

Interactive comment on “A 30-meter resolution dataset of China’s urban impervious surface area and green space fractions, 2000–2018” by Wenhui Kuang et al.

Anonymous Referee #4

Received and published: 10 August 2020

The authors present multi-year maps of urban imperviousness and greenness of China, which were estimated based on hand-drawn urban boundary and the relationship between vegetation greenness and surface imperviousness. Despite the data might be valuable to a variety of urban-related applications, there are many uncertainties remain. As a data set, these uncertainties should be clearly addressed so that users could better use it. First, using NDVI as the only indicator to estimate surface imperviousness is problematic. The NDVI-based method would overestimate the extent of impervious surfaces because of their similar characteristics as some land uses/covers on NDVI images, especially bare ground. This is especially true in most Chinese cities as they have seen substantial expansions during the study period and

C1

the extent of bare ground cannot be ignored. Second, calibration of NDVI-ISA relationship is not clear in many aspects. For example, how was ISA reference measured for model calibration? What was the performance of region averaged model compared to city-specific ones? Was the model calibrated once and applied through time or annually? Third, the modeling was based on an existing product (i.e., CLUD), which was based on visual interpretation if I am correct). More details about how urban boundary was extracted and updated should be stated. Without this information, it is hard for readers to know whether urban expansion captured by CLUD was true urbanization or just hand-drawn inconsistency. How was the accuracy of CLUD assessed? Because the definition of urban in CLUD is more based on administrative perspective instead of surface imperviousness, I want to know more how accuracy of 92-99% was calculated (Lines 149-150). Last, data uncertainties and limitations should be further addressed. For example, what are spatial and temporal accuracy variations? How consistent was the estimation over time (i.e., is it reliable to use this data set to capture real ISA change)?

Interactive comment on Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2020-107>, 2020.

C2