

## The comparative study of watershed environment and material circulation -In case small basins of the Goto Islands-

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### 1. Introduction

In general, water composition of the land water is expected to have a relationship between the geological and the surrounding environment. In the case of the islands it is also conceivable to greatly affected by sea salt from its geographical reasons (Goto other 1989). Therefore, this study is to clarify the current status of each island of water environment in Goto Islands, and small watershed of each of its rivers and is obtained by comparing the discussed material circulation in.

### 2. Regional Overview

Goto Islands is located in the westernmost of Kyushu. They are over about 80km from the southwest side to the northeast side, consisting of 52 inhabited islands and 11 uninhabited islands. Population is about 70,000 and the total area is 420.87km<sup>2</sup>. In addition, they have a wide variety of coastal landscapes such as sea cliff and drowned valley. For geology, it is constituted by sandstone and mudstone deposited on the Neogene Miocene called Goto layer group and solute tuff.

### 3. Investigative method

The local hydrological observation of rivers, mountain streams, groundwater and reservoirs in the Goto Islands went twice at 82 points from 3 to 5 in May and 179 points from 27 to 31 in August, 2014. Observation items is AT, WT, EC, pH and R-pH. Also, the those samples were analyzed to the measurement of total organic carbon and the main dissolved component.

### 4. Results and Discussion

The value of the EC were many places showing almost 200 $\mu$ S/cm. In contrast, EC showed more than 300 $\mu$ S / cm in agricultural reservoirs and fields near the river Uku Island and Ojika Island and the river near the ranch of Fukue Island. With regard to total organic carbon, those points are showed a relatively high value of 4-6 mg / L. The overall values are lower in August than May. This reason is considered to be because the influence of dilution by precipitation in summer. Also, the major components dissolved rivers are totally the type of Na-Cl except for some, it is understood that it is under the influence of sea salt. The groundwater such as well shows the type of Ca-HCO<sub>3</sub>, it is considered to be a circulating water.

### 5. Conclusion

Some degrees could be related to the geological feature of the island and the basin, the difference in the environment of the land condition and the water quality clearly by the former study. I'd like to conduct a field survey more in detail by the special by which a typical basin was selected and deepen consideration about a relation between the basin environment and material recycling from now on.

### Reference

Goto, H. and Noma, Y.(1989):Stream water geochemistry and estimation of the effect of sea salt in Tokunosima. *Bull. Geol. Surv. Japan*, vol.40(11), p.625-633

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