Eruption style of the Yamakogawa Rhyolite in central Kyushu -Mode of spatter eruptions for rhyolitic magma-

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The Yamakogawa Rhyolite erupted in early Quaternaly period in central Kyushu and formed a plateau whose thickness is 200m, consists of three lava-like units. The Yamakogawa Rhyolite is characterized by coexistence of lava-flow evidences, including flow banding, flow folding and autobreccias, and pyroclastic evidences, including existence of extremely stretched pumice fragments and many lithic fragments. These features suggest that the Yamakogawa Rhyolite has unique eruption, transportation, and accumulation mechanisms. The purpose of this study is to propose the obvious eruption style of such silicic lava-like deposits.

Formerly two eruption styles are reported for such silicic lava-like deposits. Firstly, as ash flow sped downslope, pumice fragments and ash continuously emitted volatiles. Its density and internal friction therefore increased. Eventually the ash flow became laminar flow and ceased (Schmincke and Swanson, 1967). Secondly, in spite of rhyolitic magma, these deposit erupted as fountain-fed lava known as a Hawaiian eruption (Duffield, 1990; Stevenson et al., 1993). About the former deposit, the deposit has many pyroclastic textures and estimated flow distance from a stretched pumice fragments of a few meters in diameter. But the Yamakogawa Rhyolite does not have obvious pyroclastic texture probably which is obliterated during viscous flow. Therefore, eruption style of the Yamakogawa Rhyolite is different from the former deposit. About the latter deposit, if such eruption occurs, lithic fragments may rare because of the eruption is not so explosive. Therefore the existence of many lithic fragments of the Yamakogawa Rhyolite will indicate more explosive eruption style.

We interpret the Yamakogawa Rhyolite initiates low fire fountains. The fountain column is collapse and occurs the spatter-rich pyroclastic flow. The spatter continues collision and coalescence each other during transportation and eventually becomes viscous flow such as lava flow.