

## Downstream variation in gravel size of the Tenjin River system

\*Kazuaki Hori<sup>1</sup>, Kazuya Yonehara<sup>1</sup>

1. Department of Geography, Graduate School of Environmental Studies, Nagoya University

Many researchers have studied downstream variation in river-bed material size and its controlling factors, because they are important to understand the evolution of fluvial landforms and drainage basin. Many of these studies have focused only on rivers flowing through mountains or alluvial plains. Thus, it is desirable to examine a much broader range, i.e. from head to mouth of a river. We investigated the downstream variation of gravel size and channel gradient in the Tenjin River system (Tenjin, Ogamo, and Mitoku rivers) located in the central part of Tottori prefecture, Japan. The Tenjin River is approximately 34 km in length and major tributaries, the Ogamo and Mitoku rivers, join the Tenjin River at approximately 7 km and 12 km upstream from the mouth, respectively. Mean gravel size tends to decrease toward the downstream between 5 and 23 km upstream from the Tenjin River mouth where exposed gravel bars are easily found. Channel gradient is usually less than 0.03 and its variation is relatively small in this range. On the other hand, exposed gravel bars are uncommon between 23 and 34 km upstream from the mouth. The channel gradient become larger ( $> 0.06$ ) and shows large variation. Large boulders ( $> 500$  mm) are distributed in the channel. The number of boulders, especially  $> 1000$  mm, seems to be inversely proportional to the distance from the valley wall. Buffers along the rivers regulate the supply of boulders from the valley wall in the upper reaches and reduce the connectivity of sediment supply from the tributaries in the middle and lower reaches. Barriers typified by weirs reduce the connectivity in the longitudinal direction throughout the basin.

Keywords: sediment connectivity, grain size, channel gradient