



MODELING LEAD INPUT AND OUTPUT IN SOILS BY USING LEAD ISOTOPIC GEOCHEMISTRY

Semlali, R.M.(1); Dessogne, J.B.(2); **Monna, F.**(2); Bolte, J.(3); Azimi, S.(4);
Denaix, L.(5); Loubet, M.(6); van Oort, F.(1)

(1) INRA, Science du Sol, RD10, F-78026 Versailles Cedex, France. (2) Laboratoire GéoSol, Centre des Sciences de la Terre, Université de Bourgogne, Bat Gabriel, F-21000, Dijon, France. (Fabrice.Monna@u-bourgogne.fr). (3): Laboratoire ACSIOM, Université de Montpellier II, France. (4): CEREVERE, Université de Paris XII, France. (5): INRA, Unité d'Agronomie, Centre de recherche de Bordeaux-Aquitaine, France. (6): Laboratoire de Géochimie, France.

The aim of this study is to model downward migration of lead from the plow layer of an experimental site located in Versailles (about 15 km southwest from Paris, France). Since 1928, samples have been collected annually from the topsoil of three control plots maintained in bare fallow. Ten of them were analyzed for their lead and scandium contents and lead isotopic compositions. The fluxes are simple because of the well-controlled experimental conditions in Versailles: only one output flux, described as a first-order differential function of the anthropogenic lead pool, was taken into account; the inputs were exclusively ascribed to atmospheric deposition. The combination of concentration and isotopic data allows the rate of migration from the plow topsoil to the underlying horizon and, to a lesser extent the atmospheric fluxes, to be assessed. Both results are in good agreement with the sparse data available. They indicate extremely low migration for lead, compatible with the persistence of a major anthropogenic lead pool deposited before 1928. Knowledge of early pollution history seems therefore to be of primary importance.