

MS15-01 | REACTIVITY OF HEAVY NOBLE GASES UNDER HIGH PRESSURES

Sanloup, Chrystele (Sorbonne University, Paris, FRA); Crepisson, Celine (Sorbonne University, Paris, FRA); Leroy, Clemence (Sorbonne University, Paris, FRA); Blanchard, Marc (Université de Toulouse, Toulouse, FRA); Bureau, Helene (Sorbonne University, Paris, FRA); Cormier, Laurent (Sorbonne University, Paris, FRA)

Xenon (Xe) is the most reactive amongst noble gases, with over hundred compounds synthesised at ambient pressure. Increasing pressure is an efficient way to induce Xe reactivity, especially with oxides, resulting in the formation of covalent Xe-O bonds. Some examples will be given, ranging from stoichiometric compounds to silicate minerals doped in Xe at the % level, the latter being stable at remarkably low P conditions. Xe reactivity with silicates extends to compressed magmas, molten materials that were also shown to react with krypton.

The search for noble gases compounds has for long been fuelled for their high energy storage capacity, but implications in Earth's sciences are also large as the latter rely on noble gases to trace key planetary processes such as atmospheric formation or underground nuclear tests. Therefore, we will finally discuss the implications of heavy noble gases reactivity under P, i.e. at the conditions of planetary interiors, on isotopic fractionation.