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Circulation patterns and ventilation variability from thermocline waters in the Northeast Pacific: Records for the last 25 Ka

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New records from benthic foraminiferal δ^{13}C time series of intermediate waters in the Northeastern Pacific suggest two patterns of ventilation variability at intermediate depths in the North Pacific ocean for the last 25 Ka, separating upper intermediate waters – the present realm of North Pacific Intermediate Water (NPIW)- from lower intermediate waters records -Pacific Intermediate Waters (PIW). The dissimilar behavior between organic carbon and biogenic opal records and δ^{13}C time series rule out productivity as the dominant mechanism behind the observed changes and stresses the importance of changes in the wind driven thermocline circulation as the control of the carbon isotopic composition of dissolved inorganic carbon in the NPIW and PIW bathing these depths. We will discuss these new results for a time slice of the last Glacial Maximum (18-21 Ka) in terms of circulation and ventilation patterns, and we will use the time series for the last 25 Ka to show their variability patterns through time. These results support a shallow propagation of ventilation changes between the North Atlantic climatic variability and upper intermediate waters in the North Pacific, the present realm of NPIW, as the forcing behind them although the mechanism has remained obscure. Here we will present an alternative process to explain the North Pacific ventilation changes. Time series below the ventilated thermocline reveals a different source of variability for these lower intermediate waters in the North Pacific throughout the last 25 Ka.