

Interactive comment on “Dataset of cropland cover from 1690 to 2015 in Scandinavia” by Xueqiong Wei et al.

Anonymous Referee #2

Received and published: 9 September 2020

This study has allocated cropland area in Scandinavia from 1690 to 2015 into 30-arc second grids using the available statistical dataset at administrative level. Later, this allocated grid data is compared with HYDE3.2 dataset in the same area. Dataset is downloadable and usable format. Development of high resolution and historical precise cropland dataset is necessary for several environmental and policy related studies. This study has provided some baseline with the available data collection from 1690 for the study area but there are several limitations observed in this study as authors move from county level dataset to grids based dataset. These limitation as briefly given as follow: 1. Major limitation of this study is the data uncertainty and gaps in the methodology. For data uncertainty – it can be observed that, this study did not perform any validation of the dataset and entire dataset is clearly based on only statistical datasets

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in the region – therefore, use of satellite based dataset as explained in the introduction is irrelevant to the study and therefore its allocation to the grids is without base. 2. CORINE dataset used in the background of grids need further explanation as the allocation in the 1700 cannot be similar as allocation in 2010. 3. Another limitation is ‘cropland definition’ – meaning of croplands is not clearly given in the dataset as data is the mixture of grasslands, fallow lands and sometime cropland area is converted using the volume of seeds to area. 4. Result and discussion part mainly explain the changes in the croplands in the allocated croplands in the study area but author should provide more detailed results on the allocation on croplands itself, for example, how much is the error percent in the grids in each year or how the allocation is showing the granularity as compared to country level polygons, detailed statistical analysis on the allocation for uncertainty and area values. 5. Lastly, the paper need serious grammatical English correction and some restructuring for example, methodology can be well explained with flow charts and results may have first section to explain the plain allocated maps itself rather than the change in croplands. There are several places where writing can be improved. Below are few specific comments: Specific comments: • Line 10 in section 1 –“The decrease of natural vegetation is accompanied by an increase in cropland area.” need to support with references. Decrease of natural vegetation may have other drivers including increasing agricultural activities. • This study introduction should be focused on agriculture in Scandinavia and should provide more background on it in the introduction rather than detailed explanation about global croplands and its changes over time. Authors may provide more literature review on croplands in Scandinavia and avoid exaggerated details about global croplands and its changes. • In methods, there are several gap in the information and analysis. For example, missing data of several counties for many time-stamps is calculated using interpolation but there is no any validation performed to support the output. Also, the allocation of croplands from county-level historical dataset to grids is not clearly explained and uncertainty in the conversion process remains firm. • Methods did not explain the accuracy and validation of the resulting cropland dataset and therefore,

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the reliability and usage of this dataset is limited. High resolution dataset term is leading in the entire paper – 30 arc second or 0.5 degree datasets may not be considered high resolution. Author may need to rethink on the use of the term high resolution. Lastly, it is very important to know why Scandinavia region for this study and then why Agricultural lands for historical land use study if there can be another significant land covers which may affect. The context of the paper need to be updated with better explanation and focus on the main goal of the paper. Also, the goal of the study is misleading as it is different in the introduction line 26 in Section 1 vs in methodology in line 4 in section 3. Overall the work is significant with further additions and analysis along with English corrections.

Interactive comment on Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2020-187>, 2020.

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