



Water solubility in shoshonitic and latitic compositions from Campi Flegrei (Napoli – Italia)

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Water is the most important volatile in magmas which can contain several weight percent depending on their composition. It has the capacity to affect several chemical and physical properties of the magma, such as crystallization path, redox equilibria of iron, viscosity mobility of melt chemical components and electrical conductivity.

In this work we report new data on water solubility in two melt compositions representative of volcanic units of the Campi Flegrei Caldera (Italy). The first one is a primitive composition, close to a shoshonitic composition. The second one is a more evolved latitic composition. Shoshonitic and latitic melts with different water contents were synthesised using Internal Heated Pressure Vessel at pressures from 30 to 200 MPa and temperature of 1200°C. The glasses obtained from these water saturated experiments were analysed using Fourier Transform Infra Red spectroscopy (FTIR). Karl Fischer Titration (KFT) was used as an independent method to calculate water concentration in order to allow the molar absorptivity to be calibrated for the infrared bands at $\sim 3550\text{ cm}^{-1}$ (total water). In addition the speciation of water was investigated comparing molar absorptivities from different basaltic melt compositions to find those that better describe the speciation of water in our compositions.