Department of Geology Seminar Series Presents

Geological Association of Canada
2018-2019 Howard Street Robinson Medalist

Dr. Derek Thorkelson

Department of Earth Sciences
Simon Fraser University

The Precambrian Secrets of Yukon

THURSDAY, NOVEMBER 8 · 1:00pm
Science 411

Everyone is welcome to attend!

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FACULTY OF SCIENCE

Howard Street Robinson Medal

The Howard Street Robinson Medal recognizes a respected and well-spoken geoscientist that will further the scientific study of Precambrian Geology and or Metal Mining through a presentation of a distinguished lecture across Canada.

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Howard Street Robinson Medalist 2018-19
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Derek Thorkelson
Department of Earth Sciences
Simon Fraser University
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The Precambrian Secrets of Yukon

Most geologists in Canada regard the Canadian Cordillera as a Phanerozoic orogen consisting of fold belts and accreted terranes rich in precious and base metal deposits, and flanked by the modern Cascadia subduction zone. To the surprise of many, the orogen also preserves a rich Precambrian history that spans over a quarter of Earth history. The most extensive Precambrian exposures are preserved in structural culminations in Yukon Territory. These inliers extend from Alaska to the Northwest Territories and host sedimentary, igneous, metamorphic and hydrothermal rocks of Paleoproterozoic to Neoproterozoic age. The inliers lie within the Wernecke and Ogilvie Mountains, and the only road to cross them is the Dempster Highway as it passes north from Dawson City to Inuvik.

Few academic researchers have worked in these vast and mysterious mountains, and it has taken decades to unlock their geological secrets. My contributions began in 1992 as the leader of a two-person, four-year mapping program for the Yukon Government. With the help of several colleagues – mainly geochronologists – we began to address outstanding geological issues and chart a research plan that would ultimately span 26 years. After moving to Simon Fraser University in 1995, the research benefitted from the hard work and insight of graduate and undergraduate students. Although each step was important, our most revealing strides have come in the past few years. We have developed a new, deeper understanding of how northwestern Canada evolved during the Proterozoic and participated in the construction and break-up of the supercontinents Nuna and Rodinia. This talk will provide a backdrop of information followed by recent research highlights including our new model of Proterozoic terrane accretion, and a glance toward future research.

Thorkelson, Biographical Sketch

Derek Thorkelson applies field methods, petrology, geochronology and tectonic modeling in the study of regional geological problems. He obtained his PhD from Carleton University in Ottawa, Canada, in 1992. His dissertation focused on Mesozoic volcanic successions and accreted terranes in the Canadian Cordillera. During his thesis work, Dr. Thorkelson also became interested in ridge-trench intersections and wrote the first in a series of papers on slab windows. After a brief postdoctoral fellowship at the University of British Columbia, Dr. Thorkelson accepted a position in 1992 as a founding member of the Canada/Yukon Geoscience Office, which later became the Yukon Geological Survey. There, he led a four-year mapping program on Proterozoic assemblages and iron-oxide copper gold occurrences in northern Yukon. In 1995, he accepted a faculty position at Simon Fraser University in Vancouver where he continued his research into both slab windows and Proterozoic geology. Dr. Thorkelson teaches courses in field methods, petrology and tectonics, and served as department chair for five years. He is currently working cooperatively with the Arizona Geological Survey in the Proterozoic Yavapai-Mazatzal orogen.