

Transport processes of huge riverbed boulder and landforms of the Miyanoura River in the Yaku Island, southern Japan

*Hiroshi Shimazu¹

1.Department of Geography, Faculty of Geo-Environmental Science, Rissho University

There are huge boulders on the riverbeds of most rivers in the Yaku Island, southern Japan. The Miyanoura River is the most typical river and one of the largest rivers originated in the central part of the island. This study aims to discuss the production and transport processes of such huge riverbed boulders and relationships between the processes and landforms of the basin.

Most part of the Yaku Island, including the central part, is underlain by granitic rocks. The Miyanoura River, whose length is 17 kilometers, flows down in granitic area except the lowest section of 4 kilometers. Maximum diameter of the riverbed boulders is about 10 meters in the upper reaches. It decreases downstream to several tens centimeters as the channel slope decreases.

Although uniform granite is underlain by this basin, maximum diameter of riverbed boulders correlates with channel slope. This indicates such boulders are transported by river being affected by sorting process. In the reaches of maximum boulder size being over 5 meters, relative height between ridges and valley bottoms is as large as 500m. There are many landslide scars in the tributary basins which join the Miyanoura River in these reaches. At the junctions these tributaries with steep channel slope develop alluvial cones on the valley floor. The deposits of the riverbed and the alluvial cones include huge boulders with several meters in diameter. Alluvial cone development across the Miyanoura River formed a dam. A dam break during a heavy rain event caused torrential floods and huge boulder transportation.

There is a continuous terrace along the middle reaches of the Miyanoura River. The terrace deposits consist of huge boulders of several meters in diameter. This terrace is not covered with the Koya pyroclastic flow deposits, which was erupted at 7,300 y.B.P. and which covered the valley side slopes around there. The cause of terrace is an important key to solve the cause of the huge riverbed boulders.

Keywords: huge riverbed boulder, sediment transport process, landform, Miyanoura River, Yaku Island, southern Japan