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A Step Toward Reconstructing Climate Variability During the Last Ice Age Cycle in the Northeast Pacific Region

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(Psychology, Geology, Geological Sciences)

A Step Toward Reconstructing Climate Variability During the Last Ice Age Cycle in the Northeast Pacific Region

Sponsor: David Fastovsky (Geosciences)

This study is a step towards reconstructing the climate variability in the Northeast Pacific during the last ice age cycle, highlighting glacial and interglacial intervals. Ultimately it will contribute to a regional picture of climate change and potentially provide new insights into patterns of climatic variability in the Northeast Pacific. Deep-sea sediment core AT26-19 09PC, collected west of the Juan de Fuca Ridge in the Northeast Pacific Ocean, supported the study. Samples from this core were analyzed in 1 cm intervals. The abundance of mineral grains, planktonic foraminifera, and the polar foraminifer *N.pachyderma* were quantified using split aliquots of each sample. The abundance of *N. pachyderma* and overall total planktonic foraminiferal abundance were greater during the glacial interval compared to interglacial or deglaciation periods, suggesting the variable presence of polar waters at the study site. There is no evidence of iceberg deposition at the site in the last 80,000 years.

While the data presented here can ultimately be related to deposition patterns of ice-rafted debris, preservation of foraminifera CaCO₃, and the varying presence of polar and subpolar waters at the study site, this study is limited by its use of a sedimentation rate-based age model and a limited species-level assessment of the foraminifera. Ultimately, as time-calibrated climatic variability in the Northeast Pacific is elucidated, the onset, progression and end of ice-age climates in that region may be better understood. When the pattern(s) of climate variability in the Northeast Pacific region are fully understood, they may then be compared to climatic and oceanographic patterns observed in the subpolar Northeast Atlantic to explore similarities and differences in coeval regional climate variations.