

Analog experiments on dike intrusion and fissure eruption using liquid-filled crack in gelatin

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Analog experiments on dike intrusion using liquid-filled crack in gelatin have been carried out base on various situations . New results obtained after Takada (2001) in this session are introduced. We can control the stress field of gelatin, and physical properties of gelatin and injected liquid. We can observe three-dimensional movement of liquid-filled crack through transparent gelatin. Recently various programs have been developed in order to promote the spread of volcanology. First, The various effects of stress to dike intrusion are demonstrated: stress gradient, bypass formation, magma suppression. Second, the effect of surface to eruption are introduced. When a liquid-filled crack reaches to surface, a kind of fissure eruption occurs. We can measure the length of fissure, eruption rate, the ration of eruptive volume to intrusive volume. Third, the effect of viscosity of injected liquid is investigated. According to field observation, dike shape of basaltic magma is quite different from that of felsic magma.