

AuScope

Geochemistry Laboratory Network

mission – team – plan

Earth Composition & Evolution program

Founding Committee:

Brent McInnes, Andy Gleadow, Sue O'Reilly



1 / Mission

2 / Challenge

3 / AGN Team

4 / Data Hierarchies

5 / Expert Advisory Groups

6 / The AusGeochem Portal

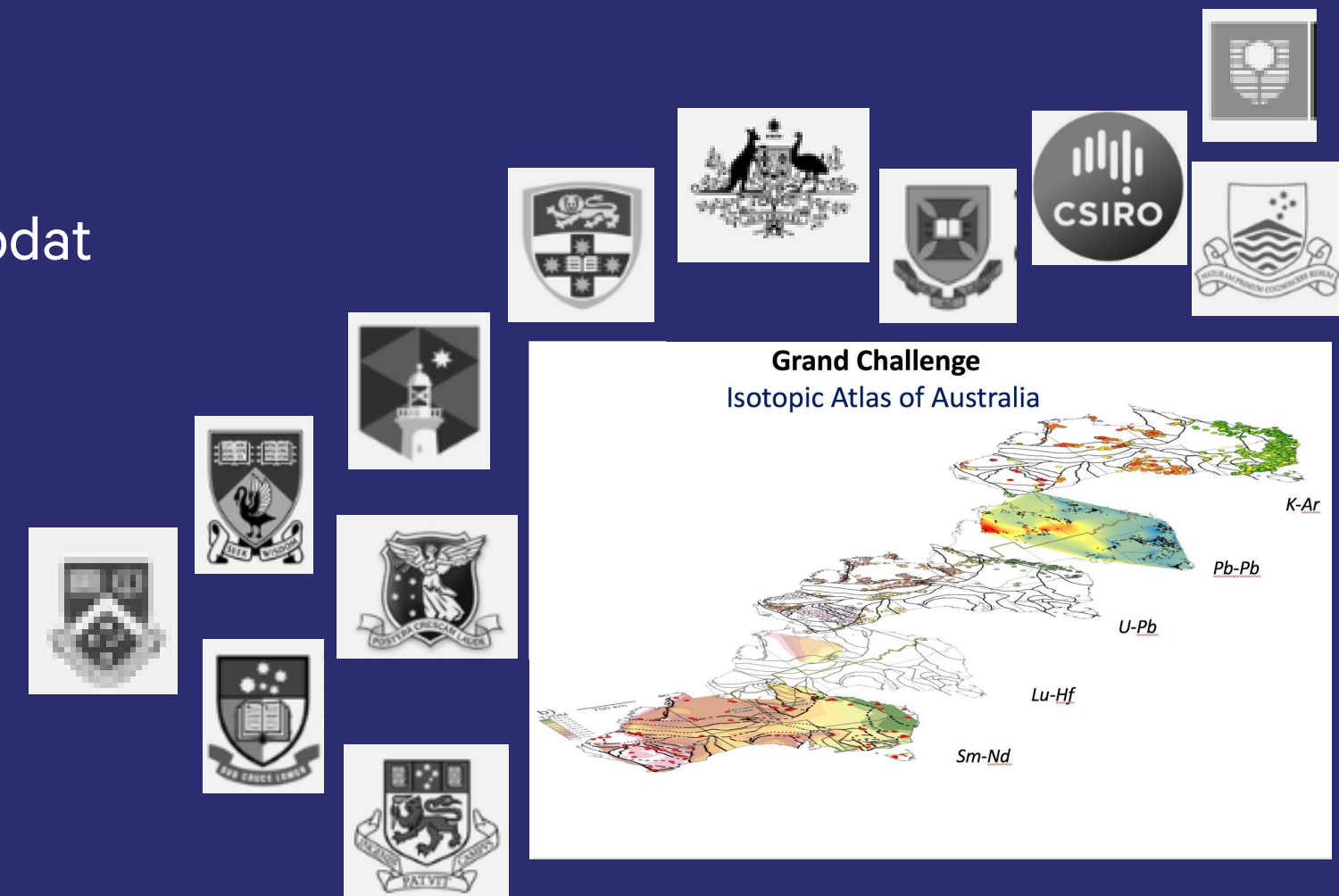
1. THE MISSION



Build an Australian network of geochemistry laboratories to support and facilitate national geochemistry data science endeavors (e.g. the isotopic atlas of Australia)

Through

- Connecting Australian geochemical laboratories
- Motivating a community change regarding geochemical data management
 - Provide advice on minimum metadata addition
 - Help with IGSN minting
 - Provide technique specific advice on analysis metadata
- Development of the AusGeochem portal in collaboration with Lithodat



AuScope provides an opportunity for Australian geosurveys and research institutions to collaborate in the production and preservation of geochemical datasets of national importance.

Future Research/Technology

AuScope NCRIS 2019:

- \$1.2M National Geochemistry Lab Network – Curtin HQ
- \$5M towards replacement of 25 yr old SHRIMP at Curtin
- 7+ university labs working together for the first time
- Geoscience Australia & State/Territory Surveys cooperating on Atlas
- Big data project!
 - Preserve
 - Collect
 - Aggregate

