Developing models of Western Australia's lithospheric architecture: challenges and opportunities

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The formation and reworking of continental lithosphere provides geodynamic context for hydrothermal fluid flow and magmatism involved in the formation of mineral and energy resources. One of the aims of the Geological Survey of Western Australia is to increase the knowledge of Western Australia's subsurface through the integration of geophysical, geological and geochemical data in 3D structural models. An important aspect in pursuing this aim is to develop the capability to build, manage, analyse and store 3D models according to GSWA quality standards and stakeholder needs, which represents a formidable challenge, as the workflow to generate 3D models involves data acquisition, processing, visualization, interpretation, publication and archiving. EIS-funded collaborative projects with leading research institutions complement GSWA's capabilities in data acquisition, analysis and modelling, form an important part of our activities. We present examples how the systematic acquisition and integration of geophysical, geological and geochemical data can reveal critical ties between crustal evolution and mineral deposits and explain why we support an open-source 3D stochastic modelling approach for the future of geoscience data integration.

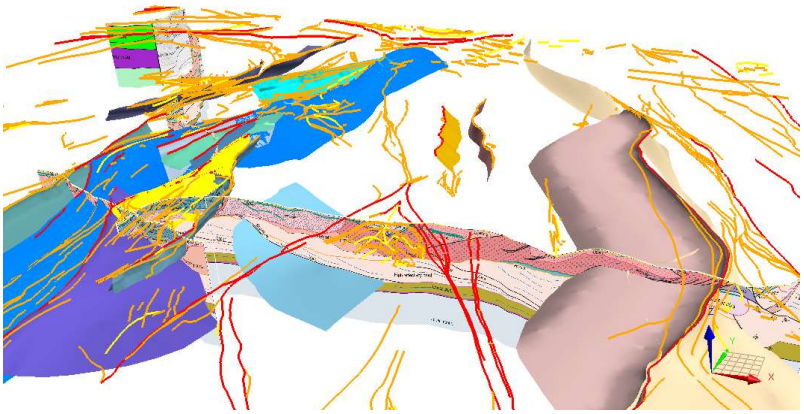

Figure 1. Screenshot from a 3D model of the Murchison Domain

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