Petrography and Sedimentology of Lower Triassic siliciclastic sediments in Giewont Unit, Tatra Mts.

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Tatra Mountains are a part of the Inner Carpathians. They contain a crystalline core and a Mesozoic sedimentary cover. Tatra Mountains are divided generally into three tectonic-facies units – Tatricum, Fatricum and Hronicum. The studied sedimentary rocks are found in the Tatricum Unit, exactly in the subunit of Giewont, which contain a part of the crystalline core and a Mesozoic sedimentary cover from Triassic to Cretaceous.

The sediments, which were studied, are found in central part of the Tatra Mts. The outcrop is located south of the Giewont Peak. It comprises a profile of siliciclastic rocks, which are located directly on the crystalline core. The boundary between magmatic and siliciclastic rocks is not visible in the field. The studied sediments are of Lower Triassic age, exactly Seis (Sokołowski, 1948). The specific research of the petrography of sediments was made. In the lower part of the lithological profile, conglomerate with lithoclasts of quartz and magmatic rocks are found. Then a change of the facies was observed. The size of grains decreased. In the middle part of the profile reddish and greyish sandstone is located. The highest part of the outcrop comprises sandstone with thin layers of red and green mudstone.

In the outcrop fossils and bioturbation structures were not observed. The red and the green mudstone do not contain organic matter also. In the lower and middle parts of the lithological profile, cross bedding was observed. Some of the ceilings of the beds in the lower part are covered with ripplemarks. They are helpful marks during the interpretation of paleoenvironment of Lower Triassic in the Tethys Ocean.

The topic of the paleoenvironment of these sediments is still discussed. The interpretation was changing through years. Nowadays, it is claimed that the conglomerate and the lower part of reddish and greyish sandstone were embedded as sediments of a braided river. In the upper parts of the Seis profile, the facies changed into shallow-marine sediments (Passendorfer, 1950).

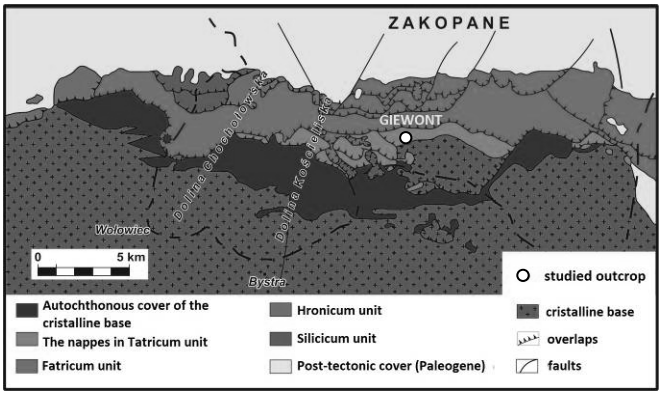

Fig. 1.: Tectonic map of the Tatra Mountains marked with the studied outcrop.

Passendorfer, E. (1950): Rocznik Polskiego Towarzystwa Geologicznego, 19: 401-418.

Sokołowski, S. (1948): Prace Państwowego Instytutu Geologicznego, 4: 1-48.