Grand Challenge Isotopic Atlas of Australia

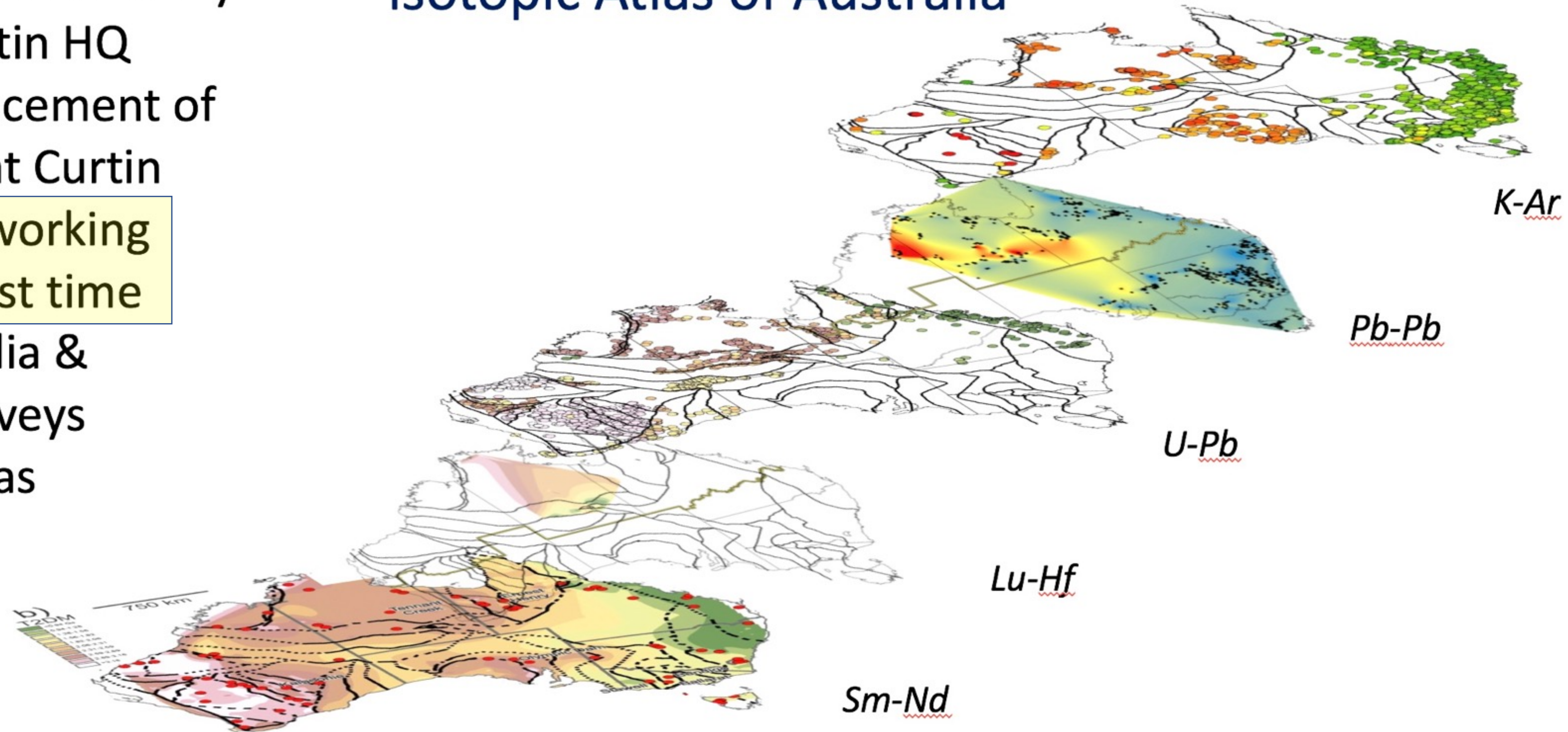
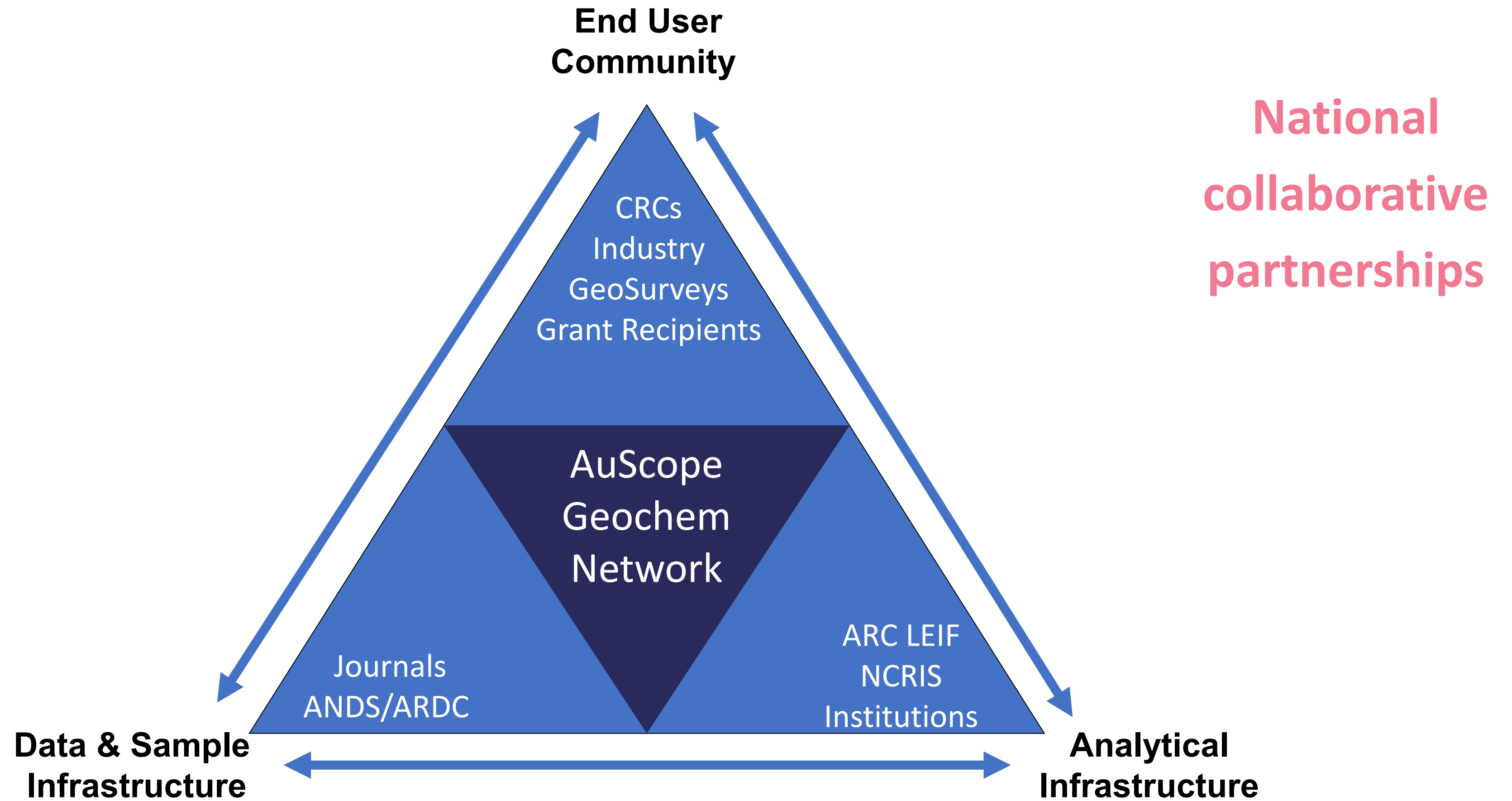


