Oral | Symbol S (Solid Earth Sciences) | S-VC Volcanology

[S-VC54_1AM1]Volcanic and igneous activities, and these long-term forecasting

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Thu. May 1, 2014 9:00 AM - 10:45 AM 411 (4F)

This session focuses on generation and accumulation processes of magmas, magma-crust interaction and degassing, and modes of eruption, long-term forecast of eruption, dispersal and emplacement of the volcanic products. The discussion spans petrological, geochemical, geophysical, and geological processes related with volcanic activity and products in the past, the present and the future.

10:15 AM - 10:30 AM

[SVC54-P11_PG]Eruptive History of Post-caldera Stage, East-Azuma Volcano -Correlation between ejecta intra-caldera and boring core-

3-min talk in an oral session

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Keywords:Azuma Volcano, Jododaira, eruptive history, boring core, stratigraphy

Introduction Azuma Volcano is one of the Quaternary stratovolcanoes located at the volcanic front of the Northeast Japan arc. The recent 7ka activities of this volcano are characterized by dominant fall out tephra (Yamamoto, 2005). Eruptive history occurred at the Jododaira explosion caldera (Fujinawa and Kamoshida, 1999) is built by comparing boring core of the Jododaira with the ejecta deposited the intra-caldera area.**Stratigraphy and lithofacies of boring core** Boring site is at about 500m NW from Azuma-Kofuji cone. This core was described most immediately after core-recovery, and stratigraphic sequence was outlined (CCPVE core analysis group, 2011). Layers of andesitic volcanic block and lapilli (11.20m-1.50m in depth) are lithologically correlated to the Azuma-Kofuji volcanic ejecta. Andesite lava (100.55m-81.07m, sample No.19-17 near the bottom of the core) and welded tuff breccia / lapilli tuff (79.90m-14.20m, No.13-10) are to be the keys to reveal the eruption history. Andesite lava (19-17) is dark-gray in color with dominant plagioclase phenocrysts of 2~3mm in diameter. Inclusions are rarely recognizable. Welded tuff breccia/lapilli tuff (No. 13-10) are characterized by dark-gray, highly deformed and elongated blocks/lapilli at the densely welded part.**Description of outcrops** 3 lava flows and 1 pyroclastic flow deposit were newly found at the outcrops of intra-caldera area. Lava flow1 (Lf1) does not show distinct lobe topography. This is exposed only at altitudes of 430m along forest road with about 5m thick. Lf1 is massive, dark-gray in color and characterized by dominant plagioclase phenocrysts of 2~3mm in diameter. Rare cognate inclusion is also recognized. Pyroclastic flow deposit (Pfl) intermittently cropped out around at altitudes of 470m along the route 126, showing a thickness about 2.5m. The Pfl is overlain by unconsolidated talus deposit. The stratigraphy of these deposits was not

confirmed in the field observation. This Pfl includes dark-gray lithic fragments in weakly welded light-gray matrix. Lava flow2 (Lf2) constitutes thick massive spreading widely on the floor of the Jododaira explosion caldera (Fujinawa and Kamoshida, 1999). Judged from topography, the Lf2 storatigraphically overlies the Pfl. At altitudes of 660m along forest road, the Lf2 of over 10m in thick showing an well-developed columnar joint is cropped out. The Lf2 is directly covered by Ak-Lf at this locality (Kamoshida, 1991MS). Lithology of Lf2 is massive, gray in color and pyroxene phenocrysts are secerned easily. Lava flow3 (Lf3) is distributed in the southern part of the intra-caldera, well foamed and grey tinged with red in color. The Lf3 topographically overlies the Lf2, furthermore, and covered by Ak-Lf. The Lf3 consists of 3~5 flow units, lobes and levees at its surface.**Comparison of lithofacies** The lava samples of the core (19~17) are lithographically similar to those for the Lf1, but distinguishable to those of the Lf2 or Lf3. The core samples of the welded tuff (13~10) is slightly different from Pfl in the degree of welding, but are similar to each other in terms of including dark-gray lithic fragments in light-gray matrix.**Eruptive history based on comparison of lithofacies** The welded pyroclastic deposits in boring core are as thick as 20m, suggesting that the deposit is the deposit of an enormous pyroclastic eruption. If such eruption occurs, a sort of depression would often be remained in the supply source area. Judging from topography, the Jododaira explosion caldera is the most plausible candidate. Because the Lf1 (=core 19~17) lie beneath welded Pfl (=core 13~10), this lava is promisingly erupted during pre-caldera activities. Because the Lf2 and Lf3 are topographically come above the Lf1, it is considered that these lavas erupted in the post-caldera stage.