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The preparation stage of the Mt. Shinmoe eruption implied by crustal deformation

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Crustal deformations accompanying with the eruptions of Shinmoe volcano on January 26 and 27, 2011, were recorded by extensometers at Isa (Yoshimatsu) observatory of Disaster Prevention Research Institute, Kyoto University. We analyzed the short timespan records of crustal deformation before three sub-plinian eruptions. The records of crustal deformation after the eruptions are explained by contractions of a magma chamber beneath the Shinmoe volcano. Our results indicate the contraction duration of this magma chamber had been shorten by each eruption, implying that magma releases have become easier by each eruption. In addtion, we also found the crustal deformation of the preparation stage of every large eruption. The deformation has started approximately 10 hours before each eruption. These records possibly indicate contractions of a deeper magma chamber before eruptions.

Keywords: Mt. Shinmoe, crustal deformation, preparation stage, contraction duration