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HyLogging Update The AuScope National Virtual Core Library

Tasmanian Minerals Conference Launceston 2010

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National Research
FLAGSHIPS
Minerals Down Under



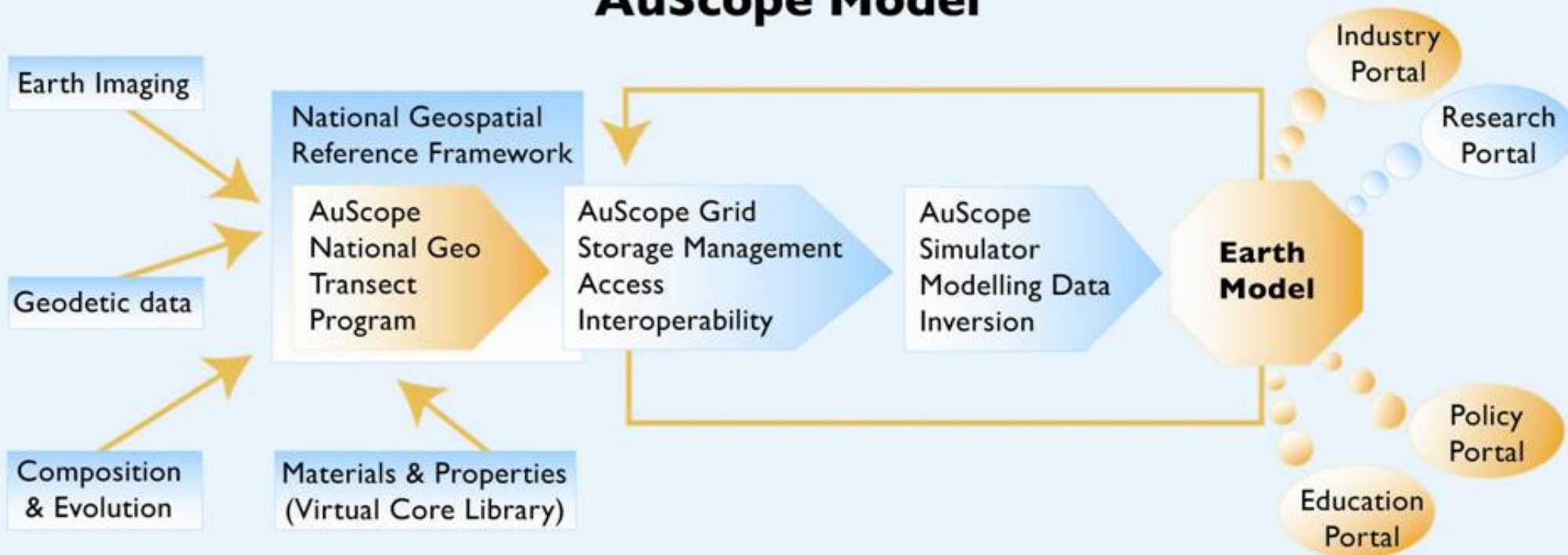


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AuScope Concept

AuScope Model



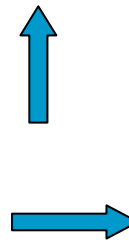
23 participants - \$42.8M from NCRIS - >\$70M Co-investment

