

FRIEDMAN FAMILY VISITING PROFESIONALS PROGRAM



Visit to University of Victoria: March 16th, 2023

This report summarizes the visit of **Ivan Wong** from Lettis Consultants International that took place at the University of Victoria (UVIC) on March 16th, 2023.

ITINERARY

TIME:	ACTIVITY:
10:00 AM	Student Chapter Co-Presidents meet & welcome Visiting Professional to campus
10:00 AM – 10:45 AM	Campus tour and informal discussion with Student Chapter Co-Presidents
10:45 AM – 11:15 AM	Tour of the Seismic Design Team Lab space
11:30 AM – 1:00 PM	Guest lecture by Visiting Professional, supplemented by informal Q&A and discussions with faculty/graduate students
1:30 PM – 3:00 PM	Lunch with Visiting Professional, Student Chapter members, faculty, and graduate students

STUDENT CHAPTER VISIT PLANNING COMMITTEE

LEAD ORGANIZERS:

- Halla Kim, Co-President, hallasax@gmail.com
- Ayden Jager, Co-President, aej999@gmail.com
- Tuna Onur, Adjunct Professor, tuna@onurseemann.com
- Lina Zhou, Assistant Professor, Team Faculty Advisor, linazhou@uvic.ca

VISITING PROFESSIONAL LECTURE OVERVIEW

Ivan Wong's presentation engaged undergraduate and graduate students, and faculty in the developing science of seismology. The beginning of the presentation gave an overview of EERI, its mission statement, and the importance of joining the club, especially in areas of high seismicity. Mr. Wong then gave an overview of the current knowledge surrounding sources of earthquakes and how it has advanced in recent years. Further, Mr. Wong discussed the impact on ground motion predictability due to the increased availability in strong motion data and modeling.

The entire CIVE 452 Class: Engineering for Earthquakes and Extreme Events attended this lecture, in addition to chapter members, and graduate students. Many graduate students from UVIC's Earth and Ocean Sciences department attended the lecture to learn more about recent discoveries in earthquake sources, particularly in the Cascadia Subduction Zone and the rest of the Pacific Northwest.

Lecture Abstract

The earthquake sciences are relatively young in the U.S. and Canada spanning less than 140 years. For example, the relationship between faults and large earthquakes was not established until 1883 when the renowned geologist G.K Gilbert observed the large fault scarps of prehistoric earthquakes along the Wasatch

fault zone in central Utah. Seismology which can trace its lineage back centuries outside the U.S. did not really gain traction as a practicing science in the U.S. until after the 1906 Great San Francisco earthquake. Hence it should not be surprising that our knowledge of the what, where and how of earthquakes in the Pacific Northwest is rapidly evolving even to this day. In particular, the earthquake potential of the Cascadia Subduction Zone and crustal faults have changed dramatically in the past few decades. It seems like a significant Quaternary fault with the potential to generate earthquakes of moment magnitude (M) 7 is being recognized every few years. In addition, our ability to predict ground motions has also improved significantly due to the availability of more strong motion data and advances in numerical ground motion modeling. In this presentation, we will review the current state of knowledge regarding the sources of earthquakes, the ability to estimate ground shaking, and the implications of this new knowledge on seismic hazard and design in the Pacific Northwest.

Professional Bio

Ivan is a nationally and internationally recognized expert in seismic hazard and seismic risk evaluations, with more than 40 years of experience in the fields of seismology and seismic geology with an emphasis on studies in seismicity, seismotectonics, and earthquake ground motions. His professional experience includes work on more than 200 dams in the U.S., Canada, Thailand, Eritrea, and Egypt; bridges, tunnels and pipelines; mining facilities and tailings dams in the western U.S., Peru, Colombia, Ecuador, and Chile; nuclear power plants and waste repositories; cogeneration plants; and LNG facilities and offshore petroleum platforms. Ivan's recent work includes studies of earthquakes in the central United States and Canada triggered by deep wastewater injection and hydraulic fracturing.

He has worked extensively for FEMA particularly in the implementation of the loss estimation software HAZUS. Ivan has served on numerous professional committees and panels, particularly for the U.S. Geological Survey, and is actively involved in the Earthquake Engineering Research Institute and the Seismological Society of America. He has authored or co-authored more than 300 publications including more than 130 papers (26 in peer-reviewed journals), and more than 190 abstracts published in professional journals and conference proceedings.

SUPPLEMENTAL ACTIVITIES

UVIC Campus Tour

Mr. Wong was taken on a tour of UVIC's campus, which included the University Centre, McPherson Library, and the UVIC quadrangle. The tour ended at the Engineering and Computer Science Building where we then made our way over to the Student Chapter's lab space for a brief tour of the Seismic Design Team's workspace.

Lunch with Student Leadership Members, Faculty, and Graduate Students

A group of approximately 10 Student Chapter members, faculty, and graduate student met with Ivan Wong for lunch following his guest lecture at a local restaurant – Smuggler's Cove. The goal was for Student Chapter members to have informal conversations with Mr. Wong about professional development and his experience as a seismologist for 40 years. The lunch also provided an opportunity for faculty and graduate students studying seismology or geophysics to learn more about Mr. Wong's lecture topic or his other areas of study and experience. We also discussed career aspirations and received professional advice.

RESULTS, FEEDBACK AND LESSONS LEARNED

The process for organizing and conducting Ivan Wong's visit went well. UVIC's Student Chapter was grateful to have a renowned expert come visit and share his knowledge in seismology. Overall, the program was a success for our Student Chapter, and we are excited for more Visiting Professionals in future years.

In future visits, our Student Chapter would like to have professionals in the following topics:

- Finite element modeling
- Bridging the gap between seismology and earthquake/structural engineering
- Mass timber structures

ACKNOWLEDGEMENTS

The University of Victoria EERI Student Chapter gratefully acknowledges the support of the Friedman Family for sponsoring the travel of Ivan Wong through their Friedman Family Visiting Professional Program endowment.

We would like to thank Ivan Wong for an insightful and engaging presentation, and for his time, offering advice and answering questions. His expertise and knowledge in seismology made this visit a memorable experience.