

Water balance analysis for assessing groundwater resources in Kofu basin

ICHIKAWA, Yutaka^{1*} ; TAKABE, Yuya² ; NAKAMURA, Takashi³ ; MAGOME, Jun³ ; ISHIDAIRA, Hiroshi³

¹Graduate School of Engineering, Kyoto University, ²Graduate School of Medicine and Engineering, University of Yamanashi,

³International Centre for River Basin Environment, University of Yamanashi

Water use in Yamanashi Prefecture is highly dependent on groundwater resources, and a number of groundwater investigations have been carried out. However, groundwater recharge, which is the most crucial factor for its proper management, remains uncertain. This study conducted a water balance analysis of Kofu basin aiming at assessment of its groundwater resources. The water balance of Kofu basin consists of temporal change of groundwater and surface water amount, precipitation, river and groundwater discharge coming from the surrounding mountain regions, evapotranspiration and river discharge going out from the outlet of the basin. The observation datasets were utilized to estimate precipitation and river discharge. An advection-aridity approach was used to estimate actual evapotranspiration. The temporal change of groundwater amount was found to be small enough to be ignored compared other components based on groundwater level observations and the temporal change of surface water was assumed to be negligible. Groundwater inflow from the surrounding areas was estimated as difference of other inflow and outflow components. The annual amounts of each components per unit area of Kofu basin were estimated as follows; precipitation: 1090mm, river inflow: 5090mm, evapotranspiration: 340mm, river outflow: 6500mm, groundwater inflow: 650mm.

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