

عنوان مقاله:

Application of ^{13}C isotope and carbon geochemistry to identify impact from landfill on surrounding groundwater

محل انتشار:

هشتمین کنگره بین المللی مهندسی عمران (سال: 1388)

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نویسندگان:

Hossein Mohammadzadeh - *Groundwater Research Center, Ferdowsi University of Mashhad, Iran & Department of Earth Sciences, University of Ottawa, Canada*

Ian Clark - *Department of Earth Sciences, University of Ottawa, Canada*

خلاصه مقاله:

In this paper, the $\delta^{13}\text{C}$ values and concentrations of carbon pools (DOC, DIC, CH_4 and acetate) were used to recognize leachate impact on the surrounding groundwater and to evaluate carbon biogeochemistry within the Ottawa landfill plume. The enriched ^{13}C DIC for groundwater (-6.4 ‰ to -1.0 ‰) confirm that the leachate (+8.8‰ to +10.7‰) has had an impact on aquifers. In addition, in proximal ground water, methane concentrations are high (~10 mg l⁻¹) and the ^{13}C CH_4 values demonstrate reactive loss of acetate in the leachate plume by methanogenic fermentation, and methane oxidation in the plume fringe. Continued reaction of DOC in groundwater is confirmed by deviation from the mixing lines on diagrams of DIC vs. $\delta^{13}\text{C}$ DIC and DOC vs. $\delta^{13}\text{C}$ DOC, and by the absence of acetate

کلمات کلیدی:

(Landfill leachate, ^{13}C stable isotopes, carbon pools (DOC, DIC, CH_4 , acetate)

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