[JJ] Evening Poster | S (Solid Earth Sciences) | S-VC Volcanology

[S-VC43]Volcanic and igneous activities, and these long-term forecasting

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Sun. May 20, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

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.

[SVC43-P04]Process of eruption styles and effect of the external water in Mukaiyama volcano, Niijima Island, Japan.

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AD 886 Mukaiyama eruption was erupted two rhyolitic pyroclastic deposits continuously, the Habushiura pyroclastic density current (PDC) deposit and the Omine pyroclastic cone in Niijima Island, Japan. The Habushiura PDC deposit is composed of more than 40 beds including juvenile pumice fragments and accidental lithic fragments. The beds are divided into three lithofacies types, Facies A, B and C. Facies A is massive poorly sorted bed with fine-poor matrix. Facies B shows grading or weak stratification with matrix rich in ash. Facies C is a swarm of large pumice blocks. The Omine pyroclastic cone is composed of massive poor sorted bed including pumice fragments, glassy fragments and little lithic fragments. Both the Habushiura PDC deposit and the Omine pyroclastic cone include ash particles and pumice blocks with prismatic cracks that indicate quench fragmentation occurred by rapid cooling by external water. The bulk density of pumice samples exhibits that the Habushiura PDC deposit (Facies A is 1.03 g/cm^3, Facies B is 1.22 g/cm^3 and Facies C is 0.83 g/cm^3 on average) are lower than those of the Omine pyroclastic cone (1.61 g/cm^3 on average). Concerning the emplacement temperatures of pumice fragments, Facies A and C are estimated to emplacement up to 300 °C and Facies B are estimated ambient temperature emplacement in the Habushiura PDC deposit. Pumice fragments in the Omine pyroclastic cone show up to 400 °C emplacement of pumice samples that is higher than the Habushiura PDC deposit.
Both the Habushiura PDC deposit and the Omine pyroclastic cone are suggested that generated by explosive interaction between high-temperature juvenile material and water because of sufficiently lower emplacement temperature than magma temperature and ash particles and pumice blocks indicating quench fragmentation by external water. The Habushiura PDC deposit is estimated that it was generated by more explosive interaction between ascending more vesiculated magma through the conduit and sufficient external water. Therefore, the Habushiura PDC deposit exhibits lower temperature emplacement and higher content of lithic component. The Omine pyroclastic cone is estimated that it was produced by explosion by quenching of less vesiculated lava dome at the water filled crater. Then, the Omine pyroclastic cone shows higher temperature emplacement and higher content of glassy component.