



Landform, artificial and tidal effects for stream water chemistry of the Neyagawa river systems in the Osaka Plain, Japan

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We determined the elemental compositions of stream water of the Neyagawa river systems in the Osaka Plain, Japan. The river water were enriched in Na^+ and HCO_3^- in the southeast part of the Osaka Plain and in Ca^{2+} and HCO_3^- in the upper stretches of the Neyagawa river systems. These results indicate that these ionic compositions are derived mainly from geological inputs from the drainage basins. The river water were rich in Na^+ and Cl^- in Hiranogawa, Hiranogawa canal, the middle part of Neyagawa and the upper part of Furukawa. This ionic composition is largely attributable to artificial effect. Major ionic compositions of river water showed temporal variation in the center of the Osaka Plain. Tidal effect was shown in this area.

The distribution of major ions and trace elements had a relationship to the factor such as geological, tidal, and artificial effect in each area. The origin of Na^+ , Cl^- , SO_4^{2-} , NO_3^- , Rb and Ni was artificial activity and tide. Geological input was mainly the provenance of HCO_3^- , Ca^{2+} , Mg^{2+} , Si and Ba. The concentrations of B, Li and Sr varied same as HCO_3^- and Ca^{2+} in the southeast part of the Osaka Plain. Moreover, the temporal variations of these elements showed the same trend as Na^+ and Cl^- under the tidal effect area. These results suggest that it is possible to distinguish that tidal effect is reaching or not to the area by using the concentration ratios of B, Li and Sr to Na^+ .