More than 150 subglacial lakes have been identified beneath the Antarctic ice sheet and the number continues to increase. Buried beneath several miles of ice these lakes range in size from Lake Ontario to lakes the size of Manhattan. Lake Vostok, the largest known subglacial lake on Earth, is believed to harbor microbial lifeforms that have been isolated from open exchange with the atmosphere for several million years. The discovery of subglacial lakes in Antarctica and their potential for harboring life has prompted many theories as to the physical and chemical conditions necessary to support life in such extreme environments. Melting and freezing at the base of the ice sheet, which slowly flows across the lakes, controls the flux of water, biota and sediment particles through the lakes. Geothermal heat flux and heat transport into the lakes from the crust due to fluid convection concentrated along faults, provide the only thermal energy. Thus, the geological origin of subglacial lakes is a critical boundary condition for subglacial ecosystems. Analysis of aerogeophysical data shows that several lakes are located along major geological boundaries and are tectonically controlled subglacial lakes. The tectonic processes provided the space for unique habitats.

Friday, September 28th 2007, McCook Auditorium, 3:00 pm, Refreshments 2:45 pm