

## Changes in Paleoproductivity caused by the Neogene closing of the Central American Seaway (CAS): Inferences from Columbia Basin sediments

The Miocene to Pliocene rise of the Isthmus of Panama and the gradual closure of the Central American Seaway (CAS) in the middle Miocene to early Pliocene initiated profound environmental, evolutionary, and ecological changes in both the marine and terrestrial realms, thereby leading to the establishment of the modern global circulation pattern and causing evolutionary divergence of the Caribbean and Pacific biotas.

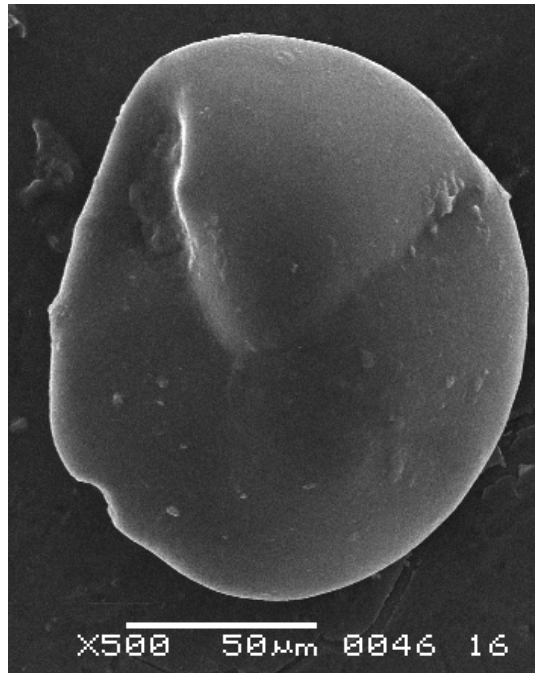
The objective of the proposed talk is to document and constrain the timing of paleoceanographic and deep-sea paleobiologic changes caused by the closure of the CAS, using a multiproxy approach.

Various hypotheses have been put forward to explain changes in the physical and chemical parameters of the oceanic realm and in faunal assemblages caused by the constriction and the gradual closure of the CAS.

I propose to test the following hypothesis of the effect of the shoaling of the Isthmus of Panama.

**The Paleoproductivity Hypothesis:** Decreasing deep-water exchange between the Caribbean and Pacific in late Miocene should have caused a decrease in surface-water productivity. The eastern equatorial Pacific (EEP) paleoproductivity should have remained relatively unaffected.

**Test of hypothesis:** I will use eleven (11) proxies to test this hypothesis and would attempt to demonstrate that change in Primary Paleoproductivity and in the other 10 proxies, are closely linked to the gradual closure of the Central American Seaway (CAS).



***Epistominella exigua* – an excellent productivity indicator**