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Interactive comment on "Annual Dynamics of Global Land Cover and its Long-term Changes from 1982 to 2015" *by* Han Liu et al.

Anonymous Referee #2

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General comment: By fusing multiple existing geo-spatial datasets, the main work of this manuscript is to generate an annual dynamic product (spatial resolution: 0.5°) addressing seven kinds of land-covers (i.e., cropland, forest, grassland, shrub-land, tundra, barren land and snow/ice) from 1982 to 2015. With eye on the current existing datasets (i.e., from the perspective of classification system, period of time, and spatial/temporal resolution) the contribution is quite limited. In view of the rationality of technique and accuracy assessment, current version calls for serious revision before publication. In view of the analysis conducted on the dynamic map, rare novel findings can be captured. Specific comments: There are several global datasets with more rigorous production process have existed. 1) The 1992-2018 annual 300m global land-cover data (https://www.esa-landcover-cci.org/?q=node/197) with more detailed

classification scheme have been released. Since the proposed product has no accuracy assessment on the annual maps from 1982-1991, it cannot be argued that the proposed work have longer period of time. 2) The annual VCF products from 1982-2016 have the same spatial resolution, and very similar classification scheme with the proposed work (from 1982-2015). Although the VCF product is missing in 1994 and 2000, the proposed work just directly use the data-source around the adjacent year, which cannot be viewed as a noticeable contribution. Meanwhile, since the proposed work also introduce VCF in the supervised classification, the analysis on the dynamic map is somewhat similar to this existed study (Song et al 2018a) , but more superficial.

Technical corrections 1. It is ridiculous to produce training and test set from a same product and in a same manner. In addition, it is unacceptable to conclude the applicability of the long-time period product by assessing the accuracy on only the 2015 land-cover mapping result. 2. How to project the 30m FROM-GLC_v2 to mapping scale? How to deal with the mixed sample? 3. There is no sample accuracy assessment on the produced training sample set. Please note that the accuracy of the FROM-GLC_v2 is not high enough to work as training sample. 4. When mapping the land-covers decades year ago, the suitability of the samples collected (mainly from 2013-2015) should be evaluated.

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Discussion paper