



The Late Paleozoic crustal growth in the East-Ural zone (Southern Urals, Russia) as a result of a face-to-face overthrusting

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The Urals is a meridional Paleozoic fold belt separated by the main Uralian Fault in two domains: western and eastern. The Western Urals domain is the activated marginal part of the East European Continent with rather poor manifestation of magmatic activity. The domain of the Eastern Urals comprises numerous complexes of Paleozoic oceanic basins and island arcs. Within the domain of the Eastern Urals there are three N-S-trending zones: Magnitogorsk, East-Ural, and Transural (listed from west to east). The Magnitogorsk zone is a synclinorium-type structure mainly composed of the Devonian and Carboniferous volcanic and volcanoclastic sequences as well as the Ordovician basalts. The Transural zone is characterized by a complex nappe-fold structure of various igneous and sedimentary complexes varying in age from Ordovician to Early Carboniferous. Present-day structure of the East Ural zone is close to symmetrical. Its central anticlinorium part is represented by a chain of the dome-shaped structures with the core granitoid plutons and Precambrian - Lower Paleozoic basement. Both marginal synclinorium zones are composed of packages of the large tectonic slices. These slices contain the East-Ural zone sequences, as well as fragments of the Magnitogorsk and the Transural complexes. The east-vergent Western Synform zone includes two large slice packages. The bottom part of the lower one is built up with a sheet of the Upper Visean - Serpukhovian schist-carbonate suite. It is overlaid by series of slices consisting of the Tournaisian to Middle Visean terrigenous and carbonate sediments, and by the suits of high-Ti trachybasalts. Thin lenses of the serpentinite melange often bound the slices. Moreover, tectonic sheets of the Ordovician island-arcs basalts are traced somewhere in the lowermost part of the lower package. The upper package is represented by alternation of 15-17 tectonic sheets of the Ordovician sodium trachybasalts and the Middle- Upper Devonian siliceous shales. An

intensively tectonized serpentine mass is situated at the bottom of the package. This nappe is a part of the Magnitogorsk paleobasin overthrust to the east. The upper package is up to 8 km in thickness regarded to gravity data. Total thickness of the lower package is about 6-7 km. Structure of the Eastern Synform zone is roughly similar to the Western one, but considerably differs in detail. It consists of three tectonic packages. The lower package is represented by the Tournaisian - Lower Viséan coal-bearing sequence, which overlies a series of large intensively tectonized serpentine mass. The Upper Viséan - Serpukhovian schist-carbonate suite lies at the bottom of the second package. Its upper part is formed by the Middle Viséan high-Ti trachybasalts, and the top - by the Upper Turnesian to Lower Viséan coal-bearing suite. They are overthrust by intensively melanged serpentine mass of the upper package. Total thickness of the napped complexes in the Eastern Synform zone is up to 6-8 km. We suggest that they were overthrust from east to west - from bordering area between the East Ural and the Transural Zones. Thus, above-mentioned data allow us to suggest crustal growth of the East Ural Zone as a result of face-to-face overthrusting from both the Magnitogorsk and the Transural zones. The East Ural zone was completely covered by tectonic packages with total thickness up to 10-12 km. Age of napping events is post-Early Carboniferous. It is most probably synchronous with beginning of the Uralian collision. Napping has occurred in transpressional setting followed by the sufficient and very fast crustal growth. Such process could result in initiation of active Permian granitoid magmatism.