Review of the revised manuscript "Multiscale lineament analysis and permeability heterogeneity of fractured crystalline basement blocks" by Alberto Ceccato and coauthors.

The authors fairly addressed the reviewers' observations on the submitted ms, by presenting some additional analyses and modifying the main text in several parts. The answers to reviewer comments are complete and well supported. I still have a couple of comments, which can be easily addressed with some minor revisions. Line and paragraph numbers refer to the tracked-changes manuscript.

1. The analysis of the effects of the outcrop shape on the fractal dimensions of the network is introduced in paragraph 4.2 and Fig. 4, but these data are not discussed. Please, discuss the effects (if any) of outcrop fragmentation - this is likely to be a further bias in addition to those presented in paragraph 5.2.

Reply. *Text modified accordingly. "Even if there is a small variability in the fractal dimension D values, none of the measure fractal dimensions, either from small sub-areas or entire lineament maps, are similar to the fractal dimension D = 1.77 retrieved from the areal occupancy of the exposed land surface of the Bømlo Island archipelago. The relationship between fractal dimensions of exposed land surface and fracture maps remains to be understood and would deserve further analyses which go beyond the scope of the present paper."*

2. As already commented in my previous review, I think that the main limitation in the multiscale analysis of fracture lengths is that there is a significant scale gap between the 1:5000 and 1:100 scales. If you look at Fig. 6, the three datasets collected at small scale collapse reasonably well on a line, while the 1:100 data doesn't lay on the same line (neglecting the fact that the length cumulative distribution at the 1:100 scale is best fitted by a negative exponential, line 317). This tendency is even more evident by subdividing the data by set (part b). The lack of fractures in the range of the tens of meters of length does not allow to estimate at which scale this variation in slope occurs, and to test more sophisticated geometrical models (e.g., multifractals). I suggest making it clear from the beginning that you are dealing with an incomplete dataset, which is quite a common condition, unless you have exceptionally wide outcrops.

Reply. *We have now modified the introduction section accordingly: "This multiscale and statistical approach tries to overcome the natural bias of lineament maps retrieved from remote sensing of natural outcrops, which are inherently incomplete due to partial exposure, resolution and analytical biases."*

3. I'm aware that everybody normalizes cumulative distributions by area. However, this normalization assumes that Ntot/A = P20 is constant across scales, which is not true for your data (Fig. 7, § 4.5). Since you reconstruct a density model (with $\beta = 1.77$ for the whole set), why don't you use it to normalize the length distributions? See for instance Bour et al., 2002, § 5.2. The paper is cited in your reference list. Or at least you can discuss the variation in density with scale as an analytical bias possibly affecting the determination of the multiscale length distribution.

Reply. *This would be an interesting analysis that actually goes beyond the scope of the present paper. In addition, the change in density could be a couple effect of both change in resolution and increasing/decreasing actual abundance of lineaments across the scales of observation.*

Line 11: fracture or lineament? Please, choose one. I suggest using lineament here

Reply. *Text modified accordingly.*

Line 14 – 15: relative abundance is not clear to me, pleas rephrase

Reply. *We think that "relative abundance" is the correct term here, because it refers to the percent composition of one set of lineament relative to the total number of lineaments in the maps.*

Line 25: -18 superscript

Reply. *Text modified accordingly.*

Line 386: delete “proper”

Reply. *Text modified accordingly.*

Line 884: courtesy

Reply. *Text modified accordingly.*