Lithium isotopes in micas: an isotopic tool for the classification of granitic pegmatites?

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Over the last few decades, acquisition techniques of light stable lithium isotopes have been increasingly improved to investigate the lithium behaviour during pegmatite consolidation. Particularly, δ^7Li signatures are mainly studied to trace the genetic filiation between granitic source and pegmatites. However, no study has been applied at pegmatite-field scale. In the present study, we use lithium and its isotopes to investigate the fractionation process during pegmatite consolidation and to distinguish different pegmatite groups in the Monts d'Ambazac LCT- type pegmatite field (French Massif Central). The current classification is mainly based on mineralogical observations, and the description of internal structures. However, no classification is currently based on geochemical and/or stable isotopic data. We collected biotite, muscovite and lepidolite crystals from the same unit of 9 pegmatites which present variable differentiation degrees. After an initial chemical lithium- separation, measurements of lithium isotopes were performed using the double focusing Neptune MC-ICP-MS (ThermoFinnigan). Our preliminary results provide a δ^7Li (‰) range of high quality applied to describe granitic pegmatites and to investigate Li behaviour in silicate melts. Different pegmatite groups have been differentiated they are different from those obtained from mineralogical classification. Finally, the geochemical data set provides good keys to analyse the impact of fluxes elements as Be, B and F on the δ^7Li signatures interpretation.