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北京市永定河流域地下水¹⁴C年龄的初步分析 [点此下载全文](#)

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摘要:

应用同位素方法初步分析北京郊区永定河流域地下水的演化特点.沿永定河冲洪积扇地下水流动方向布置取样剖面,共有取样点14个,对采集的水样进行¹⁴C和氚含量分析,并确定地下水同位素年龄.浅层孔隙水的¹⁴C年龄的变化范围为730~4900a,深层孔隙水为13420-22480a;¹⁴C年龄在垂直方向上由浅部至深部逐渐增大,最大变化幅度为从3010a增至22480a;浅层孔隙水的氚含量都在14.99~30.56TU之间,深层孔隙水大部分在0.51~4.71TU之间.运用地下水¹⁴C和氚年龄在垂向和水平方向变化的结果,验证了地下水的流向并计算了地下水的流速变化范围为5.02~62.63m/a,从山前至平原浅层地下水径流速度逐渐变小,反映了地下水水平径流强度逐渐减弱,地下水交替逐渐变差,浅层孔隙水以垂向交替为主,深层孔隙水以水平径流为主.

关键词: [地下水](#) [¹⁴C年龄](#) [氚](#) [同位素](#) [北京](#)

A Preliminary Analysis of the ¹⁴C Age of Groundwater in the Yongdinghe River Plain in Beijing [Download Fulltext](#)

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Fund Project:

Abstract:

The isotopic technique is used in the study of the evolution of groundwater in the Yongdinghe River Plain in Beijing. The sampling profile, which has fourteen sampling locations, is along the flow direction of the groundwater in the Yongdinghe River pluvial and alluvial fan. The ¹⁴C and tritium contents of the groundwater are detected and the ages of the samples are calculated. The ¹⁴C age of the superficial porous aquifer ranges from 730a to 4900a, and that of the deep porous aquifer ranges between 13420a and 22480a. The ¹⁴C age gradually increases from the superficial to the deep aquifers in a vertical direction, and the largest range is from 3010a to 22480a. The contents of tritium of the superficial aquifer varies from 14.99 to 30.56Tu, and that of the deep aquifer ranges between 0.51 and 4.71Tu. By analyzing the changes in vertical and horizontal directions in the ¹⁴C age and the contents of tritium of the groundwater, we can examine the direction of the groundwater flow and calculate the velocity of the flow. The flow velocity ranges from 62.63m/a to 5.02m/a. The flow velocity of the superficial aquifer gradually decreases from the piedmont area to the plain, and subsurface runoff also decreases. The hydrologic circle of the superficial aquifer is mainly vertical, and that of the deep aquifer is mainly horizontal.

Keywords: [groundwater](#) [¹⁴C age](#) [tritium](#) [isotopes](#) [Beijing](#)

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