

MINERALOGICAL STUDIES IN THE POLISH CARPATHIANS (PERIOD 2000-2005)

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Mineralogical studies in the Polish Carpathians during last five years were focused on several topics.

1. Inner Carpathians

Reconstruction of P-T conditions of crystalline rocks formation and hydrothermal alterations were studied by J. BURDA, A. GAWĘDA, K. JACHER-ŚLIWCZYŃSKA and J. LEICHMANN.

Accessory minerals in crystalline rocks. Chemical composition and internal structure of zircon in granitoid rocks (J. BURDA), xenotime-zircon intergrowths, REE minerals in chlorite schists. Crystallization, stability and breakdown are discussed (D. DYLSKA, M. KUSIAK, M. MICHALIK, M. PASZKOWSKI, R. POPCZYK, M. STANISŁAWSKA).

Mineralogy and geochemistry of carbonate and silicate minerals of the Križna unit. Exhalative origin of Mn-bearing sequence of Toarcian carbonate/silicate deposits were studied by T. DUDEK and R. JACH. Silicate minerals and their terrigenous and diagenetic origin were investigated by M. MICHALIK and M. SKIBA.

Geochemical and isotopic studies of speleothems from the Tatra caves (origin of caves, dating of speleothems by means of the U-Th method, estimation of climatic changes based on analysis of speleothem growth frequency, and reconstruction of the type of vegetation cover during the cold and warm periods using carbon isotopic composition) were performed by M. GRADZIŃSKI and H. HERCMAN.

Heavy minerals in recent alluvia. Heavy minerals from crystalline rocks and anthropogenic components related to historical industrial activity were studied (A. KIEBAŁA, A. LADENBERGER, M. MICHALIK).

Diagenesis and uplift of the Podhale basin and underlying Mesozoic nappes. From XRD %S measurements (percent smectite in mixed-layer illite/smectite) on present surface and in boreholes, supplemented by K-Ar dating it was concluded that the Podhale basin together with the Tatra block underwent major subsidence along the Ruzbachy fault and since 18 Ma a major uplift also along this fault. Up to 6 km of erosion was inferred for the eastern part of the basin from these data. The diagenesis of the Mesozoic nappes is 90 Ma old and during Tertiary the Tatras were buried under the flysch sediments to ca. 3-4 km (M. KOTARBA, P. SUCH, J. ŚRODOŃ). These conclusions were confirmed by AFT study (A. ANCZKIEWICZ and J. ŚRODOŃ).

Weathering and soil forming processes. Mineralogy and geochemistry of the podzolization processes on granitoids (M. SKIBA), stability of accessory minerals from granitoids during podzolization (I. JERZYKOWSKA).

2. Pieniny Klippen belt

Pieniny andesites. Petrology, petrogenesis, K-Ar ages, mineralogy and related hydrothermal alterations and mineralization were studied by P. ALEKSANDROWSKI, N. BAKUN-CZUBAROW, A. BIAŁOWOLSKA, K. BIRKENMA-

JER, A. BOUVIER, A. LADENBERGER, M. MICHALIK, Z. PÉCSKAY, C. PIN, Ł. SKUBLICKI, W. SZELIGA, M. WARZECHA, B. ZYCH.

Sedimentology, mineralogy, geochemistry of pelitic rocks from the Pieniny unit (P. WOJCIK-TABOL).

3. Outer Carpathians

Teschenites in the Outer Carpathian flysch (mineralogy, petrology and age determination) R. ANCZKIEWICZ, Ł. KARWOWSKI, A. LUCIŃSKA-ANCZKIEWICZ, E. STARNAWSKA, A. ŚLĄCZKA, I.M. VILLA, R. WŁODYKA, R. WRZALIK.

Clay diagenesis both in the flysch nappes (Kraków-Nowy Targ section and Kuźmina borehole (M. KOTARBA, J. ŚRODOŃ) and in the Carpathian Foredeep (T. DUDEK, J. ŚRODOŃ). Inner nappes (Magura) were found to be more diagenetically advanced than the outer nappes (Silesian and Subsilesian). The diagenesis in the Kraków-Nowy Targ section is older than the present-day tectonic structure. The advance of diagenesis in the Kuźmina profile was studied by measurements of the illite crystal size distribution.

Clay minerals were used to reconstruct thermal evolution of tectonic windows or mechanisms such as variable uplift in the Magura Nappe (A. Świerczewska).

Provenance of the crystalline clasts and clastic material of sandstones. Mineralogical, petrological, geochemical and geochronological (K-Ar method on micas, U-Pb method on zircon and CHIME on monazite) studies of gravel-size extrabasinal clasts of crystalline rocks (K. BĄK, I. BROSKA, B. BUDZYŃ, B. DZIUBIŃSKA, M. GARECKA, I. HOLICKÝ, K. JACHER-ŚLIWCZYŃSKA, P. KONEČNY, M. KUSIAK, E. MACHANIEC, T. MALATA, M. MICHALIK, M. PASZKOWSKI, Z. PÉCSKAY, P. POPRAWA, J. RUBINKIEWICZ, J. SKULICH, A. WOLSKA). Heavy minerals were studied by B. DZIUBIŃSKA, M. KUSIAK, J. LEICHMANN, N. OSZCZYPKO, M. PASZKOWSKI and D. SALATA.

Early diagenetic carbonate concretions (sideroplesites and manganospherites) were studied by B. DZIUBIŃSKA and W. NARĘBSKI.

Mineralogy of clinoptilolite-bearing rocks and sorption mechanisms on clinoptilolite from flysch rocks (sorption of heavy metals and gases) (T. BAJDA, W. FRANUS, A. MANECKI, W. MOZGAWA, T. WIESER).

Hydrothermal mineralization in flysch rocks. Cinnabar and arsenic sulphide associations (Ł. KARWOWSKI, E. SZEŁĘG), kaolinite-barite intergrowths from Rabe near Baligród (M. MICHALIK, W. WILCZYŃSKA-MICHALIK).

Secondary minerals on weathered surfaces of the flysch sandstones were studied to determine differences in concentration of air-pollution in the Carpathians (M. MICHALIK, W. WILCZYŃSKA-MICHALIK).