Geology of the Higashi-Yamanashi volcano-plutonic complex and its implications for the process of cauldron formation.

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The origin and structure of pyroclastic rocks filled the Pliocene cauldron of Higashi-Yamanashi volcano-plutonic complex are studied based on field geology, petrography and AMS (anisotropy of magnetic susceptibility). The pyroclastic rocks consist of six types: (1) andesitic to dacitic tuff with abundant crystals, (2) andesitic to dacitic tuff with abundant lithic fragments, (3) rhyolitic tuff with abundant crystals, (4) volcanic breccia, (5) lacustrine volcanic sand and silt, (6) intrusive vent tuff breccia. The andesitic to dacitic tuff with abundant crystals partly intercalating rhyolitic tuff with abundant crystals, andesitic to dacitic tuff with abundant lithic fragments, and andesitic to dacitic tuff with abundant crystals erupted in this order and filled the cauldron. Almost all intra-cauldron pyroclastic rocks are densely welded. The AMS study of densely welded pyroclastic rocks reveals three different types of fabrics: (1) sedimentary fabrics at the time of deposition, (2) fabrics produced by the vertical movement during the trap-door type cauldron subsidence, (3) tectonic fabrics formed by right-lateral strike-slip movement concurrent with the intrusion of granodiorite. The densely welded intra-cauldron pyroclastic rocks were accumulated at the same time with the trap-door type cauldron subsidence of the Higashi-Yamanashi volcano-plutonic complex. After the eruption of voluminous pyroclastic rocks, granodiorite intruded simultaneous with right-lateral strike-slip tectonic movement.