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Peak pressure estimates of Koralpe-Saualpe-Pohorje Complex based on Raman Spectroscopy

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The Koralpe-Saualpe-Pohorje Complex in the Eastern Alps represents a lithologically heterogenous (U)HP nappe with eclogite lenses embedded in gneissic and metasedimentary rocks. The aim of this project is to determine whether or not tectonic pressure occurred due to differences in viscosity of different lithologies. In this study we investigate in detail the P and T conditions during the formation of the Koralpe–Saualpe–Pohorje Complex along a NW-SE transect. In order to determine the P conditions, quartz inclusions in garnet are investigated with Raman spectroscopy (RSQI barometry). With Zr-in-rutile thermometry, the temperature conditions will be determined. Preliminary results show an overall residual P increase of the quartz inclusions from the northern Saualpe towards Pohorje in the South. The quartz inclusions inside garnet in eclogite show higher residual P with $\leq$ 0.72 GPa with respect to the ones in the metasedimentary or gneissic lithologies with $\leq$ 0.43 GPa. Elemental maps of garnets in eclogite from three locations show rather variable results with a significant variation of Ca and Mg content in the core, whereas the Mn content is general very low. The metasedimentary and gneissic garnets are predominantly much richer in Fe and show higher Mn with respect to the eclogites.