

## **Rheological changes in Yasur (Vanuatu) lavas: micro- vs macro- crystallization and the rest.**

ANNE-MARIE LEJEUNE<sup>1</sup>, DANIEL R. NEUVILLE<sup>2</sup>,  
THIEBAUT D'AUGUSTIN DE BOURGUISSON<sup>2</sup>, AND  
NICOLE METRICH<sup>2</sup>

<sup>1</sup> UPMC-ISTeP, 4 place Jussieu, 75005 Paris, France

[anne-marie.lejeune@upmc.fr](mailto:anne-marie.lejeune@upmc.fr)

<sup>2</sup> IPGP-CNRS, Géomatériaux, Université Sorbonne Paris  
Cité, 1 rue Jussieu, 75005 Paris, France

The Yasur volcano in Vanuatu is well known for its permanent activity ranging from generally regular Strombolian to mild Vulcanian explosions. Those different eruptive styles are traditionally linked to changes in the gas flux. But as the magma degasses and crystallizes, its viscosity evolves affecting magmatic processes.

Recent experiments to test the mixing effect of Na/K on Yasur lavas have brought new insights into their rheology (d'Augustin et al., 2017).

We report here new petrological data from a systematic study of Yasur basaltic-trachyandesites from its current eruptive activity (1997 to 2016) and new rheological data. We plan to discuss the combined effects of crystallization, chemical changes and other factors on viscosity in order to better understand the Yasur eruptive dynamics.

**Keywords:** basaltic trachyandesite, rheology, viscosity, crystallization.

Reference: d'Augustin de Bourguisson T., Lejeune A.-M., Metrich N. and Neuville D.R. (Goldschmidt 2017) The effect of Na/K ratio on the viscosity of iron-silicates: application to the Yasur (Vanuatu) volcano