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HyLogging Update
The AuScope National Virtual Core Library

Tasmanian Minerals Conference Launceston 2010

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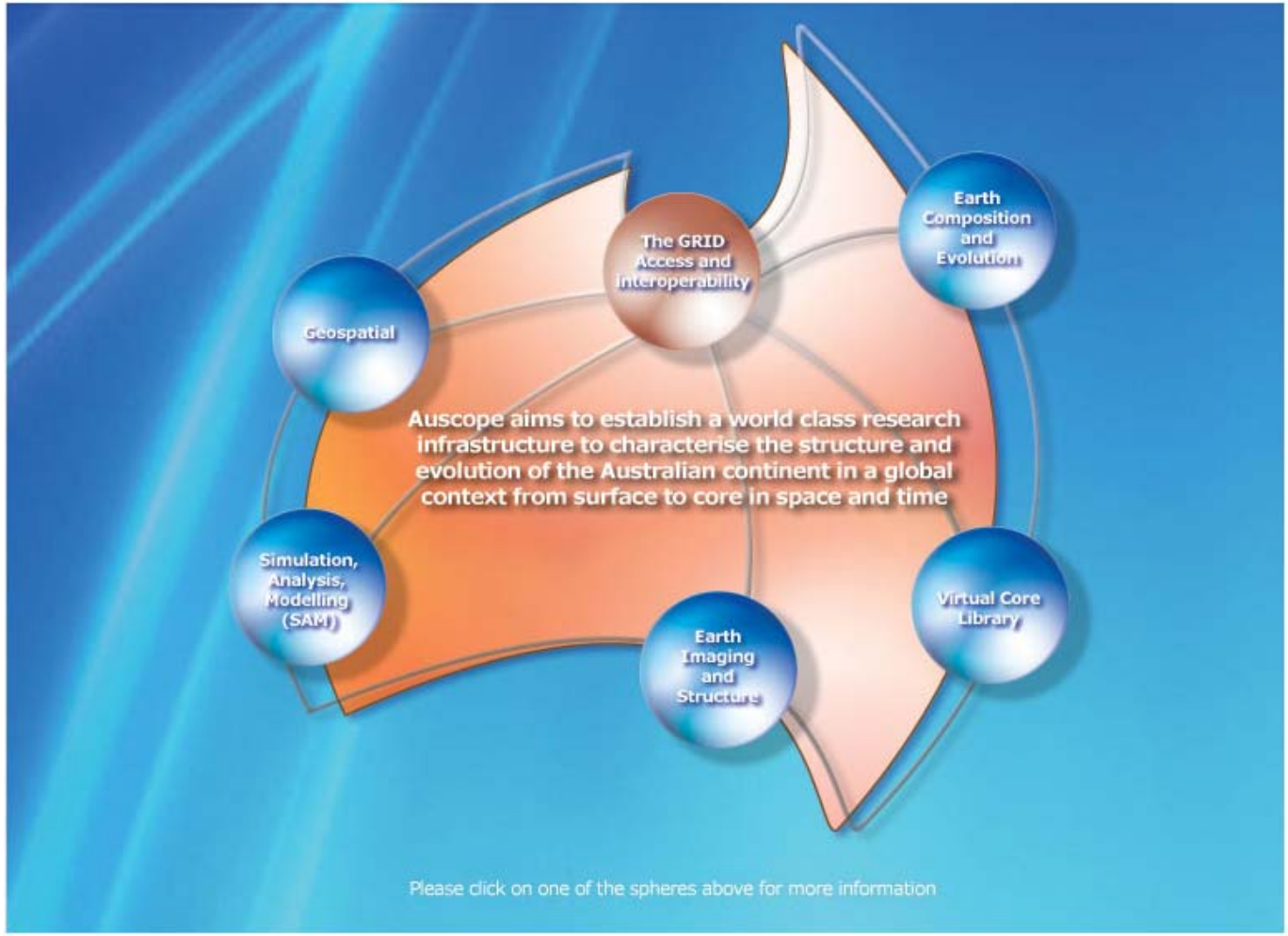
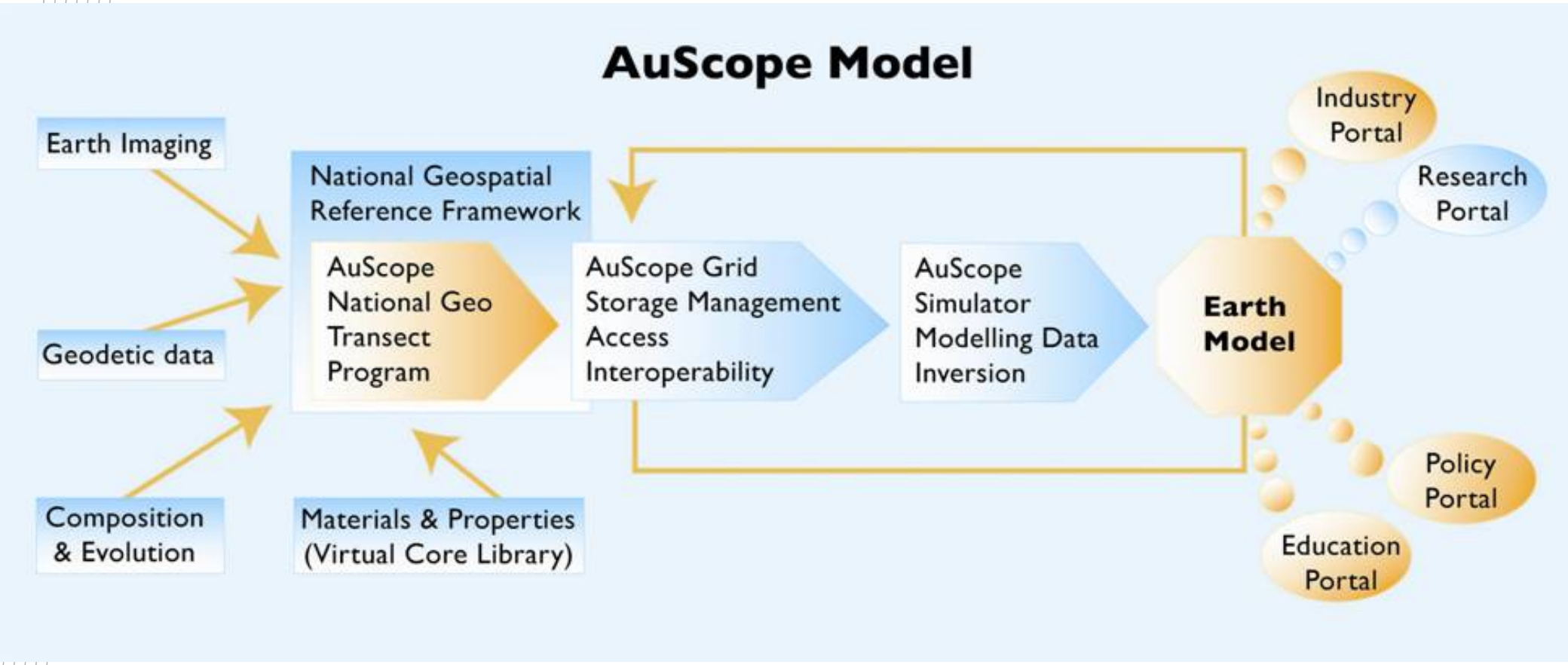
AN ORGANISATION FOR A NATIONAL
EARTH SCIENCE INFRASTRUCTURE PROGRAM



