

## Interannual variability of total SWE obtained by snow surveys in the Tuul river basin, Mongolia, from 2002 until 2013

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It is necessary for the southern limit of snow cover and the semi-arid region to be supplied with sustainable water. Mongolia is located in the southern limit and the semi-arid region. The capital, Ulaanbaatar, lies in a valley on the Tuul River. In order to investigate the actual conditions of snow water equivalent (SWE) in the upper Tuul River as water resources, the snow survey in the upper Tuul River has been carried out from 2002 to 2013. We have observed in each February when it will be the maximum amount of SWE. The snow water equivalent was estimated using a cylindrical snow sampler with 0.005-m<sup>2</sup> area. The total amount of SWE in the upper Tuul River basin was estimated using a global digital elevation model (DEM) with a horizontal grid spacing of 30 arc seconds (GTOP30) and a relationship between altitude and SWE. The main results obtained are shown below. The amount change of SWE in the upper Tuul River basin fluctuates over multiple years. The range of fluctuation was  $0.25 \pm 0.07 \text{ km}^3$ . It was not necessarily fluctuating in monotone. The steep rise of the amount of SWE in the upper Tuul River basin coincides with increasing air temperature and snowfall roughly.

Keywords: snow water equivalent, snow cover, water resources, water cycle, Mongolia