



Geoscientific Data Warehouse (GDW)

Overview and demonstration



DIVISION OF RESOURCES AND ENERGY Minerals and Petroleum



Home > Landholder Information

Template for Land Access Arrangements for Mineral Exploration

The Land Access Arrangement for Mineral Exploration (the template) and supporting Land Access Arrangement Information have been published by the Director General of the Department of Trade and Investment, Regional Infrastructure and Services under section 141 (1A) of the Mining Act 1992, with the concurrence of NSW Farmers and the NSW Minerals Council.

The aim is to assist both landholders and mineral exploration companies operating in NSW to negotiate an access agreement. Please note this document is not intended to address access for the purposes of opal prospecting or petroleum (including coal seam gas) exploration.

- [Land Access Arrangement Information for Mineral Exploration](#) 428 123.7 KB
- [Land Access Arrangement Template for Mineral Exploration](#) 438 671.0 KB
- [Land Access Arrangement Template for Mineral Exploration](#) 407 179.7 KB

Agriculture and mining are both vital industries in New South Wales (NSW) and share many common beliefs and interests. The successful co-existence of these industries has enormous benefits for the State, particularly in regional areas.

Although landholders may own the land, most mineral resources in NSW are owned by the State. This means that the royalties and economic benefits from the mining of these resources contribute to the provision of services for the people of NSW.

The purpose of land access arrangements is to ensure the orderly search for minerals, whilst recognising the rights of landholders to conduct their activities free from unreasonable interference or disturbance.

Both landholders and explorers have clear legal rights regarding access to land for mineral exploration. In particular, the Mining Act 1992 (the Act) provides specific landholder protections in respect of dwellings, gardens and significant improvements, as well as providing a statutory right to compensation for any 'compensable loss' suffered due to exploration carried out under an exploration licence or assessment lease.

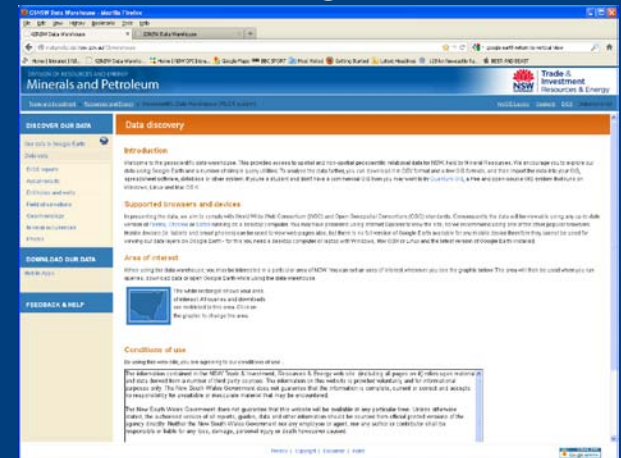
The vast majority of relationships between explorers and landholders are positive. Courtesy, respect and honesty go far in building relationships between explorers and landholders. All access arrangements should be based on the understanding that explorers are 'visitors' on private land, and an appreciation by landholders of the needs and rights of mineral explorers.

Contents

- What is the GDW?
- Why do we need it?
- How does it work?
- How was it done?
- Where do you access?
- When?
- Demo
- Coming soon
- Feedback

What is the GDW?

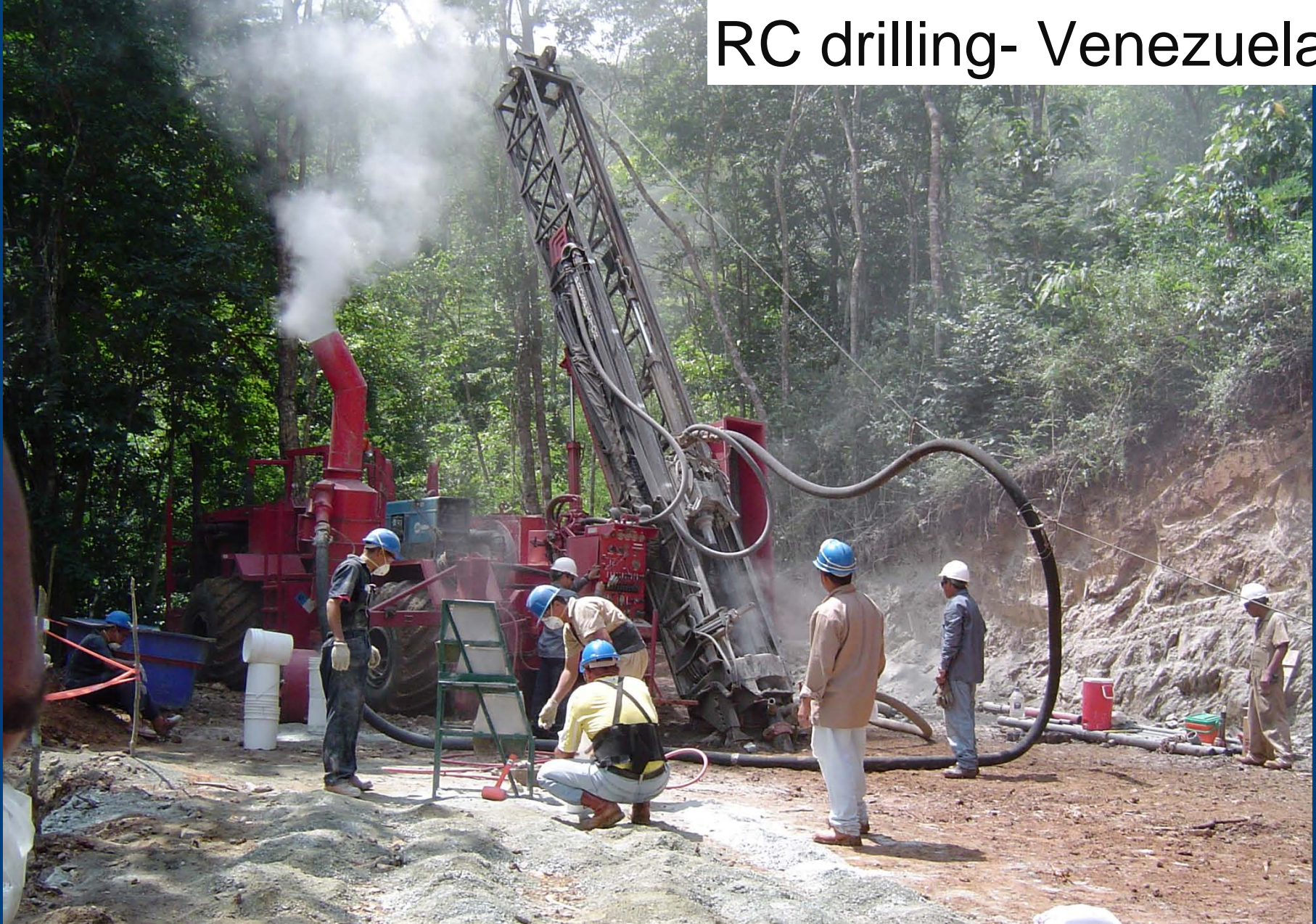
- A tool to simplify the discovery and accessibility of geoscientific information in NSW
- The end product of the COGENT II project
- Nightly replication of data from the geoscience data management system – relational, secure, highest integrity
- Displayed in Google Earth
- Spatial and attribute searches
- Download to ESRI (ArcGIS) shapefiles, MapInfo TAB files or text files (.csv)



Why do we need it?

