Using old data to open up new research avenues: potential of TerraLID for reconstructing the raw material provenance of archaeological objects

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Lead isotope data are a standard method for the reconstruction of the raw material provenance of non-ferrous metals and other materials in the archaeological sciences. Advanced analytical methods are key to produce the required high-quality data but for the management of these data, efficient research data infrastructures are pivotal. While such infrastructures are already available for geochemical data, comparable infrastructures optimised for the archaeological sciences are currently missing. TerraLID aims to fill this gap for lead isotope data. Currently under development, TerraLID will go beyond past approaches of individual data compilations by developing a universal metadata profile and providing workflows for the publication of data according to this metadata profile. In addition, it will provide services to access the database, interact with the data, and to carry out the most common visualisations and statistical tests. Moreover, TerraLID develops open education resources about the lead isotope method. Key features of TerraLID are the FAIRification of lead isotope data of ores and its community-driven development.

Besides making lead isotope data of ores and artefacts FAIR and therefore raising the overall data quality and speeding up data compilation, TerraLID will also become a powerful tool to explore new research avenues through the identification of "white spots" in the research landscape and "big data" approaches or metastudies. Therefore, TerraLID will ultimately contribute towards the development of geochemical methods and might serve as inspiration for similar projects.