







Development of GMPEs for Central and Eastern North America: NGA-East Overview



Christine Goulet, PhD

Pacific Earthquake Engineering Research Center University of California, Berkeley

goulet@berkeley.edu

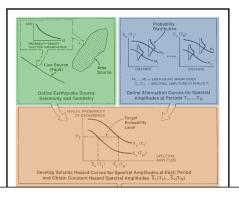
http://peer.berkeley.edu/ngaeast/





Input to Seismic Hazard Analyses (SHA)

- Deterministic and Probabilistic SHA requires two main pieces:
 - Seismic Source Characterization (CEUS SSC)
 - Ground Motion Characterization (NGA-East GMC)



NGA-East

A science/development phase AND a SSHAC Level 3 project

Objective - to develop

- GMPEs
 - Median
 - Standard Deviation (aleatory variability)
- Logic tree (epistemic uncertainty)
- For:
 - Average horizontal ground motions (PGA, PGV and 5%-damped PSa for T=0.01-10s)
 - Hard rock sites located up to 1,000 km
 - Future earthquakes in CENA 4.0-8.2 Mw



What is SSHAC?

- It is a procedural assessment process for seismic hazard analyses
- Implementation in constant evolution
- Level qualifies complexity (1-4)
- NGA-East is a SSHAC Level 3 project
- Details in SSHAC NUREG/CR-6372 and summary in USGS OFR 2009-1093

See NGA-East page for link to these documents:

http://peer.berkeley.edu/ngaeast/

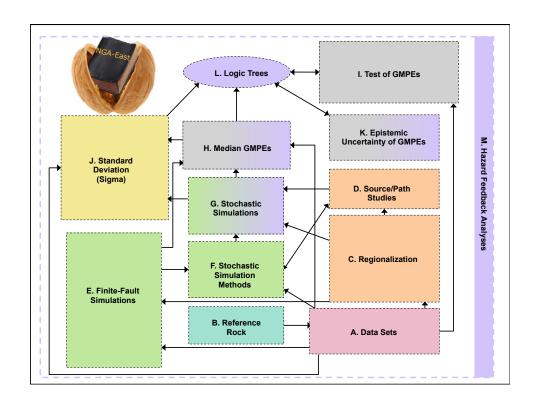


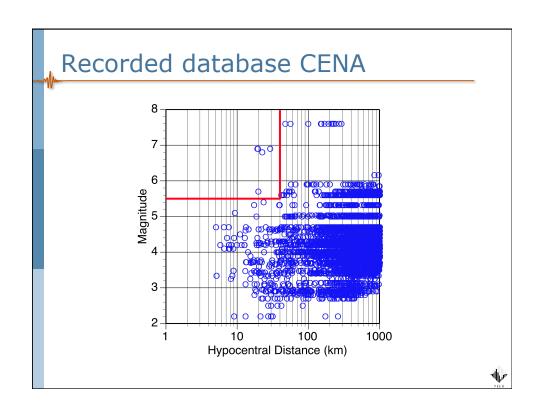
Objective of the SSHAC process

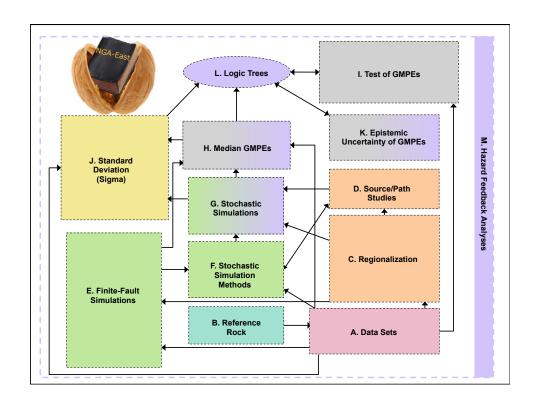
Capture the Center, Body and Range (CBR) of the Technically Defensible Interpretations (TDIs)

- Explicit objective not to capture just the views of participants but ultimately the range of TDIs.
- Comprehensive data collection and exposure of all participants to the complete data set and all available models.
- Clearly defined roles for all participants.
 Structured interactions among participants, including technical challenge of positions, in formal workshops.
- Rigorous peer review of the entire process and thorough documentation.

