

Geological Mapping of the Crystalline Complex in the SW Part of the Jeseníky Mts., Czech Republic

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The new geological mapping of the Czech Geological Survey to scale 1:25,000 was carried out in the period of 1998–1999 in a broad vicinity of the city of Šumperk, covering map sheets 14-423 Hanušovice (editor M. Opletal), 14-412 Šumperk (V. Pecina), 14-414 Zábřeh (J. Večeřa), 14-421 Velké Losiny (V. Žáček) a 14-423 Libina (J. Aichler). Mapping of the crystalline complex was supplemented by petrographical and geochemical studies, tectonic investigations, systematic measurements of magnetic susceptibility, by the study of petrophysical parameters (M. Chlupáčová) and magnetic anisotropy (F. Hrouda).

The mapping covered the geological structure of the Lugićum (E part of the Orlica-Sniežník Dome, the Staré Město Belt and the NE margin of the Zábřeh Crystalline Complex) and the Silesicum (the Keprník and Desná units). Both the Lugićum and Silesicum have undergone a complex polyphase tectonometamorphic history and, to a considerable extent, they differ in protholith characters as well as in the succession and P-T parameters of metamorphic events. Regional distribution of the units reflects chiefly the kinematics of the Variscan tectonics.

Results of the mapping support the idea that the contact between the Lugićum and Silesicum probably follows the Ramzová line (thrust) which is represented by a westerly dipping sinistral strike-slip zone. This structure represents, in the surface level, a dividing line between two quite different lithospheric blocks. Relics of high-grade rocks (eclogites, granulites) and scraps of the upper mantle (serpentinised mantle ultrabasic rocks generally associated with the thrust planes) are common in the Lugićum. Mineral associations of the Silesicum were formed under low- to high-temperature and low- to medium-pressure conditions, and relics of high-pressure rocks are absent here.

The contact of the Keprník and Desná units runs also along the strike-slip fault system. These units differ in the character of deformation and in the intensity of retrograde processes. The

polymetamorphic development and segmentation into a range of scales and nappes are their common feature.

The grade of the Variscan polyphase metamorphism generally increases towards NNW in the Desná Unit, passing from the chlorite zone through the biotite (locally with common chloritoid) and staurolite zones to the kyanite or sillimanite zone. An important role was played by the late tectonometamorphic Variscan processes, connected with the high activity of fluids at the increasing activity of oxygen, which took place under conditions of decreasing metamorphic intensity from the amphibolite to the greenschist facies. The high hydrothermal activity during deformations under the greenschist facies conditions is evidenced by the distinctive regional epidotization, chloritization, muscovitization and the irregular growth of magnetite-magnetite. These extensive but non-penetrative, low-temperature deformations partly overprinted the primary thrust structures.

The fold pattern of the Desná Unit ranges from millimetres to kilometres in scale with prevailing NE–SW-trending folds. The imbrication structure is well documented by the alternation of scales (boudins) of metagranites and volcano-sedimentary rocks of the Vrbno Group with complicated lithon pattern on the contacts. Very uniform NE–SW orientation of foliations and lineations (L3) is characteristic for both pre-Devonian and Devonian sequences.

Geological setting of the area under survey is considerably complicated by frequent NW- to WNW-striking faults diagonally dislocating geological bodies and, to a lesser degree, by NE–SW-striking normal faults. The most distinctive movements were interpreted along the Bušín Fault, which caused the significant bending of the Zábřeh Crystalline Complex and the Desná Unit as well as the cutting off of the block of the southern part of the Keprník Unit, its displacement to the SE by 10 km and its rotation to the NW–SE direction.

Calcuturbidite Record of Variscan Orogenic Polarity in Moravia - Relative Highstands and Lowstands as Indicators of Crustal Extension and Compression, Respectively

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Calcuturbidite systems are highly sensitive to relative sea-level fluctuations (Reijmer et al. 1991) and syndepositional tectonic movements (Eberli 1991). Two factors are of essential importance: (i) timing of onset of calcuturbidite deposition indicating

extensional drowning of carbonate platform, especially when showing a distinct polarity in time and space, and (ii) compositional variations of calcuturbidites that may reveal sea-level history of their source areas. As to the former case, quick replace-