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Estimation of water balance of small watersheds in arid region of Mongolia

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Two small watersheds near Mandlgobi (45 50N, 106 16E, 1400-1540 m a.s.l, area of 340 and 113 6 ha) of Mongolia were selected; vegetation consists mainly of herbaceous plant of *Allium polyrrhizum* and shrubs of *Caragana microphylla*. Automatic weather stations installed in 2008 provided hydrological and meteorological data including precipitation, soil moisture wind speed and radiation. Groundwater level at four shallow wells was measured manually once per day. Animal numbers in the watersheds and their groundwater consumption from these wells were determined by interviewing local resident. Topographic survey and well pumping tests were also carried out to estimate surface and groundwater discharge. As a result, it was determined that the majority (>99%) of annual precipitation of some 150 mm was lost by evapotranspiration, while only small portions go to the groundwater discharge, the surface runoff, and the groundwater consumption by nomadic activities.

Keywords: Mongolia, arid regions, water balance