Spa exploitation in the Kanto Plain and their monitoring system, Japan

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Eighteen spas including Toshimaen and Tokyo dome with wells over 1000 m deep have recently been exploited in the Kanto Plain. They have potentially high temperatures ranging from 30 to 45 C. The spa waters can be divided into two groups based on their water quality. The first is characterized by relatively higher contents of dissolved matter, especially organic matter, bromine and iodine. The second group has lower contents of dissolved matter and relatively lower temperature. Radiocarbon ages of ten spas water range from 25 k to 35 k years before present, suggesting relatively older water age than those measured in the sedimentary basins. The d13C and d13N values were determined for estimation of the origin of the waters (derivation from higher plants or marine planktons) and to provide fundamental data for evaluation of water quality change due to utilization of the spar in the future.

The monitoring system of spa water is necessary for sustainable use of ground water and detection of changing water quality by supposed geologic event.