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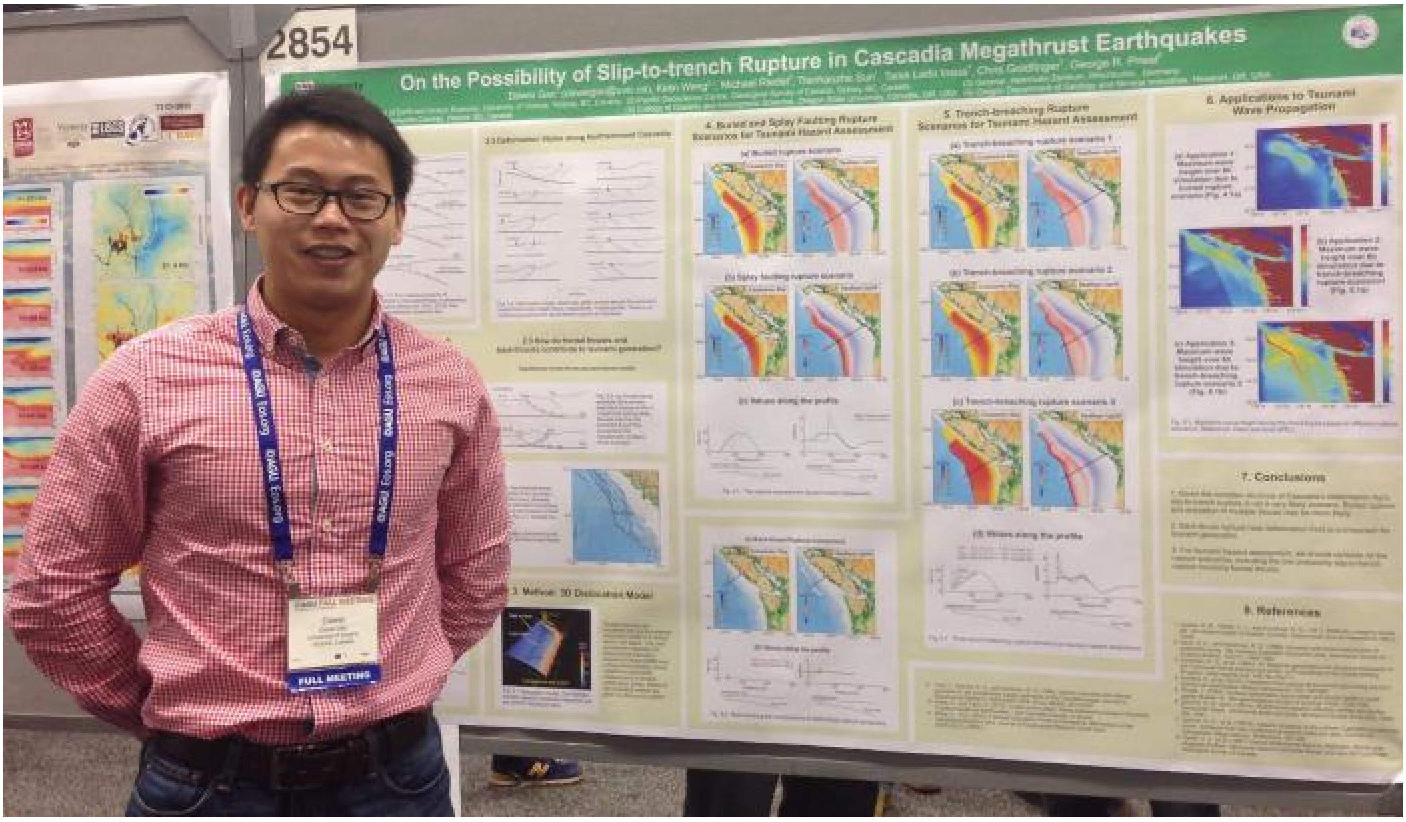
Award-winning study compares the Cascadia subduction zone to offshore Japan

Submitted by Virginia Keast Sun, 2016-02-28 10:34

?In January 2016, University of Victoria Master?s student, Dawei Gao, won an Outstanding Student Poster Award at the 2015 American Geophysical Union Fall meeting. His co-authored paper on earthquake dynamics explores the question: What would happen if the Cascadia subduction fault (off the west coast of Canada) ruptured, or broke, in the same way as the 2011 Tohoku earthquake?



Dawei Gao stands ready to answer questions beside his award-winning student poster at the

