Latest results from the 2nd deep ice core drilled at Dome Fuji, Antarctica

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Ice core drilling at Dome Fuji, Antarctica reached a depth of 3035.22m in January 2007. In April 2006, the core from the depth interval between 2400m and 3028m was transported to Japan. The samples from this depth interval have been being processed and analyzed at National Institute of Polar Research for stable isotopes, ion chemistry and insoluble particles. Here we report the current status of the ongoing analyses and the latest results from the Dome Fuji core. The oxygen isotope profile, compared with the Dome C deuterium profile, suggests that the depth 3028m goes back to 720,000 years ago, which corresponds to MIS (Marine Isotope Stage) 17. As was found at Dome C, the interglacials prior to MIS 11 are colder than later ones. All the glacial periods back to MIS 16 show millennial-scale climatic variations. The interglacial MIS 15 is interrupted by a glacial-like cold period, which also shows millennial-scale climatic variability. Throughout the last 720,000 years, fluxes of non-sea-salt Ca2+ (proxy for dust) and sea-salt Na+ (proxy for sea-salt) are high during glacials and low during interglacials. Fluxes of these ions and their orbital-scale variations are very similar to those at Dome C, which suggests uniform ion fluxes and their variations over East Antarctic Plateau on orbital time-scales.