AuScope Concept



23 participants - $42.8M from NCRIS - >$70M Co-investment

What is the AuScope NVCL ?

- A new national facility distributed around the continent in seven Geological Survey nodes
  - 6 currently operational
  - Victoria on line in late 2010
- Value-adding and making accessible all drill cores stored in public core libraries
  - ~ 8 million metres of core & chip material & growing
- Involves hyperspectral scanning, imaging, interpreting, databasing and publishing
- A partnership of AuScope, CSIRO and all State and Territory Geological Surveys
- Private sector involvement is active and welcomed
- Unique - nothing else like it around the world

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Why ? Because Drill core should be valued and managed for long-term reference

Why ?

- **Gain new insights into the materials and properties (mineralogy) of the top 2 km of the Australian continent**
- **Extract increased extra value from the huge legacy in past drilling**
- **Make better use of new drilling $**
- **Foster new research and mineral systems and basin understanding**
- **Contribute new facts to the AuScope Earth model**
- **Foster local resource development**
- **Do it nationally**

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What's the NVCL Technology?

Based on CSIRO's latest HyLogging™ Systems

- The HyLogger-2
- TSG-Core software
- Oracle databases
- Web-serving technologies
- Free TSG-Viewer

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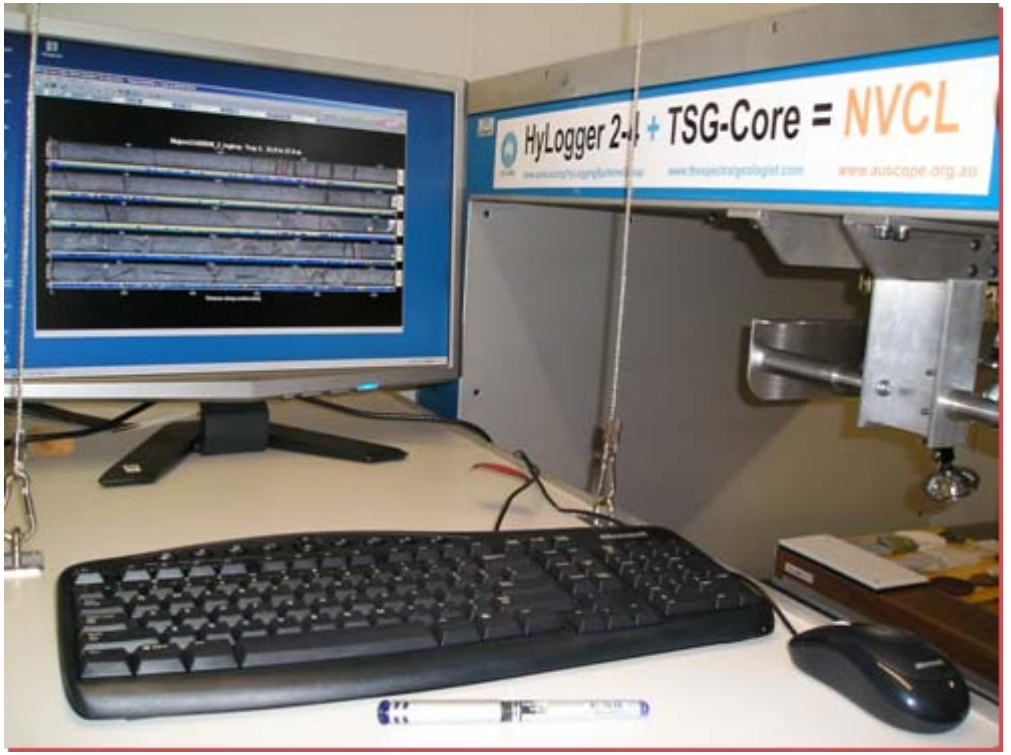
GSQ & GSWA Nodes

