

Antigorite Raman spectrum: a case study in Shiraga region of the central Shikoku, Sanbagawa metamorphic belt, SW Japan

*Kota Ando¹, Yui Kouketsu¹, Katsuyoshi Michibayashi¹

1. Nagoya University

Serpentinites are important rocks and are associated with water circulating in the earth's interior. However, it is difficult to estimate their metamorphic conditions because serpentine minerals are stable at wide P-T condition. In this study, we compared Raman spectrum of antigorite in different metamorphic grade samples and determined whether Raman spectrum could constrain metamorphic conditions of serpentinites. Serpentinites in this study have been sampled from Shiraga region of the central Shikoku, the Sanbagawa metamorphic belt, SW Japan. All samples experienced the metamorphic conditions in which olivine were formed by the dehydration reaction of antigorite with brucite. Some samples show retrograde antigorite formed during exhumation. Raman spectrum were measured from various sizes and textures of antigorite grains. Comparing full width at half maximum (FWHM) of Raman spectrum, we found that the prograde-antigorite had different features from retrograde-antigorite. As a consequence, FWHM of Antigorite Raman spectrum could be used to constrain the timing of antigorite formation.

Keywords: antigorite, Serpentinite, Raman spectrum, Sanbagawa metamorphic belt