The contents and isotopic composition of lead (Pb) were studied in a small forested catchment Lesní potok. The catchment is located 30 km southeast from Prague near Jevany. Monitoring inputs and outputs in GEOMON, a network of small forested catchments in the territory of the Czech Republic, has been coordinated by the Czech Geological Survey since 1994.

It was analyzed litter of spruce and beech, collected between 2013 and 2014, and an archival sample litter of spruce from 1997. Lead in soil was studied at two profiles cambisols in each diagnostic horizons. Samples of profile LP 38 were collected in 2005, the LP 39 a year later. Surface water and bulk precipitation were sampled monthly for one hydrological year 2013. The ICP-MS method was used to determine the concentration and isotope ratios of lead. To determine of sources Pb were used isotope ratios $^{206}Pb/^{207}Pb$ and $^{208}Pb/^{206}Pb$.

In spruce litter (3,87 $mg.kg^{-1}$) was measured average Pb concentration higher than beech (0,98 $mg.kg^{-1}$). Topsoil horizons contain elevated concentrations of Pb (up to 100,70 $mg.kg^{-1}$) decreasing towards the deeper horizons. The Pb concentration in the soil was 61,28 $mg.kg^{-1}$. Bulk precipitation in with average Pb concentrations $^{206}Pb/^{207}Pb = 0.87$ $\mu g.l^{-1}$ contained more Pb than surface water $^{206}Pb/^{207}Pb = 0.50$ $\mu g.l^{-1}$. Isotope ratios $^{206}Pb/^{207}Pb$ vs. $^{208}Pb/^{206}Pb$ show the various sources of pollution. Prevailing values $^{206}Pb/^{207}Pb \sim 1,16 – 1,17$ are closest to composition of atmospheric aerosol from industrially contaminated sites. In litter of spruce and beech was isotope ratios $^{206}Pb/^{207}Pb$ = 1,166 (± 0,008) close to industrial dust or or fly ash from coal combustion. Lead sampled in the upper layers soil exhibit similar isotopic composition $^{206}Pb/^{207}Pb = 1,167$ (± 0,003), which is the product of the same pollution. Isotopic ratios indicated that the surface layer of soil is influenced by human activities over than deeper soil horizons. Isotope ratios found in surface water amounted higher values $^{206}Pb/^{207}Pb$ =1,191 (± 0,012) than ratios of bulk precipitation $^{206}Pb/^{207}Pb = 1,162$ (± 0,007). It follows that the more radiogenic Pb runoff from the catchment is probably the result of impurities geogenic Pb to anthropogenic Pb.