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Interactive comment on "A national dataset of 30-m annual urban extent dynamics (1985–2015) in the conterminous United States" *by* Xuecao Li et al.

Anonymous Referee #1

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The manuscript outlined a research result that used Landsat historic datasets and Google Earth Engine to develop a 30 m annual urban extent in the United States. The mapped urban extents reached an overall accuracy between 96% and 88%. In general, these accuracy levels for urban mapping, especially for mapping the change in such long term and large scale, are very impressive. The result also shows high agreement with the existing national land cover database. The manuscript is also well prepared.

However, I have following major comments for the manuscript.

1. The research used change vector as the foundational change detection tool to

characterize urban change as an annual base. The authors did not use conventional change vector approach, which uses all spectral band information. Only three derived indexes were used to build up the change vector. The author did not explain why these three indexes were used. Are they best choice? No matter what answer is, sensitivity tests are necessary to compare with other approaches using other indexes or full spectral bad information.

2. Fig. 4. These are interesting graphics. However, colors for these lines (Fig.4b) makes these graphics hard to read. Should use different colors to clearly illustrate annual growth rate.

3. Fig11. The colors of Landsat images are confused. It is hard to compare your mapped urban extents with satellite images. More clear and meaningful graphics are needed to clearly illustrate urban extent change and corresponding images.

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