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Interactive comment on "A dataset of distributed global water withdrawal from 1960 to 2017" *by* Denghua Yan et al.

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Received and published: 27 February 2020

Comments and Suggestions for Authors This paper provides a set of water withdrawal intensity products from 1960 to 2017 at administrative units. This paper is clearly structured and easy follow, with a good view of their methods and a well performed validation. I believe that the task of data collection for this work is tremendously huge since they have many countries to process. This work has great significance for global and regional water resources utilization and watershed management. This is currently the first detailed water withdrawal data set and it also fills in the gaps of previous research. I think this manuscript needs some minor revisions before published:

Point 1: Line 17-18, "or the corresponding regions", What does this mean? Does this

refer to the corresponding land use? Response 1: In this study, we defined the concept of water withdrawal intensity. In the spatial distribution, it is assumed that the water withdrawal occurs only on artificial surface and cultivated land. Therefore, we have considered differences in spatial distribution within the statistical unit. Point 2: Line 28-29, "According to the...report". This sentence is the same as above, it can be abbreviated or omitted. Response 2: According to the comments, we rewrite this sentence as follows: According to the Report 2018, about 1.5 billion people in 80 countries and regions, which account for 40% of the world's total population, are under-resourced, and about 300 million people in 26 countries are extremely short of water. Point 3: Line 60-61, delete the last sentence. Response 3: According to the comments, we deleted this sentence in the Introduction. For the future improvement of the data set, we briefly introduced in the Conclusion. Point 4: Figure 1, what does the brown FIRST mean? Response 4: FIRST refers to the first step in data processing. In the article, we detailed the steps of data production. There are different strategies for processing national and subnational water withdrawal data. For national data, we need to first calculate per capita water withdrawal data, and for sub-national data, we need to first calculate the ratio of the sub-national data to the national data. Therefore, in the figure, we have emphasized the "FIRST step". Point 5: Line 88-89, the accuracy of government data is explained here, please add some references. Response 5: Based on comments, we have added relevant references. Point 6: Line 103-104, it is mentioned in the method that the per capita water withdrawal needs to be calculated, but the population data required for calculation are not seen in the database. Please provide specific population data. Response 6: For demographic data, we comprehensively collected demographic data sets released by the World Bank and the government. In subsequent modifications, we will upload these data to the same database as the water withdrawal data set. Point 7: Line180-182, "Among them, artificial surface and cultivated land are the place where the water withdrawal is mainly concentrated." This sentence is repeated with the following sentence. Response 7: Based on the comments, we deleted the subsequent repeated sentences and rewritten them as follows: Among them, artificial

surface and cultivated land are the place where the water withdrawal is mainly concentrated. Therefore, this paper fully considers the indicative role of specific land use types. Point 8: Line 188, delete "respectively". Response 8: We have modified it based on comments. Point 9: Figure 4, What is the unit of the right ordinate? Response 9: We have mistaken the ordinate unit in the first draft. The unit should be "1", not "%". Point 10: Line 241, the paper mentioned "the minimum administrative units" many times, what does this mean? Different readers may understand differently, please explain clearly. Response 10: Thank you for your comments. In this study, the minimum administrative unit refers to the data of the smallest administrative region in a country that we can collect, most of which are provincial data, and some are watershed data. Point 11: The last paragraph of the Conclusions is a supplementary introduction to the data set. It can be placed in the previous paragraph. Response 11: Thank you for your comments, we will adjust this in subsequent revisions.

Interactive comment on Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2019-224, 2020.