**Modifications demandées :**  
This is an interesting paper which deals the model selection in the field of crack propagation. This reviewer raises three questions / remarks:  
  
- Could the authors add a synthetic algorithm of the nested sampling algorithm in section 4 (method) and explain "the associated weights" to make easier the understanding of the method?  
  
- Could the authors add a sentence to explain the results in the two first lines of table 2?  
  
- The begin of the conclusion and end of the abstract explain the efficiency of the method in selecting one model but this has not really been demonstrated on the example since it is advised to combine the two tested models. Could you please town down your remarks?

**Replies to the reviewer:**

* A synthetic description of the nested sampling algorithm has been added in Section 4.4. To better understand how the NS allows to sample from the posterior distributions, two phrases in the same section have been added for better understanding of the algorithm.
* The results shown in the first two lines of Table 2 are the evidence associated to each fatigue model using different number of updating measurements varying from 1 to 5. A phrase has been added to explain the meaning of these lines (section 5).
* The NS algorithm allows to estimate the evidence associated to each model when one has a set of competing models that could be used to describe the dynamics of a given phenomenon. Then, based on the computed evidence values one could select the most plausible model with the highest evidence. This is a general description when one has to deal with model selection issue. The example presented in this paper is a special case where there is no strong evidence to favour one model and eliminate the other based on the evidence values shown in Table 2 (see the interpretation in Table 3). This could be explained by the fact that each model is more suitable for a specific regime of propagation (Paris model is more suitable for the stable regime of propagation while Forman model is more suitable for the unstable regime of propagation, see reference 15 for more details). Consequently, one could consider both models to make future predictions by simply averaging the predictions given by the competing models as shown in this work.

**Acknowledgement**

* The author would like to thank the reviewer for the formulated comments.