Water movement and water quality through the unsaturated zone in Kanto Loam Formation

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The soil water movement through unsaturated zone is very significant for understanding the groundwater recharge and behavior of chemical materials. To consider the soil water movement, the vertical profiles of stable isotopes of oxygen and hydrogen may useful. The soil core was sampled from 0 to 14 m depth at Kaneko-upland which is located at Tokyo Prefecture in 24 August 2006. A groundwater and river water samples were sampled near the coring point. Precipitation samples have been sampled at Ogawa City since September 1993. The core was cut every 5-cm depth, and three-phase distribution was analyzed all soil samples. The soli samples were centrifuged for pF 3.0 and pF 4.2. The stable isotopes of oxygen and hydrogen were analyzed for all samples, and also water quality (Na^{+}, K^{+}, Mg^{2+}, Ca^{2+}, Cl^{-}, $NO_3{}^{-}$, $SO_4{}^{2-}$, $HCO_3{}^{-}$, Si) were analyzed. The vertical profiles of cations and anions have each characteristic. The vertical profiles of $d^{18}O$ and dD are relatively high near the soil surface and have some cyclic variations. These results are useful to consider the residence time of soil water and groundwater recharge.