Factors regulating the CO_2 storage and emission in the northwest Pacific: an example of the post-LGM Shatsky Rise

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There are systems operating in the North Pacific which regulate the exchange of CO_2 with the atmosphere. In the northeast Pacific, formation of intermediate water is the most notable regulator, but in the northwest Pacific, where sub-tropical and sub-polar water masses mix, additional factors need to be considered. Precipitation in the subtropics, nutrient migration from the sub-polar gyre, desertification on the Asian continent, and circulation of deep water from the Atlantic can all contribute to changing the chemical state of seawater in this area. Comparing the timing of changes in these factors with those of the CO_2 storage capacity will provide a more detailed understanding of the Northwest Pacific climate system.

In this study, post-LGM records of the pH and pCO_2 were restored uising the $\delta^{11}B$ proxy, for the NPGP1302-1B (32° 16′N, 158° 13′ E; 2514 m water depth) core at Shatsky Rise, in the Kuroshio Extension zone. We analyzed five species of planktonic foraminifera (*G. ruber, G. sacculifer, G. bulloides, O. universa, N. pachyderma*) and a benthic foram (*C. wuellerstorfi*), which enabled us to obtain a more continuous record. The planktonic foram data showed that the northwest Pacific actively released CO_2 into the atmosphere during Heinrich stadial-1 and the Bølling-Allerød period but absorbed CO_2 from the atmosphere in early Younger Dryas and the Holocene, when several drying events occurred. The benthic record showed characteristics of the overall deep sea circulation, and it showed a marked decrease in pH and an increase in CO_2 at a time when primary productivity of surface water increased. We will compare this tendency to the timing of events that changed the important environmental factors and will propose some hypothesis for their relationship.