Solid Earth Discussions

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Reply on RC2

Andrzej Głuszyński and Paweł Aleksandrowski

Author comment on "Late Cretaceous–early Palaeogene inversion-related tectonic structures at the northeastern margin of the Bohemian Massif (southwestern Poland and northern Czechia)" by Andrzej Głuszyński and Paweł Aleksandrowski, Solid Earth Discuss., https://doi.org/10.5194/se-2021-99-AC3, 2021

Dear Professor Solecki,

We appreciate your positive opinion on our manuscript and the suggestions to complete our paper with additional material and lacking references, which we will seriously take into consideration.

As to your specific comments, our position is as follows:

(1) The existence of a Triassic-Upper Cretaceous stratigraphic gap and the question of a possibility to have the effects of the Cimmerian deformation in the North Sudetic Synlinorium is important to understand all the aspects of the Sudetic geology. This problem, however, lies beyond the thematic scope of our intended paper. On our studied seismic profiles we were not able to detect the Triassic/Upper Cretaceous unconformity. The profiles showed us only an erosional unconformity at the boundary between the Triassic and Late Cretaceous. We did not observe, either, "the Cimmerian basement folds" interpreted by Beyer (1934), you refer to. We saw only faults that cut across the Zechstein strata, while, upwards, end up in the Triassic, which makes it possible to hypothetically relate them to the Cimmerian tectonism.

(2) The possible role of salt tectonics should be, indeed, taken into account, but only on the Fore-Sudetic Homocline, and following your remark, we will add a short comment to our text. This will contain information that in the neighborhood of the seismic profiles presented in the paper there may occur salt-tectonic phenomena, in particular such as normal/listric faults rooted in Zechstein salts. Nevertheless, in case of the seismic profiles from the Sudetic Homocline we show in the manuscript, the Permo-Mesozoic strata are (very gently) folded together and concordantly with the Rotliegend and older substratum, which points to the lack of salt tectonics in these particular cases. Neither on the seismic profiles from the North Sudetic Synclinorium were we able to detect any structures that may have been possibly modified by salt tectonics. To our knowledge, no rock salt occurrences were found, either, in boreholes drilled in the neighborhood of the profiles we studied.

(3) Your suggestion ("it would nice to mention") of confirming earlier ideas of Solecki (1986) by our paper, will be considered by us, and we tend to include in our text an appropriate short mention.

(4) In the the question of the genetic relationships of the joint pattern with the Late Cretaceous deformation we, of course, agree with you. It seems that both you and us were influenced by the books and papers of the late Professor Wojciech Jaroszewski of Warsaw University, who promoted the ideas of separate initiation and opening of joints, which turned out to be – in much part - convincing to us.

(5) The captions and comments to the rose diagrams and other illustrations borrowed from your publication (Solecki, 2011), will be improved taking into account your suggestions.

(6) The idea of including in our paper the information on the deformation bands you described from the North Sudetic Synclinorium (Solecki 2011) was clear to us from the very beginning of our writing the paper. The reason we have not done this yet, was quite prosaic: we had to stick to the deadline for the submission and did not manage to include an appropriate short passage on the deformation bands. This will be rectified in the revised manuscript.

Yours sincerely

Andrzej Głuszyński and Paweł Aleksandrowski