

## ***Interactive comment on “A fast monitor and real time early warning system for landslides in the Baige landslide damming event, Tibet, China” by Yongbo Wu et al.***

### **Anonymous Referee #1**

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The MS describes a monitoring and warning system for the Baige landslide, which occurred twice. Two types of sensors were installed, fracture sensors and GPS sensors, using the Beidou satellite system. The first part of the MS handles the overall concept of the system, whereas the second part describes the models and algorithms used to detect the slide. Comments: There is only a poor connection from the first part to the second one. It remains unclear, why this kind of installation was used and why only one type of sensors was used in the second part. There are no references to other systems that are on the market, which act in a similar way.

Figure 4: Please indicate the fault scarp and describe why the sensors has been in-

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stalled at the specific locations

How are the data monitored (measuring interval versus recording interval, accuracy of the sensor data

The second part of the MS starts with a description of methods used. At this time the reader does not know why the different methods were used and what is the benefit of combining these methods instead of just using the Beidou data?

What data are really measured? Horizontal displacement, spatial displacement (x,y,z)..? Figure 8: time axis is wrong, mention the time of failure What does 30 minutes statistics mean (running average?), also in connection with the warning time (Fig. 9). What is the difference in using raw data or averaged data?

Kalman filtering chapter: Please check the indices (seems to be wrong) Chapter 3.4.: what does ...deformation monitored in infinite time... mean? Fig. 7: Seems to be the key of the MS: Please indicate and describe the steps: What is the input to one model, what is the output, how to integrate the results to the next model step ...in order to get a warning message. This is the method and has to be clearly presented. Why you used displacement, velocity and acceleration. These data are of same origin? Figure 10: velocity and acceleration does not have the unit [mm]. What are the results from BD1 – 4? FFT: Why you chose 64 frequency bands? Hz is defined as number per second, but this is not true in that case. The time base may be 10 or 30 minutes???? SVM training: How to differentiate precursor slide character to other data?

Is there a difference in the data of fracture and Beidou sensors? How long does it take to issue a warning with this system (6\*10 oder 30 minutes)?

In summary it seems that this system is quite useful, but the MS is structured in an unfavorable way, leaving the reader confused.