Image courtesy Geoscience Australia

The Australian Geochemistry Data Ecosystem



2. THE CHALLENGE



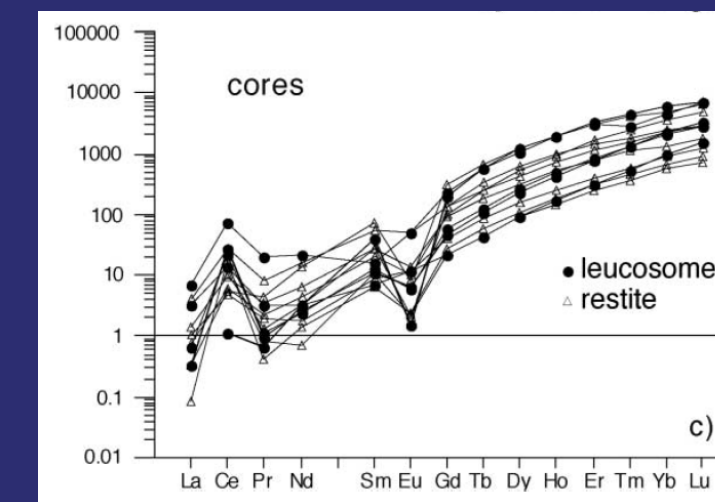
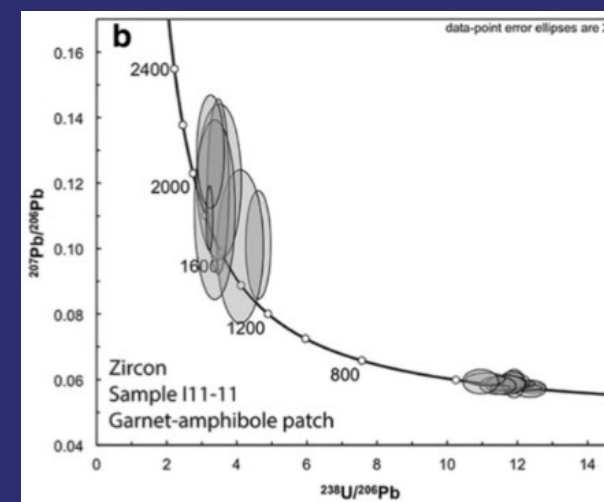
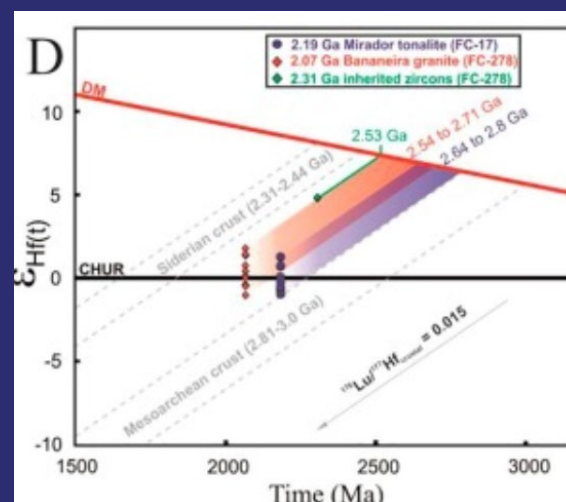
Geochemical data and analyses are complex

Community

- Precious about data (set embargo periods)
- Diversity of techniques and people
- Unacquainted with metadata addition (e.g. sample level, IGSN minting)

Human involvement in data processing (intellectual decision making needed)

Key for our advisory role is to keep it simple and sensible (“*sense and simplicity*”)



