
[JJ] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-HW Hydrology & Water Environment

[A-HW25]Isotope Hydrology 2018

convener:Masaya Yasuhara(Rissho Univ.)

Wed. May 23, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

The purpose of the session is to review the present state of knowledge of isotope hydrology, by bringing together hydrologists, geologists, volcanologists, geochemists, agronomists, ecologists, engineers and so on.

[AHW25-P01]Hydrogeology and groundwater quality formation process in the Kannagawa-river alluvial fan, Saitama Prefecture, Japan

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Keywords:Kannagawa-river alluvial fan, groundwater-river water interaction, groundwater quality, hardness in groundwater, fertilization

Hydrogeology and groundwater quality formation process was investigated in Kamisato Town in the Kannagawa-river alluvial fan, Saitama Prefecture, central Japan. Groundwater samples from 40 bores of depth in the range between 7 m and 170 m were analyzed for water quality and hydrogen-oxygen isotopes. As the result of research, groundwater in the alluvial fan proved to be highly polluted with nitrate and sulfate ions up to as deep as 100m below the ground surface. Groundwater was also characterized with high hardness ranging from 90 to 280 mg/L. These are estimated to result from excessive application of fertilizer for the intensive vegetable and wheat cultivation. A two end-member mixing analysis made it clear that infiltrating river water from Kannagawa river make a considerable contribution to the formation of shallow groundwater. Two tongue-shaped zones indicating more than 50% contribution of river water extend northeasterly from the right bank of the river, which is consistent with spatial distribution of ground water quality.