

## Managing induced-seismicity risk for gigaton-scale geological carbon storage

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Talk Description: Along with 72 other nations, Canada has committed to net-zero greenhouse gas (GHG) emissions by 2050. During the next few decades, development of large-scale geological carbon storage (GCS), a process for safely storing captured CO<sub>2</sub> within porous and permeable rocks at depths generally exceeding 800m, will be an economic necessity to limit anthropogenic global warming to well below 2C above pre-industrial levels. Currently installed systems in Canada account for about 7 Mtpa (million tonnes per annum) of CO<sub>2</sub> storage, or ~17% of global installed capacity. Nevertheless, massive upscaling – up to gigaton storage capacity within the next decade – will be necessary to realize Canada’s GHG emissions reduction goals. Managing risks of induced (anthropogenic) seismicity at this scale, including the potential for aseismic slip on faults, is an area of active research. This presentation will focus on lessons learned from unconventional oil and gas development that could inform GCS monitoring and risk-management strategies.



### Biography:

Professor David Eaton is a seismologist who has received international recognition for his research on induced (human-caused) earthquakes and the lithosphere-asthenosphere boundary (base of tectonic plates) beneath continents. He is active in the CSEG Foundation, and has served as President of the Canadian Geophysical Union and the Eastern Section of the Seismological Society of America. Together with graduate students and postdoctoral fellows, his research focuses primarily on advancement of fundamental science, education and technological innovations in microseismic methods and their practical applications for resource development. In 2007, he rejoined the University of Calgary as Head of the Department of Geoscience, after an 11-year academic career at the University of Western Ontario. In 2018, he published a textbook on Passive Seismic Monitoring of Induced Seismicity. His work has been recognized by the 2020 J. Tuzo Wilson medal from the Canadian Geophysical Union, a 2020 NSERC Synergy Award for Innovation and a 2021 Killam Annual Professorship.