3. THE TEAM

Currently 3 nodes and we want to expand



4. DATA HIERARCHIES

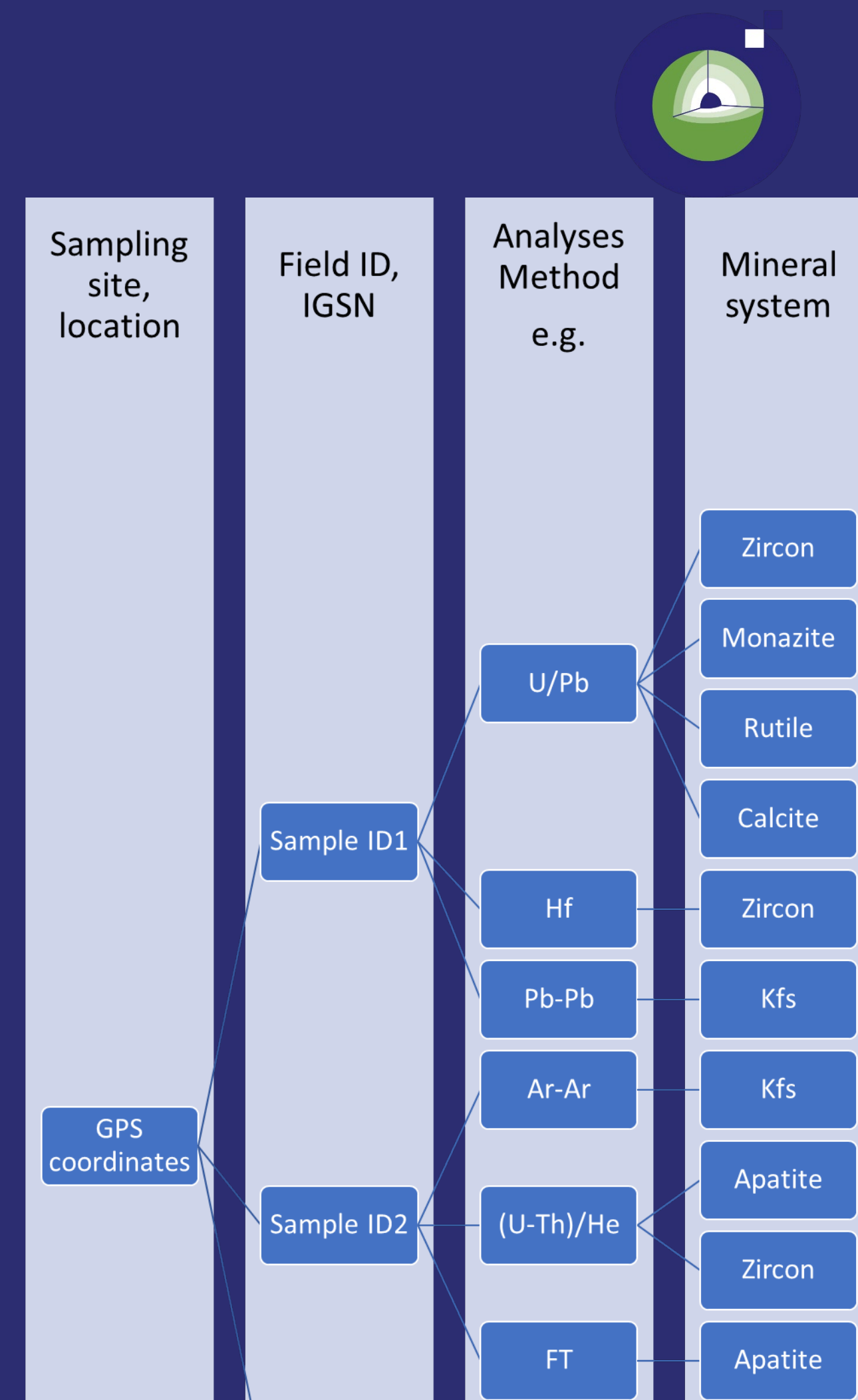
Geochemical Data can be collected at many levels