- Data is the currency of geoscience, and we are custodians of geoscience data in NSW
- A major role of Resources & Energy Division is to provide ‘geoscientific information to attract investment for mineral and petroleum exploration and development and helping inform land use decision making’
- Put simply ...
 - The best advice to Govt. based on the best data
 - Responsible management of explorers data
 - Improve on our competitive advantage: attracting exploration

RC drilling- Venezuela



TM drilling- Cessnock



Figure 3: Policy/Mineral Potential assuming no land use restrictions in place and assuming industry "best practices"

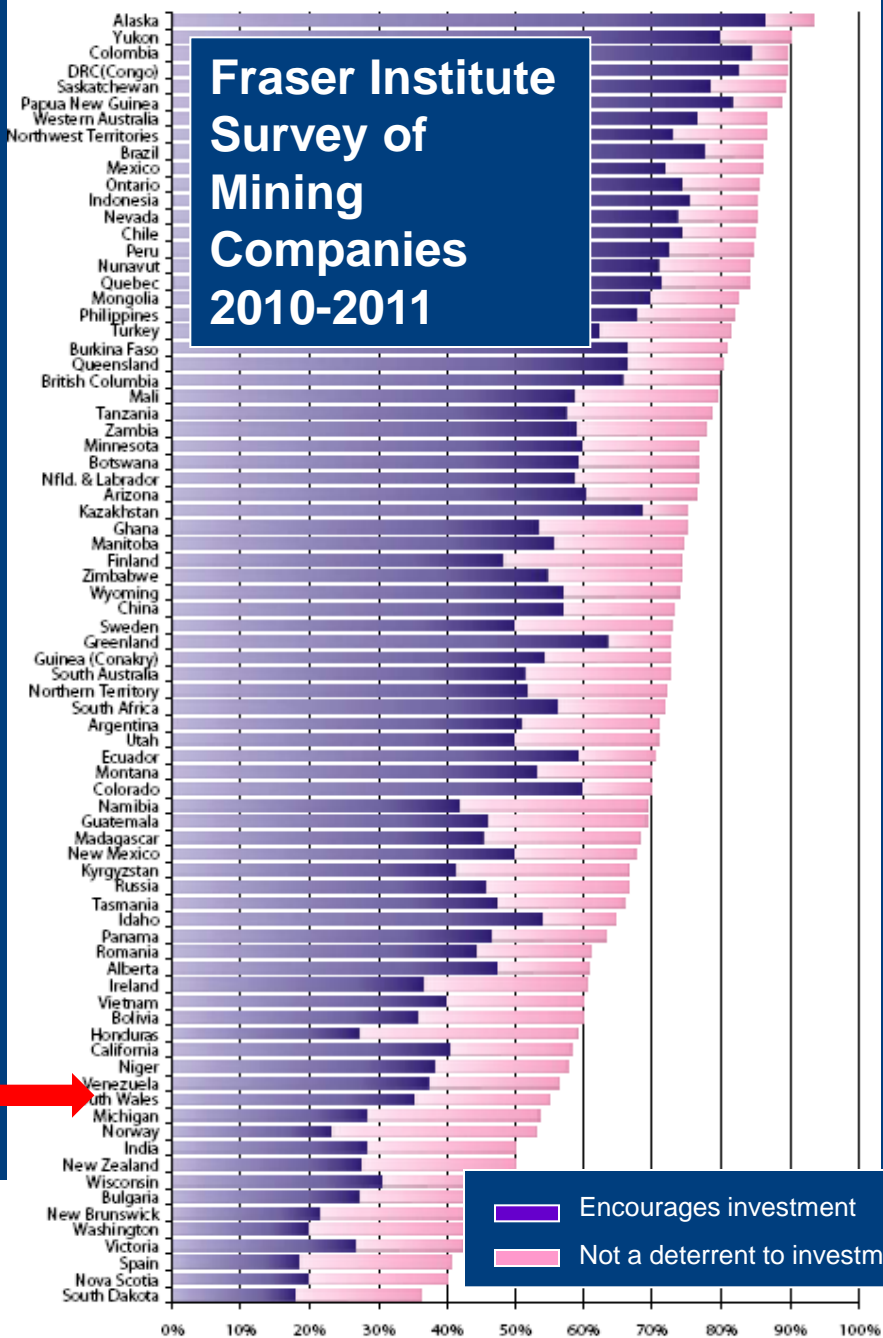
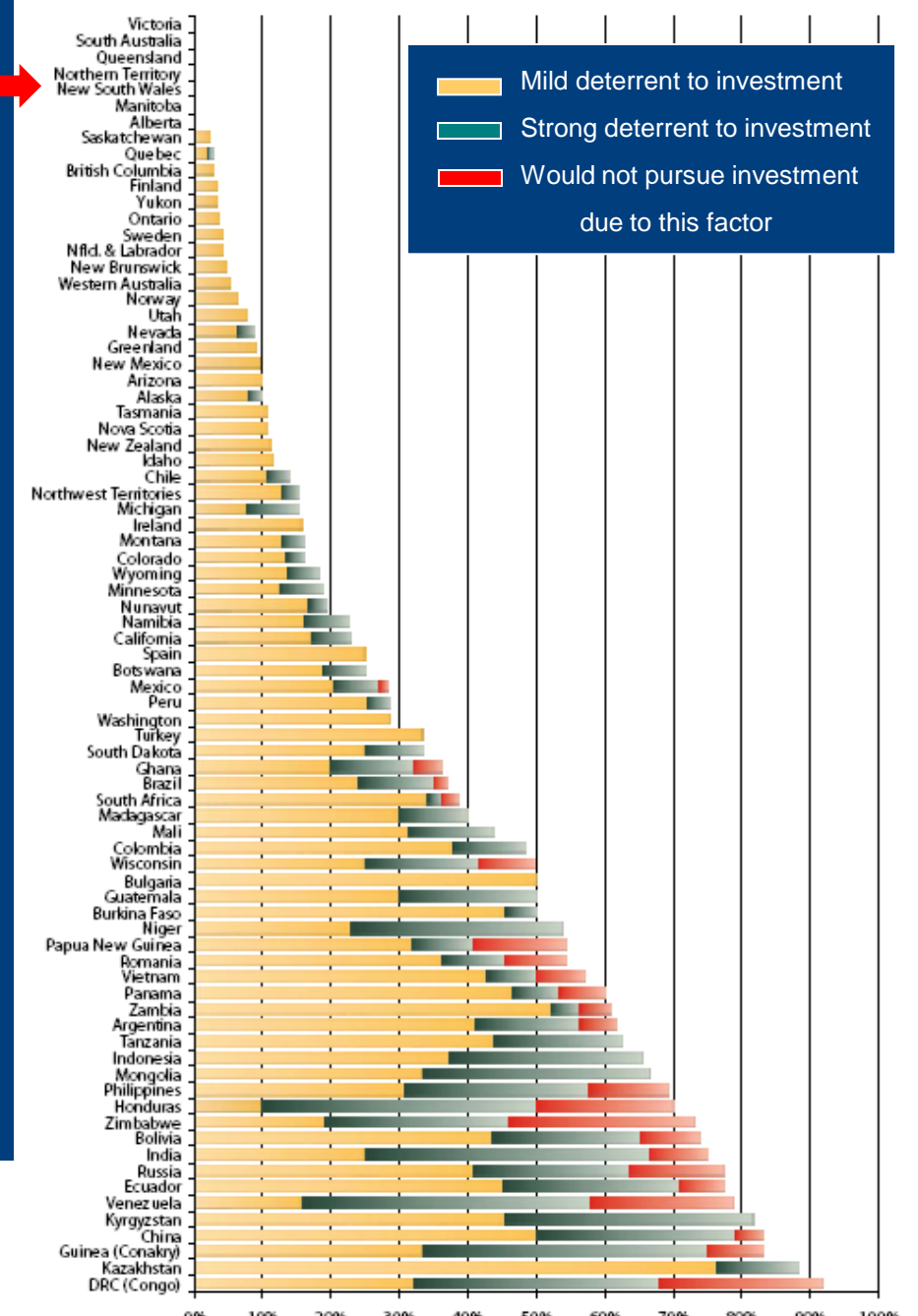


