Dear Mrs. Kuo Fong Ma,

We would like to thank you for your interest in reading and commenting our paper.

Please find below our answers to your questions/comments:

1. Any information on the possible information on the controlling fault depth?

It would be interesting to add a field mentioning information's related to the controlling fault depth. This is something we can think for a next release of the database. However, by now, there are very few constrains for this in France. Because available industrial seismic lines are often limited to shallow depths (<5km), and more importantly the french seismic network was not able to properly provide good images of the seismogenic crust as well as good constrains about the depths of earthquakes.

2. Is it possible using geodetic data to discriminating the activity of the geological structure as an active fault or not?

Yes it is possible in active areas, but much difficult in more stable regions. As far as we know, there is only one study in the Rhine Graben combining levelling, InSAR and GPS that seems to quantify some deformations nearby faults (From Führmann and colleagues). However, as mentioned by the authors themselves, many processes may be involved, including anthropic effects, post glacial rebound or tectonics, and further studies are still needed to discriminate them from each other.

The problem is mainly due to fault slip-rates (in general << 1mm/yr) that are in the limit of detection of geodetic techniques. Longer time series (and perhaps denser GPS networks) are needed to be able to use these data to determine whether a fault is active or not. For the time being, it can of course provide upper bounds (reported in BDFA when available and used to calculate IR), but we can only rely, to define a fault as active, on long term slip rates derived from geological studies, and of course on seismicity.

Fuhrmann, T., Caro Cuenca, M., Knöpfler, A., van Leijen, F. J., Mayer, M., Westerhaus, M., ... & Heck, B. (2015). Estimation of small surface displacements in the Upper Rhine Graben area from a combined analysis of PS-InSAR, levelling and GNSS data. Geophysical Journal International, 203(1), 614-631.

3. Briefly describe the completeness of Historical earthquake catalog.

We precised in the manuscript (part 3.3): ***"***HIST: it questions if historical seismicity could be associated with the segment fault trace. It may be valued 0 or 1. The value 1 is adopted when a significant historical earthquake (epicentral intensity ≥ V, according to SISFRANCE, *which for this intensity level may be considered complete since the middle of the 19th century according to Bonnet et al., 2014"*.

Bonnet, J., Fradet, T., Traversa, P., Tuleau-Malot, C., Reynaud-Bouret, P., Laloe, T., & Manchuel, K. (2014, May). Completeness period analysis of SisFrance macroseismic database and interpretation in the light of historical context. In *EGU General Assembly Conference Abstracts* (Vol. 16).

4. The paper addressed on the concern on extreme event as the 2011 Tohoku style event. How about the multiple-segments style of faulting as a faulting from a system, e.g. like. 2016 New-Zealand event for Mmax investigation.

This is of course of great concern. We tried with this database to stay as much as possible faithful with the original data. In this sense, the database is the first step before any interpretation in terms of fault rupture scenario, it then belongs to the endusers to propose their own interpretation. But it is true that our role is also to recall that such scenario may happen, we added (end of part 5): "*In that sense, the presented database may be useful but additional discussions on criteria to define fault segmentation and consecutively the potential for multi-segment ruptures is needed, as recalled recently by the Kaikoura Earthquake in New-Zealand that ruptured a very high number of fault segments (Hamling et al., 2017)*"

Hamling, I. J., Hreinsdóttir, S., Clark, K., Elliott, J., Liang, C., Fielding, E., ... & D'Anastasio, E.: Complex multifault rupture during the 2016 Mw 7.8 Kaikōura earthquake, New Zealand. Science, 356(6334), eaam7194, 2017

5. Slip rate is indeed a very difficult parameter to measure. A recent paper by Shyu et al. (2016) used soils on the terraces as a classification for slip rate determination. Is it also possible for your future investigation on the dating or age determination on the possible active fault?

Thank you for providing us this reference, we added it in the text as an example of what could be done worldwide to improve the determination of slip rates.

We feel that such an approach would not be in France as successful as in Taïwan, because of low slip rates vs high anthropism, but also because the development of soils in France is completely different that in Taïwan, less intense, less rapid (as well as for faults) and probably less homogeneous. However, it could probably be locally explored, for example in mountainous areas, glacial deposits are potentially good markers, but it is often difficult to make the difference between real tectonic and glacio-tectonic deformations.