

Summary:

A Special Session by the COSMOS Ground-Motion Simulation working group (COSMOS Sim WG) entitled “Ground-Motion Simulation, Validation, and Dissemination for Engineering Applications” was held on 8 November 2023 as part of the 7ICEES/18WCSI joint conferences in Antalya, Turkiye, November 6-10, 2023. The program and select photos from the session are presented below. Ten talks were given by an international community and included state-of-the-art findings on various ground-motion simulation techniques, sensitivity of ground-motion simulations to input parameters, use of simulated datasets for engineering applications, and machine learning tools.

In addition to the program below, Professor Muneo Hori was a keynote speaker at the conference. He presented on Integrated Earthquake Simulation Enhanced with High Performance Computing.

An important action item that was identified during this session was to create global benchmarks for validating various methods for simulating past earthquakes using engineering response parameters. Moreover, the sessions reiterated the need for the COSMOS Sim WG to standardize dissemination of the simulated ground-motion datasets for engineering use.

We thank all of the speakers and participants of the session.

Aysegul Askan, Brad Aagaard, and Sanaz Rezaeian

PART 1		
Paper ID	Title	Authors
13780	DEVELOPING INTERNATIONAL STANDARDS AND GUIDLINES FOR CURATING, DISSEMINATING, AND VALIDATING SIMULATED EARTHQUAKE GROUND-MOTION DATA	BRAD AAGAARD, AYSEGUL ASKAN, SANAZ REZAEIAN, SEAN AHDI, ALAN YONG
13900	BB-SPEEDset: A VALIDATED DATASET OF SIMULATED EARTHQUAKE GROUND MOTIONS FOR ENGINEERING AIMS	CHIARA SMERZINI , ROBERTO PAOLUCCI, MANUELA VANINI
14032	PHYSICS-BASED GROUND MOTION PARAMETER MAPS: NUMERICAL SIMULATIONS AND DATA ASSIMILATION	LEONARDO RAMIREZ-GUZMAN
13422	STOCHASTIC GROUND MOTION SIMULATION FOR THE 9TH JULY 1998 FAIAL EARTHQUAKE USING SOURCE-BASED AND SITE-BASED STOCHASTIC METHODS	SAYED MOHAMMAD SAJAD HUSSAINI, SHAGHAYEGH KARIMZADEH , PAULO B LOURENÇO
14033	STOCHASTIC MODELING AND SIMULATION OF NEAR-FAULT EARTHQUAKE GROUND MOTIONS	MAYSSA DABAGHI

PART 2		
Paper ID	Title	Authors
14404	VARIABILITY OF STRONG VELOCITY PULSES ASSOCIATED WITH DIRECTIVITY EFFECTS IN RECENT MODERATE AND LARGE MAGNITUDE EARTHQUAKES IN TURKEY	ELİF TÜRKER , MING HSUAN YEN, MARCO PILZ, FABRICE COTTON

14465	A REVIEW OF PREVIOUS GROUND MOTION SIMULATION AND VALIDATION STUDIES IN TURKEY AND A RECENT SIMULATED GROUND MOTION DATASET	ABDULLAH ALTINDAL AND AYSEGUL ASKAN
14199	EFFECTIVENESS OF SYNTHETIC GROUND-MOTIONS FOR UNREINFORCED MASONRY STRUCTURES: APPLICATION TO A CASE STUDY IN CENTRAL ITALY	MATTEO SALVALAGGIO , SHAGHAYEGH KARIMZADEH, PAULO B. LOURENÇO
13877	EFFECTS OF SURFACE TOPOGRAPHY ON SEISMIC RESPONSE OF RC SHEAR WALL BUILDINGS	YAVUZ DENİZ, ZEYNEP TUNA DEĞER , WENYANG ZHANG, ERTUGRUL TACIROGLU
13904	MACHINE LEARNING FOR DAMAGE CLASSIFICATION, RISK MITIGATION AND POST EARTHQUAKE MANAGEMENT	FEDERICA DI MICHELE , OURANIA GIANNOPOULOU, ENRICO STAGNINI, DONATO PERA, BRUNO RUBINO, ROBERTO ALOISIO, AYSEGUL ASKAN, PIERANGELO MARCATI

Session Flyer:

SPECIAL SESSION	CO-CONVENERS	INVITED SPEAKERS
<p style="text-align: center;">Ground-Motion Simulation, Validation, and Dissemination for Engineering Applications</p> <p>Earthquake ground-motion simulations provide region-specific predictions that cover a wider range of earthquake magnitudes, source-to-site distances, and local geologic conditions compared to recorded motions. Simulation approaches exhibit a wide range of complexity and computational cost and result in different levels of accuracy and applicability. Simulated motions can be used as input to engineering studies, including nonlinear response history analyses; hazard, damage, loss, and risk estimates, as well as urban resilience studies. In this session we welcome contributions related to making simulated ground motions accessible for engineering applications, including improvements in (1) archiving and curating simulated ground-motion datasets, (2) validating simulated motions for engineering applications, and (3) providing interfaces for searching and downloading simulated motions.</p>	 Brad Aagaard  Shaghayegh Karimzadeh  Aysegul Askan  Alan Yong  Sean Ahdi  Mayssa Dabaghi	<ul style="list-style-type: none"> ▶ Brad Aagaard (USGS) ▶ Chiara Smerzini (Politecnico di Milano) ▶ Leonardo Ramirez Guzman (UNAM, Mexico) ▶ Shaghayegh Karimzadeh (U. of Minho) ▶ Maysaa Dabaghi (American University of Beirut) <p style="text-align: center;">This Special Session is presented by COSMOS Simulation Working Group</p> <p style="text-align: center;">  www.18wesi-7icees.com  info@18wesi-7icees.org </p>

Selected Photos from the Session:



