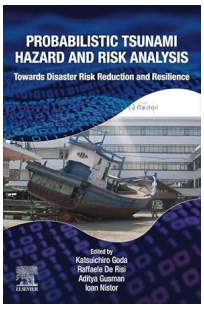
FACULTY RESEARCH AND RECOGNITION UPDATES FOR 2025

Dr. Patricia Corcoran is working with the Chippewas of the Thames First Nation, Upper Thames River Conservation Authority, and City of London to investigate the sources, pathways, and sinks of microplastics in the Thames River watershed. She was invited to Brimingham, UK, to give a talk at a conference of the Royal Society.

Dr. Roberta Flemming is studying mineralogy in situ in her laboratory at Western, for terrestrial and planetary applications, and she has recently led an interdisciplinary team to develop a miniaturized in situ X-ray diffractometer (ISXRD) for deployment in the field.



Dr. Katsu Goda worked with many top-tsunami scientists and engineers to publish the first comprehensive textbook on probabilistic tsunami hazard and risk analysis. He is applying these scientific methods to improve earthquake and tsunami preparedness for the communities in the District of Tofino, BC.

Dr. Bruce Hart and his group have been characterizing the subsurface of Ontario for carbon capture and storage and natural gas storage with presentations to the Canadian Energy Geoscience Association (Calgary) in February and May.

Dr. Jisuo Jin continues to work with graduate students and international colleagues on brachiopod biodiversity changes and their application to understanding the drastic climate change between greenhouse and icehouse episodes across the Ordovician-Silurian boundary interval.

Dr. Fred Longstaffe is investigating earth system interactions using light stable isotopes, with topics ranging from Quaternary megafauna extinctions to phyllosilicate signals about the long-term hydrology of potential underground geologic repositories for spent nuclear fuel.

Dr. Phil McCausland and his research team use paleomagnetism, mineralogy, physical properties and allied techniques to investigate supercontinent assembly and dispersal, the Precambrian-Paleozoic transition, the evolution of Earth's geomagnetic field, terrane tectonics and orogeny, petrophysical properties applied to mineral exploration, and shock metamorphism in meteorites.

Dr. Sheri Molnar continues to lead the near-decade, multi-million-dollar Metro Vancouver seismic hazard mapping project. Sheri's team published 29 regional seismic hazard maps of western Metro Vancouver (https://mvsmmp-westernu.hub.arcgis.com/). Her team's research has been showcased by CBC Vancouver and Canadian Geographic.

Dr. Catherine Neish continues to work on NASA's Dragonfly mission (half-scale model pictured here), which passed its preliminary design review in March 2023, and is on track for launch in 2028.

Dr. Gordon Osinski was elected as a Fellow of the Royal Society of Canada in November! Here, he shares his work and role in training astronauts and educating them on the geology of nearby celestial bodies. https://www.theimpactproject.ca/stories/gordon-osinski

Dr. Rick Secco continues to research the effects of high pressures (P) and high/low temperatures (T) on solids and liquids. He applies the results to core dynamics and evolution inside Earth and other terrestrial planetary bodies. Photo shows MSc candidate Ben Kalman running a high P-T experiment for studies on terrestrial planetary cores.

Dr. Alina Shchepetkina investigates carbon sequestration in Kazakhstan and SW Ontario, climate change, and ichnology of Portuguese estuaries. She recently published a new methodology for estimating carbonate content in deep-ocean sediments.

Dr. Sean Shieh studies Mineral physics, the study of materials under extreme P-T conditions, and the structures and dynamics of Earth's and other planetary interiors. He recently published a paper in *Physical Review B* concerning the high-pressure study of spin state of Mn_2O_3. https://doi.org/10.1103/PhysRevB.111.035122

Dr. Cam Tsujita continues to research invertebrate taphonomy and paleoecology, and he promotes the geosciences via teaching high-enrolment undergraduate courses and public outreach. He is also the department's Undergraduate Chair.