# 2D numerical magma flow modeling and seismological constraints

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Magma properties vary both vertically and horizontally in a volcanic conduit during its ascent toward the surface. Using 2D finite element flow modeling, it is possible to study the evolution of these properties which involves several physical parameters such as viscosity, density, gas-content, shear and bulk modulus. However realistic models can't be generated without the help of observations. In the case of Soufrière Hills volcano in Montserrat, West Indies, useful informations can be obtained studying seismic data recorded by the Montserrat Volcano Observatory. Working specifically with the low frequency seismic events, it is possible to have quantitative informations about their seismic source which are then used to constrain the modeling. In return, numerical flow modeling gives us conditions for possible trigger mechanism of this seismic events.