

## Ground deformation due to pressure change in a conduit

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When a magma flows in a conduit, the pressure of magma deviates from lithostatic pressure. The pressure distribution is closely related to the dynamics of eruption. Although pressure variation of magma in a conduit can not be observed directly, it can be estimated by measuring the ground deformation. We calculated distribution of stress and deflection around the vent in response to varying pressure distribution inside the conduit with the finite element method("Mr.SOIL3D",CRC Research Institute). The results show that the ground deformation resulting from pressure changes inside the conduit is large enough to be measured. This method may be applicable to deformation data from Unzen Volcano.