

## Characteristics of outflow variations of rivers in Ishigaki Island

Ritsuko Sawada<sup>1\*</sup>, Koji KODERA<sup>2</sup>

<sup>1</sup>Undergrad Hosei Univ., <sup>2</sup>Hosei Univ.

### 1 Preface

In islands around the sea, surface water immediately flows out to the ocean, and various materials flow out to the ocean at the same time. Land waters that flows in the island and flows out to the ocean influence the littoral region because the coral reef etc. especially develop to surroundings on the island, and a valuable environment is formed in Yaeyama islands that belong to the subtropics climate. The red soil runoff has been put in question since before in Ishigaki Island and R.Nagura, R.Todoroki the present study aims not only the unit of the valley but also to catch inland waters in the large area, and to clarify the change by the seasonal variation and the rainfall event.

### 2 An area for summary

It exists as a center island in Yaeyama islands. The normal temperature is 23.7 degree, the average precipitation is 2127.2mm, and the rainfall at the rainy season and the typhoon accounts for 60 percent of the annual rainfall. there are Mt Omoto that is the most high mountain in Okinawa. Main river are R. Miyara, R. Todoroki, R.Nagura.

### 3 A study method

I performed water sentence observation in about 90 spots in Ishigaki Island. The observation item was AT, WT, pH-RpH, EC, TURB, DO, TDS, and the sample performed measurement of the alkalinity and major dissolved components measurement with the ion chromatograph, all dissolved carbon quantity analysis with the TOC analyzer.

### 4 A result and consideration

The standard deviation of EC under 20 concentrates around Mt.Omoto. It is characteristic that value and average of EC are large. The water in Ishigaki island quality are grouped Ca-HCO<sub>3</sub> type. Especially the trend are conspicuous at R.Todoroki by limestone area. Na-Cl type is shown in some area but volume of Ca<sup>2+</sup>, HCO<sub>3</sub><sup>-</sup> are small while Na<sup>+</sup>, Cl<sup>-</sup> are same degree.at Ca-HCO<sub>3</sub> type area. After rainfall EC decrease suddenly and the minimum value of EC250uS/cm or less was observed around noon increase Sep.4. Recovery speed is early at headwaters and slow at downstream. Ca<sup>2+</sup>, Mg<sup>2+</sup>, Cl<sup>-</sup> vary together with variation of EC. It has been understood to exist without making it to the place where the soil component flows out because the difference is in the size because of the point though the outflow of the dissolved matter according to the rainfall causes EC to change by the rainfall event.

### 5 Conclusion

If the relation of the soil erosion to rainfall strength can be found, it becomes possible to calculate the rainfall according to the value of EC at the rainfall. It is necessary to lead outflow strength of the soil component from various factors like the inclination and geological features, etc. , and to clarify the relation between EC and the rainfall of the river.

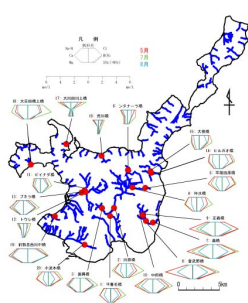


fig.1 stiff diagram

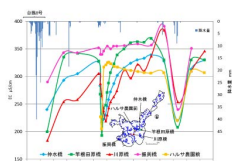


fig.2 validation of EC after rainfall

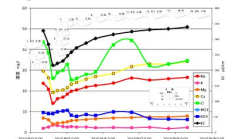


fig.3 validation of main dissolved elements after rainfall (R.Nakamizu)