

Comment on **essd-2022-222**

Anonymous Referee #1

Referee comment on "Long-time Series Dataset of Soil Conservation Capacity Preventing Water Erosion in China (1992–2019)" by Jialei Li et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2022-222-RC1>, 2022

The topic is interesting. However, the article has some big flaws.

1. The dataset given in the manuscript is incomplete and not of great value. The manuscript mainly includes three datasets: rainfall erosivity factor (R) and vegetation cover factor (C) and soil conservation capacity (SC). The first two are based on station observations and remotely sensed vegetation. Unfortunately, only the mean values are given, but no annual data, which makes it less valuable. The third is computational results that are difficult to validate against other experiments or observations.

2. The main advantage of the data claimed in this manuscript is the long time series, however, the data presented are only averages, which renders it no advantage over other high resolution data, for example, Rao et al., 2013 in the reference list.

3. In the RUSLE model, the deriving of the P-factor on a large scale has always been a difficult problem for erosion evaluation. The method used in this study lacks novelty, and the data of P-factor is not given in the manuscript. As the authors said: "soil conservation capacity is defined as water erosion prevented by vegetations and practice measures" (line 90), however, this study only considered the practices applied on terraces using an assignment method. Hence, the changes in soil conservation capacity presented by the manuscript are mostly caused by changes in vegetation conditions.

4. Although the authors claim that they have improved the calculation method of R-factor, they only use two methods on a national scale with such a complex geographical background.

5. Since the soil conservation data presented in this study are only the result of changes

in climatic and vegetation conditions, the various possible uses of the data claimed by the authors are necessarily limited.