

Reply to the Interactive comment on “Why the 2014 Ludian, China Ms6.5 earthquake triggered an unusually large landslide” by Anonymous Referee #2 in Natural Hazards and Earth System Sciences, Discussions, 3, C1002-C1003, 2015

- (1) At the beginning of the comment, the Referee says: “This paper is a descriptive paper of a large landslide triggered by an earthquake”. It is not true. On contrary, our paper not only describes the earthquake-induced landslide, but also analyzes the possible mechanism of this unusually severe slope failure, particularly the special conditions in this area.
- (2) The Referee claims that “The first issue I want to draw attention to is the way conditions that preconditioned the slope to failure and the triggering event are not separated”. This statement seems not understandable. What does “the way conditions” mean? The conditions for hillslope failures and earthquakes are naturally separated or different. The Referee also says that “The implication in the text is that these (conditions) are all recent developments”. We think that there is no such implication in our paper. It is usually accepted that active seismicity is a recent tectonic process, while other geological factors, such as slope steepening and river incision, are long-term developments.
- (3) The Referee assumes that the river valley in the study area was glaciated at some point and that glacial retreat exposed the slope to fluvial and other erosion processes. We suggest that there is no convincing evidence for this assumption, though the study is adjacent to the Tibetan plateau. In fact, the largest elevation above sea level in the study area is much lower than the snow line. Thus it is not necessary to consider the effect of ancient glaciers assumed.
- (4) The Referee also assumes that the study area may have been progressively weakened during previous earthquakes. Thus the Referee further suggests to provide the relevant information on seismicity of the study area. In our opinion, the study area lies in an intraplate tectonic setting, where the recurrence interval of major earthquakes is as long as several thousand years or more. Therefore, the effects of possible previous events (paleoearthquakes) on landslide-prone hillslopes in this area are not significant, compared with other local conditions such as topography and seismic ground shaking, which have been presented in our paper.
- (5) Overall, it seems that the Referee did not capture the essence of our article, which emphasizes that the joint function of a series of special local conditions resulted in an unusually large landslide induced by a moderate-sized earthquake (Ms6.5 or Mw6.1). Nevertheless, we still appreciate this comment and will make efforts to improve our paper.