

Free Public Lecture

GEOLOGY DEPARTMENT **Seminar Series 2016-2017**



Guest speaker:

DR. PHILIP FRALICK

Professor, Department of Geology

“Exploring Earth and Mars in Deep-Time: Atmosphere-Hydrosphere-Biosphere Evolution 3.0 to 1.5 Ga”

Recent publications investigating water on Mars point to the existence of a large ocean in its northern hemisphere, or at least a series of lakes, at approximately 3.8 Ga. Due to Mars' small size its gravitational field could not hold atmospheric gases and it leaked water vapour into space. The ocean grew smaller and smaller, with increasing salinity and decreasing pH. It is in deposits formed in these fresh to saline water bodies that the rovers are searching for evidence of ancient microbial life. However, knowing what to look for as evidence of ancient life is difficult to ascertain. This talk will look at the Earth from 3,000 Ma to 1,500 Ma and explore our work on the development of photosynthesis and how it changed the chemistry of the surface of the planet. The use of proxies to discover if free oxygen was present in the ocean or atmosphere at various times in the Earth's deep past will be discussed. Some of these proxies are or will be used in the search for life on Mars.

Monday, October 3, 2016

10:00 am in CB 3031



Lakehead
UNIVERSITY

Department of
Geology