Eruption styles and magma degassing processes of the eruption on June 27, 2000, at Miyake-jima Volcano, East Japan

Taketo Shimano[1], Takayuki Kaneko[2], Setsuya Nakada[1]

[1] ERI, Univ. Tokyo, [2] Volc. Res. C., ERI, Univ. Tokyo

http://www.eri.u-tokyo.ac.jp/shimano/Japanese/001j-index.html

The 2000 submarine eruption at Miyakejima Volcano is characterized by fire fountaining which formed pyroclastic cones in the sea. The difference in water content between the 2000 submarine and the 1983 phreatomagmatic products can be attributed to the difference in depth of water that magma quenched. The magma had degassed ca. 90 % of initial H2O before reaching the surface, which was also the case in the 1983 eruption. This indicates that the ascent of magma was slow enough for magmatic water to vesiculate almost in equilibrium with melt, and for the consequent bubbles to escape. It is concluded that, in contrast to the 1983 phreatomagmatic eruption, the 2000 magma was quenched well before the heating up of the sea water and the vesiculation water in magma.