Figure 17: Geological database (includes quality and scale of maps, ease of access to information, etc.)



How does it work?

- GDW is the output from the COGENT II project



- The Vision
 - *On demand access to **all** validated (non-confidential) corporate geological data stored by Minerals from a single spatial-based interface*
- The Goal
 - *A comprehensive geoscientific data management **system** where digital data of the highest integrity is owned and maintained by the NSW Government, secured in perpetuity*

How does it work?



- COGENT II commenced in late-2008
- Four stages in COGENT II project:
 - Stage One: Project scope
 - Completed 2009
 - Stage Two: Data consolidation
 - Several datasets implemented from May 2011
 - Stage Three: Corporate database development
 - System Tools complete, several datasets implemented – May 2011
 - Stage Four: Web delivery
 - Complete for publishing September 2012

Data

- Vector
- Imagery
- Grids
- Systems
- Lookups



Key systems

- MetIndex (in progress)
 - 30 000 mineral occurrences in NSW
 - Integrate existing Oracle database into corporate system
- Field Observations (complete)
 - Observations and measurements from GSNSW
 - Developed for field work – synch to corporate system
- Statewide Geodatabase (complete)
 - ESRI geodatabase system for geological linework
 - Consistent look up tables across system

Key datasets

* Complete = data QA, data modelled,
infrastructure developed, data migrated

Priority	Data	Status	Records
1 High	Radiogenic isotopes	Complete Q1/2012 (except for Pb-Pb)	~ 4 000
1 Medium	Petrological collection	Complete Q1/2012	~ 95 000
1 Medium	Drill holes - coal	Complete Q2/2012	~ 55 000
1 Medium	Drill holes - minerals	Complete Q2/2012	~ 30 000
1 Medium	Drill holes - petroleum	Complete Q2/2012	~ 700
1 Medium	Seismic	Awaiting petroleum resourcing	~ 45 000 line km

Priority	Data	Status	Records
1 Low	Exploration geochemistry	Down hole assay complete Q1/2012. Surface samples (stream sediments, soils, rock chips, NITON) in progress.	~ 1.25m to date ? ~2m +
1 Low	Photographs	Complete Q1/2012. Field photos only at this point.	~ 2 500
1 Low	3D Geology	Awaiting resourcing	
1 Low	Petrophysics	Awaiting resourcing (2013)	? ~ 5 000

Priority	Data	Status	Records
2	Whole rock geochemistry	Awaiting resourcing (2013)	~ 25 000
2	Palaeontology	In progress (2012 / 2013)	~ 65 000
3	Stable isotopes	Awaiting resourcing (2013)	~ 3 500
3	Polished blocks	Awaiting resourcing	~ 1 775
3	Economic rocks	Awaiting resourcing	~ 30 000

How does it work?

- System developed
 - SQL database (Micromine's GeoBank)
 - Data tables
 - Relationships
 - Common look up tables
- Methodology implemented
 - To build tables
 - To migrate data
 - To create metadata (ANZLIC compliant)
 - All documented
- So more data can be added with time 'backfill'
- Other Dept. business units can add their data

Look up tables

- Standardised across the system
- e.g. stratigraphic names
 - ~ 3800 current names in NSW
 - Spatial distribution – statewide geodatabase
 - Attribution – in progress
 - e.g. age range, depositional environment, chemistry
 - Master unit description table for every unit
 - Plus **search for data by stratigraphic unit**

What about retrieving data?

- The GDW !
- Data discovery in Google Earth
- Data query – spatial or textual
- Data download – .shp .tab .csv

Confidential data

- Two versions of the GDW
- External
 - Non-confidential data only
 - e.g. unpublished isotope analyses
 - e.g. EL data still under tenure
- Internal
 - All data



Geological Survey of New South Wales



New data



Legacy data



Nightly replication

ELEMENT	Au XRAL	Au GENALYSIS	Pt XRAL	Pt GENALYSIS
SAMPLE NUMBER	ppb	ppb	ppb	ppb
39204	203	263	1262	1371
39205	185	198	773	548
39206	135	139	534	517
39208	70	87	404	387
8563	197	150	594	1294
8564	192	253	1631	1625
8567	209	219	1395	1588



Discover

Download



DW)

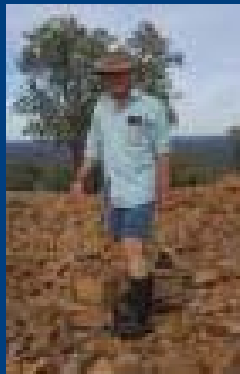


Trade & Investment Resources & Energy

Source: niton.com, Quantum Res. Ltd, pfncapital.com

How was it done?

