

FRIEDMAN FAMILY VISITING PROFESIONALS PROGRAM



RICE



Visit to Rice University: February 13, 2024

This report summarizes the visit of **John Thornley** from WSP that took place at Rice University on February 13, 2024,

ITINERARY OR AGENDA

Provide the itinerary of the visit. For example :

TIME:	ACTIVITY:
10:00 AM – 10:30 AM	Student Chapter President Raul Rincon meets & welcomes Visiting Professional to campus and Tour of campus
10:30 AM – 11:00 AM	Informal meeting with department graduate students (soon to be graduating) for career guidance and members of the Student Chapter
11:00 AM – 11:30 AM	Meeting with Prof. Larissa Novelino
11:30 AM – 12:00 PM	Break
12:00 AM – 1:30 PM	Lunch with Prof. Jamie Padgett and CEE Graduate Students
1:30 PM – 2:00 PM	Meeting with Prof. Leonardo Duenas-Osorio
2:00 PM – 2:30 PM	Meeting with Department's chair Prof. Jamie Padgett
2:30 PM – 3:00 PM	Seminar preparation
3:00 PM – 4:00 PM	Lecture: Earthquake Observations & Ground Improvement Projects
7:00 PM – 9:00 PM	Dinner with EERI student chapter at local restaurant

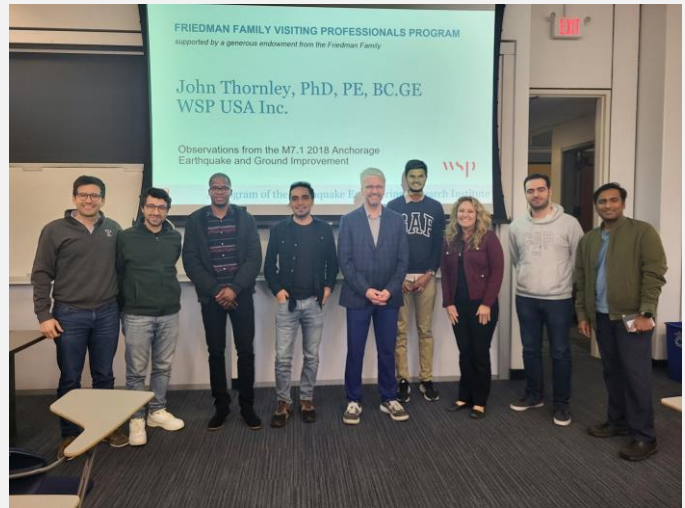
STUDENT CHAPTER VISIT PLANNING COMMITTEE

LEAD ORGANIZER(S):

- Raul Rincon, President, jr93@rice.edu
- Andres Calvo, Vice-president, ac228@rice.edu
- Jamie Padgett, Stanley C. Moore Professor and Department Chair, jp7@rice.edu
- Caroline Leggett, Department Coordinator, cl185@rice.edu

VISITING PROFESSIONAL LECTURE OVERVIEW

Dr. Thornley's visit was very beneficial to the student chapter, graduate students and those interested in seismic and geotechnical engineering. The presentation was generous in content and promoted different applications earthquake engineering such as post-disaster analysis after an earthquake event in the city of Anchorage, soil improvement techniques for risk reduction and seismic hazard analysis in Alaska. The presentation was dynamic, with plenty of graphic content and field-related information as well as useful by showing real case studies. During the presentation there were several questions, where the topic of soil improvement generated a lot of curiosity from the audience. The need for keeping researching about the seismic hazard and spectrums in the US was stated. The room was attended by several graduate students, undergraduates, faculty members and external visitors. The Rice community had a fruitful and interesting afternoon for the chapter and earthquake engineering in the Department of Civil and Environmental Engineering.



Additional information such as the specialty seminar flier and Dr. Thornley's campus visit agenda are attached at the end of this report.

Lecture Abstract

Earthquake Observations & Ground Improvement Projects. 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. In conjunction with the findings from the Anchorage earthquake, and preparation for future earthquakes, ground improvement techniques have been utilized to minimize damage from large earthquakes. Several ground improvement projects will be discussed. Additionally, thoughts on the impacts of this earthquake, future earthquakes, to engineering design and future planning will be presented.

Professional Bio

John Thornley, PhD, PE, D.GE is a Vice President and Senior Geotechnical Engineer at WSP in Anchorage, Alaska. He has nearly 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, 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 ACTIVITIES

Graduate student's meeting

The meeting with graduate students from the civil and environmental department was an opportunity for students to solve doubts regarding academic life and professional career after graduation. It was also an opportunity to know how the graduate life was experienced and received some key advises from the Visitor. Seismic micro-zonation was an important topic where the different backgrounds of the students help to have a very interesting discussion around the pertinence, necessity and impact of having seismic micro-zonation in major urban centers.

Lunch

During lunch other graduate students (PhD and Master's program) got the chance to discuss topics of their interest. For instance, there was a student whose country was heavily impacted by earthquakes and Dr. Thornley was heavily involved in the post-disaster stage. Other students were interested in discussing the mechanical behavior of the permafrost and its unique characteristics within the infrastructure context. Having the presence of faculty members was also appropriate to have deeper discussions of US awareness of seismic hazard, for example, in the north-east region of the country.

