Acid buffering capacity in the Tama River upstream region evidenced from major elements of streamwater

Hiroshi Watanabe[1]; Keisuke Koba[2]; Muneoki Yoh[3]

[1] Tokyo Univ.Agri.Tech; [2] Tokyo University Agric Tech; [3] Tokyo Univ. Agri. Tech.

Chemical weathering is one of the major acid buffering processes in the forest ecosystem. At high elevation, chemical weathering may be slower because of low temperature and steeper gradients. To the contrast, chemical weathering may be faster at low elevation. As chemical weathering is enhanced, bicarbonate (HCO_3^-), which is main substance of alkalinity, is generated so that acid buffering capacity is increased. To evaluate the acid buffering capacity of forest ecosystem varied with elevation, we studied water chemistry of streamwater in the Tama River system and surrounding region. The results showed that Na⁺ and SiO₂ concentrations were low at high elevation and high at low elevation, implying chemical weathering is promoted at low elevation. Alkalinity and pH were low not only at high elevation, but also low elevation. It is indicated that acidification over the proton consumption by the chemical weathering might be occurred at the low elevation site in the Tama River.