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Oxygen isotope stratigraphy in the Gulf of Alaska (IODP Exp. 341)

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Abstract Text:

Age constrains provided by oxygen isotope stratigraphy, biostratigraphy and paleomagnetics can provide fundamental insights for interpreting other paleoceanographic reconstructions at orbital scale. In the case of the high latitude in the North Pacific, most paleoceanographic studies investigating the evolution of the North Pacific climate since the intensification of Northern Hemisphere Glaciation (iNHG) face difficulties in establishing orbital-scale age models due to the low preservation of foraminifer fossils. Most North Pacific studies targeting the Pleistocene heavily rely on alternative approaches with higher preservation potential (e.g. MS: Magnetic Susceptibility) for orbital-scale age models, and assume such data are mainly reflecting the Glacial-Interglacial (G-IG) cycle. A continuous oxygen iope record from the subarctic North Pacific is long anticipated data set to test such assumptions.

Two sites (Sites U1417 and U1418) in the Gulf of Alaska (GoA) drilled during IODP Exp. 341 are expected to provide continuous sediment records back to the middle Pleistocene (U1418) and Miocene (U1417), respectively. Here we present age models at Sites U1417 and U1418 derived from refined biostratigraphy and planktic foraminiferal (PF) oxygen isotope (*Neogloboquadrina pachyderma* sinistral, 150-250 μm fraction) stratigraphy (~1.2Ma at Site U1418 and ~3.0Ma at U1417, respectively). General agreement between oxygen isotope stratigraphy and other age constraints (biostratigraphy and paleomagnetism) at Site U1418 confirms the reliability of those age models. Furthermore, general trends seen in PF oxygen isotope time series roughly matches MS, suggesting that MS can be used for further age model tuning or as an alternative solution for the orbital scale age constrains in the GoA.

Session Selection: Cenozoic Climatic and Glacial History of the High Latitudes from Marine Records

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