



EGUsphere, referee comment RC1  
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## **Comment on egusphere-2022-1339**

Fabrizio Balsamo (Referee)

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Referee comment on "Geometry and topology of a Polish Outer Carpathian digital-elevation-model-interpreted lineament network in the context of regional tectonics" by Maciej Kania and Mateusz Szczęch, EGU sphere,  
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Dear Editor,

the paper by Maciej Kania and Mateusz Szczęch deals with topological analysis of lineaments detected at regional scale in the Polish outer Carpathian belt. The paper is well written and clear in most part. There are, in my view, minor issues pertaining the figure quality and data presentation. Below some points that should be addressed before publication:

Figure 1 needs to be improved including the main tectonic features in the studies region (thrust faults, fold axis, faults). As it is only a puzzle of colours (nappes).

Line 119-122: Section 4.2 Method section. Authors state "Thus, to reduce this bias the lineaments were extracted by two operators working independently, in three sessions, separated by intervals of several months. After each session, the results were analysed and a network of common features was created. The last stage was creating a concise network of lineaments based on the results of the three sessions". What you mean by "results were analysed"? You mean that you merged the data (lineaments) from the two operators in one single file? If so, by using this approach is there a risk to consider the same lineament two times? Please clarify how the data obtained by the two operators were treated.

Figure 3: include total number of data in each rose diagrams.

Figure 4: increase the size of fonts.

Discussion: In section 6.1 and figure 5 the authors make a comparison with previous lineaments study, mentioning sites and area which are not shown in the geological map. So it is hard to follow this discussion for readers which are not expert of these areas. It should be provided a geological/structural framework in a specific figure (or more easily mentioning and improving figure 6), rather than a simple comparison of lines as in figure 5.

Lines 258-259 in the Discussion. Authors state "However, the more complicated geometry of the western part of the network may be related to the more complicated system of the deep-rooted fault zones in this part (see further discussion below)". This deep rooted fault zone in the basement is also mentioned in the Introduction/abstract, so I think it would be nice for a reader to see exactly where is located this fault zone in figure 1 or 2 - and figure 6, at the beginning of manuscript. Further, I found that these major faults are several, so again is important to prioritize them and describe briefly them at the beginning of manuscript.

Line 327-329 and Figure 8: this nice figure should include also the major tectonic lineaments presented in figure 7. In this way, a reader can easily catch, in one single figure (maps), the relationship between the main tectonic lineaments and the topological parameters.

Final comment is that would be nice to see in the conclusion a sentence on the potential applicaitons of this analysis. For example, areas with major connectivity are areas more suitable for minearl exploration (in other context)? any link with quarry/mines in the broad study area? This kind of discussion could improve the overal quality of the paper and give direct applcications of the proposed workflow.

Best regards

Fabrizio