- Minimal costs ...
- Key people in key positions
 - David Collins (System Architect), Trevor Barlin (Project Manager)
- Excellent team effort
 - Geological Survey (Reg Map, Geoscience Info, MinLU), Coal, Petroleum, ICT
- Purchase of software
 - Micromine's GeoBank (nee GBIS), FME Server
- Some use of contractors
 - Data compilation and QA (e.g. TerraSearch)
 - Coding (e.g. ArcSites)



Where do you access?

- Go to the GDW in your internet browser
 - <http://dwh.minerals.nsw.gov.au/CI/warehouse> (external)
- Or navigate via website:

The screenshot shows the website for the Division of Resources and Energy, Minerals and Petroleum. The header includes the NSW Government logo and the text 'Trade & Investment Resources & Energy'. The main navigation menu on the left lists 'GEOLOGICAL SURVEY' and various services like 'About the Geological Survey', 'New Frontiers, Exploration NSW & other initiatives', 'Overview of NSW geology', 'Online services', 'Geological maps', 'Geoscience data packages', 'Geophysical images and data', 'Mineral deposit maps', 'Heritage maps', 'Publications', 'Drill core libraries & reference collections', 'Geological Survey events', and 'Key contacts'. The main content area is titled 'Geological Survey' and contains a description of the branch, two columns of services ('What we do' and 'What we provide'), and several featured tools: DIGS (Report Viewer), EROL (EROL - Exploration Environmental Reports Online Lodgement), MinView, GDW (Geoscientific Data Warehouse - Pilot), and GPC (Geoscience Product Catalogue). A 'New Products' section at the bottom lists 'Quarterly Notes 138 - Permian fossils and palaeoenvironments of the northern Sydney Basin'. On the right, there is an 'e-newsletter' section for 'onthecorridor' and a 'Geological Survey News' RSS feed with recent news items.

Where do you access?

- Will work on Windows, Mac OS X and Linux PCs
- Only partially accessible from mobile devices as requires full version of Google Earth
- Requires Google Earth v6.2 or newer version
- Requires recent version of Firefox, Chrome or Safari as internet browser
 - Internet Explorer not sufficiently standards-compliant yet

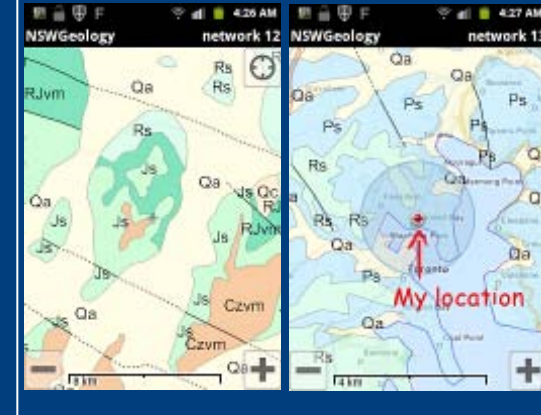
When?

- Now !!!
- External
 - Live since 20th September 2012
- Internal
 - Live since 2011
- But remember GDW is dynamic ...
 - You are accessing a nightly replication
 - More data being added constantly

Coming soon

- Updated data added daily !
 - e.g. exploration data – drilling, assay, surface geochemistry
- New datasets coming soon
 - Palaeontology (2012/13)
 - Stable isotopes (2013)
 - Whole rock geochemistry (2013)
 - NITON (2013)
- Mobile platform data
 - e.g. NSW geology maps for iPhone and Android
- Increased interaction with DIGS
- Integration into Geoscience Information Gateway (GIG)
 - In early planning stages
 - Scheduled for completion in June 2014
- Plus user suggestions for improvements ... feedback page

Mobile app!



Online Minerals Applications



DIGS® - Report Viewer

DIGS® is an interactive database of exploration and geoscience information.



EROL - Exploration-Environmental Reports Online Lodgement

EROL is an extension to DIGS, which enables exploration title holders to lodge reports via the internet.



MinView

MinView allows users to interactively display and query geoscience and exploration tenement information for NSW.



GDW - Geoscientific Data Warehouse (Pilot)

Discover Geoscientific Data using Google Earth and simple web queries, then download data in CSV or GIS formats.

GIG

Feedback

- We welcome suggestions so we can improve the system
- Both for useability and for data

The screenshot shows the 'Feedback & help' section of the Geoscientific Data Warehouse website. The page header includes the 'DIVISION OF RESOURCES AND ENERGY Minerals and Petroleum' logo and the 'Trade & Investment Resources & Energy' logo. The breadcrumb trail reads: 'Trade and Investment > Resources and Energy > Geoscientific Data Warehouse (PILOT system)'. The left sidebar contains navigation links for 'DISCOVER OUR DATA' (Our data in Google Earth, Data sets, Access results, Drillholes and wells, Field observations, Geochemistry, Mineral occurrences), 'DOWNLOAD OUR DATA' (All data sets), and 'FEEDBACK & HELP'. The main content area is titled 'Feedback & help' and contains a 'Submit request or feedback' form. The form includes a text area for feedback, a 'Please contact me' checkbox, and radio buttons for 'Idea', 'Bug', and 'Help Request'. Below the form are three sections: 'Common problems and solutions', 'Pop-Ups not appearing in Google Earth', 'Reports take more than 10 seconds to show data', and 'Mouse scroll-wheel does not zoom when placemark is shown in Google Maps'. The footer contains the 'GDW GEOSCIENTIFIC DATA WAREHOUSE' logo, the 'Geoscientific' logo, and the 'Geological Survey of NSW' logo. The bottom right corner has a 'Privacy | Copyright | Disclaimer | Home' link and a 'Feedback' button with a 'Google maps' logo.

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Minerals and Petroleum

Trade and Investment > Resources and Energy > Geoscientific Data Warehouse (PILOT system)

Trade & Investment
Resources & Energy

DISCOVER OUR DATA

Our data in Google Earth

Data sets

Access results

Drillholes and wells

Field observations

Geochemistry

Mineral occurrences

DOWNLOAD OUR DATA

All data sets

FEEDBACK & HELP

Feedback & help

Submit request or feedback

This page allows you to provide feedback about the Data Warehouse system so that we can improve the system. Please be mindful that we have finite resources, so we cannot implement all suggestions. Ideas that are of benefit to a wide cross-section of web-site users are the most likely to be implemented. Only fields with an asterisk (*) are compulsory.

