

## Reconstruction of discharge from glaciers in arid region of China

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Since ancient times meltwater from glaciers in mountain areas have been an important water resource in the arid region of northwest China. Purpose of this study is to reconstruct the fluctuation of discharge from glaciers in Qilian mountain in the north-western China since 1978.

We studied discharge from Yinglaoxia basin, which is mountain area of the Heihe basin since 1978. Glacier area occupy only 1% of the whole drainage basin. But, we consider the discharge from glacier since discharge from glacier would be large because of glacier shrinkage in recent years.

We used daily precipitation data produced by Xie et al.(2004; 2006) and daily temperature data of NCEP/NCAR reanalysis data. Distribution of glacier area at each grid was created from DEM(Digital Elevation Model) produced using SRTM and ASTER. The interval was 50 meter at altitude and 0.5 deg in latitude and longitude. Shrinkage of glacier area was calculated using examples from observed glacier area at the July 1st glacier, which is located near the basin.

Discharge from glacier-free area was calculated assuming that there was no change in ground water storage. Then, discharge from glacier-free area can be calculated from residual value of precipitation and evaporation. Evaporation at glacier-free area was calculated from empirical equation.

Precipitation at the whole basin tend to decrease since 1978. And observed discharge has also decreased. Discharge from glacier area occupied about 5% although glacier area occupy only 1% of whole drainage area and tended to increase regardless of glacier area shrinkage.