

Evaluation of elastostatic effects of large earthquakes on the dike system around Mt. Fuji

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A recent study (Chesley et al., 2012) focused on mechanical effects of earthquakes on volcano systems, and calculated static stress change on the main dike of Mt. Fuji by the 1707 Hiei earthquake and the 1703 Genroku Kanto earthquake. In this study, we first performed validation tests of this previous study using my own codes, and confirmed that my calculation results and their results are the same. And then, we did the similar research calculating the normal stress perpendicular to the main dike and another dike that turned to be active after the 2011 Tohoku-oki earthquake. We examined the static stress changes on both dikes, by not only two earthquakes but nearby large earthquakes (the 762 Mino-Hida-Shinano earthquake, the 2011 Tohoku-oki earthquake, and possible Fujigawa-kako earthquake) as scenario earthquakes. The calculation results showed that the earthquakes having potentials to induce the eruption of Mt. Fuji were the Hiei earthquake and the Tohoku-oki earthquake, and the Fujigawa-kako earthquake. Moreover, we propose that the large earthquakes can be the switches of the dike activities beneath Mt. Fuji.

Keywords: Mt. Fuji, dike, large earthquakes, static stress changes