

# Hydrological characteristic of riverwater around Toyama bay and preconsideration of Nitrate loading to the bay

# Reo Ikawa[1]; Jun Shimada[2]; Tomochika Tokunaga[3]; Junji Goto[4]

[1] Grad. Sch. Sci. & Tech., Kumamoto univ.; [2] Dept. of Earth science, Kumamoto Univ.; [3] Dept. Geosystem Eng., Univ. Tokyo; [4] Dep.of Earth Sci.,Fac.of Sci.,Kumamoto Univ

The purposes of this study are investigation of hydrological characteristics of riverwater in Toyama Prefecture and Noto Peninsula, and preconsideration of Nitrate loading to Toyama bay. Consequently, measurement of stream flow and water sampling performed 25 rivers. Results stable isotopic analysis, water qualities, and tritium activities in riverwater samples indicated as following.

## (1) Stable isotopic composition

Stable isotopic compositions of riverwater in Toyama Prefecture have different value in each river, Delta 18O ranged from -12.2(per mil) to -8.0(per mil), and Delta D ranged from -79(per mil) to -45(per mil). On the other hand, those in Noto Peninsula have similar value in each river, Delta 18O ranged from -8.4(per mil) to -7.5(per mil), and Delta D ranged from -48(per mil) to -45(per mil). Their results indicate that rivers in Toyama Prefecture were recharged various attitudes, although rivers in Noto Peninsula were recharged similar recharge attitudes.

## (2) Water quality

Water qualities of riverwater seem changing from Ca-HCO<sub>3</sub> type to Na-HCO<sub>3</sub> type or Na-Cl type toward Noto Peninsula. It is consider that some rivers in Noto Peninsula have small watersheds, thus they were influenced wind-borne chloride easily. And high NO<sub>3</sub><sup>-</sup> concentrations in part of samples indicate effect of artificial contaminations in each watershed. By result of calculate, it prove that about 4200t Nitrate flow in Toyama bay at a year in base flow condition.

## (3) Tritium activity

Each river has similar tritium activity, therefore it is identify that there is no relation between watershed scale and residence time of river water.