# OCGC SEMINAR

## Recent discoveries of Neoproterozoic deep-marine phosphate-rich deposits and microfossils in the Southern Canadian Cordillera


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**Thursday, February 14th, 2019, 11:30 AM**
**University of Ottawa**
**Advanced Research Complex**
**Room 233**

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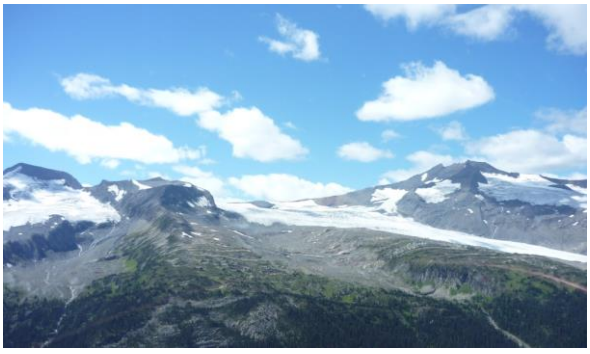
**Université d'Ottawa**
**Advanced Research Complex**
**Pièce 233**


## Abstract

Significant phosphatic-rich deposits, or phosphorites, were formed worldwide during the mid-Neoproterozoic to early mid-Cambrian, and most notably during the Ediacaran (late Neoproterozoic). Documented here is the occurrence of few cm-thick, phosphate-rich beds (P content ranging up to 15%) that are intercalated with siliciclastic, deep-marine, thin-bedded turbidites of the late Neoproterozoic Windermere Supergroup in the southern Canadian Cordillera. Microtextural and compositional analyses of these beds suggests that they formed from detrital phosphate grains that were resedimented downslope from the continental shelf onto slope and more distal deep basin floor and later recrystallized extensively during early marine phosphogenesis. The discrete, but more importantly recurrent occurrence of these phosphate-rich beds, could help constrain the chemical and paleoceanographic conditions in the global oceans during the Neoproterozoic, and more specifically the input of phosphate from intensified continental weathering and/or oceanographic upwelling events.

More remarkably is the first reported example of an exceptionally well preserved, large phosphatic microfossil that exhibits a spheroidal morphology and complex spiculose ornamentation. This is the first ornamented microfossil recognized in North America, which potentially correlates with previously recognized Ediacaran acanthomorph microfossils in South China, Australia, India, and Russia, although a number of important structural and dimensional differences are noted. This unique microfossil may provide insight into the early evolution of complex life immediately preceding the dramatic biological radiation marked by the Cambrian explosion.


***Dr. Lilian Navarro*** *is currently a Postdoctoral Research Associate in the Department of Earth Sciences at the University of Ottawa (uOttawa). She completed a B.Sc. in Geological Engineering at the Universidad Central de Venezuela, and a M.Sc. and Ph.D. at the Department of Earth Sciences at the uOttawa. Her research interests include sedimentological characterization, stratigraphic architecture and evolution of deep-water stratal elements formed along the continental slope, channel-lobe transition zone, and proximal basin-floor settings, as well as late Neoproterozoic sedimentology and stratigraphy. She has conducted extensive geological fieldwork in the world-class exposures of deep-marine siliciclastic- and mixed (siliciclastic-carbonate)- dominated systems of the Windermere Supergroup in the Cariboo Mountains, South-eastern Canadian Cordillera.*



Panoramic Photo of the Castle Creek area, Cariboo Mountains, SE Canadian Cordillera (B.C.)

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