Title: Chromite, chromitites and their inclusions: from hot to cold and shallow to deep

Conveners
Tomo Morishita, Kanazawa University
Pedro Waterton, University of Copenhagen
Mathieu Rospabe, IFREMER (from Feb. 2022)

Chromite is a minor phase in ultramafic to mafic rocks, but is the major host mineral for chromium in these rocks. Chromite is one of the earliest crystallizing minerals from primitive melts and a refractory phase in mantle rocks after partial melting. Chromitite, a unique rock composed mainly of chromite, is a minor rock type found in rocks derived from mantle to lower crust, and layered mafic-ultramafic intrusions formed throughout Earth history. Chromite and chromitites are nearly ubiquitous, despite their low concentrations in the crust and mantle, but their origin and evolutionary history remain enigmatic. Determining the formation ages of chromitite and chromitite-bearing rocks is still a challenge. Melt, fluid, and mineral inclusions in chromite, including apparently ultra-high pressure minerals, platinum-group minerals, sulfides, zircon and other oxides, may also provide insights into the evolution of their mantle or magmatic hosts. In addition, a wide variety of chromian minerals and hydrothermal chromite/chromitite have been reported from rocks associated with chromite-bearing mafic-ultramafic rocks. The solubility of chromium in the melts/fluids as a function of pressure-temperature conditions, oxygen fugacity, pH and minor solute elements is an essential parameter to fully understand the mobility of chromium in diverse environments. We invite multidisciplinary contributions on chromian minerals and related topics from nature to the laboratory, including petrological and geochemical observations, and results from modeling/simulations.