

# Tectonic Evolution of the Central Part of the Krušné Hory Mountains (Erzgebirge) in the Czech Republic (Saxothuringian Domain of the Bohemian Massif )

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Three major tectonic units can be distinguished in the Czech part of the Central Krušné hory Mts.:

- 1) *Para-autochthonous domain* is built of metapelites, meta-greywackes and of major orthogneiss body of the Sv. Kateřina dome. Metamorphic conditions in the para-autochthonous sequence reached conditions of the amphibolite-eclogite facies transition (600 °C, 14 kbar - Konopásek 1998) and similar conditions were also reported from analogous rocks occurring in the German part of the Krušné hory Mts. (Rötzler et al. 1998).
- 2) *Lower crystalline nappe* is formed of both the fine- and coarse-grained orthogneisses. Its tectonic boundary with the para-autochthonous domain is characterized by the occurrence of mafic eclogites. Their peak PT conditions (650-700 °C, 26 kbar - Kláková et al. 1998) differ considerably from those of adjacent rock-types. Corresponding mafic eclogites appear also in the German part of the Krušné hory Mts. (Schmädicke et al. 1992) and their HP metamorphism was dated at 342 Ma (Sm/Nd method - von Quadt and Gebauer 1998).
- 3) *Higher crystalline nappe* consists of partially molten HT orthogneisses bearing granulite-facies rocks. The PT conditions of granulite facies metamorphism were established at 800 °C and 20 kbar by Kotková (1993). The age of this HP-HT event was determined to be 342 Ma (U/Pb method - Kotková et al. 1996). Again, similar granulite facies rocks occur in Germany and their granulite facies metamorphism was dated by Kröner and Willner (1998) at 342 Ma, too.

These data suggest that at one time (342 Ma), there exist two tectonic units close to each other which cannot be derived from one continental domain (as the so-called "basement-derived nappes") since they show considerably different thermal gradients. The authors are of the opinion that the boundary between para-autochthonous metasedimentary rocks and the lower crystalline nappe with eclogites represents the major tectonic boundary between the Saxothuringian domain and today more easterly lying Moldanubian root domain. On the other hand, the boundary between the lower and upper crystalline nappe is believed

to be an intra-root thrust formed during thrusting of the Molanubian rocks over the subducting Saxothuringian domain.

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