2015 Fall Meeting of the American Geophysical Union.

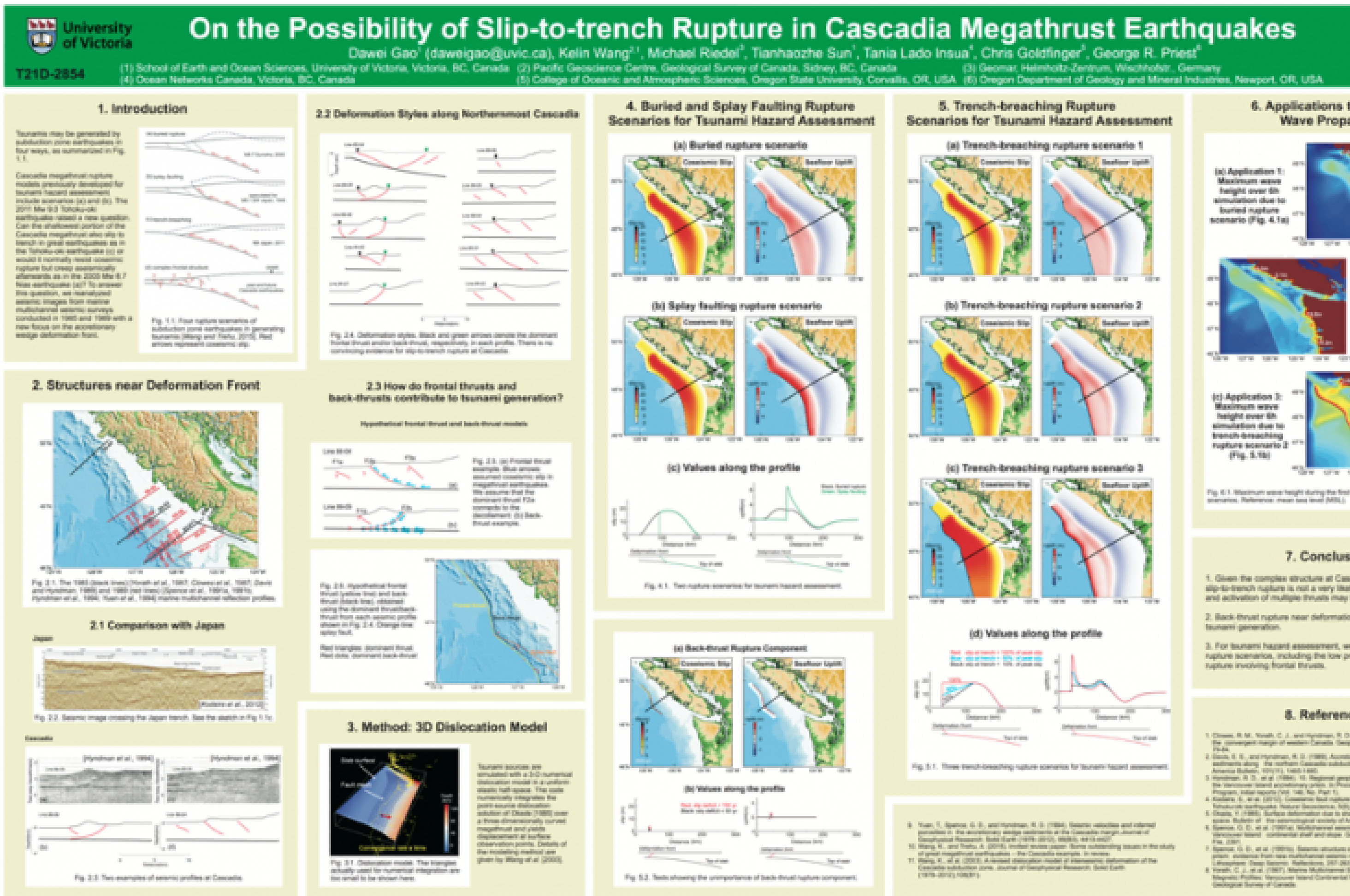
Dawei developed profiles of the Cascadia subduction zone and compared them with those offshore Japan. His award-winning paper demonstrates various rupture scenarios along the Cascadia fault, and uses this knowledge to demonstrate tsunami wave propagation.

Given the complex structure at the leading edge or trench of Cascadia?s fault line, Dawei shows that the slip-to-trench rupture that occurred in Japan is not very likely to happen on North America?s west coast. ?But for tsunami hazard assessment, we should still consider all of the scenarios, including the slip-to-trench rupture,? says Dawei.

?The incoming tectonic plate at Cascadia is blanketed by approximately three kilometres of sediment near the deformation front. This is in sharp contrast to the sediment-starved Japan trench where one continuous fault extends all the way to the trench, a configuration that facilitates slip-to-trench rupture.?

Dawei?s work is a vital piece in the development of a comprehensive earthquake and tsunami early warning and response system for the west coast. With funding fromEmergency Management BC (March 2015), Ocean Network Canada?s tsunami project is using 75 of Dawei?s simulated tsunami models to help produce earthquake-generated tsunami inundation maps, showing the amount of flooding expected at different areas along the coast.

That information will help people living along the coast respond quickly to future megathrust earthquakes and the tsunamis that follow.



Dawei Gao, Kelin Wang, Michael Riedel, Tianhaozhe Sun, Tania Lado Insua, Chris Goldfinger, and George R. Priest (2015), On the possibility of slip-to-trench rupture in Cascadia megathrust earthquakes, presented at 2015 AGU Fall meeting, San Francisco, California.

Congratulations Dawei! We?ll be following your progress and look forward to working with you in the future.

For more information about research in plate tectonics and earthquake dynamics at Ocean Networks Canada, please contact: Martin Heeseman, staff scientist.

Tags:

- Dawei Gao
- AGU 2015
- cascadia
- earthquake early warning

Categories:

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