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



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



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



GSQ & GSWA Nodes



GSWA



GSQ

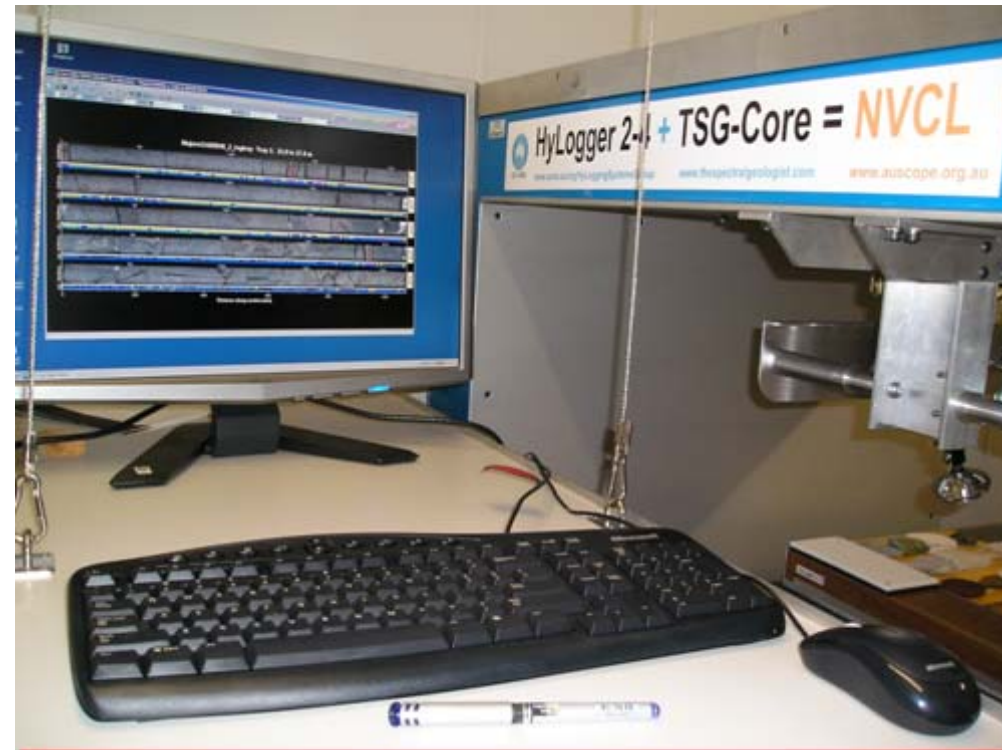


GSWA

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

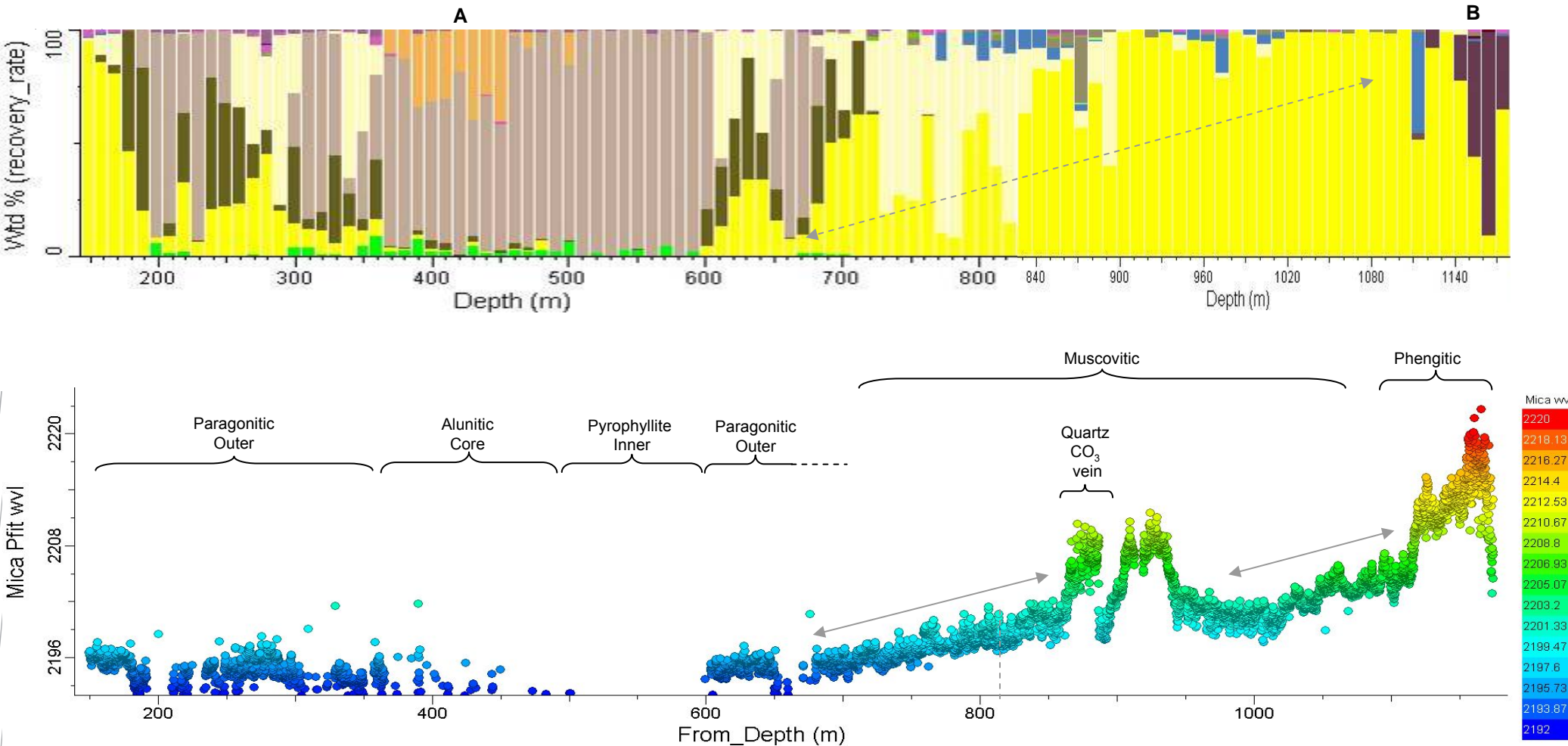
- NCRIS & AuScope policy is for external access at reasonable rates
- Instrument access – subject to Survey workflows and policy
- Summary data on the web – free
- TSG data files on request
- TSG-Viewer free from www.thespectralgeologist.com
- Access policy
 - Support for students and not-for-profit 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