My Name:

Job / Profession:

Company:

E-mail:

Please contact me:

Idea

Bug

Help Request

What I like most about the data warehouse:

Area I would like improved:

Common problems and solutions

Pop-Ups not appearing in Google Earth

Ensure that Google Earth is version 5.2 or higher

Pop-ups do not appear until you have zoomed in sufficiently - by zooming in further

Reports take more than 10 seconds to show data

Ensure that you are using the latest version of Firefox, Chrome or Safari

Mouse scroll-wheel does not zoom when placemark is shown in Google Maps

Click the + or - at the top left of the map

GDW
GEOSCIENTIFIC
DATA WAREHOUSE

Geoscientific

Geological Survey of NSW

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Feedback
Google maps

Demo

- Live ... the true test of a system!

Thanks !

EXTERNAL DEMO

GDW home page

GSNSW Data Warehouse - Mozilla Firefox

File Edit View History Bookmarks Tools Help

GSNSW Data Warehouse

dwh.minerals.nsw.gov.au/CI/warehouse

Home | Intranet | NS... | GSNSW Data Wareho... | Home | NSW DPI Intra... | Google Maps | BBC SPORT | Most Visited | Getting Started | Latest Headlines | 128 km Newcastle Ra... | BEER AND BEAST

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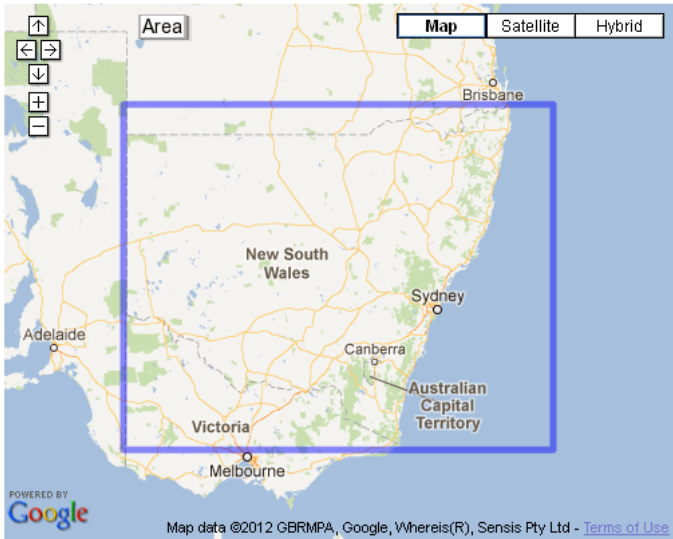
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FEEDBACK & HELP

Set Your Area of Interest

Area for Downloads and Queries



Download Area

The rectangle in the map to the left, shows the area that you currently have selected as the default area for downloads and displaying data. This area is also specified at the top left of this web page.

Set Area using your Mouse

Click the 'Area' button on the map, and move your mouse over your area of interest, while holding down the left mouse button.

Set Area to Map Sheet

Name:

or Code:

Set Area to All NSW

[Click here](#)

Powered by Google

Map data ©2012 GBRMPA, Google, Whereis(R), Sensis Pty Ltd - [Terms of Use](#)

Geologic

Energy

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By data set

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FEEDBACK & HELP

Drillholes and wells

Description

Collar and core library information is available for drillholes (minerals and coal) and petroleum and coal seam gas wells.


Data descriptions

- Coal
- Minerals
- Petroleum

Retrieve drillholes

Drillhole category:

SITE_ID, PROGRAM or HOLE_NAME contains:

 The white rectangle shows your area of interest. All queries and downloads are restricted to this area. Click on the graphic to change the area.

Geologic

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Metadata

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dwh.minerals.nsw.gov.au/CI/warehouse

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FEEDBACK & HELP

Geochronology

Description

Data are available for Ar/Ar, K/Ar, Provenance, Rb/Sr, Re/Os, Sm/Nd and U/Pb analytical techniques.

Data description

[Geochronology Metadata](#)

Retrieve geochronology samples

Technique:


And, optionally, any of the following ..

Description field contains:

Location field contains:

Prospect field contains:

Strat. Unit:

 The white rectangle shows your area of interest. All queries and downloads are restricted to this area. Click on the graphic to change the area.

Metadata

Metadata - Mozilla Firefox

File Edit View History Bookmarks Tools Help

maitprodgi.dpi.nsw.gov.au/CI/metadata.php?dataset=RGI

Metadata for Geochronology (Rad. Isotopes)

ANZLIC Metadata Description

[Download ANZLIC File](#)

Contact

IndividualName	
OrganisationName	Geological Survey of NSW
PositionName	Chief Geologist, Regional Mapping and Exploration Geoscience
Voice	0249316666
DeliveryPoint	516 High Street
City	Maitland
AdministrativeArea	NSW
PostalCode	2320
Country	Australia
Role	author

DateStamp	2011-07-11
MetadataStandardName	ANZLIC Metadata Profile: An Australian/New Zealand Profile of AS/NZS ISO 19115:2005, Geographic information - Metadata
MetadataStandardVersion	1.1

Spatial search

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GSNSW Data Warehouse

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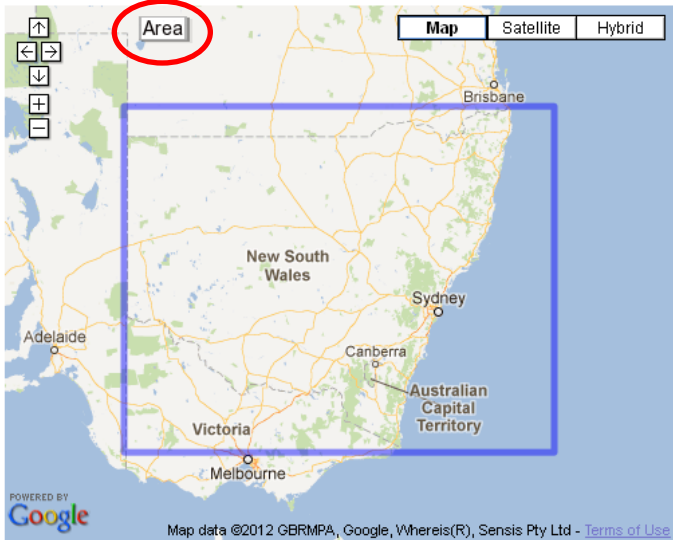
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Map Satellite Hybrid

Area

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Name:

or Code:

Set Area to All NSW

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Geological Data

Energy

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Spatial search

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GSNSW Data Warehouse

dwh.minerals.nsw.gov.au/CJ/warehouse?minx=146.381836&miny=-34.016242&maxx=150.46875&maxy=-31.503629

