

Department of Geology Seminar Series

New discoveries in hydrothermal exploration of mid-ocean ridges

Location:
Science 411

Thursday,
April 7
1:00 pm

Dr. Unyime U. Umoh
Department of Geology
Saint Mary's University

Influence of hydrothermal vent activity on organic matter pool in deep ocean might be less than previously thought

Dr. Umoh's research includes:

- Deep-sea hydrothermal organic geochemistry
- Lipid biomarker proxies
- Paleo environmental reconstruction

Geology@smu.ca

Faculty of Science



Saint Mary's
University

Topic: Influence of hydrothermal vent activity on organic matter pool in deep ocean might be less than previously thought

Presenter: Unyime U. Umoh

Affiliation: Department of Geology, Saint Mary's University, Halifax NS

Email: unyime.umoh@smu.ca

Abstract

Forty-five years after the first discovery of deep-sea hydrothermal vents at the Galapagos Rift in 1977, hydrothermal exploration of mid-ocean ridges (MOR) for either its economic resources or biological standpoint is increasing in the last decades. Recently, many studies including geology, elemental geochemistry, and biogeochemistry have been conducted at MOR hydrothermal vent sites, providing important insight into the effect of MOR hydrothermal activity in deep ocean. However, most of these studies in hydrothermal fields are based primarily on economic mineralogy, biodiversity and inorganic biogeochemistry with few reports on organic compounds focusing on methane and total organic matter (OM). Thus, the organic geochemistry of the MOR hydrothermal system remain poorly understood, and it appears highly uncertain the impact of hydrothermal fluid in carbon cycle to global hydrothermal systems. Here, we present the results of measured hydrothermal lipid biomarkers from the Central and Southeast Indian Ridges. Altogether, our lipid proxies indicate a minor impact of hydrothermal activity on the organic carbon pool in this region, urging for caution in up-scaling previous results which proposed a significant impact of hydrothermal vents system on nearby open ocean environment.