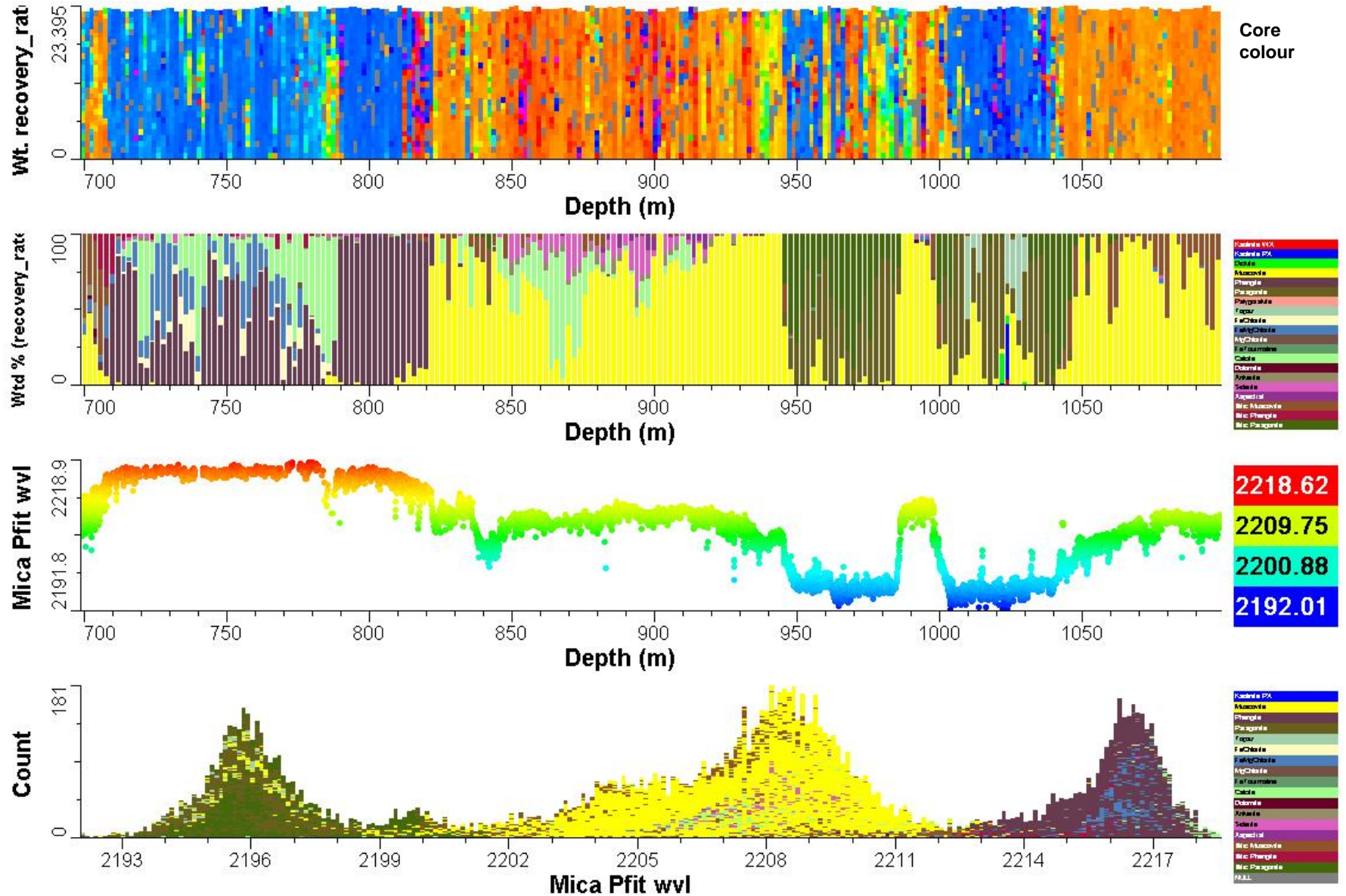


Widespread topaz, pyrophyllite alteration and variable footwall micas