

The Fault Tectonics of the Middle Skawa River Valley (Polish Flysch Carpathians)

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Upper Cretaceous and Paleogene rocks of the Silesian and Magura Nappes build up the complex structure of the investigated area, which is stretching along the Skawa River valley between Sucha Beskidzka and Świnna Poręba (Książkiewicz 1972, 1974a,b, Golonka et al. 2005). Middle and Upper Godula Beds, Istebna Beds, Eocene red shales and Ciężkowice Sandstone as well as Hieroglyphic, Menilite and Krosno Beds form the Silesian Succession. The sedimentary succession typical for the so-called Siary unit forms the Magura Nappe, which includes the following lithostratigraphic units: Jaworzynka Formation (Ropianka Beds) with Gołynia Shale member and Mutne Sandstone Member within the Paleocene part of profile, Łabowa Formation with the Skawce Sandstone Member, Beloveza Formation, and Beskid Makowski Formation with Zembrzyce Shale Member, Wątkowa Sandstone Member and Budzów Shale Member.

The Silesian Nappe stretches from Moravia (Czech Republic) to Ukraine where it loses its individuality (Golonka et al. 2005). In the western segment of the Polish Carpathians, the Silesian Nappe is flatly overthrust onto the substratum. The southern part of the Silesian Nappe is hidden beneath the Magura Nappe. Between the Sola and Skawa Rivers, the Silesian Nappe is built up of several gently folded structures. According to Książkiewicz (1977), the imbricated folds gradually become more and more marked eastwards. The dislocation system of faults of located along the Skawa River known as so-called Skawa Fault divides the area into two different parts. East of the river the main structures of the Outer Carpathian fold-and-thrust belt have orientation East-West, while west of Skawa this orientation changes to WSW–ENE. Also the main overthrust of Silesian Nappe displaced 10 km northward west of the dislocation system (Książkiewicz 1972, 1974a,b). The western part of the nappe is included into the large Beskid Mały block. Along the fault Klecza Dolna–Łękawica–Dąbrówka (Książkiewicz 1974a,b), which belongs to the Skawa dislocation system, this block contacts the Pogórze Lanckorońskie Zone. The Beskid Mały block is uplifted, so the upper Cretaceous rocks contact along the Fault the Oligocene deposits of the Pogórze Lanckorońskie. The Merkowa, Jaszczurowa, Berszcz, Mucharz, Mucharza II, Świnna Poręba, Zagórz and Zagórze II, NNW-SSE faults cut the Beskid Mały block into smaller segments. Between Berszcz and Mucharza faults the pull-apart depression was formed during the strike-slip left-lateral activity of these dislocations (see Zuchiewicz 1998, Zuchiewicz et al. 2002, and Golonka et al. 2004). Similar depression exists in Skawce-Zembrzyce area within the Magura Nappe.

The Magura Nappe margin is displaced 5 km southward east of Skawa River. This displacement display gradual step-like character along several smaller NNW-SSE oriented faults. The so-called Krzeszów tectonic half-window is located here.

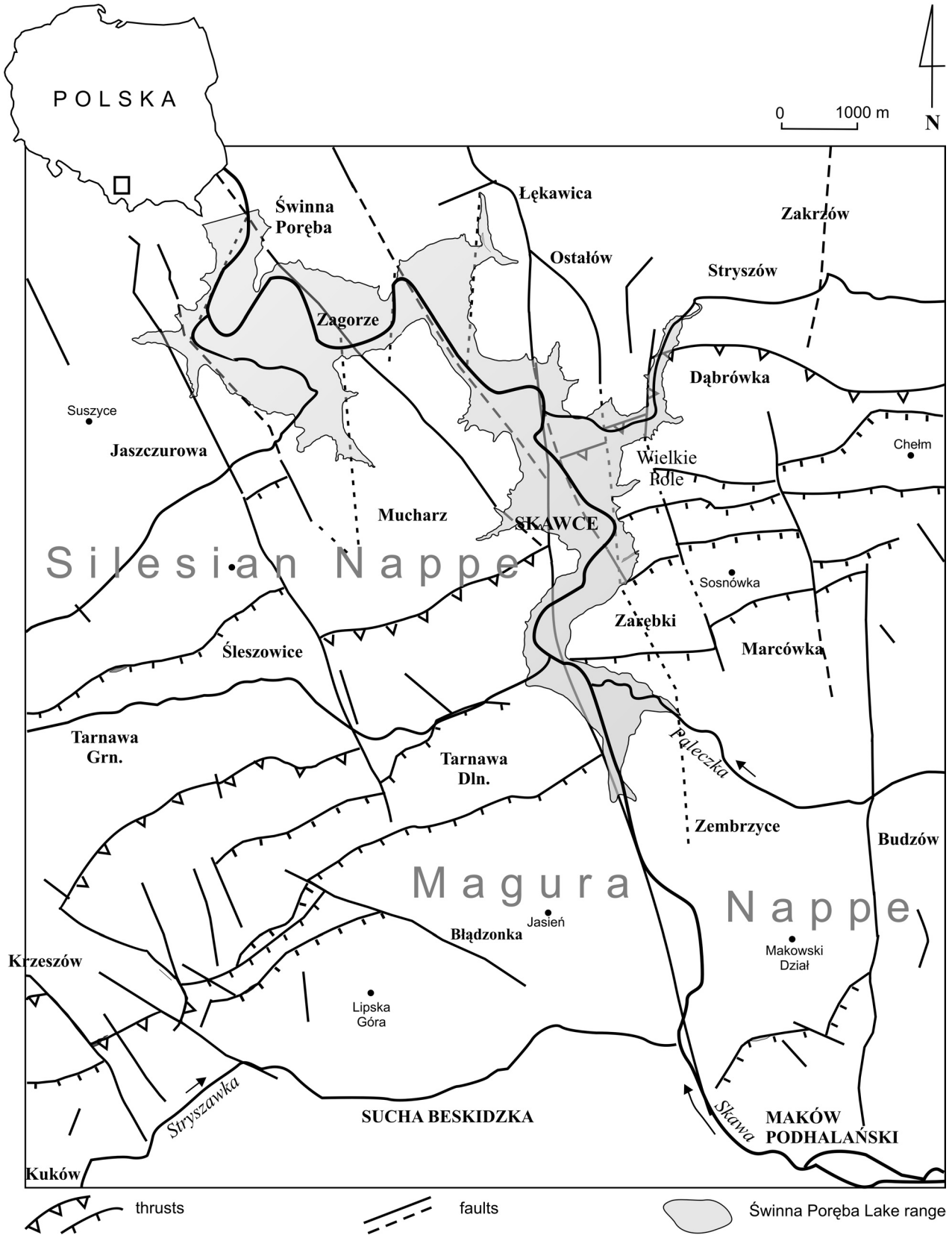
The Magura Nappe has the independent fault systems, some of its dislocations have been acquired, however, from the Silesian Nappe.

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■ Fig.1 Tectonic map of the middle Skawa river valley (Polish Flysch Carpathians)