

## Transportation and precipitation characteristics of toxic element in river and its bottom sediment in Asama-yama area

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Some toxic trace elements are often transported to agricultural land by some water system and move to bottom clayey soil by precipitation. Therefore, it is important issue on prevention of health hazards to clarify the mechanism for transportation, precipitation and concentration of toxic elements in a water system.

In this study, in order to clarify the mechanism for transportation, precipitation and concentration of toxic trace elements in a water system, river waters and bottom sediments were sampled at 18 points in a small river of Asama-yama volcanic mountain area. From the correlation between major elements and toxic trace elements, major attracter elements are found in a river. The following conclusions are obtained: 1) The toxic trace elements (Cu, Pb, Co, Sr) in bottom sediments are with compatible major attracter elements;  $K_2O$  for (Cu,Pb),  $(T-Fe_2O_3)$  for Co,  $Al_2O_3$  for Sr, 2) The toxic trace elements (Cu, Pb) in river waters are with compatible major attracter elements; (Al, Ti) colloid for (Cu, Pb), 3) No attractor for Sr in river water, 4) Fe-colloid is a attractor of (Al, Ti) in river water.

From the described above, it is modeled that first, (Cu,Pb) are transported by Fe-colloid, that is attractor of (Al,Ti), second, Fe-Al-Ti-colloid precipitate with (Cu, Pb), third, (Cu, Pb) are attracted by  $K_2O$ , and move to bottom sediment, finally, Fe-Al-Ti-colloid released (Cu, Pb) moves from bottom sediment to river water. These processes are repeated, and (Cu, Pb) are move from water to bottom sediment. Co will move with Fe-colloid, because Fe-colloid is a compatible attractor of Co.

Keywords: toxic trace element, bottom sediment, river