

## ***Interactive comment on “Landslides and slope stability evaluation in the historical town of Kruja, Albania” by Y. Muceku and O. Korini***

**Y. Muceku and O. Korini**

ymuceku@epoka.edu.al

Received and published: 31 January 2014

Dear Prof. Dr. Thomas Glade and Editor Staff,

We wish to thank Mr. S. Zekan for useful remarks, which have helped us to increase the scientific quality of our paper.

We have analyzed in detail the referee's remarks of Mr. S. Zekan, from which we have the following comments:

Comments of S. Zekan: It is recommended to make a short conclusion about differences between earth flow and debris flow regarding next parameters: the velocity of sliding. Authors' comments: Mr. S. Zekan in his comment said that among mass

C2442

movements in Kruja town have occurred and earth flow's type. For the authors, 2 landslides have occurred on flysch rocks aren't exactly the earth flow type. They are the earthslide type. For that, we are analyzing in detail why these mass movements are included in earthslide class. From many geotechnical investigations carried out in the urban area Kruja town, we have distinguished three types of mass movements, which are earthslides, rock toppling and fall, as well as debris flow. Their classification was done based on Cruden and Varnes, 1986 and 1996. Also, the movement hasn't been simultaneously occurred in the whole of earthslide body. It was different from one to another part of landslides body. So, we have differential movements within displaced material. Whereas, earthflow is defined by Cruden and Varnes (1989) as spatially continuous movement in which surfaces of shear are short-lived, closely spaced, and usually not preserved. Therefore, this mass movement we have included in earthslide group (Cruden and Varnes, 1986 and 1996). But, it should be noted that on earthslide's body, which extends in the south of Kruja town, as a result of rainfalls, some small earthflows (10.0 – 15.0m long, 5.0-10m wide and 1.5 - 2.0m deep) have been occurred last 3 years.

Comments of S. Zekan: Conclusion about differences between earth flow and debris flow velocity. Authors' comments: The debris flows occurred in the eastern part of Kruja town in 2004 have shown that in a few minutes was accumulated through the Kruja streets about 450.0m<sup>3</sup> displaced material from 2 debris flow occurrences. From above analysis it is very easy to understand that the velocity of debris flow is higher than earthslide.

Comments of S. Zekan: The making a short conclusion about differences between earth flow and debris flow regarding to depth of sliding, hazard and risk, causes of the sliding, types of rocks-soils in and out of the landslide body and general differences at the location Kruja in Albania. Authors' comments: We agree. These remarks we can reflect to the final revised paper.

Finally, we really thank Prof. Dr. Thomas Glade and Editor Staff for everything.

C2443

done to help us in paper's publication.

Best regard, Y. MUCEKU

---

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 3263, 2013.

C2444