Highest level is the sampling site or location

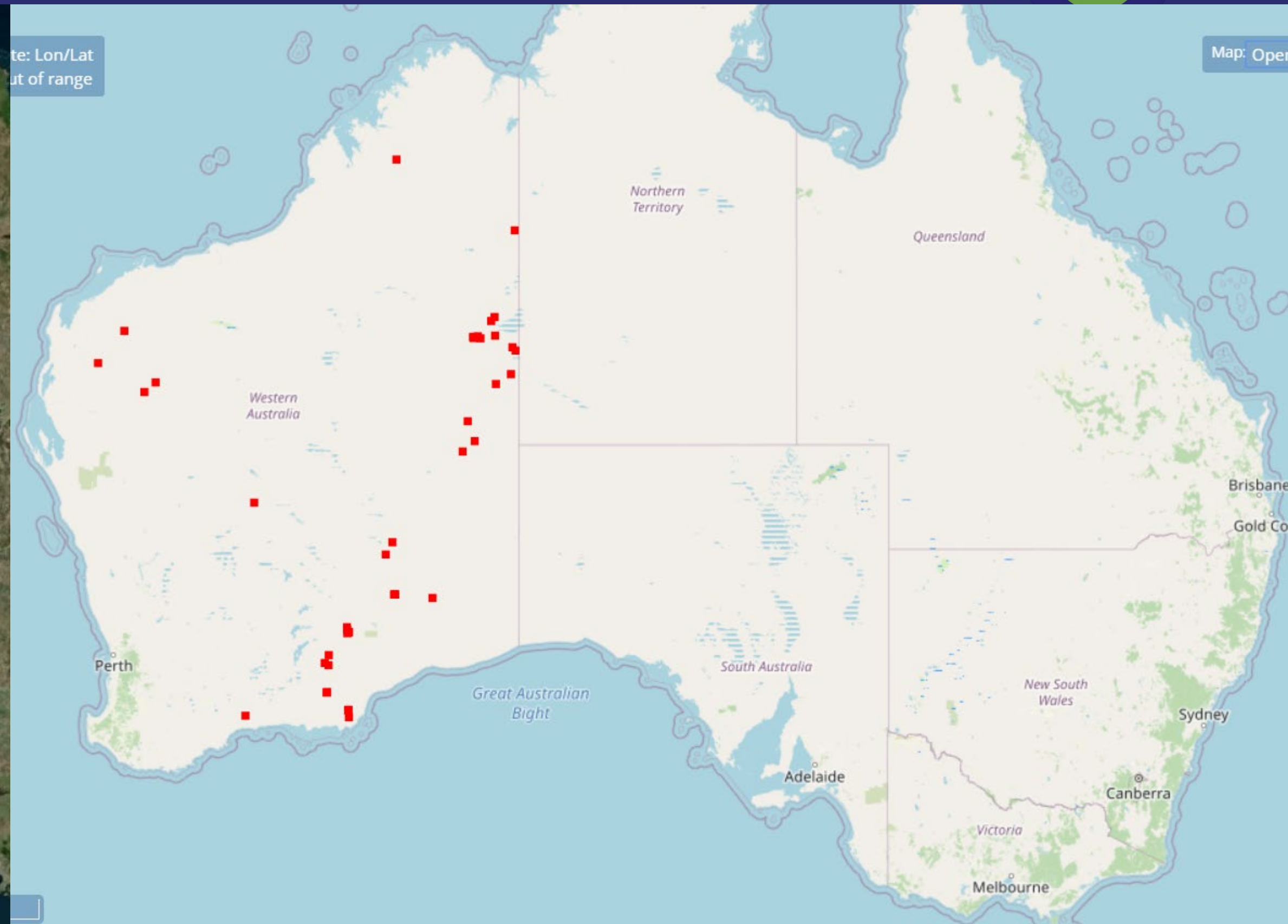
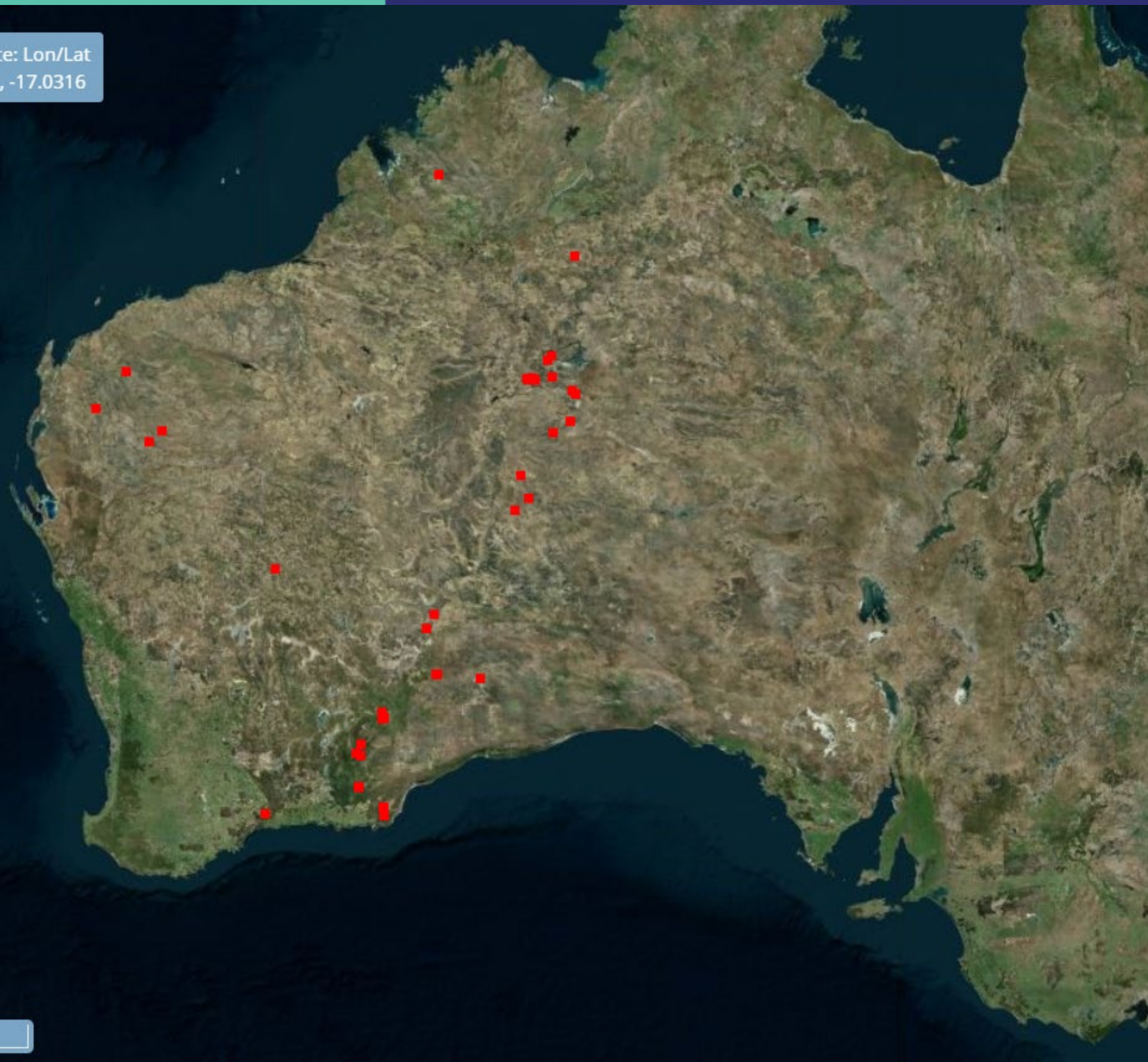
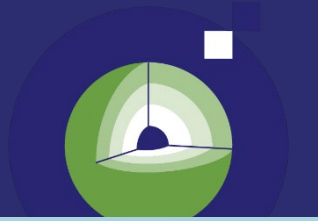
A record of this information together with the curation location of the physical sample makes the sample valuable and FAIR

