

Workshop on 'Nonlinear' Shallow Crust Effects

SATURDAY, SEPTEMBER 9, 2017

09:00 - 09:05	Welcome, agenda, objectives	Domniki Asimaki
09:05 - 09:15	Overview of SCEC's modeling and simulation software family	Ricardo Taborda
09:15 - 09:30	Current leading efforts in SCEC's 3D regional simulations including plasticity and small scale heterogeneities	Kim Olsen
09:30 - 09:40	The long-run computational challenges for using 3D simulations in seismic hazard analysis	Scott Callaghan
09:40 - 09:55	Datasets and data analysis for geotechnical site (profiles) characterization	Sean Ahdi
09:55 - 10:10	SVM – A stochastic velocity model of the shallow crust based on geotechnical site characterization data	Jian Shi
10:10 - 10:20	Break	All
10:20 - 10:30	Short catch-up Q&A and discussion	All
10:30 - 10:45	Characterization of the Earth's shallow crust	Oliver Boyd
10:45 - 11:00	Physical properties of damaged rock zones as inferred from observations	Yehuda Ben-Zion
11:00 - 11:15	Soil mechanics, constitutive models used in 1D/2D/3D geotechnical modeling	Fabian Bonilla
11:15 - 11:30	Simple soil constitutive models for wave propagation problems and their potential integration in 3D simulations	Elnaz Seylabi
11:30 - 12:00	Discussion	All
12:00 - 13:00	Lunch	All
13:00 - 13:05	Re-cap and afternoon plan	Domniki Asimaki
13:05 - 13:15	Short catch-up Q&A and discussion	All
13:15 - 13:30	2D nonlinear and topography effects at local scales	Seokho Jeong
13:30 - 13:45	2D nonlinear and 3D topography effects at regional scales	Dorian Restrepo
13:45 - 14:00	Other efforts in regional EQ simulation outside	Anders Petersen
14:00 - 14:20	Implications for SCEC modeling tools	TBD
14:20 - 14:40	Implications for SCEC special projects	Christine Goulet
14:40 - 14:50	Break	All
14:50 - 15:50	Open Q&A and discussion about topics covered and other relevant, related issues	All
15:50 - 16:50	Open discussion about plans for a TAG and suggestions of language to be included in the RFP	All
16:50 - 17:00	Closing remarks	Domniki Asimaki

‘Nonlinear’ effects and shallow crust (previously known as GTL)**

- Shallow crustal velocity and inelastic attenuation
- Spatial variability and scattering effects
- Nonlinear rheology and parameter space for sediments
- Topography effects...

... and any other effects that alter the amplitude, frequency, duration and direction of wavefield when it reaches the shallow crust**

(e.g. topography and layering are coupled, even for elastic media)

**In SCEC5, the geotechnical layer (GTL) becomes shallow crust, i.e. soils, their subsurface geometry and topography are considered path

What do we want to achieve today:

- Overview of the state-of-the-art
- Develop a roadmap of research milestones to integrate nonlinear effects in SCEC5 3D physics-based simulations
- Reach consensus on Technical Activity Group (TAG) charged to coordinate and support our collaborative research.