

FRIEDMAN FAMILY VISITING PROFESSIONALS PROGRAM



Visit to University of Colorado-Boulder: April 12-14, 2018

This report summarizes the visit of **Dr. Jorge Meneses**, current President of the EERI San Diego Chapter and Principal Geotechnical Engineer at RMA Group, which took place at the University of Colorado-Boulder on April 13th, 2018.

ITINERARY

The itinerary for the visit is provided below:

TIME:	ACTIVITY:
11:30 AM – 12:00 PM	Student Chapter President (Sally Gerster) meets & welcomes Dr. Meneses to campus
12:00 PM – 1:30 PM	Lunch Seminar by Dr. Meneses: Earthquake Ground Motions for a Near-Source Complex Structure
1:45 PM – 2:30 PM	Meeting with faculty and lab tour
2:45 PM – 3:30 PM	Informal meeting with department graduate students
3:30 PM – 4:00 PM	Informal meeting with the Seismic Design Team
4:00 PM – 5:00 PM	Break
5:00 PM – 6:30 PM	Evening Seminar: Seismic Ground Motions for Evaluation of Liquefaction Triggering and Settlements
7:00PM – 8:30 PM	Dinner with student chapter at local restaurant

STUDENT CHAPTER VISIT PLANNING COMMITTEE

LEAD ORGANIZERS:

- Sally Gerster, Chapter President, sally.gerster@colorado.edu
- Elvin Vilorio, Chapter Vice President, elvin.viloria@colorado.edu

VISITING PROFESSIONAL LECTURE OVERVIEW

Dr. Jorge Meneses gave two seminars during his visit here. The first focused on Earthquake Ground Motions for a Near-Source Complex Structure, and the second on Seismic Ground Motions for Evaluation of Liquefaction Triggering Settlements. Each seminar had an attendance of 20-35 people with interesting questions and excitement about the topics. Pictured below is the lunch seminar (left), and evening seminar (right).



Lecture Abstract

Lunch Seminar: Earthquake Ground Motions for a Near-Source Complex Structure

Major structures increasingly require site-specific or project-specific seismic design criteria based on performance-based design. Levels of performance typically include performance associated with the Risk-targeted Maximum Considered Earthquake (MCE), Design Earthquake and Service level. Definition of these levels of earthquake hazard depend on the ground motion models used. Also for the MCE level, nonlinear seismic time-history analyses are required. The geotechnical engineer typically estimates the seismic demand for the different levels of performance and develop suitable suites of time histories for the seismic analyses of the proposed structures. This presentation will describe the levels of performance, discuss the latest NGA West 2 ground motion models including near-fault considerations (directionality and directivity), and criteria for selecting time histories per the latest guidelines from ASCE 7-16 and 2015 NEHRP for a complex roof structure at a near-source site in Los Angeles area, California.

Evening Seminar: Seismic Ground Motions for Evaluation of Liquefaction Triggering and Settlements

Simplified liquefaction evaluation procedures typically use the peak ground acceleration (PGA) and magnitude (M) as parameters representing the seismic ground motions at a site. The values of PGA and M at a site can vary depending upon the return period in a probabilistic approach or associated expected level of performance. Evaluation of liquefaction triggering and associated consequences (settlements and lateral spread) may significantly change depending upon the level of the ground motions selected. Dr. Meneses will present and discuss different existing approaches and guidelines dealing with the level of ground motions, liquefaction triggering evaluation, and seismic settlements. These guidelines include the recently approved ASCE 7-16 (basis for the 2019 California Building Code), the 2016 National Academies of Sciences, Engineering, and Medicine report, NAVFAC, Caltrans, POLA, California High Speed Train, CGS Note 48, and Los Angeles City. Also some insights to the changes that ASCE 7-22 may incorporate will briefly be discussed. Finally, some clarifying conclusions will be proposed.

Professional Bio

Current President of the EERI San Diego Chapter, Dr. Meneses has more than 30 years of experience in consultancy, research, and teaching in the field of geotechnical engineering with emphasis on geotechnical earthquake engineering, foundation engineering, numerical modeling, and advanced geotechnical testing.

SUPPLEMENTAL ACTIVITIES

Meeting with Professors and Faculty

Dr. Meneses met with Dr. Shideh Dashti (Associate Professor in Geotechnical Engineering) and Dr. Brad Wham (head of the CIEST lab) to discuss CU's research and current testing related to Dr. Meneses' fields of interest. CIEST is the Center for Infrastructure, Energy, and Space Testing and is located inside CU's Engineering Center. Below is a photo of the group looking at the Seismic Design Team's structure, ready to shake on our shake table. Left to Right: Shideh Dashti, Jorge Meneses, Brad Wham.



Meeting with the Seismic Design Team

Each member of the Seismic Design Team had the opportunity to introduce themselves to Dr. Meneses and ask him questions in an informal setting. Topics ranged from general career advice to Seismic Design Competition suggestions. Below is a photo of the team with Dr. Meneses. Left to right: Elvin Vilorio, Hamdan Alzarooni, Lauren Kercheval, Jorge Meneses, Julie Hardy, Aisling Pigott, Edgar Varela, Sally Gerster



Dinner with the Student Chapter

After a days-worth of seminars and meetings, we took Jorge and his wife out to dinner at a new local restaurant (Zolo Grill) for fun conversation and good eats. It was the perfect way to conclude such a wonderful visit.



RESULTS, FEEDBACK AND LESSONS LEARNED

Dr. Meneses was very easy to work with when planning the program and throughout his visit. Everything went very smoothly and we did not experience many big challenges during the process. One thing we would do differently next year is to make sure to book the seminar rooms earlier to avoid oddly located rooms. CU and especially the CEAE department (Civil, Architectural, and Environmental Engineering) received Dr. Meneses very well and many students and staff were excited for the visit and enjoyed it. We try to have a variety of topics covered between the Friedman Family Speakers over the years. We appreciate that EERI provides such a diverse group of professionals to choose from and hope this continues to be the case. One of our chapter's goals is to gain membership from other disciplines outside the CEAE department. In future visits we'd like to more effectively advertise to students in other departments and colleges outside of CEAE.

ACKNOWLEDGEMENTS

The University of Colorado-Boulder EERI Student Chapter gratefully acknowledges the support of the Friedman Family for sponsoring the travel of Dr. Jorge Meneses through their Friedman Family Visiting Professional Program endowment.

LIST OF ATTACHMENTS

Included below are our fliers for the program.



EARTHQUAKE GROUND MOTIONS FOR A NEAR-SOURCE COMPLEX STRUCTURE



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This presentation will describe the levels of performance, discuss the latest NGA West 2 ground motion models including near-fault considerations (directionality and directivity), and criteria for selecting time histories per the latest guidelines from ASCE 7-16 and 2015 NEHRP for a complex roof structure at a near-source site in Los Angeles area, California.



JORGE F. MENESES, *RMA GROUP, INC.*

2017-2018 EERI Friedman Family Speaker

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Friday, April 13th

12:00 PM – 1:30 PM

KOBL 300, Business School

(Half-Fast Subs Provided)

Dr. Meneses will also be speaking at 5:00 PM – 6:30 PM in the DLC Collaboratory



SEISMIC GROUND MOTIONS FOR EVALUATION OF LIQUEFACTION TRIGGERING AND SETTLEMENTS



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Friday, April 13th

5:00 PM – 6:30 PM

DLC Collab, Engineering Center

(Light Refreshments Provided)

Dr. Meneses will also be speaking at 12:00 PM – 1:30 PM in KOBL 300