Deeper levels of data

- sample ID,
- analytical stream and
- mineral system



The Location of Sampling and Curation are our Priority



4. DATA HIERARCHIES

From the SHRIMP pilot and AGN discussions samples become of value by

- Adding sample locations and the sample curation location

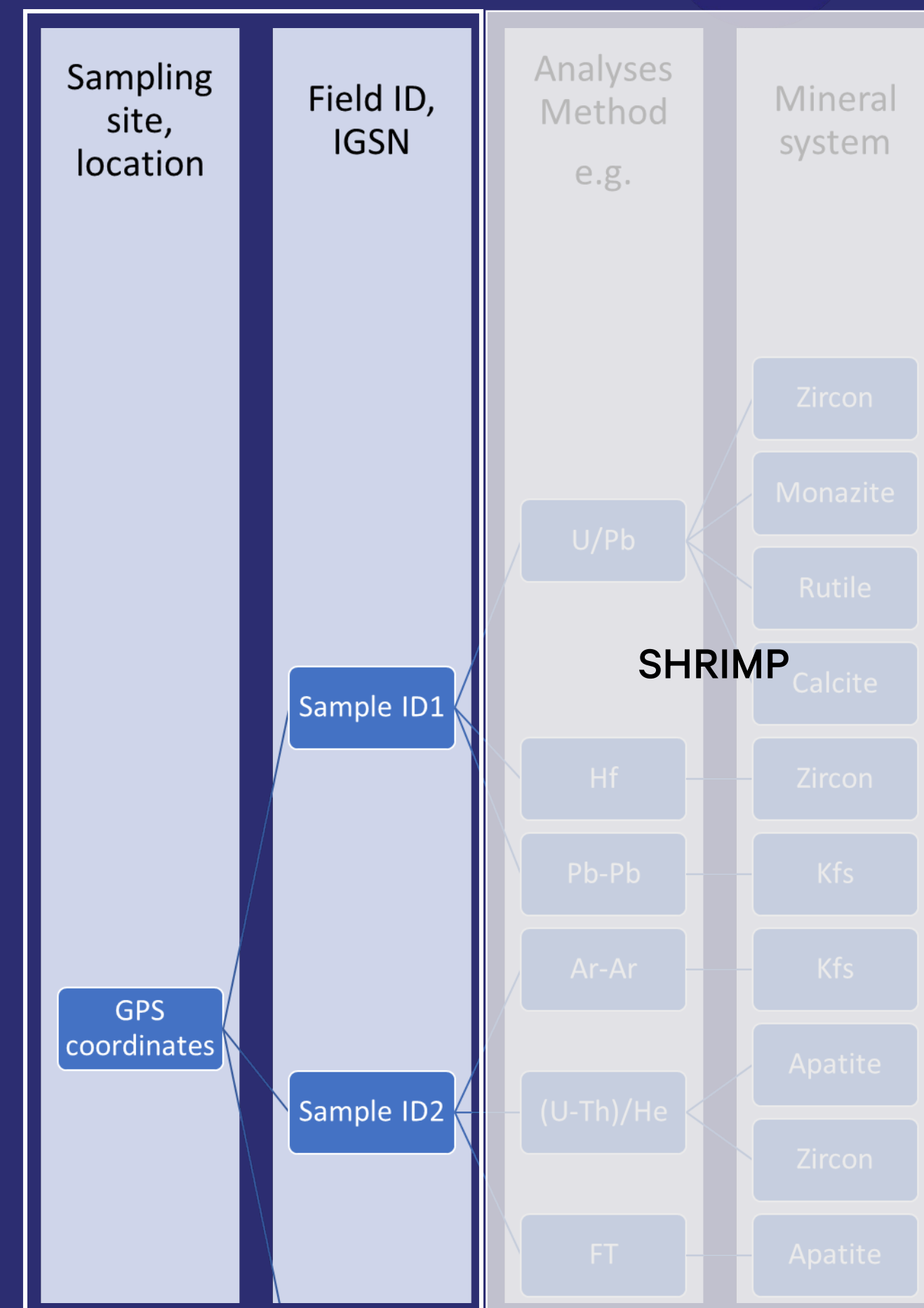
A record of this information makes the sample itself valuable and FAIR

An example of a data set that has seen huge value add is the SHRIMP McNaughton legacy collection.

- Physical samples are retrievable from the archive (often from dug out mine pits)
 - Invaluable

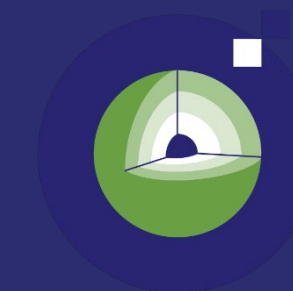
Discoverability of such data will cause

- Efficient sampling campaigns
- Ease of collaboration
- Re-use of data and less doubling of analyses



! WE ARE NOW FAIR !





