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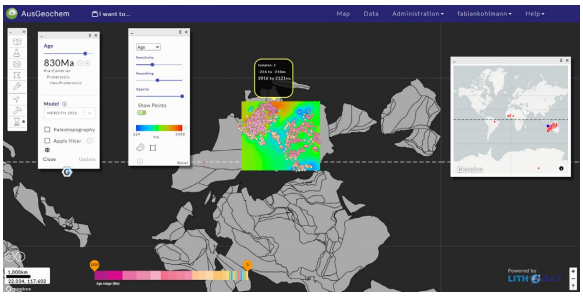

LithoPlates: A New Cloud-based Tool for Deep-Time Reconstruction of Geochemistry Data

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LithoPlates is a new cloud-based, fully integrated deep-time reconstruction tool developed by AusGeochem, in collaboration with the EarthByte group at the University of Sydney and Lithodat. This tool uses EarthByte's pyGPlates and plate models to enable researchers to visualise and analyse geochemistry data in a paleogeographic context (see Fig.1). The tool is easy to use, and researchers can perform on-the-fly analytical tools such as live contouring and multi-sample selections without any further data preparation. The current version of LithoPlates allows users to select from seven different plate models with the oldest one ranging back to 1 Ga.

This presentation demonstrates how LithoPlates is integrated into AusGeochem, Australia's public geochemistry data platform, for FAIR data. By reconstructing geochronology data back in time, researchers can understand when and where rocks were formed or deformed and how they are related in a paleogeographic context. The tool is designed for researchers interested in the paleogeographic context of their samples and for plate model scientists seeking to integrate available geochronology and thermochronology data.

The tool's advantage is that all data and metadata can be analysed using the same on-the-fly tools in both present-day and palinspastic geography (see Fig.2). Future enhancements include adding more deep-time plate models, advanced visualisation and filters, and comparing multiple model outputs. With LithoPlates, researchers can explore the world of deep-time reconstructions and enhance their understanding of tectonic settings and important events in rock, mineral, or fluid sample history.