GSQ

Production

- The HyLogger scans at 30 seconds per metre
- Production is constrained by material handling & preparation
- Typical throughput is 300 m per day
- Mineralogy is determined continuously at 8 mm sampling
- Imaging has 0.1 mm resolution
- Combined we collect ~3 megabytes per metre
- QA/QC and base mineral interpretation done in real-time per core tray before core is removed
- Geological interpretation aims to take another half day per drill hole.

QA/QC screen



Accessing the NVCL Infrastructure

- NCRIS & AuScope policy is for external access at reasonable rates
- Instrument access – subject to Survey workflows and policy
- Summary data on the web – free
- TSG data files on request
- TSG-Viewer free from www.thespectralgeologist.com
- Access policy
  - Support for students and not-for-profit research
  - Commercial rates available. Core can stay with owner or be lodged with a Survey.
  - As a publically-funded project HyLogged data must augment the public database within 12-18 months via each Survey
  - Contact Survey Custodians for further information

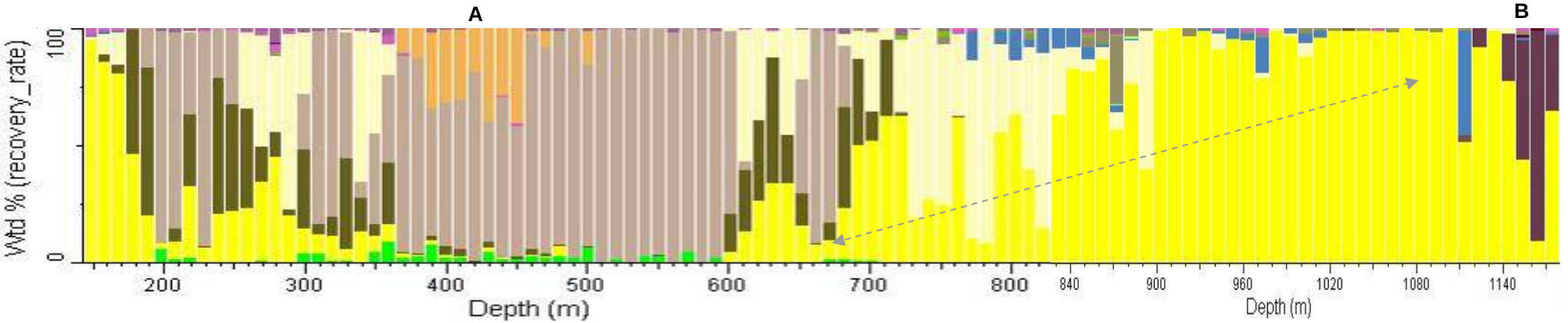
GL14 Glen Lyle Tasmania HyLogging

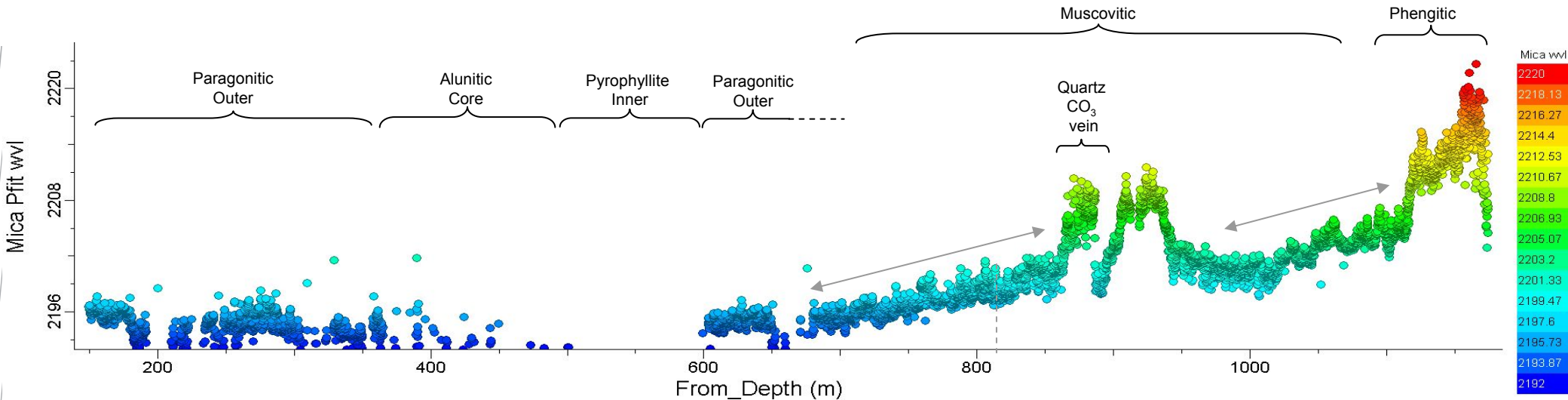
Kaolinite
Dickite
Muscovi...
Paragoni..
Pyrophyll..
FeChlori..
IntChlori...
Ankerite
Siderite
Na_Aluni..
Jarosite
Gypsum
Topaz
Aspectral

