Nat. Hazards Earth Syst. Sci. Discuss., 2, C123–C124, 2014
www.nat-hazards-earth-syst-sci-discuss.net/2/C123/2014/

Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "An evaluation of influential factors on landslide mobility during the 2008 Wenchuan earthquake" *by* D. P. Guo et al.

D. P. Guo et al.

guodeping99@gmail.com

Received and published: 6 March 2014

Dear Dr. Wang,

Thank you very much for your kind comments on our paper.The reply to each comment is following: (C=Comment; R=Reply) (1) C=The English of this manuscript should be polished further. R=The English expression has been double checked and improved. Some parts have been revised, shown in attached PDF–File name:nhess-2013-243-supplement.

(2)C=Is the definition of slope transition angle right? You should be described it in detail. R=Thank you very much for your kind comment. Because slope angle and slope height are not enough to consider the effect of topographical effect on landslide mobil-

ity, slope transition angle is used to express slope change between two continuously sectional slopes. The definition of slope transition angle is in detail expressed in Line 6∼20 and Fig.1.

(3) C=The usage of some phases should be changed, such as, sliding source area, landslide source volume, sliding source volume, etc. R=Thank you very much for your kind comment. Landslide (sliding) source area (volume) is used to differentiate landslide total area (volume). The parameters of landslide scale of failure initiation zone are better than total area (volume) to consider the effect of landslide scale on landslide mobility.

(4) C=You presented that "With the increment of slope transition angle, energy consumed by impact at slope foot decreases, and the fall mass is crushed and results in the transform of mobile motion from sliding to rolling or flowing," Why? R=Thank you very much for your kind comment. The reason is following: When the slope transition angle is relatively small, it means slope inclination is apparently changing; failed mass will heavily impact at the slope changing section, the kinetic energy will be consumed largely. When slope transition angle increasing, the impact of failed mass at the foot of upper sectional slope is weakened, then energy consumed by impact decreases. With regards to "mobile motion of failed mass", we analyzed that if the failed mass moved as sliding motion on the travel path along the upper sectional slope, after impact at the foot of upper sectional slope, the mobile motion of failed mass is high probable to change from sliding to rolling or flowing motion due to crush by impact.

Please also note the supplement to this comment:
http://www.nat-hazards-earth-syst-sci-discuss.net/2/C123/2014/nhessd-2-C123-2014-supplement.pdf

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 613, 2014.