

## **Celadonite alteration, an efficient water and potassium transporter into the mantle.**

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The existence of k- rich and hydrated phases in the upper mantle requires recycling of chemical elements in the Earth, the mechanism responsible for this is the subduction of altered oceanic crust [1,2]. One of the many mineral that has been formed is celadonite. We tested celadonite stability under high pressures and high temperatures to evaluate its effective capacity to transport K in subduction zones. There is always a minor quantity of saponite and pyrites. Therefore, we worked with celadonite, saponite and pyrite assemblage to make our research more realistic scenario. The experiments were carried out at pressures from 1atm to 7.7Gpa and temperatures from 200 to 900 ° C. In reductive environment and pressures up to 2.5Gpa celadonite is stable up to 500°C and above these temperatures it changes to trioctahedral mica. This new phase is hydrated, k-rich and must be an important input to the mantle metasomatism. Celadonite alteration is an important product relationship between hydrosphere and lithosphere and this impact in the geochemical evolution of the Earth.

[1]Conceição & Green (2004) *Lithos* 72 209– 229

[2]Burkhard *et al* (2005), *Chemical Geology* 218, 281-313.