Dinner

The dinner included present and past members of the student chapter where conversations were focused around academic life. Dr. Thornley discussed different life lessons and was an ambassador for the life in Alaska.

RESULTS, FEEDBACK AND LESSONS LEARNED

The overall visiting was satisfactory. The EERI Student Chapter at Rice university, while not large, is committed to the dissemination of seismic engineering and the seismic community, with EERI being the foundation of this work. We still want to have more student participation and therefore, these visits represent a unique opportunity to make the student chapter visible. Some challenges for us are:

- Consolidate student participation
- Carry out EERI activities and challenges with different students (undergraduate and graduate)
- Disseminate EERI news with greater impact.

ACKNOWLEDGEMENTS

The Rice University EERI Student Chapter gratefully acknowledges the support of the Friedman Family for sponsoring the travel of John Thornley through their Friedman Family Visiting Professional Program endowment.

LIST OF ATTACHMENTS

- Item 1: EERI Student Chapter Flier that circulates in the undergraduate, graduate and faculty of Civil and Environmental engineering
- Item 2: CEVE department Flier that circulates with all Civil and Environmental community
- Item 3: Detail agenda used to guide Dr. John Thornley



Made possible by the EERI Friedman Family Visiting Professionals Program and hosted by the EERI Student Chapter at Rice University



Visiting Professionals

Earthquake Observations & Ground Improvement Projects

John Thornley, PhD, PE, BC, GE
Assistant Vice President
Technical Principal
Geotechnical, Permafrost, and
Earthquake Engineering
WSP

**February 13th, 2024
3PM – Ryon Lab 201**

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. In conjunction with the findings from the Anchorage earthquake, and preparation for future earthquakes, ground improvement techniques have been utilized to minimize damage from large earthquakes. Several ground improvement projects will be discussed. Additionally, thoughts on the impacts of this earthquake, and future earthquakes, to engineering design and future planning will be presented.



John Thornley, PhD, PE, D, GE is a Vice President and Senior Geotechnical Engineer at WSP in Anchorage, Alaska. He has nearly 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, 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.



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CEE & EERI Specialty Seminar

Earthquake Observations & Ground Improvement Projects



John Thornley, PhD, PE, BC, GE
Assistant Vice President
Technical Principal
Geotechnical, Permafrost, and
Earthquake Engineering
WSP

**February 13th, 2024
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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. In conjunction with the findings from the Anchorage earthquake, and preparation for future earthquakes, ground improvement techniques have been utilized to minimize damage from large earthquakes. Several ground improvement 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, D, GE is a Vice President and Senior Geotechnical Engineer at WSP in Anchorage, Alaska. He has nearly 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, 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.



Department of Civil & Environmental Engineering

SEMINAR

Earthquake Observations & Ground Improvement Projects

John Thornley, PhD, PE, BC.GE

Tuesday, February 13th, 2024 3PM Ryon Laboratory 201



DIRECTIONS TO CAMPUS

Directions from IAH

From Intercontinental's terminal road, follow signs to US 59 South.

Once on US 59 proceed south approximately 25 miles and exit at Greenbriar.

Turn left under US 59 and follow Greenbriar to the light at Rice Boulevard.

Turn left onto Rice Boulevard. Rice campus entry gates will be on your right.

Turn right into Gate #20 and park in the visitor's parking section of the North Lot.

Use your credit card to enter the lot.

Directions from Hobby

From Hobby's parking area, exit onto Broadway and follow signs to I-45 North.

Take I-45 North approximately 6 miles to US 59 South.

Once on US 59 proceed south approximately 3 miles and exit at Greenbriar. Follow steps 4 and 5 above

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LOGISTICS

Table with 2 columns: Time and Activity. Rows include: 10:00 AM Campus tour - EERI officer; 10:30 AM Meeting with grad students; 11:00 AM Meeting with Larissa Novelino; 11:30 AM Break; 12:00 PM Lunch with Jamie Padgett and students; 1:30PM Meeting with Leonardo Duenas-Osorio; 2:00PM Meeting with Jamie Padgett; 2:30PM Break/Seminar Prep; 3:00PM Seminar; 4:00PM Return to Hotel; 7:00PM Dinner with EERI officers.

PARKING & GENERAL CEE VISIT INFORMATION

LOGISTICS: Park in North Visitor's Lot: Entrance #20 off Rice Blvd OR

Taxi drop/pickup: Access: Entrance #21 from Rice Blvd. At the first stop sign inside the campus take a left. On your right, after the first building take the access road that runs along the west side of Ryon Lab which dead ends into Keck Hall. Both entrances to Ryon and Keck are on your right. Download the campus map here.

Flash drive: You are welcome to present from a flash drive or laptop.

Primary Audience: Graduate and post-doctoral students and faculty in Civil & Environmental engineering - please tailor presentation to appeal to interests in both focus areas with 40-45 lecture/15 minutes Q/A).

CONTACT/Cells: Raul Rincon: Cell #

SEMINAR SUPPORT: Caroline Leggett: Cell # Office #