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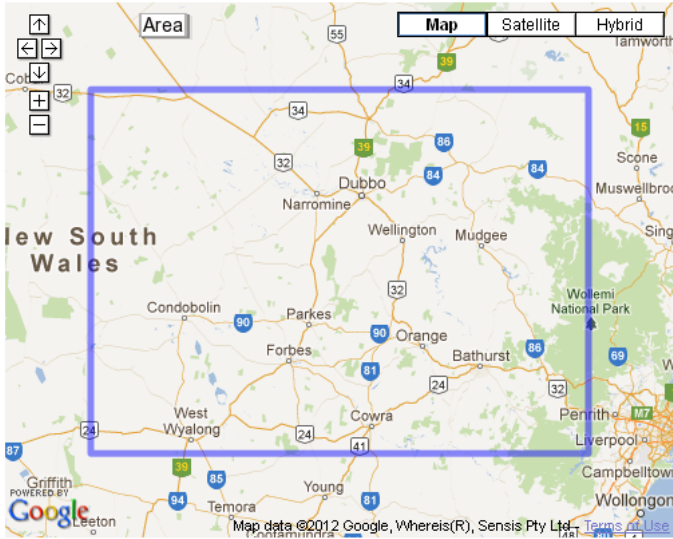
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Click here

Return to Dataset/Download

Summary list

GSNSW Data Warehouse - Mozilla Firefox

File Edit View History Bookmarks Tools Help

GSNSW Data Warehouse

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[Geochronology Metadata](#)

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Technique:


And, optionally, any of the following ..

Description field contains:

Location field contains:

Prospect field contains:

Strat. Unit:

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[Summary List](#) [Full Report](#)

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Summary list

GSNSW Data Warehouse - Mozilla Firefox

File Edit View History Bookmarks Tools Help

dwh.minerals.nsw.gov.au/CI/warehouse/report/geochron?technique=All&description=&location=&prospect=&stratcode=&list=yes

Geochronology

SAMPLE_ID	TECHNIQUE	DESCRIPTION	LOCATION
9	Ar/Ar	Alteration sericite	Goonumbla Endeavour deposit/ Endeavour 44
11	Ar/Ar	Granite	Browns Creek Mine
12	Ar/Ar	Altered basalt dyke	Browns Creek Mine
13	Ar/Ar	Altered basalt dyke	Browns Creek Mine
14	Ar/Ar	Altered basalt dyke	Browns Creek Mine
20	Ar/Ar	Diorite dyke	Sofala area, 1:50,000 GR 495E 369N
22	Ar/Ar	Microdiorite	Browns Creek Mine, pit
23	Ar/Ar	Granodiorite	Browns Creek Mine,BCKD-1102, 104.8m
24	Ar/Ar	Alteration biotite	Browns Creek Mine
25	Ar/Ar	Altered monzonite	Cadia Mine
26	Ar/Ar	Altered monzonite	Cadia Mine
27	Ar/Ar	Volcaniclastic	Junction Reefs area, Blayney 1: 100,00 GR 939759.
28	Ar/Ar	Diorite	Junction Reefs area
30	Ar/Ar	Altered Monzonite	Goonumbla/Endeavour 48/En 48 D11, 644.5-644.7m
31	Ar/Ar	Basalt	Copper Hill Mine
33	Ar/Ar	Altered monzonite	Cadia Mine
34	Ar/Ar	Altered monzonite	Cadia Mine
37	Ar/Ar	Alteration sericite, stage 5	Peak Gold Mine, Cobar
38	Ar/Ar	Alteration sericite, stage 4b	Peak Gold Mine, Cobar

Energy

Full report

GSNSW Data Warehouse - Mozilla Firefox

File Edit View History Bookmarks Tools Help

GSNSW Data Warehouse

dwh.minerals.nsw.gov.au/CI/warehouse?minx=146.381836&miny=-34.016242&maxx=150.46875&maxy=-31.503629

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And, optionally, any of the following ..

Description field contains:

Location field contains:

Prospect field contains:

Strat. Unit:

 The white rectangle shows your area of interest. All queries and downloads are restricted to this area. Click on the graphic to change the area.

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Energy

Full report

GSNSW Data Warehouse - Mozilla Firefox

File Edit View History Bookmarks Tools Help

dwh.minerals.nsw.gov.au/CI/warehouse/report/geochron?technique=All&description=&location=&prospect=&stratcode=

Geochronology

410 records for the area (146.381836,-34.016242,150.46875,-31.503629)

Ar/Ar Sample ID:9

- **Coords:** -33.020472,147.931657 ([GMaps](#)/[GEarth](#))
- **Samcode:** 90-167
- **Description:** Alteration sericite
- **Location:** Goonumbla Endeavour deposit/ Endeavour 44
- **Stratcode:** Ono
- **Strat_unit:** Northparkes Volcanic Group
- **Oldstratn:** Goonumbla Porphyry/Northparkes Igneous Complex
- **Metindexid:** 103988

Result 1

- **Material:** Sericite
- **Comments:** Total age,
- **Age_my:** 434.7
- **Error_my:** 0.6
- **Standard:** Flux Monitor GA 1550 biotite (Mc Dougall and Roksandic 1974) (Steiger and Jager 1977)
- **Lab:** ANSTO HIFAR reactor Lucas Heights, NSW. McDougall and Harrison (1988)
- **Reference1:** Perkins C., Walshe J L, Morrison G. (1995). Metallogenic episodes of the Tasman fold belt system, eastern Australia. Economic Geology 90: 1443 - 1486.

Ar/Ar Sample ID:11

- **Coords:** -33.525382,149.157314 ([GMaps](#)/[GEarth](#))
- **Samcode:** 91-269
- **Description:** Granite
- **Location:** Browns Creek Mine

Energy

Attribute search

GSNSW Data Warehouse - Mozilla Firefox

File Edit View History Bookmarks Tools Help

GSNSW Data Warehouse

dwh.minerals.nsw.gov.au/CI/warehouse?minx=146.381836&miny=-34.016242&maxx=150.468758&maxy=-31.503629

Home | Intranet | NS... | GSNSW Data Wareho... | Home | NSW DPI Intra... | Google Maps | BBC SPORT | Most Visited | Getting Started | Latest Headlines | 128 km Newcastle Ra... | BEER AND BEAST

DIVISION OF RESOURCES AND ENERGY
Minerals and Petroleum

Trade & Investment
Resources & Energy

Trade and Investment > Resources and Energy > Geoscientific Data Warehouse (PILOT system)

DISCOVER OUR DATA

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- Data sets
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- Geochronology
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All data sets

FEEDBACK & HELP

Geochronology

Description

Data are available for Ar/Ar, K/Ar, Provenance, Rb/Sr, Re/Os, Sm/Nd and U/Pb analytical techniques.

