

**Session title:** Unravelling low-temperature mineralogy from atomic-scale approaches

**Conveners:** Julie Aumont, Marc Blanchard (GET, Université Toulouse 3, France), Encarnación Ruiz Agudo (Universidad de Granada, Spain)

**Session description:**

Low-temperature mineralogy and geochemistry provide insight into the processes occurring at the Earth's surface, such as biomineralisation, weathering, diagenesis, or the transport of contaminants. In particular, an in-depth understanding of these large-scale processes can be achieved by studying the underlying atomic-scale mechanisms involved, both with analytical and computational techniques.

This session aims to highlight recent advances in the understanding of low-temperature mineralogy from an atomic or molecular level perspective, *i.e.* through microscopy and spectroscopy investigations as well as computer simulations. This includes studies on proxies such as stable isotopes and trace elements, chemical impurities in minerals, crystal defects, crystal zonations, processes at the mineral-fluid interface such as dissolution-recrystallisation, crystal nucleation and growth, adsorption. These contributions may pertain to contexts such as chemical weathering, soil evolution, sedimentary processes and diagenesis, contaminant transport and remediation, biomineralisation, and biogeochemical cycles in the Critical Zone. Presentations based on the development or application of new or advanced analytical and theoretical methods are welcome.

**Related themes:**

- Environmental mineralogy, biomineralogy
- The dynamical world of minerals