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Today's quality is tomorrow's reputation - geochemistry quality awareness and control across academic, government and industry

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Geochemistry data is used in many critical ways across industry, government, academia and communities with investment and environmental management decisions potentially worth millions and affecting the livelihoods of a huge number of people. Nurturing confidence in these datasets in a contested social environment is vital to encouraging evidence based decision-making and building social acceptability of the outcomes of those decisions.

Confidence in geochemistry data is founded in the quality control and assurance in the analytical laboratories across industry, government, and academia. While there are formal accreditation processes at some individual facilities and some inter-laboratory proficiency testing programs, this is not universal across the three groups nor is it necessarily recorded. Even if the data can be found and accessed, the outcome is geochemistry data worth millions that is difficult to meaningfully compare and contrast. There is an opportunity to coordinate the development of systems to improve:

- Quality awareness – raise understanding at all stages of geochemistry data collection (sampling, preparation, analysis, processing and reporting) of the importance of quality management and documentation.
- Analysis and certified reference materials (CRM) – CRMs are the backbone of measuring and documenting analytical repeatability. Building a broad-based CRM and inter-laboratory program would increase collaboration between the various analytical groups and create opportunities for innovation.
- Record keeping, data recording, reference material data recording a critical part of building confidence in the quality of geochemistry data is increasing the transparency and accessibility of data from those facilities, especially quality management related information such as method metadata (e.g. equipment specifications and calibrations, reference material analyses.

This idea mirrors the evolution of airborne and ground-based geophysics data acquisition in the last few decades where standardised approaches and benchmarks have developed to a high level with collaboration between government and industry users and suppliers. The quality management around modern geophysics surveys enables the data to be well characterised and long-lived – many geophysical datasets can be re-processed and revived for new purposes. Improved collaboration has also sparked many innovations – could a similar path lie ahead for geochemistry?