which was very similar to that in the Variscan. As a result, Variscan shear zones were reactivated at higher crustal levels.

THE KARKONOSZE GRANITE FROM ŁOMNICA, SUDETES, POLAND: ITS TECTONIC POSITION INFERRED FROM GEOCHEMICAL DATA

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Sixty one granite core samples were taken from a 500 m deep borehole localised in the eastern part of the Karkonosze massif near Łomnica village in Polish Sudetes. This granite consists of quartz, plagioclase (An_{30-0}), alkali feldspar, biotite, and ilmenite. Its structure is coarse-grained and porphyric. The granite samples show wide variations in the intensity of secondary processes, such as chloritization, sericitization, and prehnitization. In extreme cases, the whole biotite was replaced by chlorite. The chemistry of the granite was analysed by using the XRF wavelength dispersion method. The accuracy of trace elements determination was about 1 ppm. On the QAP classification diagram (where Q, A, P are normative quartz, alkali feldspar and plagioclase contents) the studied samples cover the fields of granite and granodiorite. The chemical data point to a homogeneity of the granite with normal distribution of mineral-forming elements and a relative low standard deviation value. It seems, that all the investigated granite samples are indicative of the same magmatic event.

Many authors postulate, that there is a correlation between the chemical composition of a granitoid rock and its intrusive environment. This correlation provides a base for genetic interpretations of other granitoid massifs with particular reference to their original tectonic setting. However, the effect of subsequent processes must be concidered to ensure a reliability of this tectonic interpretation. CWOJDZIŃSKI (1979) on the basis of paleomagnetic and geological data suggested, that the Karkonosze granite intruded during a collision event of the Bohemian Massif and the East-European Platform. The aim of this work was to test this hypothesis based on geochemical data.

The tectonic classification of PEARCE et al. (1984) based on trace elements like Rb, Y, Nb, Yb and Ta shows 4 types of granitic rocks: 1. ocean ridge granites - ORG, 2. volcanic arc granites - VAG, 3. within plate granites WPG and 4. collision granites - COLG. According to this classification, the studied granite samples plot at the border between the COLG and VAG fields. The chemical data presented in this paper do not allow a more detailed classification. However, it seems plausible that Yb and Ta distributions would help to classify precisely the studied granite. MANIAR & PICCOLI (1989) classify granitoids into 7 groups according to contents of major elements: Al, Fe, Mg, Ca, Na and K: 1. island arc granitoids - IAG, 2.

continental arc granitoids - CAG, 3. continental collision granitoids - CCG, 4. postorogenic granitoids - POG, 5. rift-related granitoids - RRG, 6. continental epeirogenic uplift granitoids - CEUG and 7. oceanic plagiogranites - OP.

A plot of chemical data of the studied granite suggests, that this granite belongs either to CAG or to CCG. These two fields overlap one another, and therefore it is hardly possible to provide a more detailed interpretation.

The classification of BATCHELOR & BOWDEN (1985) allow to discriminate granite types according to orogenic stage of their formation. This classification concerns the major element composition (Si, Ti, Al, Fe, Mg, Ca, Na and K) and allow to discriminate between the following genetic types: 1. mantle plagiogranites, 2. pre-plate collision (destruction of an active plate margin) related granitoids, 3. granitoids of post-collisional uplift, 4. late-orogenic granitoids, 5. anorogenic granitoids, 6. syn-orogenic anatectic 2-mica leucogranites and 7. post-orogenic granitoids.

According to this classification, the Karkonosze granite represents either a late-orogenic granite type or syn-orogenic 2-mica leucogranite. However, petrographical and geochemical data strongly suggest a late orogenic development of the studied granite. According to the first two classifications the Karkonosze granite is either a collisional granite or an island (continental) arc granitoid. The third classification implies that the granite intruded during a late orogenic stage. The environment of an island arc is highly impossible because the development of the Karkonosze intrusion occurred during a late stage of orogenesis. Therefore, the granite from Łomnica seems to be of collisional origin.

The present work was carried out with the NEWPET software.

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