reflecting fluid mixing gradients

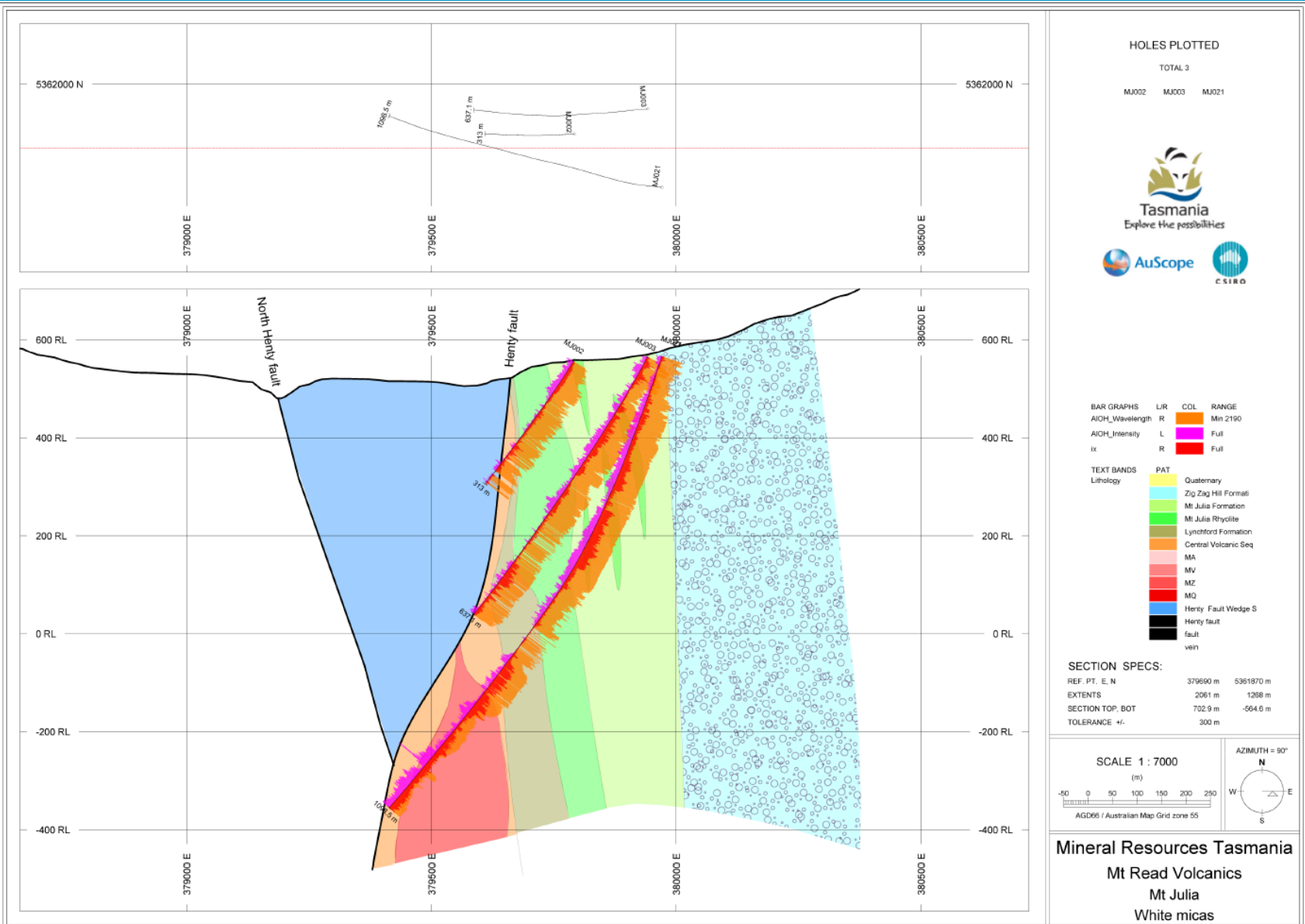
Courtesy Copper Mines of Tasmania & CSIRO



