide judgment on selection of parameters, methods of calculations and resulting safety, but also to take an active part in the evaluation of hazard, vulnerability and risk.



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Speaker

Dr. Lacasse was born in the small mining town of Noranda in northern Québec, Canada. She completed first her Bachelor of Arts (1965), and in 1971, her studies in Civil Engineering at Ecole Polytechnique of Montréal. Graduate studies followed at the Massachusetts Institute of Technology in the USA and Ecole Polytechnique. She obtained her Ph.D. in 1976. She was Lecturer at Ecole Polytechnique (1973-1975), and then became faculty member of the Civil Engineering Department at MIT (1975-1983), where she also was Head of the Geotechnical Laboratory. Dr. Lacasse went to the Norwegian Geotechnical Institute (NGI) in 1978, as a post-doctoral fellow for one year. She became permanent employee in 1980, sharing her time between MIT and NGI. At NGI, she worked on research and consulting assignments, both in Norway and abroad, with secondments in several countries. She became NGI's Managing Director in 1991, a position she held until December 2011. Since 2012, she acts as Technical Director at NGI.

She gave the 37th Terzaghi Lecture of the American Society of Civil Engineers on "Offshore geotechnical engineering" in 2001, the 8th Terzaghi Oration of the ISSMGE on "Slope stability" in 2013 and the 55th Rankine Lecture of the Institution of Civil Engineers, British Geotechnical Society in London in 2015.

Registration Deadline: Friday, January 20, 2017

Information/Registration:

Registration Fees: \$120 Members, \$150 Non-Members, \$100 Public Sector Members
\$120 Public Sector Non-Members, \$40 Student Members & Senior Members (65+)
\$1,200 Table of 10 (Regardless of Membership)

Registration will be limited to the first 150 registrations that are received. Register to attend this meeting and pay by credit card online at <http://bit.ly/Casagrande2017>. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by completing the registration form below and mailing, emailing or faxing it to BSCES, The Engineering Center, One Walnut Street, Boston, MA 02108, bscesreg@engineers.org or 617/227-6783, respectively. Cancellations received after January 20, 2017 and no-shows will be billed.

Registration Form 16th Arthur Casagrande Memorial Lecture – Thursday, February 2, 2017

Registrant Information

Name: _____
 Company (if applicable): _____
 Address: _____
 City: _____ State: _____ Zip Code: _____
 Phone: _____ Fax: _____ Email: _____
 Dietary Restrictions: _____

Registration Fees

\$120 BSCES Member \$150 Non-Member \$100 Public Sector Member
 \$120 Public Sector Non-Member \$40 Senior Member (65+) \$40 Student Member

Total Amount Enclosed

\$ _____

Make checks payable to "BSCES" and mail with completed form to: BSCES, The Engineering Center, One Walnut Street, Boston, MA 02108-3616

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Arthur Casagrande (1902 – 1981)

Arthur Casagrande was born on August 28, 1902 in Austria and came to the United States in 1926. He worked at the Bureau of Public Roads and as a Research Assistant under Karl Terzaghi at MIT. He made or contributed to making the fundamental developments of Soil Mechanics and later became a Professor of Soil Mechanics. He also served the profession as the President of the ISSMFE in 1960s.

Prof. Casagrande started the Soil Mechanics program at Harvard University in 1932. Many of his students were inspired by his teachings and entered the field of Soil Mechanics; these men later became the creators of the Geotechnical Engineering field as we know it today. As a pioneer, Prof. Casagrande worked on the fundamental problems of Soil Mechanics, such as soil classification, seepage through earth and shear strength.

Casagrande's contributions to the profession were recognized by giving him the honors of *Rankine Lecturer* by the Institution of Civil Engineers (UK), and *Terzaghi Lecturer* by American Society of Civil Engineers. He was also the first recipient of the Terzaghi Award from ASCE. He authored more than 100 research papers and reports on a great many subjects, from frost heave to dynamic loading and everything in between.

Arthur Casagrande Fund

Established in 1848, BSCES is the oldest engineering society in the United States and currently supports over 3,400 members throughout Massachusetts. BSCES formally became a Section of ASCE in 1974 after the merger with ASCE's Massachusetts Section.

In 1983, the [Arthur Casagrande Fund](#) was established to support a lecture given every other year by an eminent engineer with longstanding achievement in practice, teaching and/or research in geotechnical engineering.

Previous Arthur Casagrande Memorial Lecture Speakers

1983 - Leo Casagrande
1985 - Alfred Hendron
1987 - Ralph Peck
1991 - James Gould
1993 - James Mitchell
1996 - Fred Kulhawy
1998 - Michael Duncan
2000 - Charles Ladd
2002 - Harry Poulos
2004 - Lymon C. Reese
2006 - John Schmertmann
2008 - T. William Lambe
2010 - Izzat M. Idriss
2013 - Edward J. Cording
2014 - Robert J. Mair