Data description

[Geochronology Metadata](#)

Retrieve geochronology samples

Technique: **U/Pb**

And, optionally, any of the following ...

Description field contains:

Location field contains:

Prospect field contains:

Strat. Unit:

- Taiwood Monzodiorite
- The wh...
- Tamby Creek Formation
- of inter...
- Tara Granodiorite
- are rest...
- Tarran Volcanics
- the gra...
- Termeil Essexite
- Terrible Vale Porphyritic Microtonalite
- Terrigal Formation
- Tettenhall Monzodiorite
- Thackaringa Group
- Thornedale Composite Gneiss
- Thornton Claystone
- Thule Granite
- Tia Granodiorite
- Tibooburra Granodiorite**
- Tibooburra Suite
- Tinderra Granite
- Tinderry Granite
- Tingaringy Granodiorite
- Tingha Monzogranite
- Tobermory Monzogranite

Summary List Full Rep

Energy

Combined – spatial and attribute

GSNSW Data Warehouse - Mozilla Firefox

File Edit View History Bookmarks Tools Help

GSNSW Data Warehouse

dwh.minerals.nsw.gov.au/CI/warehouse?minx=141.28418&miny=-30.902225&maxx=142.734375&maxy=-29.343875

Home | Intranet | NS... | GSNSW Data Wareho... | Home | NSW DPI Intra... | Google Maps | BBC SPORT | Most Visited | Getting Started | Latest Headlines | 128 km Newcastle Ra... | BEER AND BEAST

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FEEDBACK & HELP

Geochronology

Description

Data are available for Ar/Ar, K/Ar, Provenance, Rb/Sr, Re/Os, Sm/Nd and U/Pb analytical techniques.

Data description

[Geochronology Metadata](#)

Retrieve geochronology samples

Technique:

And, optionally, any of the following..

Description field contains:

Location field contains:

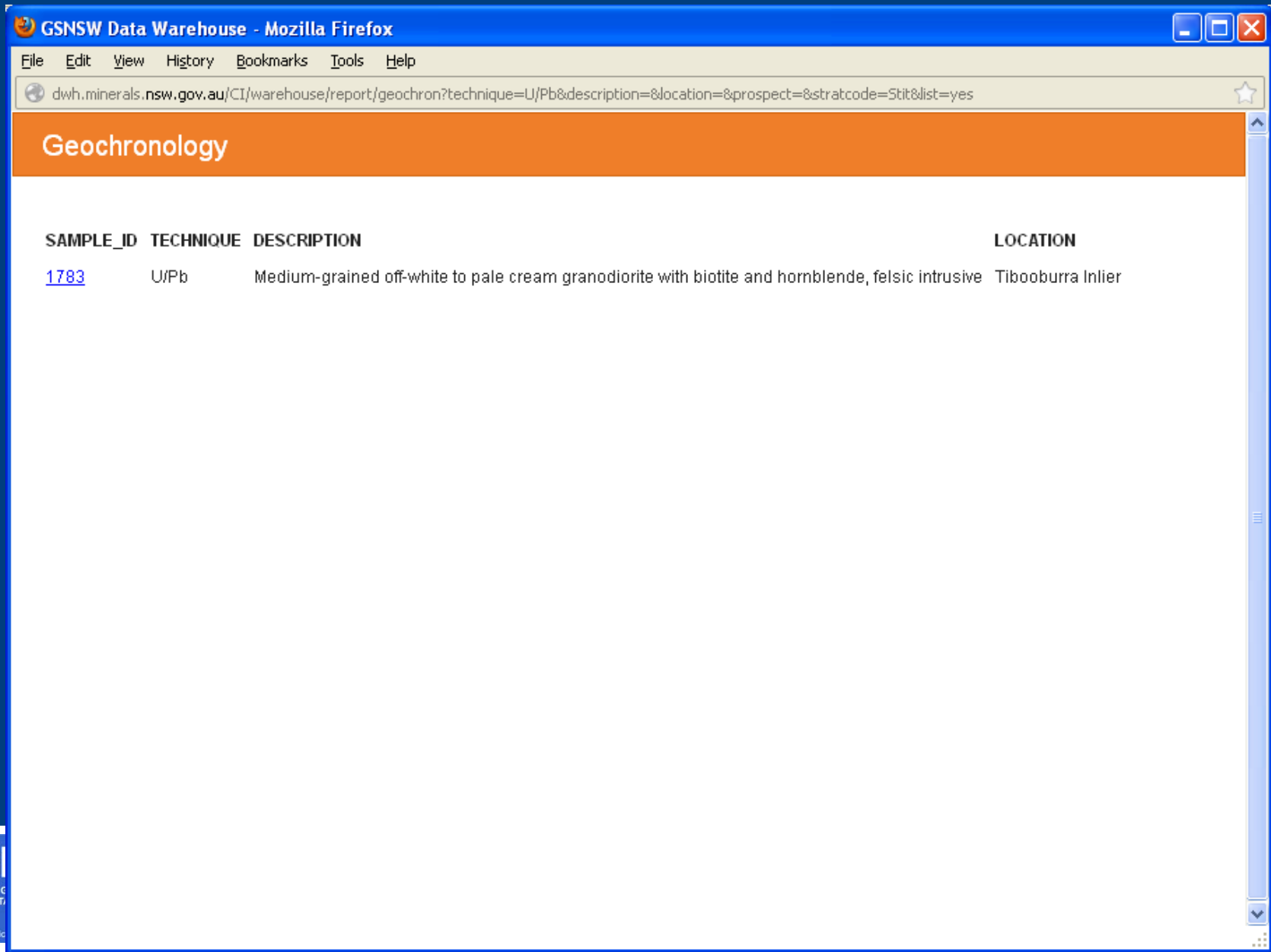
Prospect field contains:

Strat. Unit:

- Tibooburra Granodiorite
- MacKinnon Group
- Thorndale Composite Gneiss
- Thornton Claystone
- Thule Granite
- Tia Granodiorite
- Tibooburra Granodiorite
- Tibooburra Suite
- Tinderra Granite
- Tinderry Granite
- Tingaringy Granodiorite
- Tingha Monzogranite
- Tobermory Monzogranite
- Toggannoggra Rhyolite Member
- Tom Groggin Suite
- Toolamanang Formation
- Touga Granite
- Tout Intrusive Complex
- Towneys Creek Monzogranite
- Trungley Hall Granite
- Tucklan Formation
- Tullibinnie Leucite

Energy

Combined – spatial and attribute



The screenshot shows a Mozilla Firefox browser window titled "GSNSW Data Warehouse - Mozilla Firefox". The address bar contains the URL: dwh.minerals.nsw.gov.au/CI/warehouse/report/geochron?technique=U/Pb&description=&location=&prospect=&stratcode=Stit&list=yes. The page has an orange header with the word "Geochronology". Below the header is a table with the following data:

SAMPLE_ID	TECHNIQUE	DESCRIPTION	LOCATION
1783	U/Pb	Medium-grained off-white to pale cream granodiorite with biotite and hornblende, felsic intrusive	Tibooburra Inlier

In the bottom left corner, there is a logo for "TG DAT." and "Geologic". In the bottom right corner, there is a logo for "Energy".