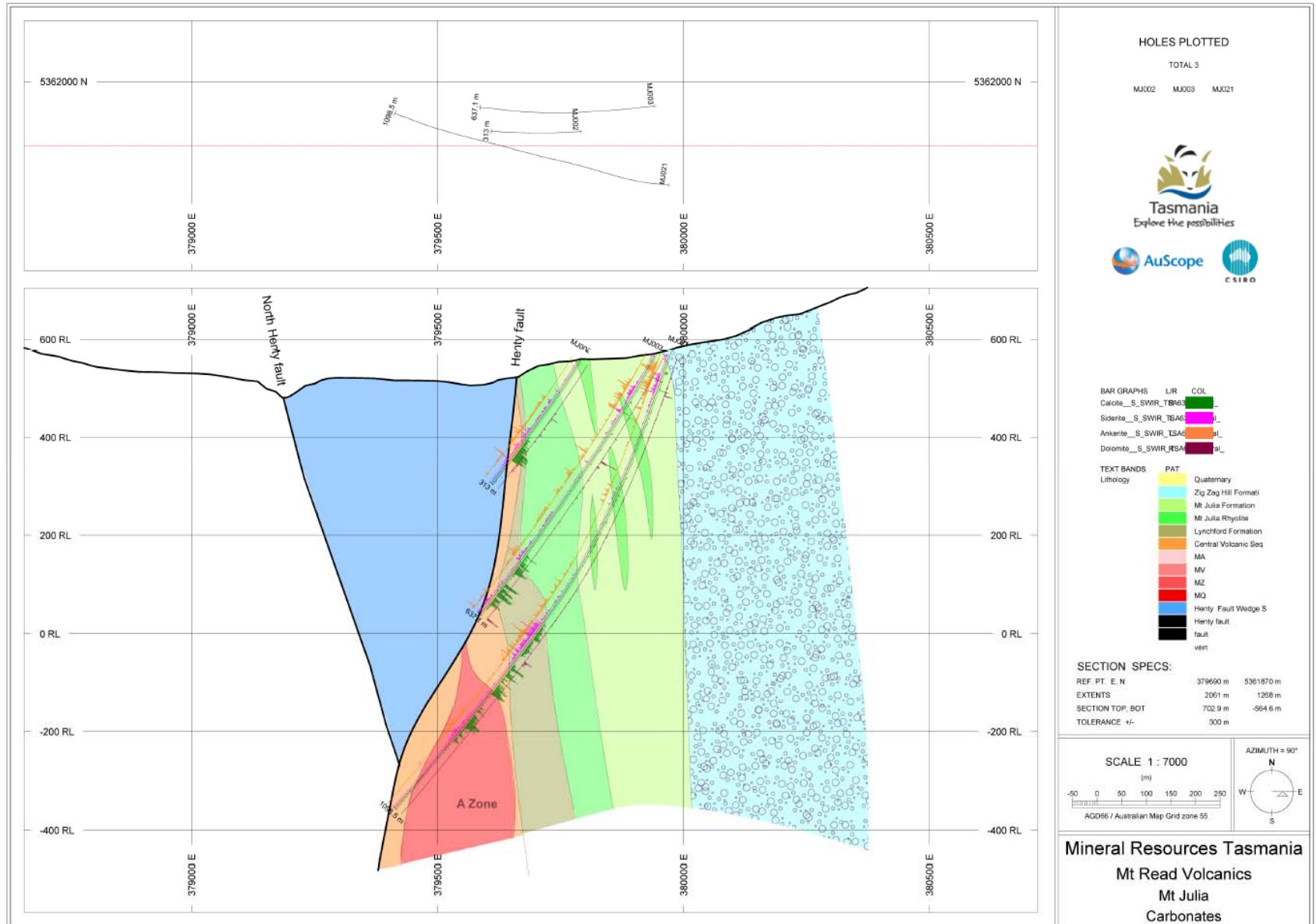
Examples – Mt Julia MJ021



Examples – Mt Julia X-Section - White Micras

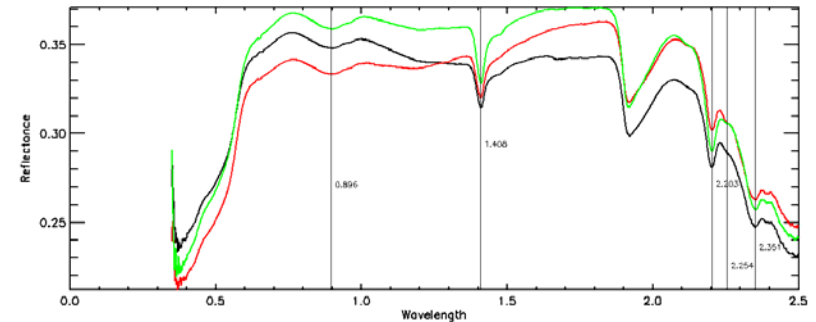


Examples – Mt Julia X-Section - Carbonates



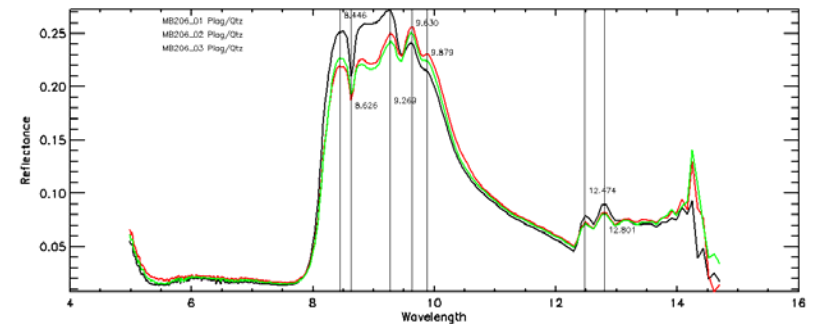
The Future

- 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.