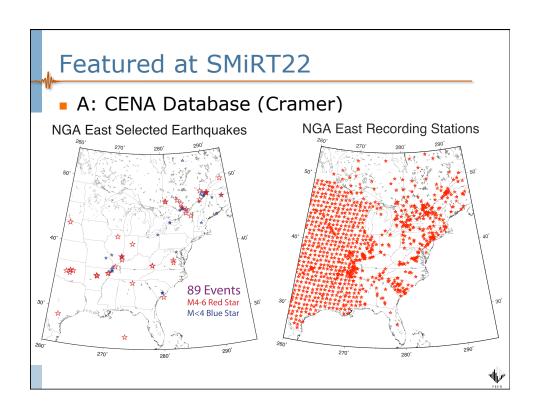


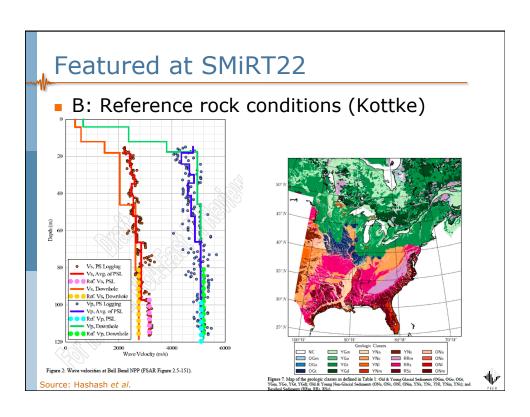


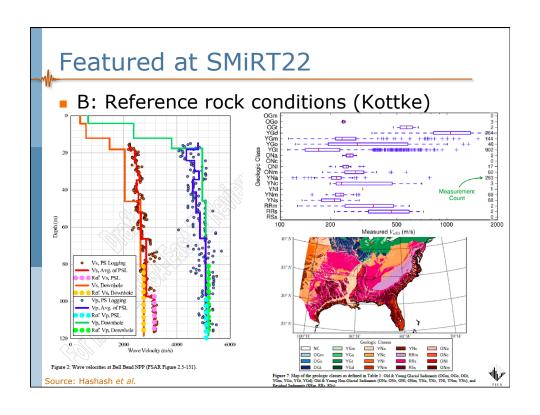


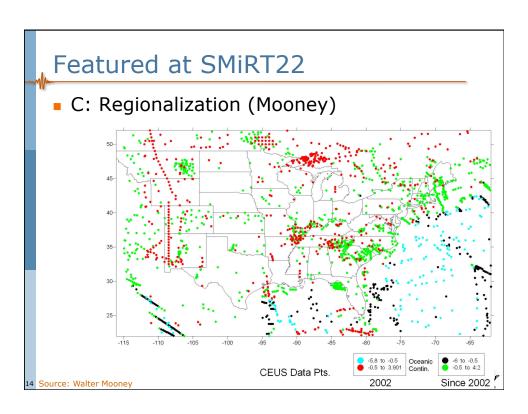


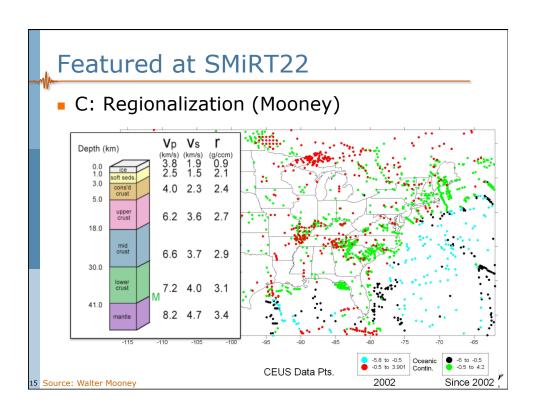
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		Committee or Group	Name	Last Name	Members Organization	←mail	
		Project Manager (PM)					
		Joint Management Committee (JMC)		Bozorgnia	PEER, UC Berkeley	yousef@berkeley.edu	
			Annie	Kammerer	NRC	annie kammerer@nrc.gov	
			Mark	Petersen	USGS, Denver	mpetersen@usgs.gov	
			Lawrence	Salomone	EPRI	lawrence.salomone@srs.gov	
			Steve	McDuffie	DOE	Stephen McDuffie@RL Doe.Gov	
A.		SSHAC Guidelines Process Manager (SGPM)	Annie	Kammerer	NRC	annie kammerer@nrc.gov	
W		NGA-East/CEU SSC Model Interface					
		Advisor (MIA) Technical Integrator Team (II)		Coppersmith Abrahamson	Coppersmith Consulting, Inc. UC Berkeley	kcoppersmith@earthlink.net abrahamson@berkeley.edu	
			Norman Christine	Goulet		goulet@berkeley.edu	
					PEER, UC Berkeley		
				Al Atik	Linda Alatik Consulting	linda alatik@gmail.com	
				Atkinson	Univ. of Western Ontario	Gmatkinson@aol.com	
			Robert	Graves	USGS, Pasadena	rwgraves@usgs.gov	
				Thompson	Tufts Univ.	eric.thompson@tufts.edu	
			Robert	Youngs	Amec	bob.youngs@amec.com	
		Hazard Feedback Analysts (HFAs)	Gabriel	Toro	Lettis Consultants Intl	toro@lettisci.com	
			Gabriel	Toro	Lettis Consultants Intl	toro@lettisci.com	
			John	Adams	Geological Survey of Canada	John Adams@NRCan-RNCan.gc.ca	
		1		Ake	NRC	jon.ake@nrc.gov	
		Participatory Peer Review Panel (PPRP)		Ebel	Boston College	ebel/fibc.edu	
				Kimball	National Nuc. Security Admin.	JeffreyK@DNFSB.GOV	
				Lee	Los Alamos National Lab	rcles@lanl.gov	
			Chuck	Mueller	USGS, Denver	cmueller@usgs.gov	