Geochemical Data - STORAGE

For at least 7 years storage of research data is guaranteed by University

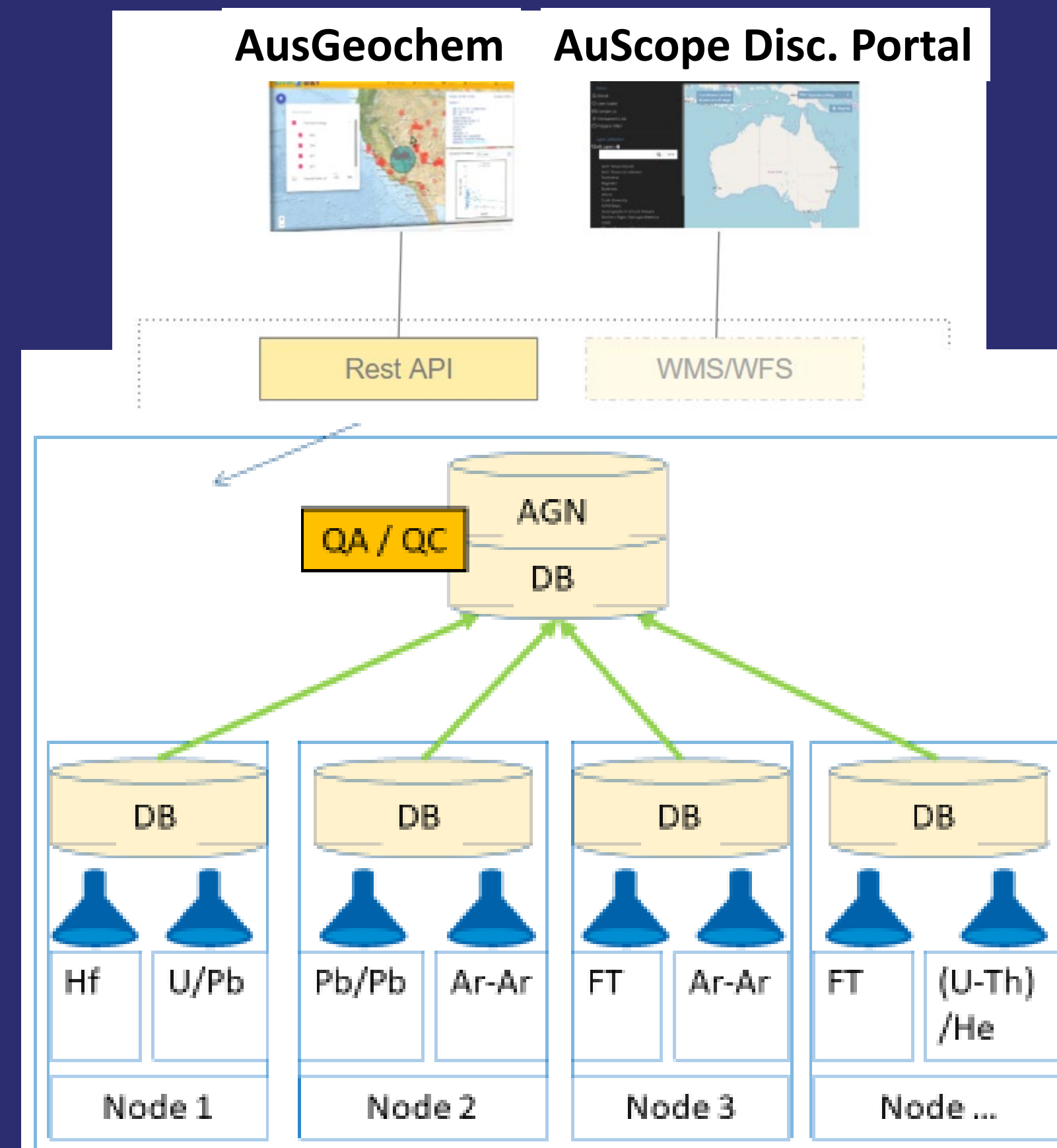
The AGN will not (yet) provide storage

- Working on the AusGeochem portal that will host a copy of (cleaned) data and provide a link to the dataset

This is better suited for University libraries and the institution with capability of DOI minting (@CU)

Physical storage – tbc.

- SHRIMP mounts are to be accepted by GSWA



5. EXPERT ADVISORY GROUPS

Near future:

Expert advisory groups will be set up to advice the geochemistry community on techniques specific metadata minimum requirements

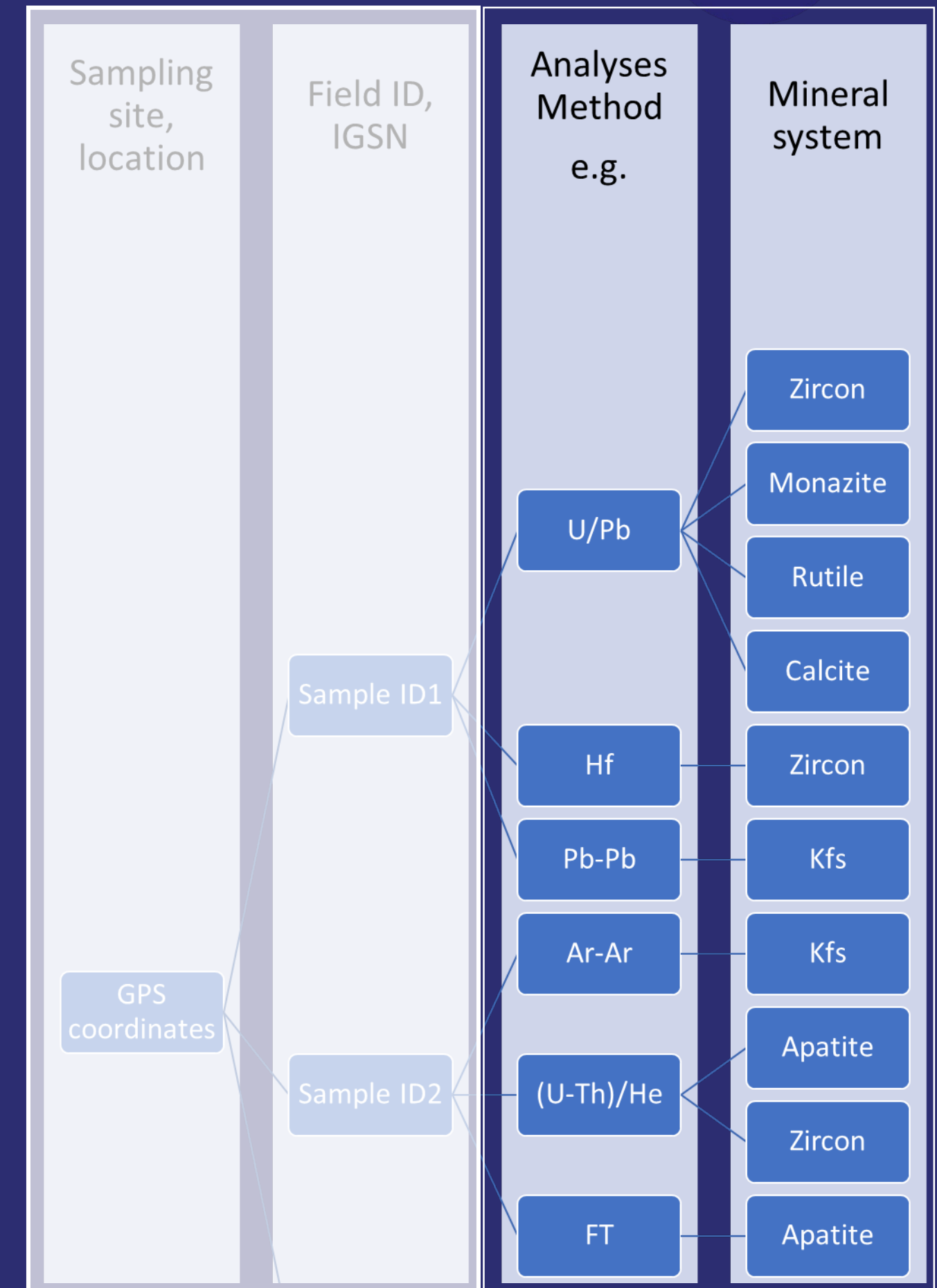
The:

Expert group will be Australian

Expert group will consult Global best practices

Expert group will come with a draft (metadata template 1.0)

Expert group will provide technique specific metadata advice to the Australian geochemistry community



