



N Loss flux estimation and associated threshold characteristics from 1961 to 2014 in Epi-karst zone, China

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Special structure of karst area is deemed to primary cause of N loss, and how N coupling with hydrological process driven by rainfall in epi-karst zone still not clear. N loss load need to be estimated urgently as one of restrict factors of ecological restoration and agricultural development at karst area, China. Situ simulated rainfall method is used to estimate N loss carried by both surface and subsurface flow in this research to obtain related runoff and N loss parameters. The result shows that in karst area, rainfall have a fine linear relation with surface flow and subsurface flow, and subsurface flow occupy major of rainfall due to the rapid and vertical movement of water through KCN at karst area. Nitrate that accounts for 60%~95% of DTN is main loss form. The annual N loss load coupling with water from the shallow epi-karst layer is 1.67-2.27 Tg·yr⁻¹, and mean N loss flux during 1961-2014 is 1.61 ± 0.11 t. km² yr⁻¹, of which about 80% of N loss during wet season, more than 90% loss through subsurface flow and 76% loss from southwest karst zone in China. The southwest karst in China is main N loss source and has a crucial effect on ecosystem restoration and sustainable agricultural development.