Hydrology and
Earth System
Sciences
Discussions

Interactive comment on "Reconstruction of global gridded monthly sectoral water withdrawals for 1971–2010 and analysis of their spatiotemporal patterns" *by* Zhongwei Huang et al.

Anonymous Referee #3

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This manuscript aims to reconstruct a global monthly gridded (0.5 degree) sectoral water withdrawal dataset for six water use sectors (irrigation, domestic, electricity generation (cooling of thermal power plants), livestock, mining, and manufacturing) for the period 1971-2010. And the reconstructed gridded water withdrawal dataset is open-access. This paper is suitable for the HESS scope and also a valuable contribution to examining issues related to water withdrawals at fine spatial, temporal and sectoral scales.

The spatial distribution of water withdrawal for electricity generation depends on the distribution of the power plants. Most of the power plants are not concentrated in densely

populated area. However, in this paper, spatial downscaling of water withdrawal for electricity generation (water withdrawal for cooling of thermal power plants) is based on population density maps. It should be future explained and discussed.

In this paper, the spatial downscaling of water withdrawal for water withdrawal of electricity generation, domestic, mining and manufacturing was based on the population density maps. According to the gridded population map of the world (Center for International Earth Science Information Network (CIESIN) Columbia University), there are no people in Taklimakan Desert, some "no man's land" areas in Qinghai-Tibet Plateau, Sahara Desert. However, there are some water withdrawal of those sectors (please see Figure 5, 6, and 7). And in Figure S3, the dominant water withdrawal sector is manufacturing in Taklimakan Desert and some "no man's land" areas in Qinghai-Tibet Plateau, and is domestic in Sahara Desert. Please check it.