Muscovi...
Phengite
FeChlori..
MgChlori..
IntChlori...
Ankerite
Siderite
Gypsum
Aspectral

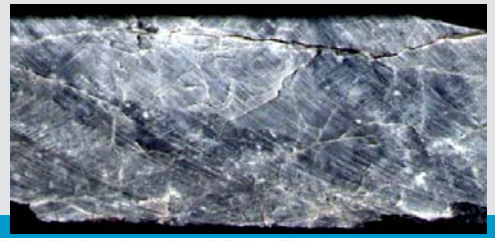
Widespread topaz, pyrophyllite alteration and variable footwall micas reflecting fluid mixing gradients

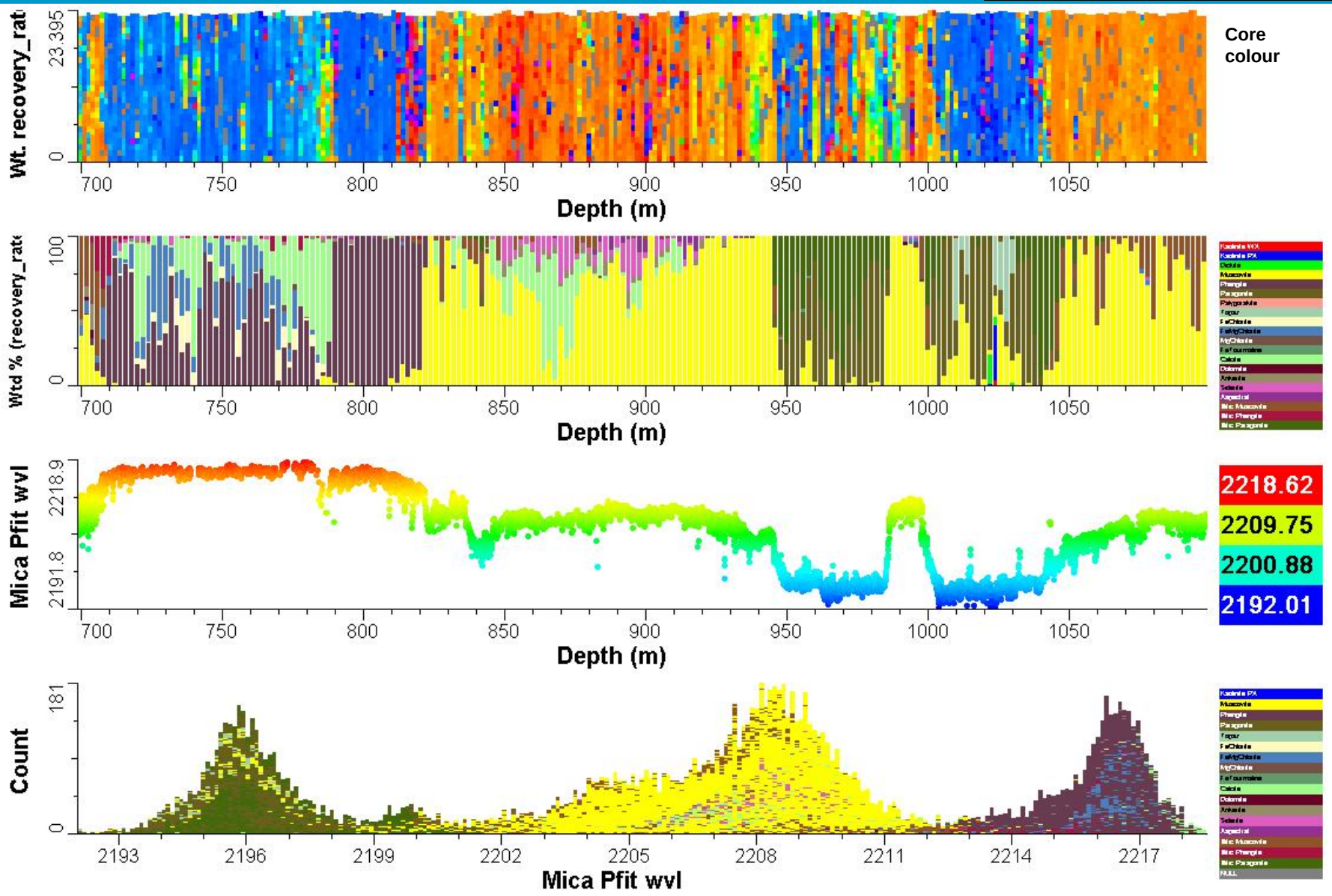
Courtesy Copper Mines of Tasmania & CSIRO





