A basal topographic map in the Dome Fuji region constructed from the ground-based radar survey in the JARE 59

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Drilling a deep ice core extending 1.5 million years (Ma) back in time is crucial to better understand the transition in the periodicity of the glacial cycles changed from 40 kilo year (ka) to the current 100 ka during the mid-Pleistocene transition (0.9–1.2 Ma). However, continuous ice core records more than 1 Ma have not been retrieved in the Antarctic ice sheet. Sufficient knowledge of the basal topography is crucial to modify numerical experiments that may provide a continuous record of past mechanisms of climate change. A ground-based radar survey was conducted over an area of 20000 km^2 with a line spacing of 5 km in the Dome Fuji area in the 59th Japanese Antarctic Research Expedition (JARE 59, 2017–2018 Antarctic summer). In this study, we analyze the JARE 59 radar data to construct an improved map of basal topography in the Dome Fuji region to progress the identification of a suitable drilling site at the region.

Keywords: Antarctic ice sheet, Basal topography, Radar

