# *Interactive comment on* "Monte Carlo Simulations for Uncertainty Estimation in 3D Geological Modeling, A Guide for Disturbance Distribution Selection and Parameterization" *by* Evren Pakyuz-Charrier et al.

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The author's agree that the manuscript is too abstract, some work was done in the introduction and discussion sections to make the topic more tangible in the geological world. The number of case studies was voluntarily limited given that many mathematical concepts needed to be laid out in section 3 prior to any practical demonstration. In this sense, the case studies actually serve as proof of concepts rather than hard application case studies. More in-depth case studies will be the topic of subsequent publications. Using K=100 for the vMF distribution falls in line with recent metrologi-

cal work on geological compass' measurement uncertainty (Allmendinger et al. 2017, Novakova et al. 2017). Anisotropy about the pole vector cluster may be addressed by switching to the Kent distribution that is mentioned in the discussion section of the paper. Note however, that parameterizing the Kent distribution is difficult and requires much more in depth metrological work because the Kent distribution has five parameters while the vMF distribution has two. Consequently, fitting data to the Kent distribution is not always possible and almost always less robust than fitting it to the vMF distribution. Polarity, when dealing with poles to planes, is implicit (e.g. the Cartesian pole of a normal horizontal plane is [0, 0, 1] while its reversed counterpart is [0, 0, -1]).

Supplement contain proposed changes to the paper based on the detailed comments.

Please also note the supplement to this comment:
https://www.solid-earth-discuss.net/se-2017-115/se-2017-115-AC1-supplement.pdf

Interactive comment on Solid Earth Discuss., https://doi.org/10.5194/se-2017-115, 2017.