SOIL CRC

Performance through collaboration

VISUALISING AUSTRALASIA'S SOILS
Building a legacy of soil data in Australia
Projects 2.3.001, 2.3.002 and 2.3.003

ABOUT THE PROJECT

The Soil CRC's Visualising Australasia's Soils (VAS) project began in 2019 to provide Soil CRC participants with access to data, information and knowledge on Australian and New Zealand soils.

OBJECTIVES

The key objectives of VAS are to motivate soil data custodians to make their data Findable, Accessible, Interoperable and Reusable (FAIR), and align with other national and international soil research data initiatives to maximise discovery and reuse.

Phase 1 (2019–2021) of the project delivered a dynamic web-based portal that brings together a large array of public and private soil datasets for use by the Australian agricultural industry.

Phase 2 (2021–2024) added greater functionality to the VAS portal, including a self-serve data management system, improved filtering and reporting, seamless interoperability with the Australian National Soil Information System (ANSIS) and the inclusion of soil sensor data.

Now in its third and final phase, **'Visualising Australasia's Soils: Building a legacy' (2024–2027)**, the project aims to transform the VAS portal into an enduring component of an Australian soils knowledge system that is both self-sustaining and inherently useful for research and education.

This phase is delivering a governance framework, business case and clear pragmatic value propositions for end users. Artificial intelligence is being harnessed to add value to soil performance data, and enhance the reporting of soil quality, function and target values for high performance soils.

Visualising Australasia's Soils project update, March 2026

WORK UNDERWAY IN PHASE 3

Improvements to the VAS portal

Upgrades have been made to the VAS portal web framework, providing a more robust, flexible and efficient means to add functions and applications to the system.

The portal has new tools, improved features, updated resources and clearer information – all designed to make the user experience more intuitive, seamless, and easier.

Data enhancements

In addition to the public data available in the VAS portal, project partners have contributed soil data from over 5,500 sites with approximately 15,000 samples and 250,000 observations. It also includes over 800 million soil probe observations.

Ancillary data (such as soil profile datasheets, photographs, laboratory data sheets and reports) have been uploaded into the system, and soil data collected in Soil CRC projects have been added.

All publicly available datasets on the VAS portal have been updated to include metadata for data descriptions, contact details and licensing information.

Three Federation University co-op students have joined the project team to assist in mining and mapping legacy data from Federation University research theses and reports to include (as open data) in the VAS aggregator.

New Rainfall Mapper app

Based on the research outcomes of Soil CRC PhD graduate, Dr Peter Weir, the project team developed the 'Rainfall Mapper' – a tool that draws data from the Bureau of Meteorology's Rainfields system, which provides a calibration of archival rain radar data. The Rainfall Mapper can be accessed via the VAS soil data portal.

The integration of the rain radar data extends the capabilities for VAS and offers new opportunities for project partners to access weather data, mapped to regions and soil types.

Business plan and governance framework

To inform the business plan, the project team is gathering feedback from project partners to explore their experiences with both VAS and soil data management more broadly. An analysis of the insights gathered is expected to uncover opportunities for the further development of VAS beyond the Soil CRC (which comes to an end in June 2027).

Development of a socio-technical data governance framework is underway to guide data stewardship and ensure the longevity of FAIR data, rights of access and use, and trust.

Social research

The project team conducted social research to examine the perceptions, role and application of VAS by project partners, and published the findings in a journal paper.

The research identified that there is broad agreement amongst project partners regarding the contribution of VAS, and anticipated expectations for soil data sharing and management using the portal. However, data custodians remain reluctant to openly share data for a number of complex reasons. Activities are well underway to address these challenges.

NEXT STEPS

A Community of Practice made up of the participating grower groups is contributing to the identification of key use cases. These are being developed and implemented to enhance the value of VAS outcomes for project partners and industry.

Further enhancements are being made to the VAS portal, including improvements to the self-service system and public (open) datasets, and the addition of self-paced education modules.

Planning for VAS beyond the Soil CRC is already well underway. Ongoing research will assess VAS's contribution as a federated soil data knowledge system. The research will provide evidence that will inform and guide future data federations.

VAS project leader: Associate Professor Peter Dahlhaus, Federation University Australia
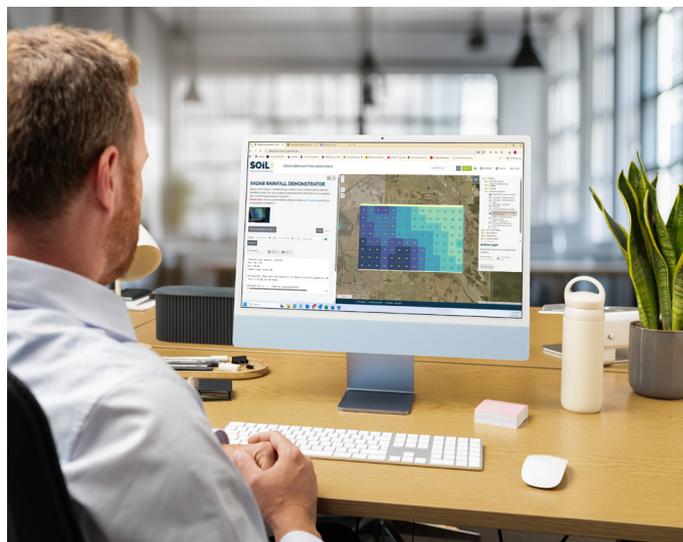
Research reports from the first two phases of VAS are available on the Soil CRC's Knowledge Hub (soilcrc.com.au/resources/visualising-australasias-soils)

PROJECT PARTNERS

- Birchip Cropping Group
- Burdekin Productivity Services
- Central West Farming Systems
- Facey Group
- FarmLink Research Ltd
- Liebe Group
- MacKillop Farm Management Group
- Manaaki Whenua Landcare Research
- North Central Catchment Management Authority
- Riverine Plains Inc
- Southern Cross University
- Southern Farming Systems
- University of Newcastle
- University of Southern Queensland
- University of Tasmania
- West Midlands Group
- Western Australian No-Tillage Farmers Association
- Wheatbelt Natural Resource Management Inc
- Wimmera Catchment Management Authority

Federation University

Australian Government
Department of Industry, Science and Resources

Cooperative Research Centres Program