

# ***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 #2**

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This study provides a long-term nation-wide annual urban extent data at the 30m spatial resolution, with high accuracy. Such fine temporal and spatial dataset is highly desirable, and is potentially very useful for the academia community, as well for practitioners. Additionally, the proposed approach also has the potential to be adopted in other regions to obtain similar dataset. With that being said, I also have some concerns about the current version of the manuscript, and think it can be improved by considering the comments below. 1) This is a very important dataset that would be interesting to people in many fields. The authors may want to expand their introduction section to include more discussions about how this dataset can be applied. 2) It would be helpful to define some of the key terms in the manuscript. Examples are urban and urban

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sprawl. This is because these terms are often vaguely defined, but different disciplines may define them differently. 3) The temporal segmentation approach is very interesting and important. While more details can be found in Li et al. (2018), it would be helpful to include more details in this manuscript 4) The authors used the four time slices NLCD data as a baseline. But the NLCD data themselves have errors in classification. I did not mean it's not OK to use these datasets. But how such errors may affect the annual classification results? Are there better ways to address the issue of existing errors in these datasets? The authors may want to address this issue in discussion. 5) The accuracy assessment. The authors selected samples for accuracy assessment differently for the time periods of 1992-2011 and that of 1985-1992 and 2011-2015. The authors visually interpreted more than 500 samples that randomly collected from urbanized regions from NLCD during periods of B1, B2, and B3, but for the period of 2011-2015, samples were generated based on both non-urban areas and urbanized areas during. Why use two different approaches? How might using samples only from urbanized regions from NLCD affect the results of accuracy assessment? 6) How the approach can be further refined to obtain even better results? Some discussion on future research would be helpful.

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