

Sensitivity studies of the position and elevation of Dome Fuji, Antarctica using a (high-resolution) numerical ice-sheet model

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Ice divides are important locations for drilling on ice-sheets. Since the ice flow pattern, which affects dating, is significantly different between an ice divide and the other areas, sensitivity of the ice-divide shapes (position and/or elevation) to changes in various boundary conditions should be investigated.

Saito (2002) presents a series of numerical experiments of Antarctic ice sheet using an ice-sheet model IcIES. Possibility of changes in the position of Dome Fuji driven by the evolution of glacial/interglacial climate, as well as a variety of ice-grounded area are discussed, however, the resolution of the ice-sheet model in the study was relatively low (40km). Moreover, only maximum possible or even overestimated patterns of the ice-grounded area were used in the study.

In this study, the work of Saito (2002) is updated using a latest version of IcIES with higher resolution (10km). More detailed sensitivity study of the position/elevation of Dome Fuji to a variety of boundary condition is discussed.