			Gabriel	Toro	Lettis Consultants Intl	toro@lettisci.com	
			David	Boore	USGS, Menlo Park	boore@usgs.gov	
		Database Working Group	Kenneth	Campbell	EQECAT, Inc.	KCampbell@eqecat.com	
			Chris	Cramer	Univ. of Memphis	ccramer@memphis.edu	
			Robert	Herrmann	Saint Louis Univ.	rbh@eas.slu.edu	
			Walt	Silva	Pacific Engineering, Inc.	pacificengineering@juno.com	
			Youssef	Hashash	Univ. of Illinois	hashash@uiuc edu	
		Geotechnical Working Group	Kenneth	Campbell	EQECAT, Inc.	KCampbell@eqecat.com	
				Kottke	PEER, UC Berkeley	arkottke@berkeley.edu	
				Rathje	Univ. of Texas - Austin	e.rathje@mail.utexas.edu	
			Walt	Silva	Pacific Engineering, Inc.	pacificengineering@iuno.com	
				Stewart		stewart@seas ucla.edu	
			continue	stewart			
		GMPE Working Group	_		Members to be defined by RF		
4					Virginia Tech.	mcc@vt.edu	
			Martin	Chapman			
			Gail	Atkinson	Univ. of Western Ontario	Gmatkinson@aol.com	
			Gail Dave	Atkinson Boore	Univ. of Western Ontario USGS, Menlo Park	Gmatkinson@aol.com boore@usgs.gov	
		Path/Source Working Group	Gail Dave Kenneth	Atkinson	Univ. of Western Ontario	Gmatkinson@aol.com	
		Path/Source Working Group	Gail Dave Kenneth	Atkinson Boore	Univ. of Western Ontario USGS, Menlo Park	Gmatkinson@aol.com boore@usgs.gov	
		Path/Source Working Group	Gail Dave Kenneth Robert	Atkinson Boore Campbell	Univ. of Western Ontario USGS, Menlo Park EQECAT, Inc. Saint Louis Univ.	Gmatkinson@aol.com boore@usgs.gov KCampbell@eqecat.com	
		Path/Source Working Group	Gail Dave Kenneth Robert Shahram	Atkinson Boore Campbell Hermann	Univ. of Western Ontario USGS, Menlo Park EQECAT, Inc.	Gmatkinson@aol.com boore@usgs.gov KCampbell@eqecat.com rbh@eas.slu.edu	
