

The change of spring water based on the hydrochemical estimation of recharge area - a case study of Hino Terrace and Tama hills-

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In this study, the author tried to clarify mechanisms of recharge and discharge of springwater of Tokyo Metropolis, following that water temperatures of springwaters are rising (Narumiya et al. 2006). Eight springwaters in the Hino city were selected as a case in this study. This study paid attention to the relationship between amount of discharge and concentration of silica when heavy rainfall was observed (Hirano and Ogura 1992).

When heavy rainfall was observed from September 2006 to October 2007, the amount of discharge increased while concentration of silica and electric conductivity decreased in three points (1. *Toukouji*, 7. *Minamidaira Yasaka Jinja*, and 8. *Misawaosawa ryokuch*) among eight springwaters.

It is considered that springwaters were diluted by rainwater because the majority of increased discharge is composed of rainfall. In other words, these springwaters have comparatively small recharge area, and small thermal capacity. In these springwaters, the seasonal change of water temperature is remarkably large. Especially, this study clearly and objectively showed that the seasonal change of water temperature became remarkably large at 7. *Minamidaira Yasaka Jinja*, in recent years although the reason is still unknown.

From these results, it is found that the seasonal change of water temperature is closely related to the change of water quality. Namely, this study suggests the possibility to estimate the size of recharge area of springwater from water temperature that can be easily measured. Springwater where the seasonal change of water temperature is large, is fragile to an environmental change of surroundings. In conclusion, we have to make efforts to the preservation of environment to prevent springwater from drying up in the future, by taking into account the findings of this study.