EVIDENCE FOR BIMETASOMATISM BETWEEN ECLOGITE AND ADJACENT ROCKS FROM THE TAUERN WINDOW, AUSTRIA

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The Eclogite Zone (Austria) is characterized by the occurrence of eclogite interbedded wi other rocks, mainly metapelites and minor marbles, metapsammites and talc schis According to geothermobarometry, PT-conditions of at least 26 kbar and about 580 °C we achieved. An open question is whether fluid-mediated compositional changes occurr between the interlayers during subduction zone metamorphism. Therefore, the mineralo and geochemistry of the contacts eclogite–metapelite and eclogite–talc schists we investigated.

The eclogite in contact to the metapelite shows almost no change in volume, with minor ga of Si, Ca and Na and loss of Mg. The metapelite, however, exposes 30 % volume loss, main as Si and Ca, coupled with enrichment of K, Mg, Fe and Na; the latter two stem from external source. Trace element changes are less spectacular but corroborate changes in t major elements (Sr goes with Ca, Ba with K, etc.).

The eclogite in contact to the talc schist also underwent no significant change in volume, wi minor enrichment in Mg and depletion in Na. The talc schist is ultrabasic in composition a of uncertain origin. It experienced more than 30 % volume loss towards the contact, whe Mg, Fe, Si, Na and Ti are depleted and no major element is enriched.

These changes in bulk composition are expressed in mineralogical, textural and mine chemical changes of considerable complexity. There is clear evidence that it is not caused l retrograde interactions. The compositional changes are too systematic and complex to explained as primary (volcano-) sedimentary layering or mixing of clays and ashes. As t lithological boundaries are planar over distances of tens of metres at least, the volume loss are not induced by folding but rather by (pure or general) shear. Some composition chang cannot be explained by material exchange between the two lithologies (bimetasomatis alone but must have been caused by advection parallel to the lithological boundaries. Ra garnets and epidotes with oscillatory zoning patterns near the contact indicate the effect locally abundant fluids.