The AuScope Virtual Research Environment (AVRE):

A Platform for open, service-oriented science to 'understand the Earth'

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Drone footage over an AuScope Earth Imaging / AusArray seismology program in southwest Queensland. Image: ©Dr Sam Rayapaty, Australian National University.

Working together

Since 2006, NCRIS projects (AuScope, NCI, and ARDC), and Government Agencies (GA, State and Territory Geological Surveys) have collaborated on building a suite of data portals, tools, software and virtual laboratories.

These support a diverse community of Earth scientists operating on a range of computational facilities including HPC, cloud, on-premise servers and desktops.

Access the AVRE via — auscope.org.au/avre

Dr. Korien Oostingh preparing to carry out laser ablation analysis on PhD samples. Image: ©Curtin University.

Addressing a national priority

The 2016 National Research Infrastructure Roadmap noted that, to secure global leadership for the Earth Sciences over the next decade:

"Australia must now enhance integration of existing data and mathematical modelling across large geographical areas to establish the next generation of 'inward-looking telescopes' to better understand the evolution Earth's crust and the resources contained within it".

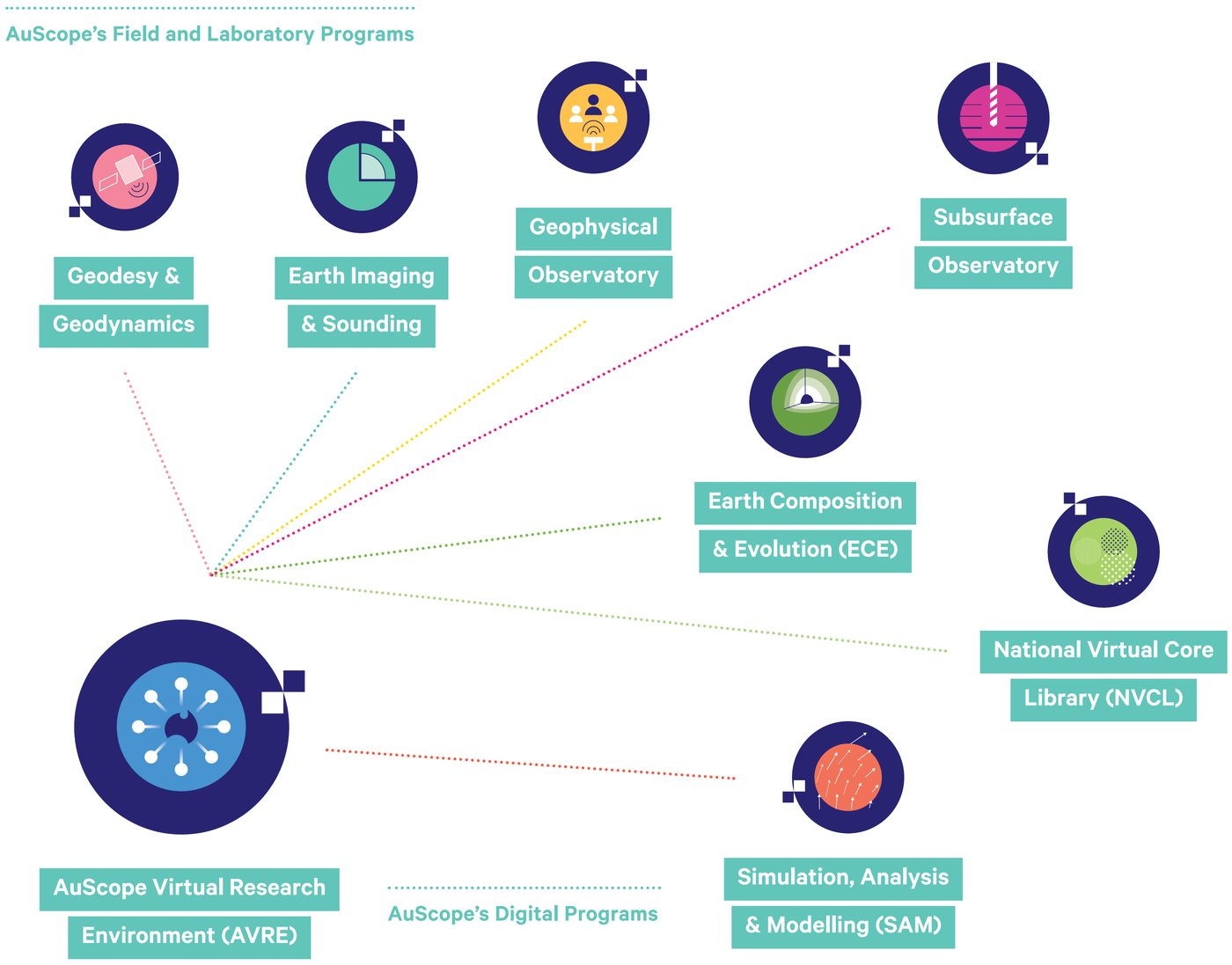
The goal

In 2017 the AuScope Virtual Research Environment (AVRE) was launched to support this new ambition, through enabling FAIR access to valuable academic research data collections and software and improving coordination of existing national infrastructures.

The aspiration was to realise a service-oriented science platform that will empower data assimilation and modelling across three networks: geophysics, geochemistry and geology.

The end goal is to ensure Australian Earth science data and analytics can play a leadership role in next-generation trans-disciplinary research to more comprehensively 'understand the Earth'.

Here, in the diagram below, we show how AVRE connects data collected across AuScope's field- and laboratory-based infrastructure programs, culminating in data access via various portals, and ready integration to geoscientific analytical tools and workflows.



The AVRE culminates geology, geodesy, geodynamics, geophysics and geochemistry data in the AuScope Discovery Portal, AusGIN Portal, Virtual Geophysics Portal (VGL), and the Geoscience Data-Enhanced Virtual Laboratory (Geo-DeVL).

SAM includes tools and workflows for geodynamics data analysis such as GPlates, Underworld, eScript, and iEarth software codes.

For more info about AVRE:

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