

Oxygen and Hydrogen isotopic characteristics of groundwater in the Tokyo bay area 3 -western part of the bay area-

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The Tokyo bay, which is located in southern part of the Kanto plain, is a shallow deep bay. Some previous studies found fresh groundwater beneath the bay. To clarify the origin and geochemical characteristics of such groundwater contribute to understanding of water and solute transportation system from inland to ocean in Japan. We have studied about the chemical and isotopic characteristics of groundwater, subsurface temperature and hydraulic potentials in the bay area, to clarify groundwater flow system and geochemical characteristics. In this presentation, we will show the oxygen and hydrogen isotopic characteristics of groundwater in the western part of the bay.

Groundwater samples were collected in the Tama upland, which is in western side of the bay, and well depths were from 10 to 225m. Delta-18O and delta-D of groundwater samples mainly showed -7 to -9 permil and -45 to -60 permil, respectively. Groundwater that was collected from reclaimed land in seafront showed high isotopic ratios (delta-18O:-4.3 permil, delta-D:-27.9 permil) and high Cl concentration (8,969 mg/l). From the comparison of isotopic ratios with river water, spring water and shallow groundwater around the study area (Inamura and Yasuhara, 2003; Yasuhara, 2002), groundwater is mainly recharged in local groundwater flow system in the upland. Mixing ratio of seawater was calculated at about 47 percent with Cl concentration of groundwater samples and seawater (19,000 mg/l), as to the groundwater with high Cl concentration and high isotopic ratios. Former isotopic ratios of that, which was estimated with mixing ratio, are agreeable to isotopic ratios of other samples. This result suggests that the groundwater collected in the seafront is recharged in present climate and is affected by seawater because of groundwater pumping in the seafront.