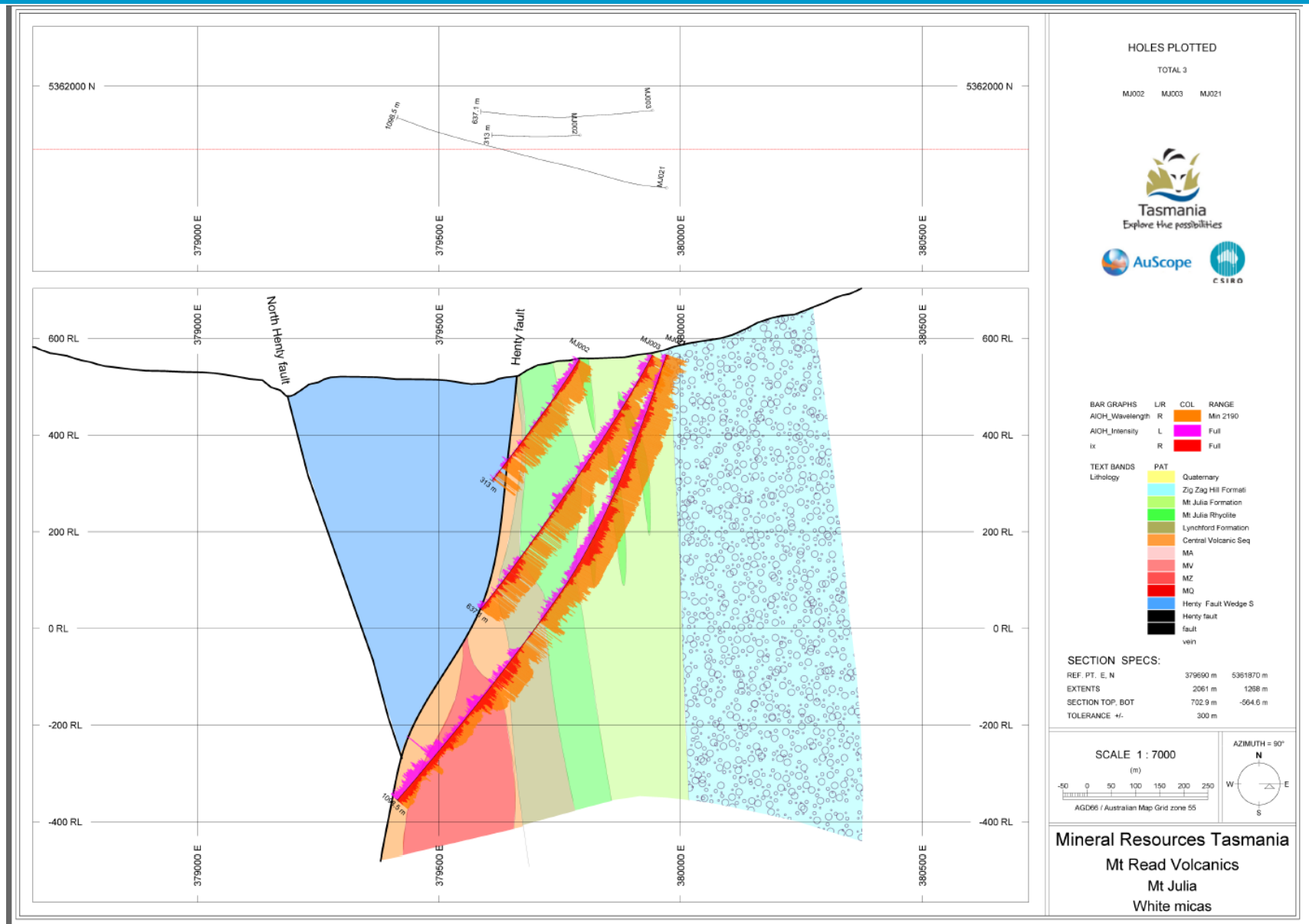
Examples – Mt Julia MJ021





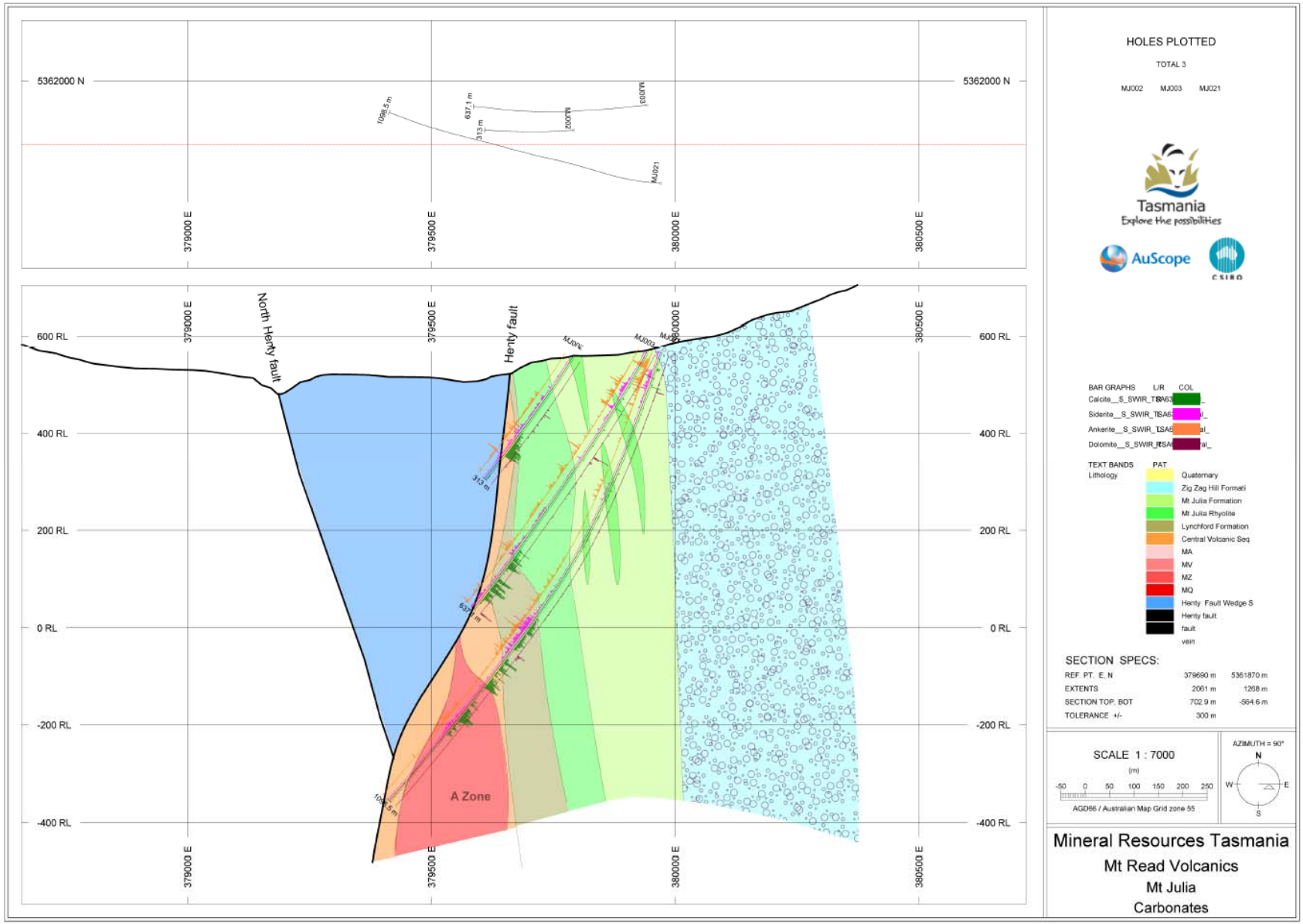
Courtesy MRT & CSIRO

Examples – Mt Julia X-Section - White Micas



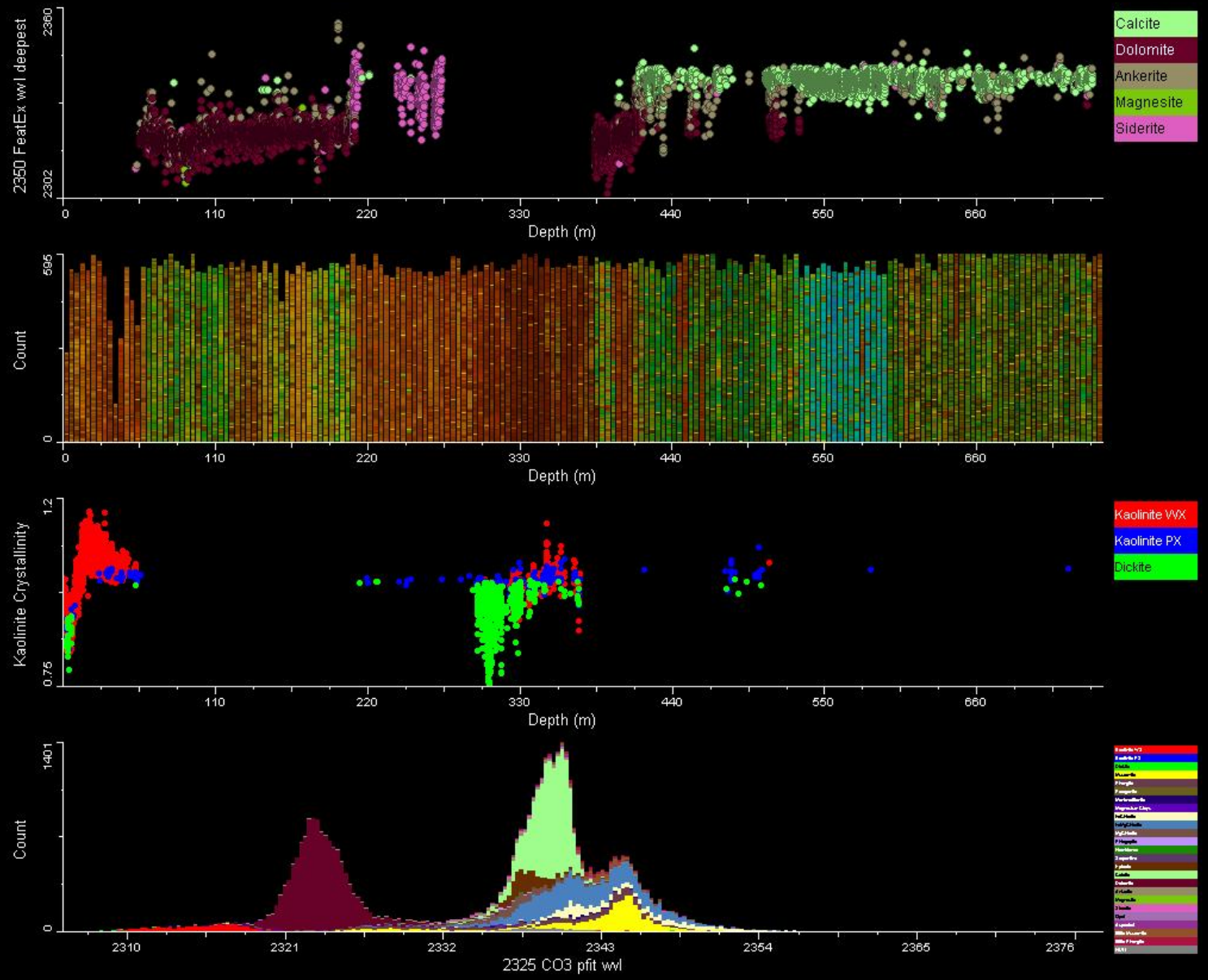
Courtesy MRT

Examples – Mt Julia X-Section - Carbonates



Courtesy MRT

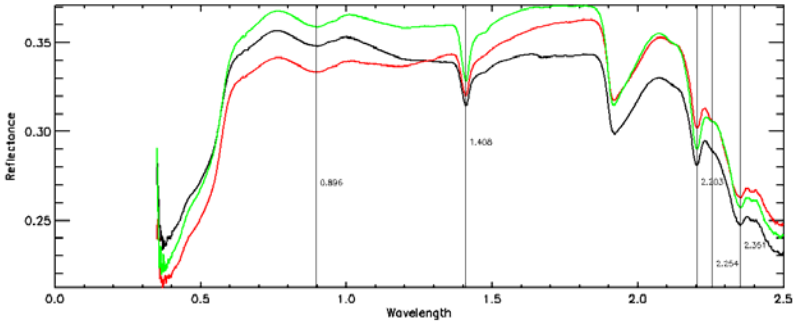
