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Age of folding and relationships of Pai-Hoi–Novaya Zemlya and Urals orogenic belts.

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Conception of a considerable difference between Pai-Hoi–Novaya Zemlya and Urals fold systems prevail in a geological literature. Traditionally the first is considered as the Early Cimmerian orogeny, and the second as Hercynian orogeny. However, the analysis of tectonic structures based on the results of their mapping in the linkage zone of Urals and Pai-Hoi demonstrate [1] that the idea about the latter formation of Pai-Hoi structures and their overprint onto the Urals contradicts to the obtained data.

Fold-thrust deformations in the West Uralian megazone are a result of obduction of paleoceanic sector (Tagil-Magnitogorsk megazone) onto the passive margin of Baltica. Similarity between the fold-thrust structures of Pai-Hoi and West Uralian megazone indicates the same mechanism of their formation. Group of positive magnetic anomalies (1) extend in a north-west direction along the southwestern coast of Baydarata Bay in Kara Sea. These anomalies are comparable with the magnetic field above Schuchinskiy synclinorium of the Polar Urals according to an intensity and with an influence of Mesozoic sedimentary cover taken into account. The most probable option of their interpretation is that a hypothetical Baydarata ultrabasic rock massive, which is a part of Tagil-Magnitogorsk megazone of Urals, is reflected in the magnetic field. A negative gravitational field is only difference and could be explained by serpentinization of the ultrabasic rocks. Baydarata suture (2) most likely is a boundary between palaeocontinental and palaeoceanic sectors and it is considered as probable analogue of the Main Uralian Fault (3).



Baydarata allochthon as a part of West Uralian fold-and-thrust zone is thrust onto Pai-Hoi based on analysis of tectonic structures. Thereby Pai-Hoi and Polar Urals were folded almost simultaneously. Besides the fold-thrust dislocations of the Polar Urals were completed even later than on Pai-Hoi. Migration of an age of folding from northeast to the southwest is defined. Main

orogenic processes in the East Uralian megazone were finished in Permian, this territory was consolidated and Triassic sediments are subhorizontal here. Main phase of folding in West Uralian megazone and on Pai-Hoi took place at the boundary of Late Triassic – Jurassic. Jurassic sediments formed subhorizontal platform cover there. Therefore, the single Caledonian-Hercynian Urals-Novaya Zemlya fold system exist and was formed along the eastern and northeastern margin of Baltica in the time of closing the Uralian palaeocean.

*Figure 1: The junction area of the Ural
and Pai–Hoi*

This fold system was started to form at the Middle Cambrian and completed at the Late palaeocean. This fold system was started to form at the Middle Cambrian and completed at the Late Triassic and by our opinion should be called Uralian.

References:

[1] Shishkin M A et al. (2012) *State geological map of Russian Federation 1:1 000 000. (the third generation). R-41.* VSEGEI.[]

