

Opening the full Potential of Geochemical Big Data utilising AusGeochem

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One of the challenges facing researchers today is the massive volume of information that is created for each analysis. For an individual study this is relatively easy to manage and compile. However, when looking at geochemical datasets from across the globe, spanning decades of research, the synthesis of this data becomes a task that is too daunting for many researchers. Yet, when these large data sets can be viewed and interrogated new insights can be gained that were previously hidden.

In order to address the easy and FAIR access of large datasets Lithodat, in partnership with the AuScope Geochemistry Network (AGN), an association of Australian geochemical laboratories from Curtin University, The University of Melbourne, Macquarie University and the Australian National University, has developed AusGeochem (Figure 1), an online data platform for storing, viewing, analysing and extracting geochemical data. AusGeochem gives quick and easy access to a wealth of information (such as analytical details, lab information, literature) across multiple analytical techniques and localities. This consolidation opens up the full potential that spatial geochemistry data has to offer and is a vast improvement on storing data in separate spreadsheets and folders, as often happens within research groups and projects. AusGeochem makes dispersed and complicated geochemistry datasets understandable and usable for the wider research community.

With AusGeochem researchers can now visualise (Figure 2), combine and export data from areas of interest including diagrams, graphs and auto generated reports. However, AusGeochem does not constrain the researcher to its tools, and data can be extracted in multiple formats to take full advantage of new techniques such as machine learning and artificial intelligence plus it also offers an open REST API to connect directly to all clients. Using the right tools means researchers can help to solve scientific questions and industrial demands as well as push the boundaries of scientific theories.