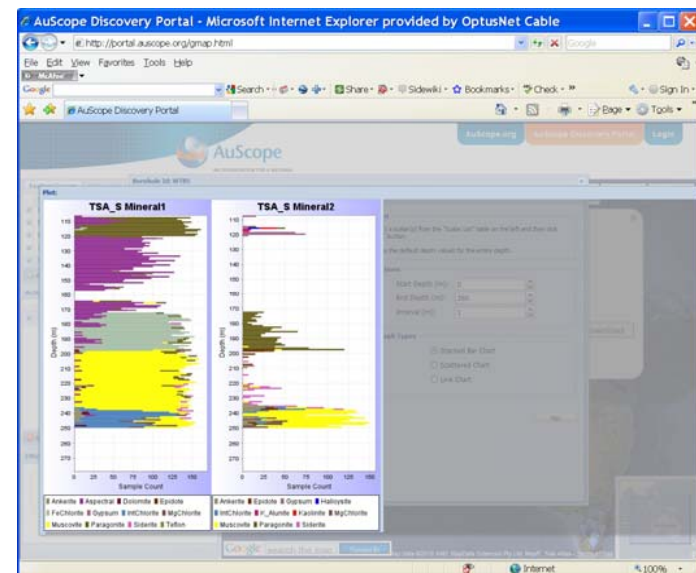
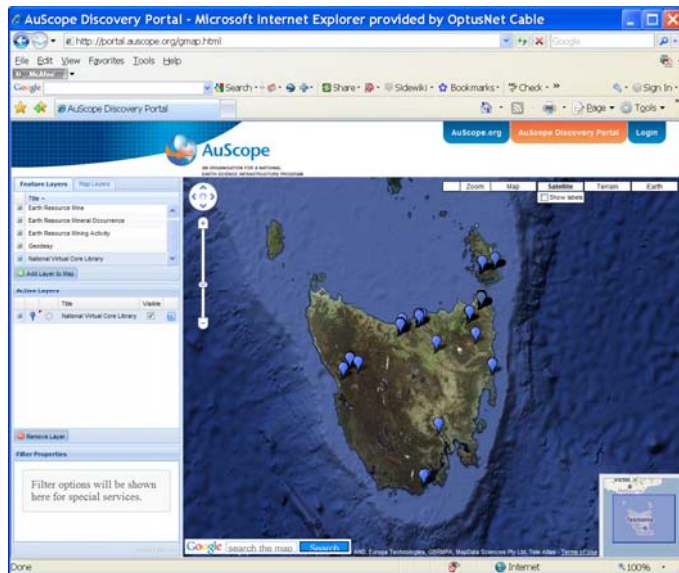
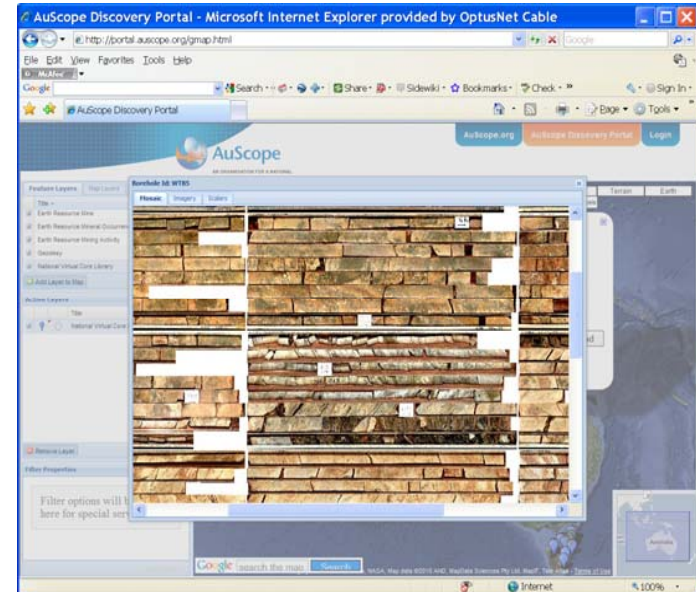
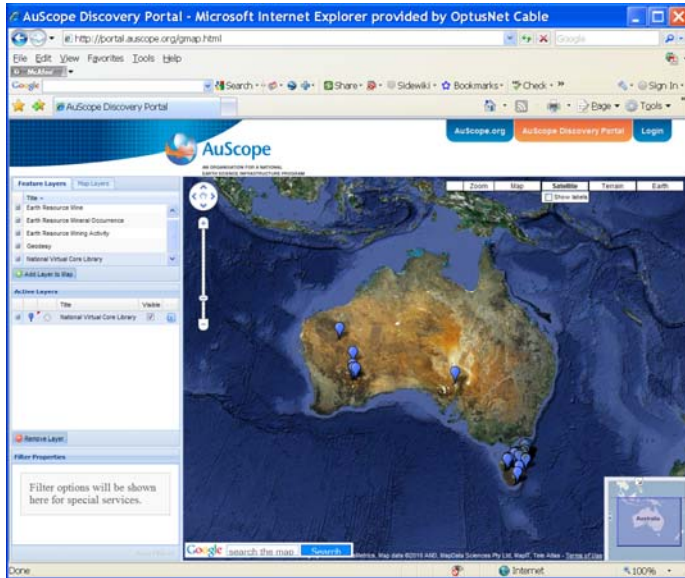


