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French feedback from urban soil geochemical data archive to data sharing: state of mind and intent

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Urban territories collect many types of geochemical and physico-chemical data relative to, e.g., soil quality or soil functions. Such data may serve for various purposes like verifying the compatibility with current or future uses, defining (pedo)geochemical backgrounds, establishing levels of exposure to soil pollutants, identifying management options for polluted sites or for excavated soils, verifying the evolution of infiltration ponds, assessing carbon storage, etc. They may also serve to prioritize soil functions and associated ecosystem services such as, e.g., soil fertility, surface and groundwater storage or supply, purification of infiltrated rainwater, etc. Gathering such data in national databases and making them available to stakeholders raises many issues that are technical, legal and social. Should all of the data be made available or only selected portions? How can access and reuse of the data be ensured in a legal fashion? Are statistical and geostatistical methods able to deal with data from heterogeneous origins, allowing their reuse for other purposes than the initial one? In this context, it is necessary to take into account scientific as well as practical considerations and to collect the societal needs of end-users like urban planners.

To illustrate the complexity of these issues and ways to address them, we propose to share the French experience:

- on gathering urban soil geochemical data in the French national database BDSolU. We will present how this database was created, the choices made in relation with the national context, the difficulties encountered, and the questions that are still open.
- on a new interrogation system linking agricultural and urban soil databases (DoneSol and BDSolU), which have different requirements, and the corresponding standards. Such linkage based on interoperability is important in the context of changes of soil use, with for example agricultural soils becoming urbanised soils, or soils from brownfields intended for gardening. It is also necessary to ensure a territorial continuity for users.

The objective is to define a robust and standardised methodology for database conceptualisation,

sharing and final use by stakeholders including scientists