

Old rocks, new eyes: imagining the future of solid earth research data in Australia

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SUMMARY

Right now, we are imagining the future of geoscience research in Australia: which questions that we might have, and what technology and tools we will need to answer questions like:

How did the Australian continent form? How are we impacting it? Can it meet our future minerals, energy and water needs?

To find answers, we need to build a distributed, downward-looking ‘telescope’ (DLT) across the Australian continent that expands our ability to measure, monitor and understand our dynamic earth and humanity’s considerable impact on it.

The AuScope DLT will gather earth data using a series of “lenses” — geophysical, geochemical, petrophysical and geospatial — at different depths and imaging fidelity. This data will then be focused into repositories to make it accessible and interrogable via virtual laboratories. All this using high performance computing and artificial intelligence.

Without a well-designed and integrated DLT, researchers will not be able to sufficiently answer Australia’s big geoscience questions. Here we propose a starting point from which to build the AuScope DLT, focus the data, gather community and collaborate internationally to achieve a more sustainable future.