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## Conduit processes of the Sf. Ana (TGS) sub-Plinian-Vulcanian eruption sequence of the Ciomadul volcano (SE Carpathians)

**Balázs Kiss**<sup>1</sup>, Dávid Karátson<sup>1</sup>, László Aradi<sup>2</sup>, János Szepesi<sup>3</sup>, Tamás Biró<sup>1</sup>, Tamás Sági<sup>4</sup>, Veronika Szilágyi<sup>5</sup>, and Zoltán Kis<sup>5</sup>

<sup>1</sup>Department of Physical Geography, Eötvös Loránd University, Budapest, Hungary (balazskissgeo@gmail.com)

<sup>2</sup>Lithosphere Fluid Research Laboratory, Eötvös Loránd University, Budapest, Hungary

<sup>3</sup>MTA-ELTE Volcanology Research Group, Budapest, Hungary

<sup>4</sup>Department of Petrology and Geochemistry, Eötvös Loránd University, Budapest, Hungary

<sup>5</sup>Nuclear Analysis and Radiography Department, MTA Centre for Energy Research, Budapest, Hungary

The Sf. Ana crater is the young volcanic crater of the dacitic Ciomadul volcano located at the SE end of the Călimani-Gurghiu-Harghita volcanic chain in the Eastern Carpathians. The crater was formed at ~60-30 kyr-s ago probably by several eruptions. The Sf. Ana also called as TGS eruption sequence was the main event that shaped the crater to the present form. The eruption produced fall and PDC deposits, but it is unclear what caused the change in the eruption style. The stratigraphically controlled analyses of the Mohos Layered Pyroclastic Sequence (MLPS) provide deep insight into the evolution of the eruption. Assuming that juvenile clast density is primarily controlled by the magma vesiculation within the conduit, the processes close to the fragmentation level can be studied. The vesicularity, vesicle texture, microlite texture, and glass H<sub>2</sub>O content of the juvenile pyroclasts were studied to reveal the conduit processes. The juvenile clasts show textural evidence for different stages of the vesiculation from bubble nucleation to collapse indicating degassing and outgassing processes in the conduit. The increase of the juvenile clast density upward in the MLPS and the sharp increase of the dense clasts in the PDC deposits indicate the effect of magma column heterogeneity on the eruption style. The conduit heterogeneity was induced by the effective outgassing of the slowly ascending magma portion due to the evolution of vesicle textures together with localized shearing. The eruption column collapse was preceded by a vent failure event which caused densification in the conduit. Banded pumices suggest that the observed conduit heterogeneity was small scale.

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