Finally, the zonation of metamorphic facies and individual pt-paths predicted by the numerical model are compared to field data from the Variscan and Alpine orogens of Central Europe.

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Paleomagnetic data as indicator of folding propagation in Southern Urals

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Main task of our research is the reconstruction of folding history of Southern Urals. This investigation is based on study of well-known secondary Late Paleozoic remanence in Neoproterozoic and Paleozoic rocks from the Southern Urals and uses pre-, syn- and postfolding components.

Determining a degree of folding (dip of layers in per cent) at the time of secondary overprint it is possible to interpret one in terms of temporal and spatial propagation of folding (Stamatakos, Hirt, Lowrie, 1996; Shipunov, 1997). Comparison of the paleomagnetic pole positions of Late Paleozoic secondary magnetizations with a time-averaged reference apparent polar wander path for the East European platform (Khramov 1991, Torsvik et al. 1992, Van der Voo 1993, Pechersky and Didenko 1995, Molostovsky and Khramov 1995, Smethurst *et al.*, 1998) shows that rocks within the southern Urals were remagnetized in the Late Carboniferous–Early Permian. This estimation based on paleomagnetic data is in agreement with time of collision activation of many tectonic events during the Late Paleozoic (orogeny, intensive folding deformation, thrusting, metamorphism, metasomatism, katamorphism, rejuvenation of isotopic data). A number of geological data shows possibility of propagation and decrease in intensities of these processes from the east to the west.

Late Paleozoic component of remanence in Neoproterozoic and Paleozoic rocks from western, south-western and northern areas of Bashkirian anticlinorium and areas of Southern Preuralian acquired as a rule some prefolding time. In contrast, for sites from central and eastern areas of Southern Urals, the Late Paleozoic component acquired syn- and postfolding time. This pattern reflects folding propagation during the Late Carboniferous–Early Permian from the east to the west for southern parts and from the south (central part of Bashkirian anticlinorium) to the north for northern parts of the Southern Urals.

Structural analysis of seismic data in the Baltic Basin: evidences for Silurian–Early Devonian intra-plate compression in the foreland of Caledonian orogen

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The Baltic Basin is a Late Vendian–Phanerozoic poligenetic sedimentary basin, developed at the western margin of the East European Craton. From the west it is bordered by the Tornquist-Teisseyre Zone and North German–Polish Caledonian Deformation Front. During (?Late Ordovician) Silurian the Baltic Basin constituted the foredeep of the North German–Polish Caledonides, which having been thrust over of the western margin of the Baltica plate caused its flexural bending (Poprawa et al. 1999). Simultaneously, the foredeep basin developed in front of Scandinavian Caledonides (Middleton et al. 1996) which also influenced the structural development of the Baltic Basin (Sliaupa 1999).

In the present study, a set of industrial seismic lines from Lithuanian and Polish onshore part of the basin was analyzed, with a special emphasis on identification of structures related to Caledonian collision. Reflection seismic data in Lithuania reveal high angle reverse faults of Early Devonian (Lochkovian) age. The faults dip to the north and north-east and involve the crystalline basement; the offset is in the range of 50–200 m. On the southern flank of the basin, the faults dip mainly to the south. The disruption of the sedimentary pile was preceded by onset of the forced flexures over basement faults in Late Silurian time.

Also in the Polish part of the central Baltic Basin compressional structures involving Lower Palaeozoic deposits were recognized in the area of the Leba Elevation and NW slope of the Mazury Elevation. These structures are represented by reverse faults having offset of several dozens of metres and involving the basement and Lower Palaeozoic sediments. In some cases, the reverse faults pass up-section into flexures, involving competent Silurian shales. Overlying Rotliegend, Zechstein and Mesozoic sediments are not deformed. In the Polish part of the basin there is no direct evidence of Caledonian age of reverse faults and flexures. Due to presence of Zechstain evaporites the quality of seismic data does not allow to prove if these faults are of Late Silurian age (syn-sedimentary) or younger (Devonian-Early Permian).

Analyzed seismic sections, particularly these from Lithuanian part of the basin, allow identification of intra-plate compression related to late stages of development of Scandinavian and NorthGerman–Polish Caledonides. Also the complex geometry of the Silurian Baltic Basin, revealing large-scale gentle deformations of NW part of the Baltica plate, confirms that this was a zone of combined influence of both orogens at that time (Poprawa et al. 1999). The phase of compressional deformations of the Baltic Basin was followed by middle-Early Devonian post-orogenic uplift and regional erosion, particularly in the western part of the basin.

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The South Anyui collision suture zone (NE Asia): tectonic evolution and correlations of tectonic events in the eastern Arctic

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The South Anyui suture zone (SAZ) separated two main Mesozoic fold belts of the NE Asia: the Verkhoyansk–Kolyma belt and the Novosibirsk–Chukotka belt. The Verkhoyansk–Kolyma fold belt consists of shelf of various age, turbidite, cratonic, and island arc terranes, which build the Kolyma–Omolon amalgamated superterrane and Alazeya–Oloy accreted superterrane. Some ophiolite allochthons of Paleozoic age obducted in the Mesozoic from the Alazeya–Oloy superterrane side onto the Asia margin cratonic terranes. According to the paleomagnetic (Iosifidi 1988, Didenko *et al.* 1990, Lvov and Neustroev 1991, Bondarenko 2000) and paleobiogeographic (Shapiro and Ganelin 1988, Gagiev 1991) data all tectonic elements of the Verkhoyansk–Kolyma fold belt were narrow structural in relationship with the Asia craton, and collided with one in Jurassic to Cretaceous time.

The Novosibirsk–Chukotka fold belt is characterized by fundamental difference from the Verkhoyansk-Kolyma belt structural and stratigraphic features (Fujita 1978, Parfenov 1984, Zonenshain et al.). It consists of Paleozoic to Triassic shelf and turbidite terranes and cratonic terrane of North America origin (Noklenberg et al. 1997)). Geological, faunal and stratigraphic data show that the Novosibirsk–Chukotka belt is a part of the northern Alaska (Kosko et al. 1993, Noklenberg et al. 1997).

The South Anyui suture zone is a remnant of Late Jurassic to Early Cretaceous oceanic basin, which was closed after Asia and Chukotka microcontinent Early Cretaceous collision