Shallow ice core drillings at three sites around the Dome Fuji station, Antarctica, in the 2017-2018 season (JARE 59)

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As a glaciological survey for identifying the best location for the next deep drilling in the vicinity of the Dome Fuji station, we drilled three shallow ice cores in 2017–2018 (JARE59). The first core was drilled at 50 km south of Dome Fuji (New Dome Fuji; NDF) to the depth of 151.9 m, second one was drilled at 40 km southeast of Dome Fuji (DFSE) to 41 m, and third one was drilled at 30 km northwest of Dome Fuji (DFNW) to 41 m. We found 20-mm-thick volcanic ash layer at 118.9 m in the NDF core. Volcanic ash layers have been found at similar depths in the Dome C and Vostok ice cores. In the Dome C core, less than 1-mm-thick volcanic ash layer was found at 132.6 m. In the Vostok core, around 30-mm-thick ash layer was found at 103.04 m. These ash layers were estimated at 3500–3600 years[1,2]. On the other hand, volcanic ash layer was not found at around 100 m in the Dome Fuji ice core[3]. The volcanic ash layer at 118.9 m in NDF core possibly has the same origin as the ash layers in the Dome C and Vostok cores. We also measured borehole temperature of three sites. Temperatures at 10 m depth were -56.4℃, -58.1℃ and -56.2℃ at NDF, DFSE and DFNW, respectively. In the presentation, we will report the drillings and other activities in detail.

References
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