

## The Stratigraphy and Depositional features of the 1991-1996 pyroclastic flow and surges at Unzen Volcano, SW Japan

# Daisuke Nagai[1]; Shinji Takarada[2]; Takeshi Matsushima[1]; Yasuo Miyabuchi[3]; Takeshi Sugimoto[4]; Hideo Hoshizumi[2]

[1] SEVO, Kyushu Univ.; [2] GSI, AIST; [3] Kyushu Res. Ctr., Forestry & Forest Prod. Res. Inst.; [4] BGRL, Kyoto Univ.

<http://www.geo.chs.nihon-u.ac.jp/html/>

The geological survey was performed in excavated trenches on the Taruki Height at northeastern foot of Unzen Volcano. The survey area is located

around the marginal part of the 23-24 June, 1993 pyroclastic flow, and in the depositional area of the pyroclastic surges. These deposits are changing the features due to topographic control. This study forecast to the stratigraphy of these deposits and the depositional features.

Fig. 1 shows these schematic stratigraphic relation of the 1990-1996 pyroclastic deposits on the Taruki Height.

1) In mid-August 1991, pyroclastic flows began descending along the Oshigadani valley. Stratified fall-out ash from this time to early-September 1991 are found under 1.8m of the previous surface.

2) The 15 September 1991 pyroclastic surge deposits consists of three units, A bottom layer of well-sorted coarse ash, 5 cm thick (Unit1; 16:44), a middle layer of well-sorted light-gray coarse ash, 4 cm thick (Unit2; 17:59), and the top thin layer of better-sorted red coarse ash, 0.5cm thick (Unit3; 18:42-54). These units has clear boundaries; usually thin fall-out ash is sandwiched or erosional contact. Small fragments of carbonized tree and branches are frequently included.

3) Fall-out ash and small pyroclastic surge deposits from 1992 to mid-1993. Stratified layers of fine ash are found. These include some small pyroclastic surge deposits from March 1992 to May 1992.

4) The distal pyroclastic flow deposit on 22 June 1993 consist of poorly sorted block and ash, 20 cm thick, but large fragments are few. The fragments of partly carbonized wood frequently found.

5) The 2:52 pyroclastic flow/surge deposit on June 23 1993 consist of poorly sorted block and ash, 40-70 cm thick. The layer include small amount of blocks, and are reverse graded. Segregation pipes are frequently found on the upper part. These pipes may originated from the hot-rock fragments. This layer is covered by a thin dull-reddish brown ash of accretionary lapilli.

6) The 11:14 pyroclastic deposit on June 23 1993 consist of well-sorted coarse ash, 2-4 cm thick. The layer is normal graded and fines-depleted.

(7) The 5:25 distal pyroclastic flow deposits on June 24 1993 include small amount of blocks in the matrix of fine-rich. The deposits consist of two units. Many segregation pipes developed in each unit. The oxidized upper part include many amounts of reddish ash.

(8) Secondary deposits of pyroclasts on after June 1993 are found the top, about 40 cm thick.

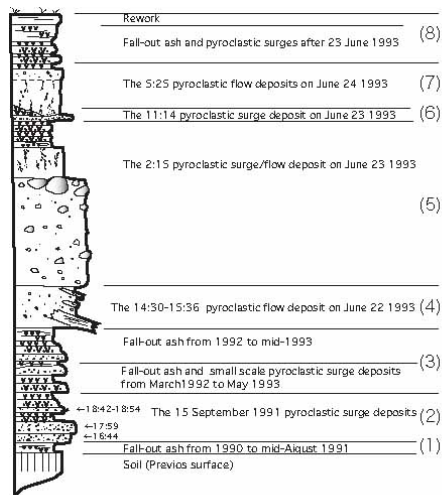


Fig. 1 The schematic section at Taruki Height on northeastern foot of Unzen Volcano