



Department of Geology Seminar Series
Presents

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*Dipicolinic acid as a tracer for oil
seeps in marine sediments*

MONDAY, SEPTEMBER 17 - 11:30am
Science 411

Everyone is welcome to attend!



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Dipicolinic acid as a tracer for oil seeps in marine sediments



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Understanding the sediment biogeography of dormant marine thermophilic bacterial endospores (thermospores) has the potential to assist locating and characterising working petroleum systems. The presence of thermospores in cold ocean environments suggests that distribution occurs via hydrocarbon seepage from thermally active reservoirs. Low abundance and endospore coat physiology mean nucleic acid based techniques have limited success for *in situ* detection of thermospores. The biomarker 2,6-pyridine dicarboxylic acid (dipicolinic acid or DPA) is specific to endospore-forming bacteria from the phylum *Firmicutes*, and constitutes a significant percentage of endospore dry weight. DPA is therefore a potential biomarker for sediment dwelling thermospores and hydrocarbon rich thermal seeps however its suitability for seabed screening surveys has so far not been tested. DPA distribution was assessed in surface sediment samples at 97 locations in the Eastern Gulf of Mexico and results from both oil positive and oil negative sites were compared. Recent expeditions in Canadian waters to the Scotian shelf and Laurentian channel have provided both oil positive and negative sediment cores, and enabled higher resolution down-core DPA depth profiles. In this seminar we showcase our findings investigating the efficacy of DPA as a biomarker for tracing thermospores and oil seeps in marine sediments.



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