

The characteristics of the sediment and solute transport at the west foot of Mt.Naeba in snowy and volcanic area.

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1.Introduction

It is an important subject to grasp the material movement of the mountain area from the protection against disasters and the environment side. There is a little quantitative investigation in comparison with the phenomenon due to rain in the volcanic area and are many unclear points about the material movement phenomenon which passed through the year in the basin of high, snowy and volcanic area.

So quantitative evaluation about the degree of a contribution to the material movement of the snow and rain is necessary to grasp earth and sand production.

2.Outline of the investigation area and methods

The investigation area are two basins (Iou River:catchment area is 13.2km², Koakazawa River:catchment area is 7.8km²) which locate at the west foot of Mt.Naeba in Tsunan-Town, Niigata Prefecture and Sakae-Village, Nagano Prefecture. The geology which composes investigation areas are andesite and basalt, and tuff is distributed in Iou River basin. Many landslides which erode Naeba volcanic body develop into these basins as well.

Maximum day precipitation is about 150mm and maximum snow depth is 2.5~3m according to the weather observation in the past 3 years in the end of basins. Snowfall term is from December to April and rainy season is from May to November.

I carried out the continuously measuring such as water level, water temperature, turbidity, electric conductivity and pH and water sampling in the end of the basins. General water quality analysis and degree of grain size and turbidity of the drifting sand were analyzed.

3. Results

1)Electric conduction of Iou River water was 0.01-0.06S/m, and pH was 4.5-5.3. Water type was CaSO₄ on trilinear diagram and a change of chemical formation was hardly seen. Electric conduction of Koakazawa River water was 0.005-0.04S/m, and pH was 6.6~7.9. Water type was changed from CaSO₄ to Na₂SO₄/NaCl. Chloride cocentration of River warer was 30-100mg/L and Sulfate concentration was 50-180mg/L in May.

2)Bedload and washload were contained in the suspended load with water sampling of river at the time of the flood. The solute material quantity 0.3~0.7t/day in rainy season (Jun-November).