FRIEDMAN FAMILY VISITING PROFESIONALS PROGRAM

Visit to University of California, Berkeley: March 31, 2025

This report summarizes the visit of **John Thornley** from WSP USA that took place at the University of California, Berkeley on March 31st, 2025.

ITINERARY OR AGENDA

TIME:	ACTIVITY:
9:00 AM – 10:00 AM	Student Chapter Organizers meet & welcome Visiting Professional to campus, tour around Geotechnical Engineering facilities
10:00 AM – 12:00 PM	Tour around facilities in Richmond Field Station
12:00 PM – 1:00 PM	Guest lecture by Visiting Professional
1:30 PM – 2:30 PM	Lunch with students and faculty
2:30 PM – 3:30 PM	Informal meeting with department graduate students on technical topics and career guidance

STUDENT CHAPTER VISIT PLANNING COMMITTEE

LEAD ORGANIZER(S):

- William Wang, President of student chapter, william_wang@berkeley.edu
- Jose Yeckle Damian, Seminar Director of student chapter, jose_yeckle@berkeley.edu
- Yuyin (Queena) Zheng, Treasurer of student chapter, yuyin_zheng@berkeley.edu
- Luis Ceferino, EERI Faculty Advisor, ceferino@berkeley.edu

External help from the EERI community:

- Silvana Cobos, Friedman Family Visiting Professional Program coordinator, silvana@eeri.org
- Ziqi Wang, SEMM Seminar co-organizer, ziqiwang@berkeley.edu
- Kurt Soncco, Graduate Student, kurtwal98@berkeley.edu
- Amarnath Kasalanati, PEER Associate Director, amarnath1@berkeley.edu
- Jiawei Chen, PEER Postdoctoral Scholar, jiawei_chen@berkeley.edu

VISITING PROFESSIONAL LECTURE OVERVIEW

Dr. Thornley's presentation was titled "Lessons from the 2018 M7.1 Anchorage, Alaska Earthquake, and Implications on Large Projects". Over 20 participants with backgrounds in structural and geotechnical engineering attended this lecture. The guest speaker drew from his work experience as an earthquake engineering professional in Alaska to expose attendees to the unique challenges present in the region for the practice of civil engineering. Examples included the evolution of design acceleration data and the use of innovative methods of soil strengthening such as soil mixing.

Lecture Abstract

The M7.1 Anchorage earthquake that shook on the morning of November 30, 2018, was the largest event to impact southcentral Alaska since the 1964 Great Alaska Earthquake. What have we learned from the event? An overview of the variation of shaking across Anchorage will set the stage for the damage observed. Numerous accounts of liquefaction, lateral spreading, settlement, and ground failure will be summarized. A review of structural and nonstructural damage will also be discussed. In conjunction with the findings from the Anchorage earthquake, and preparation for future earthquakes, critical infrastructure projects, including the Port of Alaska have utilized these observations to minimize damage from large earthquakes. Several projects will be discussed. Additionally, thoughts on the impacts of this earthquake, and future earthquakes, to engineering design and future planning will be presented.

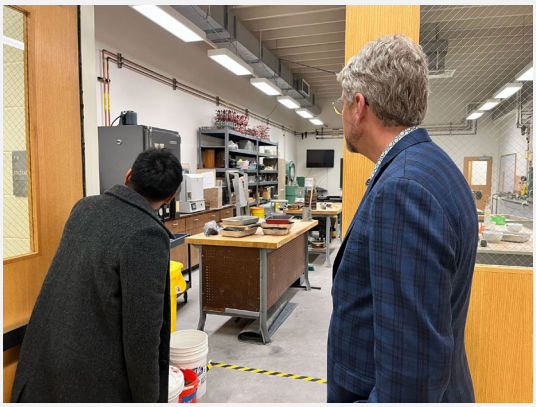
Professional Bio

John Thornley, PhD, PE, BC.GE is a Vice President and Technical Fellow at WSP in Anchorage, Alaska. He has 20 years of geotechnical and earthquake engineering experience. Recently John was a co-lead for the EERI Learning from Earthquakes Reconnaissance effort for the November 30, 2018, M7.1 Anchorage, Alaska Earthquake. John is currently the chair of the Municipality of Anchorage Geotechnical Advisory Commission and is active in several organizations including ASCE, EERI, and SSA. He has served as field manager of geotechnical studies and prepared recommendations for a variety of infrastructure projects including buildings, ports, roads and airports, large liquefied natural gas and water storage tanks, pipelines, wind and cellular towers, and utilities. As part of John's work, he has been involved in seismic hazard studies, seismic site response analyses, studies for large infrastructure buildouts, and cold regions and permafrost engineering. His design work includes ground improvement in liquefiable soils, deep and shallow foundations, slope stabilization, retaining structures, and embankments.

SUPPLEMENTAL ACTIVITES

Tour around Geotechnical Engineering facilities

The visit day started with a tour around the geotechnical engineering laboratories present on campus. This activity took place on the 4th floor of Davis Hall in the main UC Berkeley campus. Orientation was provided by a PhD student of the Geotechnical Engineering program, Kurt Soncco. He presented the speaker the different instruments available and provided background on the department's current research topics. As there was some unscheduled additional time remaining, the speaker was also able to briefly go around the Structures Laboratory on the 2nd floor of the building.



