

Discussion on application of observation wells for groundwater levels and land subsidence

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There have been occurred depletions of hydraulic potential in aquifers and land subsidence due to groundwater abstraction in many urban areas in Japan. Municipalities and the National Government have restricted the abstraction by laws and ordinances and have developed the network of observation wells for hydraulic potentials and land subsidence.

Recent years, in many urban areas, the monitoring of hydraulic potentials and land subsidence has been reduced because the hydraulic potentials and land subsidence have recovered and calmed by regulations. However, groundwater demand has increased again, especially after 2011 Great East Japan earthquake. In addition, the Basic Act on the Water Cycle decides that the municipalities have to monitor groundwater environment for conservation of water cycle. Therefore, the municipalities are forced to maintain the monitoring of observation wells and to manage appropriate groundwater development.

On the other hand, from the viewpoint of scientists and engineers who engage earth science, the observation wells are the "window" that can provide useful data of subsurface environment and are the important "tools" for appropriate understanding of unsteady groundwater environment system due to urbanization. In this presentation, application and issues of the observation wells will be discussed.

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