

Simulation of ambient environment actions in APT

Sunday April 3, 2022, 14:00 – 17:00 local time

Scope

Any accelerated pavement test requires that ambient environment actions be simulated adequately. Nonetheless, the meaning of “ambient environment actions” varies from one APT program to another—depending in part on the country or region’s climate—and from one test to another—subject to the pavement/material types used in the testing and the test goals. Consequently, a large collection of ambient environment techniques (/goals) have been used to date. The aim of this workshop is 1) to summarize all these techniques and 2) to highlight the relevance and role of ambient environment simulation in APT.

Objectives

- To present in detail the most important state-of-the-art ambient environment control systems used in APT experiments around the world.
- To understand the various phenomena to be simulated: aging, raining, heating, cooling, the ground-water table, cement hydration, concrete drying shrinkage, etc.
- To summarize the techniques and technologies used around the world to perform ambient environment simulation.

Program

Time	Presentation title	Speaker
14:00	Introduction to the workshop	Luis Loria-Salazar (<i>in-person</i>), University of Costa Rica
14:10	Simulation of moisture and temperature effects on APT of asphalt pavements	David Jones (<i>in-person</i>), University of California Pavement Research Center
14:30	Consideration of different environmental conditions in the BAST APT program – indoor and outdoor experiments	Dirk Jansen (<i>in-person</i>), Bundesanstalt für Straßenwesen (BAST)
14:50	Full scale research projects at Rowan University	Ahmed Saidi (<i>in-person</i>) for Yusuf Mehta, Rowan University
15:10	Assessment of pavement response in freezing and thawing conditions using the Laval University pavement loading system	Jean-Pascal Bilodeau and Guy Doré (<i>online</i>), Université Laval
15:30	Break	
15:40	Control of environmental factors in accelerated pavement tests for airport pavements	Navneet Garg (<i>online</i>), Federal Aviation Administration
16:00	Planning concrete pavement APT sections to produce results for field performance predictions	Jeff Roesler (<i>online</i>), University of Illinois
16:30	Open forum	John Harvey (<i>in-person moderator</i>) for Angel Mateos, University of California Pavement Research Center

Speakers



Luis Loria-Salazar, has a master and a PhD degree from the University of Nevada, Reno. Actually is full professor at the University of Costa Rica. Former General Director of the Transportation Infrastructure Program of UCR where He run an APT experiment for 9 years. Member of scientific committees at TRB, RILEM, AAPT, APSE and ASCE. He has written more than 170 scientific papers. Actual VP of ISAP.



Dr. David Jones is the Associate Director of the University of California Pavement Research Center in Davis California, where he manages research into climate resilient, sustainable road and airfield design with special interest in in-place pavement recycling and the use of recycled materials in pavement layers. He manages the UCPRC APT and laboratory facilities as part of his responsibilities. He works closely with federal, state, and local road agencies to implement research findings, evaluate performance, and to refine life-cycle costs and life-cycle environmental impacts of the various initiatives.



Dirk Jansen has a PhD degree in civil engineering. Actually he is the head of section "Analysis and Development of Pavement Structures" at the German Federal Highway Research Institute (BAST). His work focuses on the development and implementation of non-destructive testing (NDT) for the assessment of structural properties, the pavement design and the performance of large-scale accelerated pavement tests (APT). Member of related scientific committees at TRB, FEHRL and national committees.



Dr. Yusuf Mehta has received approximately \$15 million dollars of external funding in pavements and materials. He has conducted research for New Jersey, Florida, Wisconsin and Rhode Island departments of transportations, Federal Highway Administration and Federal Aviation Administration, and Department of Defense. He has also led the effort to acquire the Heavy Vehicle Simulator (HVS) that can simulate 10-20 years of traffic in a few years. Dr. Mehta has established the Center for Research and Education in Advanced Transportation Engineering Systems ([CREATES](#)) at Rowan University.



J.-P. Bilodeau has a master and a PhD degree from Université Laval in Quebec City, Canada. He has been working as a research associate and a lecturer for the past 12 years as part the research activities of the NSERC research Chair on the Interaction between Heavy loads-Climate-Pavements (i3C). He has served as co-investigator in numerous research projects funded by public and private sectors in Canada and overseas. Since 2012, he has been managing APT combined with environmental effect simulations at Université Laval, Canada.



Dr. Navneet Garg is Program Manager in Airport Technology R&D Branch at the FAA's William J. Hughes Technical Center in Atlantic City and manages projects on APT, Field Instrumentation and Testing, and Materials. He is PhD from the Univ. Illinois at Urbana-Champaign. He has been actively involved in airport pavement research since 1998. He has taught in airport pavement design and evaluation workshops for several organizations. He is the Chairman of HVS International Alliance, Vice-Chair of ASCE Airfield Pavement Committee, Associate Editor of IJPE, and member of TRB Committees AFD30, AFS20, AFP70.



Dr. Jeff Roesler is Professor at the University of Illinois at Urbana-Champaign and CEE Associate Head and Director of Graduate Studies and Research. His research interests include concrete pavement design and analysis, passive communication between autonomous vehicles and pavement, cool pavements and the microscale urban heat island, contactless sensing for early age concrete properties, internal curing with lightweight fines, fiber-reinforced concrete, photocatalytic cements, and roller compacted concrete pavement. He is Associate Editor of IJPE and registered PE in the state of California.



Angel Mateos is Principal Investigator of the University of California Pavement Research Center at Berkeley. He has served as Principal Investigator in numerous research projects funded by the Spanish Ministry for Public Works, the European Union, the World Bank, and Caltrans, among others. Member of scientific committees at TRB, APSE, ASCE, and NRRRA. He is Ph.D. from the Polytechnic University of Madrid.