Dear Editor,

We greatly appreciate the constructive review by Dr. Luiz Morales. All his comments and inputs are being taken into account for a greatly improved revised version of the initial submission. Except for a few editorial points (all considered in the revised manuscript), only suggestions of very minor changes were made and here below we address those individually.

1) *Crystallographic-controlled fracturing process within the quartz crystals…*

   The anisotropy of the elastic properties of quartz is indeed a viable possibility to explain the domainal fracturing of quartz documented in our study and will be discussed in the revised version of the manuscript in addition to the surface energy possibility. We thank Dr. Morales for also generating a plot of the Young´s modulus anisotropy and for providing the elastic constant of quartz.

   Dr. Morales comment is also relevant to the development of Dauphine` twinning microstructures in our samples. Our dataset also includes an EBSD map that clearly shows how r-twins are internally more deformed than z-twins (following the terminology of Menegon et al., 2011). We have added this map and we have commented it in the light of the existing relevant literature.

2) *Dynamic recrystallization by Sub-grain rotation recrystallization…*

   We agree with Dr. Morales comments and in the revised version of the manuscript we will sharpen the discussion to clarify our model and the possible role of crystal plasticity.

   We chose to distinguish between “low” and “high” angle grain boundaries at 10° instead of 15° as there is no strict convention as to which one to choose because there are several papers also using 10° (Menegon et al., 2011; Trepmann et al., 2007).

3) *10000 random points chosen for polefigures…*

   We have not been clear enough in the description of the procedure followed when choosing the random scatter points for the new grain fraction. All data points in the pole figures related to the new grains are taken from a dataset that only includes the new grains, therefore there cannot be any influence of the old grains in the pole figures. The same applies to the pole figures of the old grains.

   We will look into the possibility of generating new pole figures that display one-point-per-grain using the average orientation for each grain as Dr. Morales propose.

Answer to Dr. Morales minor comments (his comments in blue, our answer in black):

Pg. 220, line 4 – The camera is a Nordif UF-1000, correct?
That is correct, this will be added.

Pg. 220, line 1-9 – Please add details about the post-processing steps of your

data, principally in terms of confidence index. The sample is tilted 70° from the horizontal, so it is 20° to the electron beam;
This will be added and corrected in the revised version of the manuscript.

Pg. 227 – line 13 – "drag folds" appear here for the first time.
Will be introduced better.

Pg. 227 – line 25 – considering that the authors do not present any TEM image showing dislocation entanglement, I would remove that from here and just keep "strain hardening and localized embrittlement" because maybe other hardening processes may had taken place? Or add a "most probably";
Thank you, will do.

Pg. 235, conclusions 1 – you have to emphasize the fractures parallel to prismatic and rhomb planes rather than to basal plane, which is almost absent;
Will be emphasized in the revised version

Pole figures in general – the correct representation of the quartz c-axis is [c], which means one single axes, rather than <c>, meaning a group of symmetrically related c-axes, which is not the case for quartz.
This has been corrected in the revised version.