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Comment

## ***Interactive comment on “A Novel Strategy for landslide displacement and its direction monitoring” by Z.-W. Zhu et al.***

### **Anonymous Referee #3**

Received and published: 5 March 2014

This paper is a technical note on experiments made in the lab on a new OTDR device. It has nothing to do with “landslide monitoring strategy” as indicated in the title, which has to be changed.

Experimental and technical setups are properly described and the text is clear in general. However the references to previous generations could be simplified to focus on the last one (some corrections are proposed below).

My main concern is about the claim that this device is operational for landslide monitoring. I agree that such device can be used for man-made (concrete) structures, but I am very skeptical about using it for landslide monitoring at this stage. The authors do not mention any real field implementation of their devices. Moreover, monitoring is also

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about long term reliability and maintenance, points not discussed here.

Then my questions are: 1) For which kind of landslides do you intend to use it? Have you ongoing test sites ?

2) With such a short dynamic ranges (couple of cm) I can see a potential for large rockslides, where mm-cm displacements matter. But then it requires to be able to monitor several levels of shear zones /sliding surfaces on several tens of meters of depth. Then, how long can be monitoring section? And what about having several shear zones ?

3) For shallow landslides, don't you think the dynamic range is too short for real monitoring, compared to other classical techniques ? (Except for some research purposes; I am not talking about using TDR for water content measurement).

4) For information, none of the top instrumented landslides in the world from the review of Baron & Supper 2013 (in NHESS) are using TDR. Any comment ?

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TITLE : the title is misleading and has to be changed. This paper is not about "landslide monitoring strategy" but about the technical improvement of a TDR device. Something like "New improvement of OTDR device for landslide monitoring" would be more correct.

Page 6850: Line 22: GIS is not a technology to monitor landslides, and the reference mentioned is about landslide mapping, not monitoring.

Page 6851: Lines 6 to 14: it is not clear what these generations are. Moreover the paper Zhu et al 2011 mentions only two generations, and Zhu et al 2009 is in Chinese. Reformulate this paragraph in way that the reader can understand without having to read these papers. For instance, you can say that the first generation required a too high minimal initial displacement; that the second generation improved this feature, but . . . and so on.

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Page 6852: Line 6: explicit phi = diameter In the whole text: sometimes the #1, .. refer to pipes and sometimes to models. In the Figures, pipes are indicated as 1#, . . . . Keep the format #1 for pipes and Model 1 for models.

Page 6853: Line 8: what does “grouting integrity “ mean ?

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 6849, 2013.

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