

Long-term change in shallow groundwater levels with urbanization in Tokyo Metropolis

Takeshi Hayashi[1]; Masaya Yasuhara[2]; Akihiko Inamura[3]; Akinobu Miyakoshi[4]

[1] Akita Univ.; [2] Geol. Surv. J.; [3] GSJ, AIST; [4] GSJ,AIST

Human activities with urbanization affect shallow groundwater environment beneath the urbanized area. For example, impermeabilization of ground surface reduces the infiltration rate of precipitation. Conversely, leakage from water pipes directly recharges shallow groundwater. According to Tokyo Metropolis (1998), in the eastern part of Tokyo, anthropogenic groundwater sources such as leakage from water pipes are much larger than natural source. These environmental changes are occurred in other cities all over the world. The purpose of this study is to evaluate the long-term change of shallow groundwater levels in Tokyo Metropolis to understand the effect of land use change with urbanization.

In the Tokyo Metropolis, Civil Engineering Center of Tokyo Metropolitan Government and some other organizations have monitored groundwater level in many part of this area. According to these data, groundwater levels in many parts have seasonal fluctuation induced by precipitation. Also, groundwater levels in many points are stable or rise gradually in the long view. These tendencies will reflect the land use change in each site. In this presentation, land use change and long-term fluctuation of groundwater levels will be shown.