Anonymous Referee #3

Lakes on the Tibetan Plateau are important for water cycle studies. There are many previous studies understanding the lake area variation and their influencing factors. But there are still lack of systematic studies including the lake-catchment characteristics. In this study, the authors put many attributes together, which has great potential to help us understand the characteristics of lake-catchments on the TP in a systematic way. I find this study is novel, and has potential to be an important paper for process understanding on the TP lakes. But before considering for acceptance I have some concerns.

Reply: We appreciate the reviewers' positive and helpful comments on our manuscript. We have addressed all of the concerns of the reviewer in the revised manuscript, and the point-by-point responses are given below.

1. Although the streamflow observations on the TP is very limited, I suggest the authors to include more time-series of the hydrologic and meteorological related attributes. Hydrologic related data may include the lake area and volume temporal variation, the area and volume changes of glaciers, the changes of the proportion of permafrost and seasonal frozen-soil. Meteorological data can be even reanalysis data, e.g. daily precipitation and air temperature. This will make this study more systematic. These new chronical attributes will allow us to do more process understanding on the lake area changes.

Reply: According to the reviewer's suggestion, we have added more time-series data to the dataset. The revised dataset includes time series of 16 hydrological and meteorological variables, which are listed as follows:

1) daily meteorological variables (i.e. 2-meter air temperature, surface pressure, and specific humidity, 10-meter wind speed, downward shortwave radiation, downward longwave radiation, and precipitation amount) from the CMFD dataset covering the period 1979-2018 (Yang and He, 2019);

2) remote-sensed submonthly water level and volume data (2000-2017) extracted from Landsat images and altimetry data based on lake shoreline positions (Li et al., 2019), ~monthly water level data (2010-2020) extracted from multi-sensor altimetry data (Xu et al., 2022), lake area and mass change data at five-year intervals (1976-2020) extracted from satellite stereo and multispectral images (Zhang et al., 2021);

3) remote-sensed daily fractional snow cover based on the MODIS surface reflectance product MO/YD09GA covering the period 2000-2022 (Jiang et al., 2022), daily snow depth data (1980-2019) produced through the fusion of five gridded snow depth datasets using machine learning methods (Che et al., 2021), and daily snow water equivalent data (2002-2011) based on AMSR-E brightness temperature (Qiu, 2018b);

4) yearly glacier mass change rates (2000-2019) extracted from large-scale and openly available satellite and airborne elevation datasets (Hugonnet et al., 2021);

5) decadal maximum freezing depth data of seasonal frozen-soil (1961-2020) produced by the support vector regression model based on in-situ measurements from 2001 to 2010 and spatial environmental variables (Wang and Ran, 2021).

The published dataset has been updated to include these time series data (https://doi.org/10.11888/Terre.tpdc.272026 and https://figshare.com/articles/dataset/A_dataset_of_lake-catchment_characteristics_for_the_Tibetan

_Plateau_v1_0_/20222178), and a new section “Section 4.8 Hydrological and meteorological time series” and “Table S2. The descriptions about the time series data in the LCC-TP dataset (version 1.0)” have been added to the revised manuscript to describe the related datasets (L313-329).

2. What does precipitation rate mean? What does “fractional snow cover” mean? Snow is an important component in cold region hydrology. Is it possible to give the time-series of fractional snow cover as another attribute? Is there snow water equivalent data available?

Reply: Precipitation rate refers to the amount of precipitation per unit time. The unit in the source data (He et al., 2020) is mm hr^{-1}. The daily, monthly and annual precipitation data in this dataset were aggregated from hourly data, and the unit of aggregated precipitation amount is mm. For clarity, “precipitation rate” has been rephrased to “precipitation amount” in the revised manuscript (L141, 193, and 316).

The phrase “fractional snow cover” means the fraction of a pixel that is snow-covered, which has been explained in the revised manuscript (L233-234).

According to the reviewer’s suggestion, the time series data of fractional snow cover, snow depth and snow water equivalent have been added (L320-324 and L357-359).