Tour around facilities in Richmond Field Station

The other activity scheduled before the guest lecture consisted of a tour around the different facilities located on the Richmond Field Station research campus. The visit and orientation were arranged in collaboration with Dr. Amarnath Kasalanati, PEER Associate Director, with the support of PEER member Dr. Jiawei Chen. The speaker was able to learn more about past and current structural and geotechnical engineering research projects in execution. This included a tour and orientation around the Six Degree-of-Freedom Shaking Table, the Big Press, the Smart Infrastructure Center, the Wave Pool, and other miscellaneous facilities.

Lunch with students and faculty members

After the guest lecture, the speaker had the opportunity to have lunch at the Women's Faculty Club. The lunch was attended by the current EERI Berkeley Faculty Advisor Dr. Luis Ceferino, Dr. Ziqi Wang, and members of the EERI Student Chapter board. Besides enjoying the meal, this activity proved to be an additional space to share professional and personal experiences with the attendees and provided the guest professional with a broader vision of the UC Berkeley campus. This activity was made possible with the help of the SEMM program by co-hosting the guest lecture.

Informal meeting with graduate students

The final scheduled activity was an informal meeting with graduate students from the SEMM and Geotechnical Engineering programs. The limited attendance proved beneficial in allowing the speaker to share his experiences and answer questions in a more personalized and intimate way. Topics covered included development as a geotechnical engineering professional, further delving on some of the topics of the guest lecture, opinions on earthquake-related geotechnical code provisions, etc. All attendees were able to learn something new and strengthen bonds after this experience.

RESULTS, FEEDBACK AND LESSONS LEARNED

We were glad to host Dr. Thornley, and we were satisfied with the engagement across all scheduled activities. The presentation succeeded in providing educational material that a) presented aspects of earthquake engineering outside of the state of California, and b) catered to both the structural and geotechnical engineering parts of the EERI Berkeley community.

In a similar way, the additional activities with the speaker succeeded in presenting aspects of earthquake engineering unique to our campus. The quality and scope of the RFS tour exceeded expectations, and similar experiences may prove attractive to future potential visitors.

Finally, while advertisement for the informal meeting could have been improved, the experience proved that different (beneficial) outcomes can be obtained from different levels of attendance. Overall, this activity complied with expectations based on previous years' reports.

ACKNOWLEDGEMENTS

The University of California, Berkeley EERI Student Chapter gratefully acknowledges the support of the Friedman Family for sponsoring the travel of Dr. John Thornley through their Friedman Family Visiting Professional Program endowment.
Additional thanks to Dr. Amarnath Kasalanati and the PEER staff at Richmond Field Station for arranging a tour around the research campus and facilities.

LIST OF ATTACHMENTS

Included at the end of this report are various attachments to supplement the information included above. A list of the attachments is included below:

- Item 1, Flier for the seminar presentation

SEMM-EERI Seminar

Lessons from the 2018 M7.1 Anchorage, Alaska Earthquake, and Implications on Large Projects

Dr. John Thornley, PhD, PE, BC.GE.

Vice President and Technical Fellow, WSP USA

Monday, March 31st, 2025, 12 – 1 pm, 502 Davis Hall

This lecture is part of the EERI Friedman Family Visiting Professionals Program

Abstract: The M7.1 Anchorage earthquake that shook on the morning of November 30, 2018, was the largest event to impact southcentral Alaska since the 1964 Great Alaska Earthquake. What have we learned from the event? An overview of the variation of shaking across Anchorage will set the stage for the damage observed. Numerous accounts of liquefaction, lateral spreading, settlement, and ground failure will be summarized. A review of structural and nonstructural damage will also be discussed. In conjunction with the findings from the Anchorage earthquake, and preparation for future earthquakes, critical infrastructure projects, including the Port of Alaska have utilized these observations to minimize damage from large earthquakes. Several projects will be discussed. Additionally, thoughts on the impacts of this earthquake, and future earthquakes, to engineering design and future planning will be presented.

Bio: John Thornley, PhD, PE, BC.GE is a Vice President and Technical Fellow at WSP in Anchorage, Alaska. He has 20 years of geotechnical and earthquake engineering experience. Recently John was a co-lead for the EERI Learning from Earthquakes Reconnaissance effort for the November 30, 2018, M7.1 Anchorage, Alaska Earthquake. John is currently the chair of the Municipality of Anchorage Geotechnical Advisory Commission and is active in several organizations including ASCE, EERI, and SSA. He has served as field manager of geotechnical studies and prepared recommendations for a variety of infrastructure projects including buildings, ports, roads and airports, large liquefied natural gas and water storage tanks, pipelines, wind and cellular towers, and utilities. As part of John's work, he has been involved in seismic hazard studies, seismic site response analyses, studies for large infrastructure buildouts, and cold regions and permafrost engineering. His design work includes ground improvement in liquefiable soils, deep and shallow foundations, slope stabilization, retaining structures, and embankments.