		Path/Source Working Group	Gail Dave Kenneth Robert Shahram Walt	Atkinson Boore Campbell Hermann Pezeshk Silva	Univ. of Western Ontario USGS, Mendo Park EQECAT, Inc. Saint Louis Univ. Univ. of Memphis Pacific Engineering, Inc.	Gmatkinson@aol.com boore@usgs.gov KCampbell@eqecat.com dbh@eas.slu.edu spezeshi@memphis.edu pacificengineering@uno.com	
		Path/Source Working Group	Gail Dave Kenneth Robert Shahram Walt Linda	Atkinson Boore Campbell Herrmann Pezeshk Silva Al Ank	Univ. of Western Ontario USGS, Mendo Park EQECAT, Inc. Saint Louis Univ. Univ. of Memphis Pacific Engineering, Inc. PEER, UC Berkeley	Gmatkinson@aol.com boore@usqs.gov KCampbell@eqecat.com tbh@eas.fal.edu spezestbl@memphis.edu spezestbl@memphis.edu postificenginering@uso.com linda.alatdc@gmail.com	
		Path/Source Working Group	Gail Dave Kenneth Robert Shahram Walt Linda Jack	Atkinson Boore Campbell Herrmann Pezeshk Silva Al Atik Baker	Univ. of Western Ontario USGS, Mendo Park EQECAT, Inc. Same Louis Univ. Univ. of Memphis Pacific Engineering, Inc. PEER, UC Berkeley Stanford Univ.	Gmatkinson@aol.com boore@usqs.gov KCampbeli@eqecat.com ebh@eas.tu.edu spezifie@meusphis.edu pacificengineering@uso.com linda.alatki@gmail.com bakerjw@stanford.edu	
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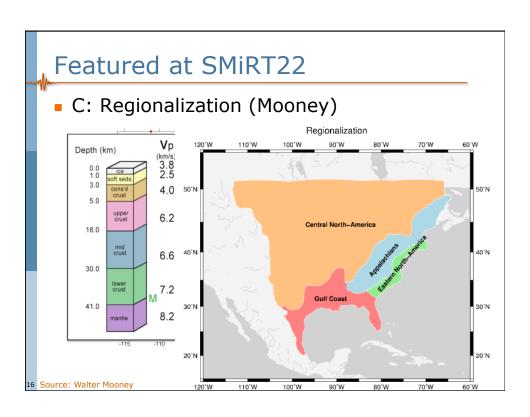






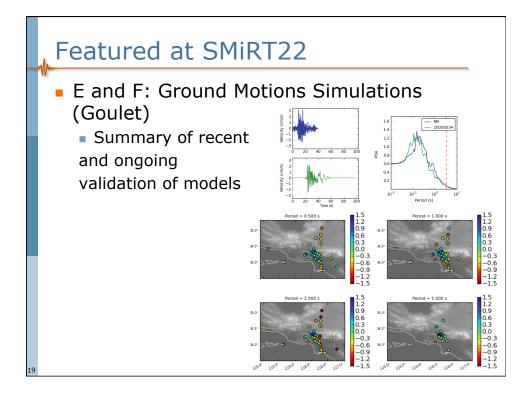






Featured at SMiRT22 C and D: Regionalization and Path/Source Studies (Chapman) Regression residuals using the Transportable Array (TA) records Source: Martin Chapman

Featured at SMiRT22 D: Path/Source Studies (Graves) Summary of various Path/Source models developed from recent CENA records Path/Source models developed from recent CENA records



Featured at SMiRT22

- H: Development of Median GMPEs (Abrahamson)
 - A novel approach to GMPE development
- Key critical technical issues...

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