Past Speakers

2012 Dr. Kalanith Vairavamoorthy
Executive Director of Patel School of Global Sustainability
Professor of Civil and Environmental Engineering
University of South Florida

2013 Dr. Lindell Ormsbee
Director of the Kentucky Water Resources Research Institute
Professor of Civil Engineering
University of Kentucky

2014 Dr. Larry W. Mays
Renown Author
Professor of Civil, Environmental and Sustainable Engineering and the Built Environment
Arizona State University

2015 Dr. Vijay P. Singh
Distinguished Professor &
Caroline & William N. Lehrer Distinguished Chair in Water Engineering
Texas A&M University

The G.V. Loganathan Distinguished Lecture

Presented by Dr. Rafael L. Bras, Sc.D.

Friday, April 8, 2016
3:00 pm in The Banquet Room at Owens Hall

Provost & Executive Vice President for Academic Affairs

Professor, Civil and Environmental Engineering & School of Earth & Atmospheric Sciences

K. Harrison Brown Family Chair

Georgia Institute of Technology

VirginiaTech

The **G.V. Loganathan Distinguished Lecture Series** was established to honor the contributions of scholarship, instruction and service by Dr. G.V. Loganathan in the area of water resources engineering and in memory of Dr. Loganathan and his students of the Advanced Hydrology class, 2007.

G.V. Loganathan was an internationally renowned researcher in the field of engineering hydrology and water resources systems. G.V. joined the Virginia Tech faculty in 1982 after completing his Ph.D. degree from the School of Civil Engineering at Purdue University. G.V. wrote more than 150 peer-reviewed academic publications on a variety of topics including urban stormwater hydrology, drought modeling and low-flow analysis, optimization and decision analysis and drinking-water infrastructure. He received the ASCE Wesley W. Horner Best Paper Award in 1996. He was named the Outstanding Civil Engineer of the Year by the Virginia Section of the American Society of Civil Engineers in 2007.

G.V. was the five-time recipient of the CEE Faculty Achievement Award; an annual award determined by the CEE student body. He was dedicated to his students; both undergraduate and graduate students. G.V directed 42 graduate students including 8 Ph.D. dissertations.

The G.V. Loganathan Memorial Fellowship was established in loving memory and in his honor for graduate students working in G.V.'s area of research. Other scholarships in honor of students of the 2007 Advanced Hydrology class are the Brian Roy Bluhm Memorial Graduate Fellowship for VT BSCE graduates in water resources engineering and the Matthew Gwaltney Memorial Graduate Fellowship for graduate studies in water resources engineering.

Abstract

The hydrologic cycle is an exquisitely coordinated, balanced, interaction between the atmosphere, the oceans, and the land. The system is incredibly complex and non-linear, with a myriad of positive and negative feedbacks acting at a variety of scales; and all occurring within a highly variable environment that can only be described as random. Hence, the hydrologic states resulting from this complexity are a unique product of both chance and necessity.

This talk explores some outcomes of hydrologic complexity, chance and necessity with several examples. Examples include the surprising predictability of land fluxes from maximum entropy production principles; the impact of deforestation on the Amazon cloud climate; the self-organization of landscapes and river basins over very long time periods and the role of vegetation on landscape evolution; and the role of erosion and deposition in the carbon balance of a watershed.

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"Chance and Necessity: Land-Atmosphere Interactions"

Reception to follow

Dr. Rafael L. Bras is the provost and executive vice president for Academic Affairs at the Georgia Institute of Technology. Bras is a professor in the School of Civil and Environmental Engineering and the School of Earth and Atmospheric Sciences and the first Tech faculty member to hold the K. Harrison Brown Family Chair.

Prior to becoming provost, Bras was a distinguished professor and dean of the Henry Samueli School of Engineering at UC-Irvine. For 32 years, he was a professor in Civil and Environmental Engineering and Earth, Atmospheric and Planetary Sciences at the Massachusetts Institute of Technology. He is past chair of the MIT faculty, former head of the Civil and Environmental Engineering department and director of the Ralph M. Parsons Laboratory at MIT. He has served as advisor to many prestigious institutions.

His many honors and awards include: Distinguished member of ASCE, an honorary degree from the University of Perugia in Italy, Hispanic Engineer National Achievement Award Hall of Fame, NASA Public Service Medal, the Macelwane Medal of AGU, John Simon Guggenheim Fellowship, Athalie Richardson Irvine Clarke Prize, James R. Killian Jr. Faculty Achievement Award of MIT, Simon W. Freese Environmental Engineering Award, Honorary Diplomate of Water Resources Engineering of the American Academy of Water Resources Engineers, Horton Medal of AGU, AGU Hydrology Days Award, and Drexel University's 2010 Anthony J. Drexel Exceptional Achievement Award.

He is an elected member of the U.S. National Academy of Engineering and Academy of Arts and Sciences of Puerto Rico, and a corresponding member of the Mexican National Academy of Engineering. He is a corresponding Member of the Mexican Academy of Sciences and an elected Fellow of AGU, ASCE, AMS and AAAS.

Bras maintains an active international consulting practice. For many years he chaired a panel that supervised the design and construction of a multibillion-dollar project to protect the city of Venice from floods. He has published two textbooks, more than 215 refereed journal publications, and several hundred other publications and presentations.

Dr. Rafael Bras, SC.D. The G.V. Loganathan Distinguished Lecture April 8, 2016