***Author Response* "Automated Terrestrial Laser Scanning with Near Real-Time Change Detection – Monitoring of the Séchilienne Landslide" *by* Ryan A. Kromer et al.**

Earth Surf. Dynam. Discuss., doi:10.5194/esurf-2017-6-RC1, 2017

R. Salvini Referee #1

Received and published: 19 March 2017

We appreciate the time and effort required to conduct this review and we would like to thank the review for providing valuable feedback. We have responded to each of the reviewer's comments in red below and made changes in a marked changes version of the manuscript.

"It is a very interesting paper on an Automated Terrestrial Laser Scanning system with automatic near real-time change detection processing and I really appreciated it. The introduction provides sufficient background and includes most of the relevant and up- dated references. The research design is simple but very appropriate. Methods are well described and results clearly presented. All the conclusions are supported by data. The six-weeks period of acquisition, with data collected at 30 minute intervals, is effective and very innovative. The possibility to offer an alternative to GB-InSAR deformation monitoring has been clearly identified with high accuracy of results, full technical descriptions and completeness. The originality is high and the paper contents will probably represent an importance reference in the future of hyper- and super-temporal slope stability monitoring. The significance of content is high as well as the quality of presentation and the scientific soundness. The interest to the readers is also high. In general the figures are simple, quite clear, and properly cited and commented in the text."

"The scale of representation of Figures 7, 8, and 9, been their main goal to show the spatial distribution of change detection results, is probably inadequate for geological/geomorphological interpretation."

We have created new figures that facilitate geological interpretation. New Figure 8 has been enlarged. Figure 9 has been enlarged and includes more annotations. We have added a new Figure 10 which shows zoomed in areas of Figure 9.

"Additional remarks: - The detection of the flux of talus, displacement of the landslide and pre-failure deformation of discrete rockfall events are no clearly identified in the figures."

We have added annotations to Figure 9 and 10 clearly indicating the identified slope processes.

"A geological and geomorphological map of the area could have been useful to better explain the characteristics of the area and the landslide. - Highlights are missing."

We have added a DEM to figure one showing the geomorphology of the frontal zone of the landslide. This landslide is well studied. Detailed geological descriptions and maps are available in the cited works:

Vulliez, C.: Apports des méthodes d'imagerie 3D pour la caractérisation et le monitoring du glissement rocheux de Séchilienne (Vallée de la Romanche, Isère, France),pp 1–123. Lausanne, 12 February. 2016.

Le Roux, O., Jongmans, D., Kasperski, J., Schwartz, S., Potherat, P., Lebrouc, V., Lagabrielle, R. and Meric, O.: Deep geophysical investigation of the large Séchilienne landslide (Western Alps, France) and calibration with geological data, Engineering Geology, 120(1-4), 18–31, doi:10.1016/j.enggeo.2011.03.004, 2011.

Kasperski, J., Delacourt, C., Allemand, P., Potherat, P., Jaud, M. and Varrel, E.: Application of a Terrestrial Laser Scanner (TLS) to the Study of the Séchilienne Landslide (Isère, France), Remote Sensing 2011, Vol. 3, Pages 167-184, 2(12), 2785–2802, doi:10.3390/rs122785, 2010a.

Helmstetter, A. and Garambois, S.: Seismic monitoring of Séchilienne rockslide (French Alps): Analysis of seismic signals and their correlation with rainfalls, Journal of Geophysical Research: Earth Surface, 115(F3), doi:10.1029/2009JF001532, 2010.

"The English language and style are fine. In my opinion the overall merit of then paper is high."