

## Correlative changes in modes of eruption and geochemistry of magmas at Adatarata volcano during recent 250,000 years

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Sub-plinian eruptions were dominant 250 - 200 ka at Adatarata volcano. A plinian eruption occurred about 120 ka. Sub-plinian eruptions repeated at intervals of 10 to 20 thousand years.

At the plinian eruption of 120 ka, 3 types of magmas are recognized. Two mafic magmas show distinctive chemical characteristics, and felsic magma displays different trends from the mafic magmas. Probably, magma plumbing system changed 120 ka. Because, older ejecta erupted -200 ka chemically correspond with the earlier mafic ejecta of the eruption at 120 ka, whereas the later mafic ejecta at the 120 ka eruption come mafic extension of trend for the newer ejecta erupted in latest 10,000 years. New magma supplied under the older magmas to form a stratified chamber, which caused the violent eruption.

Main volcanic edifices of Adatarata volcano were built in recent 250,000 years. Lava effusions and sub-plinian eruptions were dominant in a period between 250 and 200 ka. After dormancy, the most violent eruption of plinian type occurred in association with pyroclastic flows about 120 ka. Several sub-plinian eruptions repeated after that at intervals of 10 to 20 thousand years, followed by vulcanian eruptions and phreatic explosions since 60 ka.

At the violent plinian eruption of 120 ka, 3 types of end-member magmas are recognized ( 1 felsic and 2 mafic magmas; mafic magma 1 and 2, in descending order of eruption ). Two mafic magmas show distinctive geochemical characteristics, and the coexisting felsic magma displays different compositional variation trends from the mafic magmas.

Probably, plumbing system of the mafic magmas changed 120 ka. It is because the older ejecta erupted 250-200 ka geochemically correspond with the earlier mafic ejecta ( mafic magma 1 ) of the plinian eruption at 120 ka, whereas the compositions of later mafic ejecta ( mafic magma 2 ) at 120 ka come mafic extension of the variation trend for newer ejecta erupted in latest 10,000 years. A new mafic magma supplied underneath the pre-existing magmas to form a stratified chamber, which gave rise to the exceptionally violent eruption of 120 ka. Otherwise, sub-plinian or vulcanian should be the ordinary style of eruptions during recent 250,000 years.