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Last deglacial pCO_2 reconstruction in the western equatorial Pacific: new findings and issues of boron isotope proxy

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During the last deglaciation (ca. 19 – 11 ka), partial pressure of CO_2 (pCO_2) of the atmosphere increased by $\sim$80 μatm. Many paleoceanographers point out that the ocean had played an important role in atmospheric CO_2 rise, since the ocean have 60 times larger capacity to store carbon compared to the atmosphere. However, evidence on where carbon was transferred from the ocean to the atmosphere is still lacking, hampering our understanding of global carbon cycles in glacial-interglacial timescales. Boron isotope proxy of foraminifera shells can pin down where CO_2 source/sink existed, because boron isotopes of marine calcium carbonates is dependent on seawater pH, from which pCO_2 of the past seawater can be reconstructed. In this presentation, we will show new boron isotope records for the last 35 ka on two species of surface dwelling foraminiferas (Globigerinoides ruber and Trilobatus sacculifer) which was hand-picked separatedly from marine sediment core recovered from the West Caroline Basin (KR05-15 PC01; 0.1°S 139.5°E) (Yamazaki et al., 2008, GRL). In addition, we present issues of this proxy such as insufficient cleaning of foraminifera shells, dissolution effects of the shells, and contamination of boron in a laboratory.