

## ***Interactive comment on “Data Assimilation with An Improved Particle Filter and Its Application in TRIGRS Landslide Model” by Changhu Xue et al.***

### **Anonymous Referee #2**

Received and published: 11 March 2018

This paper proposes an improved particle filter to enhance the performance of data assimilation in TRIGRS landslide model. The study fit the topic of the journal. This paper can be published while following questions are clarified.

1. Extensive editing of English language and style required: this must be reviewed in depth.
2. The improvements such as the accuracy and computation burden of the particle filter should be more clarified
3. Section 4, the authors mentioned “observations are generated from the Fs by adding a disturbance with normal distribution  $N(0.2, 0.3)$ ”, why the mean of disturbances is 0.2 rather than 0?

C1

4. I noticed that the FS was chosen as the assimilated factor, why not use the displacement?

5. Data assimilation is usually applied on large scale scenarios. This study employed assimilation size  $10 \times 10$ , I suggest you increase the assimilation size, or use true landslide monitoring data instead.

Comments: 1. The full name of “TRIGRS” should be given at its first appearance.

2. Page 1 Line 7 and 8, I think it would be better to recognize this sentence.

3. Page 1 Line 23, reference missing: ‘Jiang adopted the Ensemble Kalman filter to landslide movement model in relation to hydrological factors, which introduce data assimilation (DA) to landslide.’

4. Page 2 Line 14: ‘It can get good results to using. . . .’ should be ‘to use’

---

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2017-439>, 2018.

C2