

Review of the manuscript "Ca-rich garnets and associated symplectites in mafic peraluminous granulites from the Gföhl Nappe System, Austria" by K. Petrakakis et al., submitted to Solid Earth

General comments: The authors present a petrological study on a mafic granulite from the southeastern Bohemian Massif. The study of this rock is very detailed as the authors considered also, for example, the various symplectites in the granulite and the application of modern thermodynamic modeling techniques. Because of that the derived exhumation path in terms of pressure-temperature conditions is well documented. Thus, previous works proposing high peak-temperatures in the range around 1000°C for the granulites of the Gföhl unit seem to have overestimated these temperatures.

In summary, I would like to see the manuscript published soon after minor revisions.

Specific comments:

page 3, line 12: batholith?

page 5, lines 6-7: "but at much lower pressures of >4.5 kbar" - I am not sure which pressure range is addressed by the authors. My suggestion: "but at pressures between 4.5 and 6.5 kbar".

page 13, line 10: kelyphitized?

page 15, line 20: "GRT-type extends" - which garnet type?

page 18, lines 13-14: "does a common intersection point ... exists, indication that none of the GRT-types corresponds to a preserved equilibrium state" - I agree that this statement is likely, but not compelling. But other reasons are also possible and should be mentioned here. Perhaps the selected solid-solution models (here especially garnet) could be not fully adequate. The authors did not test the selected models and did not achieve their pseudosection calculations with alternative solid-solution models. A further reason for the missing fit of the isopleths could be the used bulk-rock composition although I also think that it is very likely that this composition has not changed during metamorphism.

page 18, line 19: "some prograde" - better: "a prograde"

page 20, line 9: "+PL, seed more" - probably: "+PL shed more"

page 22, line 5: "of reaction" - rather "of reactions"

page 22, line 16: something is missing at the end of the line - my suggestion "at hand, these conditions are characterized by"

page 23, line 4: "they allow for the calculation" - better: "they allow us to calculate"

page 23, line 6: "It is often observed" - better: "It is frequently suggested"

page 23, line 12: Replace "earlier" by "above"

page 23, line 15: "in ultramafic rocks have" - "in ultramafic rocks that have"

page 23, line 23: replace "composition" by "compositional"

page 23, line 27: "the Mn" - "the entire Mn"

page 24, line 4: "A limited fluid availability" - "A limited availability"

page 24, line 6: "zonation" might be better than "structure"

page 24, line 9: "conditions." - "conditions using pseudosections" or do the authors mean "thermo-barometric estimate"? If yes, I would not agree with as the size of the lamellae delivered (rough) temperature constraints.

page 24, line 10: "stability field" - better "P-T field" as the stability of the mentioned assemblage is more extended.

page 24, line 12: "It is developed" - better: "It formed"

page 24, lines 18-20: Seems to me somewhat speculative. This should be mentioned.

page 24, line 26: "is more than questionable" - "is questionable"

page 25, line 9: "pre-date formation" - "pre-date the formation"

page 25, line 10: "to activity" - "to the activity"

page 25, line 13: "in depth" - "in detail"

page 25, lines 15 and 31: "related with" - "related to"

page 26, line 16: "rather, than with increasingly" - "rather than increasingly"

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