

Trends in precipitation and stream water chemistry in a forested watershed in the Kanto region, Japan

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It is widely accepted that forested watershed play an important functional role in maintaining and improving water quality. It has been an important issue to investigate the effect of environmental change (e.g. atmospheric deposition, climate change) and forest management practice on the water chemistry of forested watersheds. For the above purpose, we have been monitoring rainwater and stream water chemistry over 14 years at a forested watershed in Ibaraki prefecture, Japan. In the period 2001 –2014, the annual flux of precipitation nss-SO_4 tended to decrease. On the other hand, the annual flux of precipitation Inorg-N exhibited an increasing trend. Annual mean concentration of stream water SO_4 was almost constant in the period 2001-2011, increased after forest thinning operations conducted in 2012 and 2013. Annual mean concentration of stream water NO_3 tended to decrease before the thinning operations, and turned to increase after the operations. Similar increasing patterns after the thinning operations were observed in the concentrations of Ca and K. Stream water Si concentration exhibited very small fluctuation and tended to increase gently.

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