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Falcon constructed artificial catchment for whole ecosystem manipulation how we build it and what are the first results

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Subsurface processes are often omitted in catchment studies here we presented artificial catchment as a new tool to study and budget these processes on catchment level.

Falcon is an artificial catchment that was built in Sokolov post mining sites. Catchment consists of four separate micro catchments (pools) each 0.25ha in area and 2m in depth which are hydrologically isolated and filled by post mining overburden. Two fields were levelled while in two a wave like surface was produced to mimic situation after heaping. Levelled micro catchments were planted by alder (*Alnus glutinosa*).

Catchment allow to study meteorological variables, surface and subsurface runoff, and other key ecosystem parameters (water table depth, chemical composition of pore water, soil respiration, gas exchange between ecosystem and surrounding atmosphere using eddy tower etc.). First results show large erosion on waves then on levelled sites however large proportion of material eroded from flat site leaves the site while in wave like surface most of it is trapped in depression between waves. Subsurface runoff forms large proportion of total runoff in wavy sites than in flat sites. Stable water table established quickly in both types of catchments few months after catchment establishment. Flat sites show higher initial diversity of plants.