Examples – Lindemans Bore Northern Territory



Courtesy NTGS

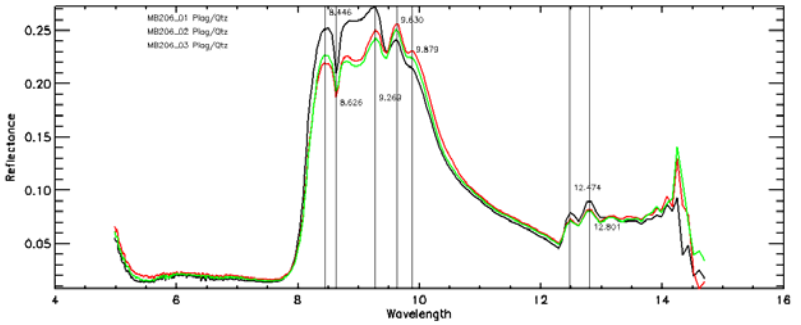
The Future

- During 2010 all nodes will be upgraded to co-registered TIR (anhydrous silicate mapping capabilities) for feldspars, garnets, pyroxenes, olivines, barite, apatite, carbonates, etc.
- Quite a few challenging software interpretation issues to be resolved, but
- These will be truly unique tools
- AuScope-2 opportunities



SWIR

SWIR suggests much more “clay” alteration.
Same sample but different surfaces.



TIR

Thin section interpretation:
Quartz 17%, Plag. 52% Orthoclase 6%
Perthite13%, Muscovite 6%, Amphibole 3%

