

Quality and flow system of groundwater in the Kurobe alluvial fan

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Research on groundwater has been conducted in the Kurobe alluvial fan over the past years. Groundwater flow system in a local scale of the alluvial fan has, however, not yet been clear, and it investigated in this research for the purpose of the present study is to clarify the flow system of groundwater by using dissolved substances a tracer.

Quality of groundwater in the Kurobe alluvial fan shows the characteristics of calcium bicarbonate at many observation wells. It is pointed out that concentrations of dissolved constituents of groundwater in the left bank of the Kurobe River are much higher as compared with those in the right bank. It is also considered that groundwater in the Kurobe alluvial fan is classified into five groups by district based on the difference of water quality.

In regard to land use of the alluvial fan, paddy fields are distinguished in area. From this point of view, it is examined that phosphorus, potassium and nitrate as originated from fertilization. Have a strong effect on the quality of groundwater. It was investigated that correlations of these three substances are high for the period from June to October, and mutual relations of phosphorus-nitrate and phosphorus-potassium are comparatively low in December, respectively. From the fact that the period of fertilization is concentrated from May to July, it is concluded that groundwater in the Kurobe alluvial fan has a short residence time of approximately half a year.