



## **Structure and rheological properties in alkali aluminosilicate melts**

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Rheological properties of silicate melts govern both magma ascension from the mantle to the surface of the earth and volcanological eruptions styles and behaviors. In this mind, it is very important to understand which parameters influence these properties. Up to now, we know for example that viscosity of silicate melts is dependent of temperature, pressure and chemical composition. In this work, we will focus on the  $\text{Na}_2\text{O}-\text{K}_2\text{O}-\text{Al}_2\text{O}_3-\text{SiO}_2$  system, which is of a prime importance because it deals with a non-negligible part of natural melts like haplogranitic rhyolitic alkali magmas. We will first present our viscosity measurements and some modelisation concepts based on the Adam and Gibbs theory.

From configurational entropy theory we obtain some macroscopic information's that we can link to the structure of glasses and melts. In this mind, we have investigated them with Raman and NMR spectroscopies. These spectroscopies provide information on speciation and polymerization of glasses and melts.

We will present and discuss structural and rheological variations as a function of temperature and chemical change.