TIR

Thin section interpretation:
Quartz 17%, Plag. 52% Orthoclase 6%
Perthite 13%, Muscovite 6%, Amphibole 3%

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.

Thank You

For information about the
Tasmanian NVCL Node
please contact
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(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




National Virtual Core Library - MRT Node

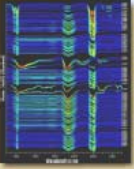
The AuScope National Virtual Core Library (NVCL) will facilitate research into the composition of the top 2 km of the Australian continent by hyperspectrally scanning the millions of metres of drill core archived in Federal, State and Territory Geological Surveys. These will be augmented by cores offered by the private sector.



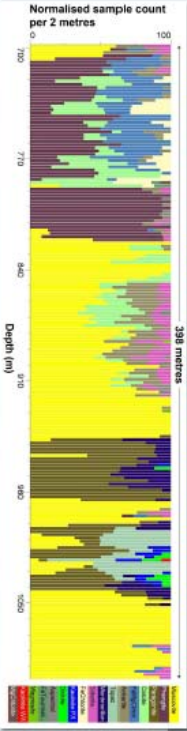
The AuScope NVCL is a unique new collaborative research infrastructure project funded by the federal government's National Collaborative Research Infrastructure Strategy (NCRIS) within the Department of Innovation Industry Science and Research, and the CSIRO, and implemented by all State and Territory Geological Surveys.



During the current AuScope project (out to mid-2011), each Geological Survey will staff and operate one of CSIRO's HyLogging™ hyperspectral mineralogical core logging instruments. These instruments yield information-rich spectro-mineralogical and image data of cores at a spatial resolution of approximately 10mm.

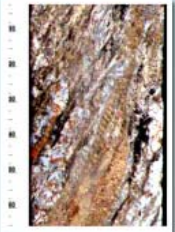


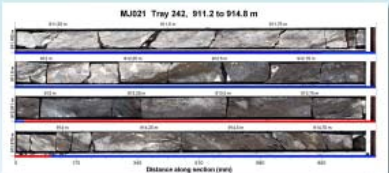
The data will be interpreted in the TSG-Core™ software package and along with standard products stored in relational databases for global interrogation via the Internet.

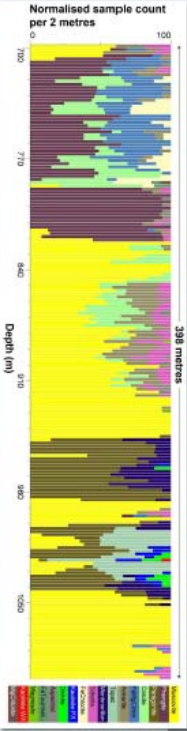


398 metres

Typical outputs will include mineralogical logs (right) supplemented by detailed spatially-registered images of the core (left), and core trays (below).








MJ021 Mt Julia Tasmania

An interactive demonstration website is available for preview at <http://nvcl.csiro.au>. The AuScope Discovery Portal is also under development and may be previewed at <http://portal.auscope.org/gmap.html>. Use of the NVCL infrastructure for research opportunities is strongly encouraged. For more information contact Geoff Green, MRT NVCL Project Leader, ggreen@mrt.tas.gov.au or the AuScope NVCL Component Director, Jon Huntington, jon.huntington@csiro.au.

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Acknowledgements



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