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# 南極氷床コアと北半球海底コアの年代同期：特に 40 万年前の間氷期に着目して
# Age synchronization between an Antarctic ice core and Northern Hemisphere marine cores: with special focus on MIS 11

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Investigation of the roles of different forcings (e.g. orbital variations and greenhouse gases) on climate and sea level requires a paleoclimate chronology with high accuracy. Such a chronology for the past 360 ky was constructed through orbital tuning of O2/N2 ratio of trapped air in the Dome Fuji and Vostok ice cores with local summer insolation (Kawamura et al., 2007). We extend the O2/N2 chronology back to ˜500 kyr by analyzing the second Dome Fuji ice core, and find the duration of 11 ka, 5 ka, 9 ka, and 20 ka for MIS 5e, 7e, 9e and 11c interglacial periods in Antarctica, with similar variations in atmospheric CO2. The termination timings are consistent with the rising phase of Northern Hemisphere summer insolation.

Marine sediment cores from northern North Atlantic contain millennial-scale signatures in various proxy records (e.g. SST, IRD), including abrupt climatic shifts and bipolar seesaw. Based on the bipolar correlation of millennial-scale events, it is possible to transfer our accurate chronology to marine cores from the North Atlantic. As a first attempt, we correlate the planktonic d18O and IRD records from the marine core ODP 980 with the ice-core d18O and CH4 around MIS 11. We find that the durations of interglacial plateaus of planktonic d18O (proxy for sea surface environments) and benthic d18O (proxy for ice volume and deep-sea temperature) for MIS 11c are 20 and 15 ka, respectively, which are significantly shorter than originally suggested. These durations are similar to that of Antarctic climate and atmospheric CO2. However, the onsets of interglacial levels in ODP980 for MIS 11 are significantly later than those in Antarctic d18O and atmospheric CO2 (by as much as ˜10 ka), suggesting very long duration (more than one precession cycle) for the complete deglaciation and northern high-latitude warming for Termination V. Atmospheric CO2 may have been the critical forcing for this termination. The long duration of Termination V is consistent with our new ice sheet simulations (extended from the work of Abe-Ouchi et al., 2013) in which an ice-sheet/climate model is forced by insolation and CO2 variations. In the presentation, comparisons for other interglacial periods will also be reported.

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