

Solid Earth Discuss., referee comment RC1  
<https://doi.org/10.5194/se-2020-211-RC1>, 2021  
© Author(s) 2021. This work is distributed under  
the Creative Commons Attribution 4.0 License.

## **Comment on se-2020-211**

Daniele Trippanera (Referee)

---

Referee comment on "Mapping and evaluating kinematics and the stress and strain field at active faults and fissures: a comparison between field and drone data at the NE rift, Mt Etna (Italy)" by Alessandro Tibaldi et al., Solid Earth Discuss.,  
<https://doi.org/10.5194/se-2020-211-RC1>, 2021

---

The manuscript is overall well-written and data support the discussion. In general, it would be better if the paper is more focused on scientific outcomes than on the Structure From Motion Technique itself (the details about the processing set up can be moved in the supplementary material if the authors want to keep them).

### Minor comments

line 20: maybe "injectionS"?

line 29: this conclusion is quite obvious nowadays. The SfM is quite well established. Maybe the authors should tell us here, the meaning of their data in the context of the volcano-tectonic structure of the volcano.

line 37: It could be useful to cite more paper about drone applications to structural geology in the introduction.

lines 84-86: this can be deleted or integrated below within lines 87 to 94.

Figure 1a: I suggest explaining in the caption that this map shows the geodynamic context where Etna Volcano locates.

line 115-117: Is there any paper to cite here?

line 121: middle, upper and lower is not really intuitive in Fig. 2.

line 123: since you use elevation references, I suggest to show them in the related figure. This will help to identify better the locations on the map.

Lines 186-189: Are you talking about Fig. 1c. If yes, please cite it.

Line 203: see my comments about Fig. 2

Lines 234-242: these lines are not needed.

Did you use a terrain-following technique? How did you manage to keep the drone at the same altitude from the ground in this steep morphology?

Lines 263-264: not needed.

Lines 267-269 and lines 273-284: I don't think this is relevant info for the paper's scope.

Table 301: Maybe it is useful to specify that the time is hh:mm:ss.

Line 332 - 333: do you mean 54 craters or merged vents or line segments in GIS? Please clarify this point. I do not see 54 eruptive fissure in Fig. 5.

Line 337: Could be useful to indicate the name on the map.

Line 339: the faults segments dipping NW are much shorter than the others. Is this just a local topography or not? From Fig. 5a these seem local structures.

Line 407 - 409: This has been seen commonly even elsewhere (e.g. Mount Laki in Iceland for the graben, or along the Harrat Lunayyir fault for a single fault). You may also cite some papers here.

Line 442 -423: Using drone images, it is possible to look at tiny structures also. The risk could be that minor structures may result "more prominent" than bigger ones, just because they are more in number. Did you take into account the dimensions (or "importance") of the structures? How?  
It could be useful to see if any correlation exists between the kinematic and the dimension (or "importance") of faults/fractures.

Line 479: You could also cite Trippanera et al., 2019 as an example of a drone survey over a linear longer fault in Harrat Lunayyir.