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カトマンズ盆地の都市地下水の水質・水文条件が硝酸イオン濃度分布に与える影響
Analysis of nitrate variation with quality and hydrological factors in urban groundwater of Kathmandu Valley, Nepal

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The occurrences of nitrate, nitrite and ammonium in shallow groundwater systems, with their sources and distributions mechanism were investigated in Kathmandu valley, Nepal. Thirty-five shallow groundwater samples were collected during the monsoon (August) season in 2009 and analyzed for the concentration of major dissolved ion and nitrate nitrogen and oxygen isotopes.

Nitrate isotopes approach suggests the sewer leakage act as a major source of nitrogen contamination. Relationships between dissolved oxygen and composition of nitrate and ammonium shows the leakage from sewers could be the primary ammonium source, which is then converted into nitrate with anaerobic condition. Furthermore, this liner relationship between nitrogen and oxygen isotopes in nitrate shows the active denitrification in shallow groundwater. Nitrate concentrations in the groundwater are decreased due to mixing with sewage originated nitrate and rainwater nitrate. And nitrate removal by the denitrification in shallow groundwater.

キーワード: 地下水, 窒素汚染, 下水漏洩, 硝酸イオンの窒素・酸素安定同位体比, カトマンズ盆地
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