

# 2016 International Workshop on Ground Motion Simulation and Validation (held at the SCEC Annual Meeting)

**Official Webpage:** <https://www.scec.org/workshops/2016/gmsv>

**Objective:** This workshop will summarize these international GMSV efforts and possibly others, further coordinate them, and initiate future collaborations. The main goal of the workshop is to discuss the future of the GMSV TAG in SCEC5. We will encourage discussions on 1) the organization and structure of the TAG based on lessons learned from other international groups, focused on encouraging interactions between validation researchers, simulation modelers and end users, 2) the need for developing a database interface, where users can access the SCEC simulated earthquake ground motions, and 3) engagement with engineering users and outreach by moving towards an integrated earthquake ground motion simulation and validation program that builds on the knowledge from previous independently-funded GMSV TAG projects.

**Date:** 11 September 2016

**Location:** Palm Springs (in conjunction with the SCEC Annual Meeting)

**Conveners:** Sanaz Raezian, Nico Luco (USGS Golden), Brendon Bradley (University of Canterbury), Iunio Iervolino (UNaples), Leonardo Rameriz-Guzman (UNAM)

*(only QuakeCoRE-led presentations are listed below due to author copyright; please see the official page above for access to other presentations)*

<b>Introductions</b> (Sanaz Rezaeian)	
The SCEC perspective on validations in SCEC5 (Christine Goulet)	
<b>Overview of GMSV Efforts in New Zealand, Italy, Mexico, and at SCEC</b>	
<ul style="list-style-type: none"><li>• <a href="#">QuakeCoRE GMSV research coordination and current priorities</a> (Brendon Bradley)</li></ul>	
<ul style="list-style-type: none"><li>• Italian experience with 3D physics-based numerical simulations of earthquake ground motion (Marco Stupazzini)</li></ul>	
<ul style="list-style-type: none"><li>• Synthetic ground motion system for structural design and evaluation in Mexico City (Leo Rameriz-Guzman)</li></ul>	
<ul style="list-style-type: none"><li>• Organization and structure of the GMSV TAG in SCEC4 (Nico Luco)</li></ul>	
<ul style="list-style-type: none"><li>• <b>Discussion:</b> How should modelers and engineers participate in and contribute to the SCEC5 ground motion simulation validation efforts?</li></ul>	
<b>Simulated Earthquake Ground Motions and Database Development</b>	
<ul style="list-style-type: none"><li>• <a href="#">Development of a QuakeCoRE database for access to ground motion simulation outputs at specific locations</a> (Sung Bae)</li></ul>	
<ul style="list-style-type: none"><li>• Datasets of recorded and simulated near-source earthquake ground motions: the experience gained in Italy (Marco Stupazzini)</li></ul>	
<ul style="list-style-type: none"><li>• Current SCEC simulations (Christine Goulet)</li></ul>	
<ul style="list-style-type: none"><li>• <b>Discussion:</b> What are the requirements of a database interface for users to access simulated ground motions and validation parameters?</li></ul>	
Break	
<b>Validation Efforts and Engagement with Engineering Users</b>	
<ul style="list-style-type: none"><li>• <a href="#">QuakeCoRE guidance on the utilization of ground motion simulations in engineering practice</a> (Brendon Bradley / Jack Baker)</li></ul>	

	<ul style="list-style-type: none"> <li>Engineering applications of 3D physics-based numerical simulations: two case studies from the Reluis project, Italy (Marco Stupazzini)</li> </ul>	
	<ul style="list-style-type: none"> <li>Demonstration of the efficacy of the BBP validation gauntlets for building response analysis applications (Greg Deierlein)</li> </ul>	
	<ul style="list-style-type: none"> <li><b>Discussion:</b> How should we engage engineering users in SCEC5?</li> </ul>	
	<b>Summary and Wrap Up</b> (Sanaz Rezaeian)	
	<i>Adjourn</i>	

**1:15pm** *Welcome and workshop aims*( Brendon Bradley)

**1:20pm Validation (10min talks)**

- [SCEC efforts in ground motion simulation validation](#) (Christine Goulet)
- [Validation of physics-based ground motion simulations of past earthquakes](#) (Ricardo Taborda)
- [Validation of ground motion simulations in the Canterbury, NZ, region](#) (Hoby Razafindrakoto)
- [Validation of strong ground motion simulations of two historical NZ subduction zone earthquakes on the SCEC BBP](#) ( Andreas Skarlatoudis )
- [The composite source model: Calibrations and validation for the SCEC BBP and precariously balanced rocks](#) ( John Anderson )
- [Implementation of GMSV TAG validation gauntlets on the SCEC BBP for engineering applications](#) ( Sanaz Rezaeian )
- [Explicit validation of uncertainties in ground motion simulation](#) ( Brendon Bradley )
- Open Discussion: Advancing simulation validation

**3:00pm** Coffee break

**3:20pm Advances in GM Sim: High frequencies and shallow soil response (10min talks)**

- [Current efforts and future challenges in high frequency ground motion simulation](#) ( Ricardo Taborda )
- [Improvements in ground motion prediction via explicit simulation of near-surface site response at Heathcote Valley during the Canterbury earthquakes](#) ( Seokho Jeong )
- [Near surface site characterization](#) ( Liam Wotherspoon )
- Open Discussion: Advancing modeled physics in simulations

**4:20pm Utilization of simulated ground motions (10min talks)**

- [Guidelines for the utilization of ground motion simulations in engineering practice](#) ( Didier Pettinga / Brendon Bradley )
- [Utilization of simulated ground motions in the US hazard and design maps](#) ( Christine Goulet / Sanaz Rezaeian )
- Open Discussion: Utilization of simulations

**5:00pm** Workshop close

**Participants:**