3D magnetic structure of Aso volcano

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On Aso volcano, some aeromagnetic survey was conducted in previously to reveal the subsurface magnetic structure of the volcanic bodies, on 2001 (Tanaka et al., 2001), 2004 and 2004 (Tanaka et al., 2006) and 2006 (Utsugi et al., 2007). On this study, we tried to re-analyze these previous data, and tried to obtain detailed subsurface 3D magnetic structure of Aso volcano.

To the previous observed data, the processing of the IGRF correction and trend surface analysis were applied. Further, the process of the upward continuation (Nakatsuka and Okuma, 2005) was applied, and obtained the magnetic data on regular grid above the ground surface. Using this data as an input, the magnetization intensity distribution inside the volcanic bodies was determined by L1 norm regularized magnetic inversion. For this process, we divided the summit area of Aso volcano of about 5 x 5 km and the depth of 2.5 km into small blocks of 80 x 80 x 40, and determined the magnetization of each block. At this time, it was assumed that the magnetization was constant in each block, and the direction of magnetization was parallel to the current direction of the earth's magnetic field. In this presentation, detailed results of our magnetic inversion will be introduced.

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