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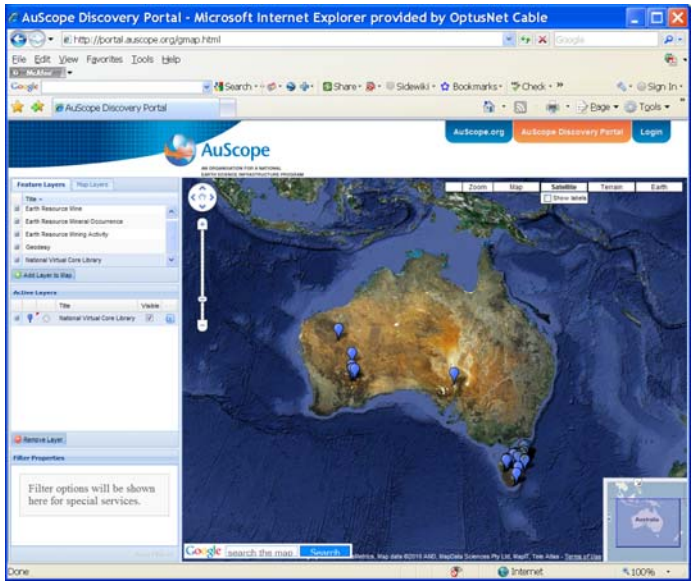
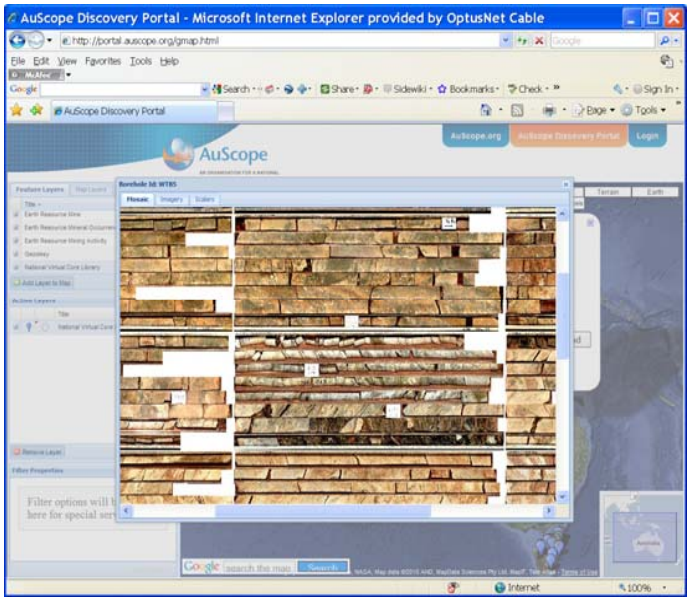
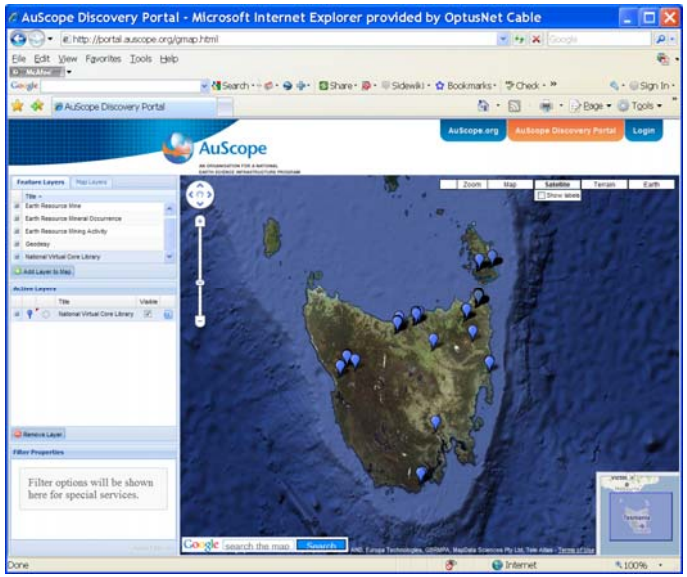
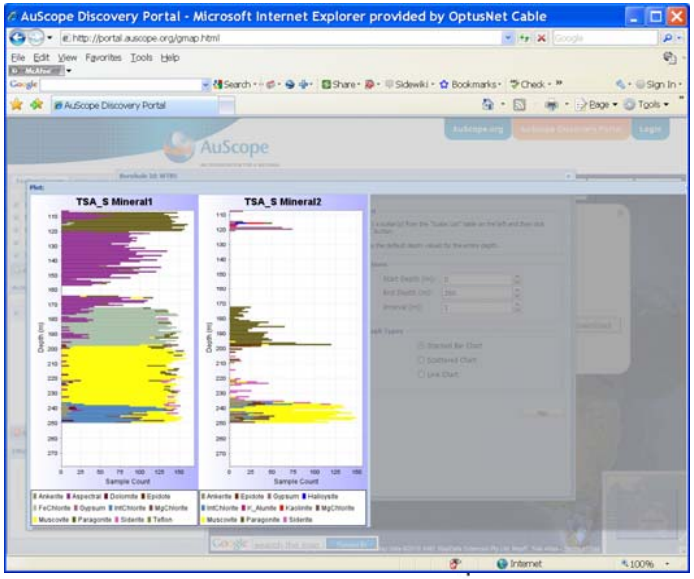
NVCL Drill-hole Web Discovery

http://portal.auscope.org/gmap.html









Acknowledgements

- Federal Dept of Industry Innovation Science and Research (DIISR) NCRIS Program
- AuScope Pty Ltd
- CSIRO
- All State and Territory Survey Directors

A Plea

- The NVCL scanning infrastructure stays with MRT in perpetuity, however,
- Current federal funding runs out June 30th 2011. If this is valuable infrastructure please use it and speak up for its continuation.

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Thank You

For information about the Tasmanian NVCL Node please contact
Geoff Green at MRT
(03) 6233-8335

or David Green
(03) 6233-7596

For information about the 1st NVCL Symposium at the AESC in Canberra in July please contact
jon.huntington@csiro.au