6. THE AUSGEOCHEM PORTAL

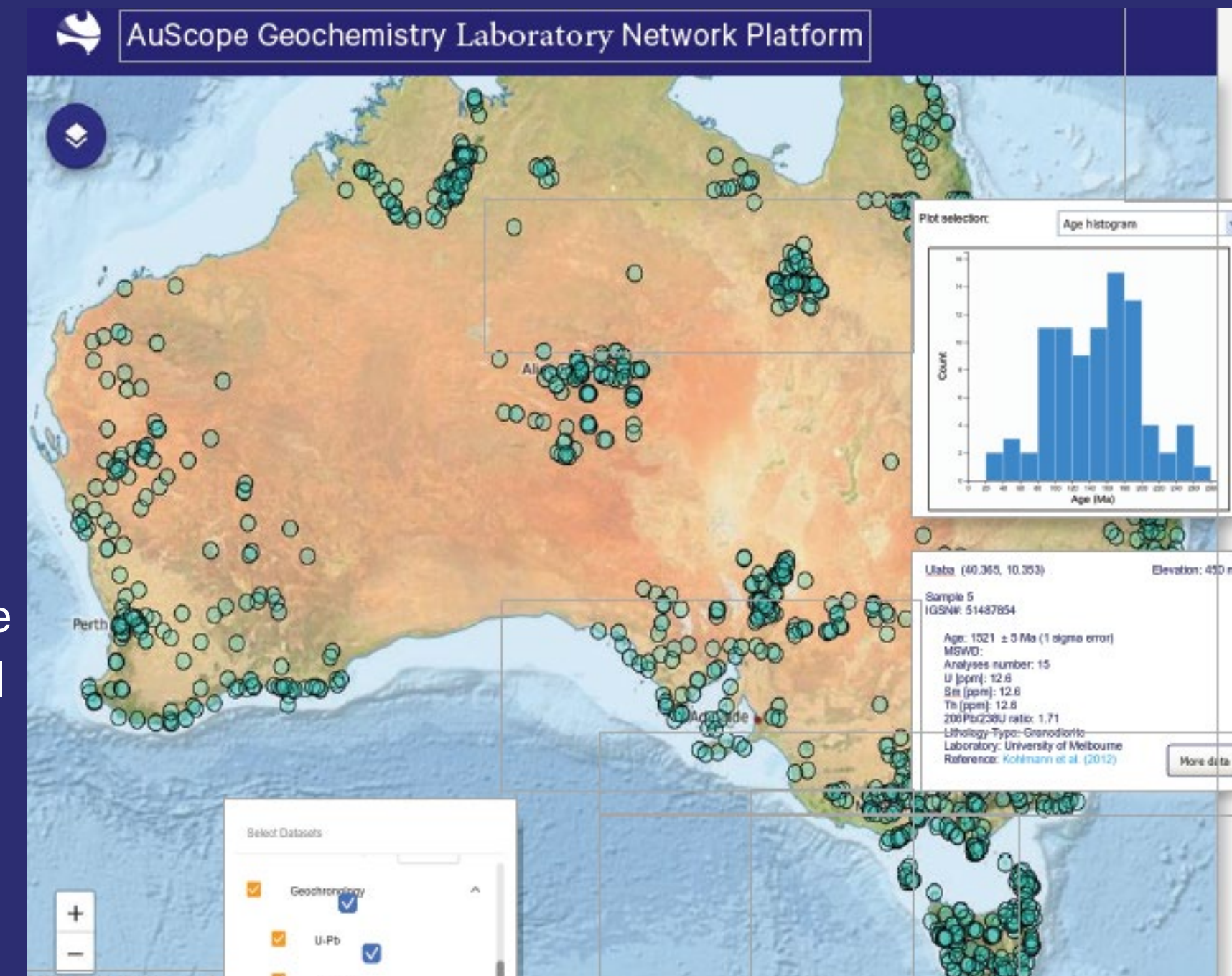
AusGeochem portal will be developed for AGN in collaboration with Lithodat

Data uploaded to AusGeochem will start with the SHRIMP McNaughton Legacy Collection, expected to be complete by July 2020

Further legacy - and community data collections will be sought after and subsequently added

The development of AusGeochem will make sure to provide a handle and integration into the AuScope Discovery Portal (WMS, WFS)

The AusGeochem – AuScope Discovery Portal integration will make it possible to showcase geochemistry alongside geophysics, core-analyses, exploration geochem., waterchemistry and other geotechnical data sets



Summary



- Without geochemical research infrastructure - be it in the form of facilities, data or samples – *there is no modern geoscience.*
- AuScope intends to play a significant role in supporting collaborative analytical and data infrastructure that provides national benefit to the geoscience community
- Opportunities for collaboration include:
 - Development of technique finders and lab directories
 - Development of short courses and workshops
 - Lab access agreements for nationally significant projects (e.g., isotopic atlas)
 - eResearch tools to make data discoverable, re-useable and citable
 - Preservation of significant legacy collections for future use
 - **YOUR INPUT NEEDED HERE....**

THE END



3. THE TEAM

Currently 3 nodes and we want to expand



Prof. Sue O'Reilly
Project Manager



Prof. Brent McInnes
AGN Director



Dr. Olivier Alard
Dep. Project Manager



Dr. Yoann Greau
AGN Laser Laboratory
Research Associate



Dr. Alex Prent
AGN Coordinator



Prof. Andrew Gleadow
Project Manager



Dr. Samuel C Boone
AGN Data Scientist



Prof. Barry Kohn
Project Manager



Dr. Erin Matchan
AGN Data Scientist



- **AuScope NGL Coordinating Office (2 + 3 years):**
- Curtin University



Project Coordinator

- **AuScope GeoPlatform Services**
 - Co-organise Steering Comm meetings
 - Quarterly reporting
 - EMCR mobility program
 - E-mail & social media comms
 - Laboratory leadership training
 - Website, education & training pages
 - Technique finder
 - Lab directory
 - Google Scholar page
- **Annual Meeting Support Services**
 - Sponsorship (AuScope + industry)
 - Travel grants
 - Professional development workshops

Data Science Coordinator

- **National Geochem Datasets Services**
 - *Co-organise Steering Comm meetings*
 - *Geosurvey, ARDC, AVRE liaison*
 - *AuScope Discovery Portal operations*
 - *EMCR mobility program*
 - *Advisory*
 - *FAIR practices*
 - *Trusted repository organisation*
 - *IGSN implementation*
 - *Data management advisory*
 - *Sample management advisory*
 - *eResearch technique development*
 - *GeoPlatform training sessions*
 - *Quarterly reporting*
 - *TANGO workshops on data management*

- Postdoc/Data Coordinator Roles at Macquarie (Hf datasets) and U Melbourne (FT Legacy Collection)