Earth **Surface**
Dynamics

Discussions

EGU

Open Access

Interactive comment on "Using Google Earth Engine to monitor co-seismic landslide recovery after the 2008 Wenchuan earthquake" *by* Wentao Yang et al.

Anonymous Referee #2

Received and published: 20 January 2021

The paper describes the application of Google Earth Engine in mapping the vegetation growth in the earthquake-stricken region in Wenchuan. The authors combine GEE and EVI, and various geo-environmental factors to shed light onto the evolution of landslide stabilization or vegetation recovery in the study region since 2008. I found the approach using GEE intriguing in general and see a benefit in fast processing for such kind of studies. However, at the same time the study suffers from several flaws that challenge a publication in its current shape. At the current state, I see lack of novelty in the overall assessment. Currently, the article generates little incremental knowledge. The workflow has already been presented in Jiang et al., 2015; Yang etal., 2017 and Yunus et al., 2020; except that instead of MODIS, this study used Landsat, and instead of

NDVI, here EVI based method is chosen. Major comments: The workflow and evolution of landslides following Wenchuan earthquake have been described in detail by many studies. So, without describing a new method (other than GEE implementation) and without providing substantial original insight to vegetation regrowth (TPI and Elevation are basically the same), the scope of the study shrinks to the technicality of GEE and a case information. In section 2.2.2 authors described that they calculated EVI on 15th July. Well I agree with the date corresponds to growing season, but it is unclear that how the authors get data for July 15th every year for all the tiles necessary to generate EVI map. This part of methodology is very vague. The limited growth of vegetation on higher elevated region can be because of several reason: persistent snow cover/ no loose materials to grow the roots or bare rocks / active landslides – high erosion / climate (rainfall and temp.). It is important to investigate these areas in detail using google earth images and deepen your discussion section. Figure 2. it is quite misleading by showing high values of annual EVI increasing rate and then understands it is to multiply by 10^{-3}. Is this increasing rate statistically significant ?

Figure 3 C. How do authors calculate the landslide depth ? (source).

Figure 3 L : basically all the type of trees/plants is damaged after the earthquake . So the comparison shown in Fig 3 L is meaningless

Author wrote "We found >99% landslide surfaces have been recovering since 2008" . Where did this value comes from ?. Section 4.4 is not a proper discussion. I am not qualified to judge the English, but I feel there is considerable scope to improve. For eg., Line 25 – 'thousands of hundreds'

Interactive comment on Earth Surf. Dynam. Discuss., https://doi.org/10.5194/esurf-2020-106, 2020.