

Abstract

Krkonoše-Jizera plutonic complex is one of the largest composite plutonic bodies in the Czech massif. The emplacement of this pluton relates to the origin of the structural and thermal aureole. The processes of contact metamorphism are most evident in the northern and southern part. The topic of this work is to find influence of the contact metamorphism in the host rocks. Partial information about contact metamorphism in this area could be found in several papers, but there aren't work which discuss this topic in detail. Goal of this work is to make complex interpretation of contact metamorphic processes connected with intrusion of the Krkonoše-Jizera plutonic complex and use this interpretation for discussion about model of magma intrusion.

In rocks of contact aureole of Krkonoše-Jizera plutonic complex (KJPC) were identified relicts of Variscan regional metamorphism, connected to creation of regional metamorphic fabric S1 and S2. Original mineral associations and deformation fabrics were in near-contact zone of KJPC 1 km in average in width heterogeneously overprinted by effects of the contact metamorphism, which intensity increases towards the intrusive contact. In the mineral associations of contact-metamorphic rocks appears characteristic minerals such as cordierite and andalusite, rarely sillimanite. Partial replacement of specific contact minerals implies wide activity of hydrothermal fluids during final phases of cooling and crystallization of the magma. The conditions of the contact metamorphism in rocks from northern and southern plutonic contact are similar and relates to temperatures in range of $\sim 695 - 547$ °C. Pressures in the south part of aureole are ~ 2.5 kbar. These determined P-T conditions shows shallow emplacement of the plutonic complex to depths about 7.5 km. The emplacement of KJPC also relates to deformative overprint of former-original regional fabrics in form of orientation change of metamorphic foliation in vicinity of plutonic complex (dome structure creation, east-west elongation). These structures indicate compression of surrounding rocks by intrusion and stand as important factor in creation of space for magma. The overall emplacement of KJPC was probably driven by faulting in kinematic regime of right-sided transtension in W/N-W to E/S-E direction.

Key words: contact metamorphism, contact aureole, structural aureole, Krkonoše-Jizera plutonic complex