View all data

GSNSW Data Warehouse - Mozilla Firefox

File Edit View History Bookmarks Tools Help

GSNSW Data Warehouse

dwh.minerals.nsw.gov.au/CI/warehouse?minx=141.28418&miny=-30.902225&maxx=142.734375&maxy=-29.343875

Home | Intranet | NS... | GSNSW Data Wareho... | Home | NSW DPI Intra... | Google Maps | BBC SPORT | Most Visited | Getting Started | Latest Headlines | 128 km Newcastle Ra... | BEER AND BEAST

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Trade and Investment > Resources and Energy > Geoscientific Data Warehouse (PILOT system)

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All data sets

FEEDBACK & HELP

Viewing our data in Google Earth

Google Earth 6.2 (or newer)

To view our data in Google Earth, you must install Google Earth 6.2 (or a newer version) first, if it is not already installed on your PC. Usually it can be installed from the [Google Earth download page](#). If you are in a corporate environment and having trouble installing it because of proxies or firewalls, then try downloading the [standalone installation file for Windows](#) from our site. If you require assistance installing Google Earth contact your IT support team.

Important setting in Google Earth

Apply this setting to Google Earth in **Tools/Options** so that the **'View in Browser'** links open your default web browser.

Google Earth Options

3D View Cache Touring Navigation General

Display

- Show tooltips
- Show web results in external browser
- Building highlights

Email Program

- Lotus Notes
- Use my Gmail account
- Let me choose each time I send an email

Discard the NSW Layers when exiting Google Earth

Always discard the NSW Mineral Resources layers when you close Google Earth.

Google Earth

You have unsaved items in your "Temporary Places" folder. Would you like to save them to your "My Places" folder?

Save Discard Cancel

View our data in Google Earth

Now that you have installed Google Earth 6.2 or newer, and set the 'Show web results in external browser' option, you are ready to go!
Click here: <http://dwh.minerals.nsw.gov.au/CI/kml-gsnsw.php>

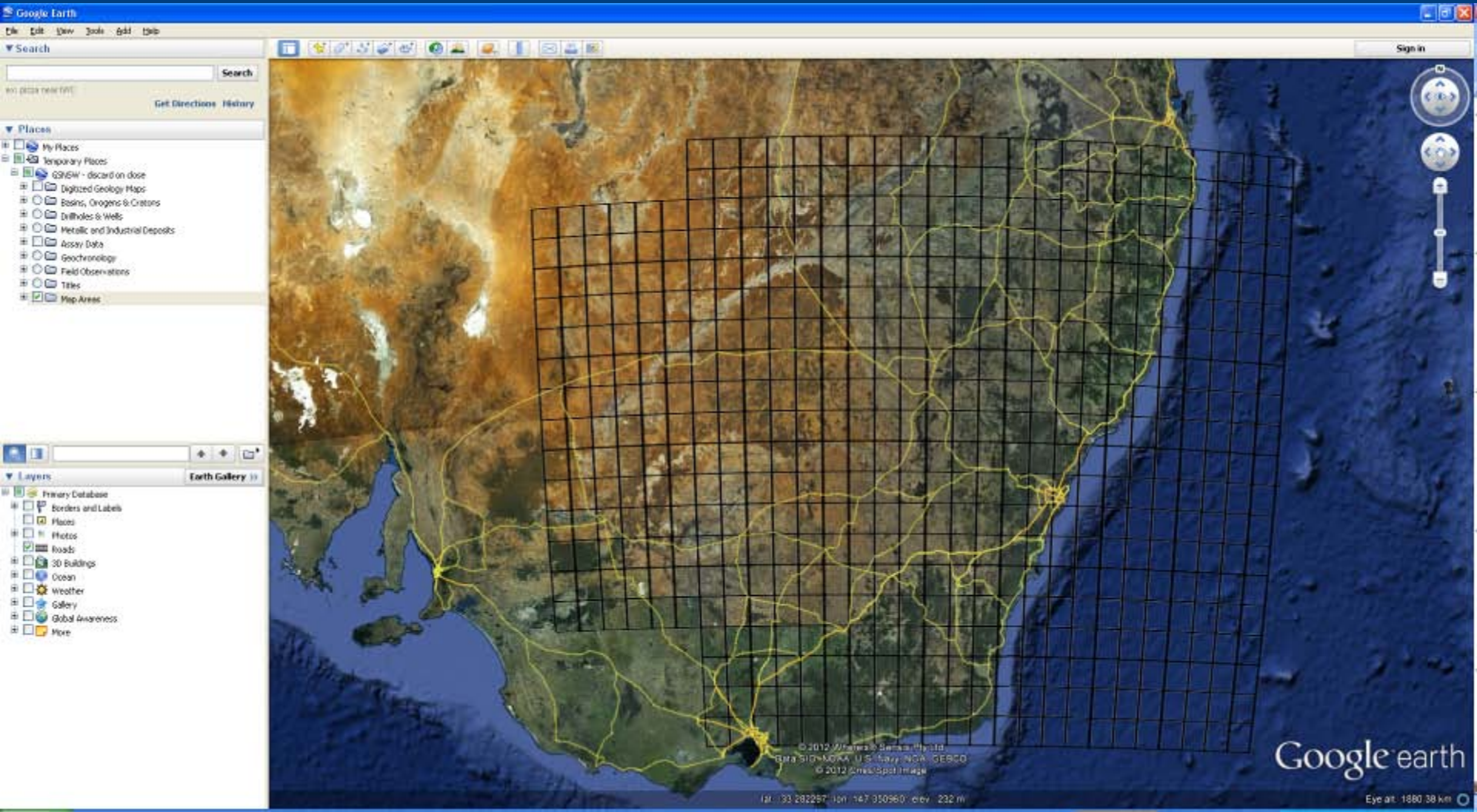
You can view our data in Google Earth using any of the following methods.

Privacy | Copyright | Disclaimer | Home

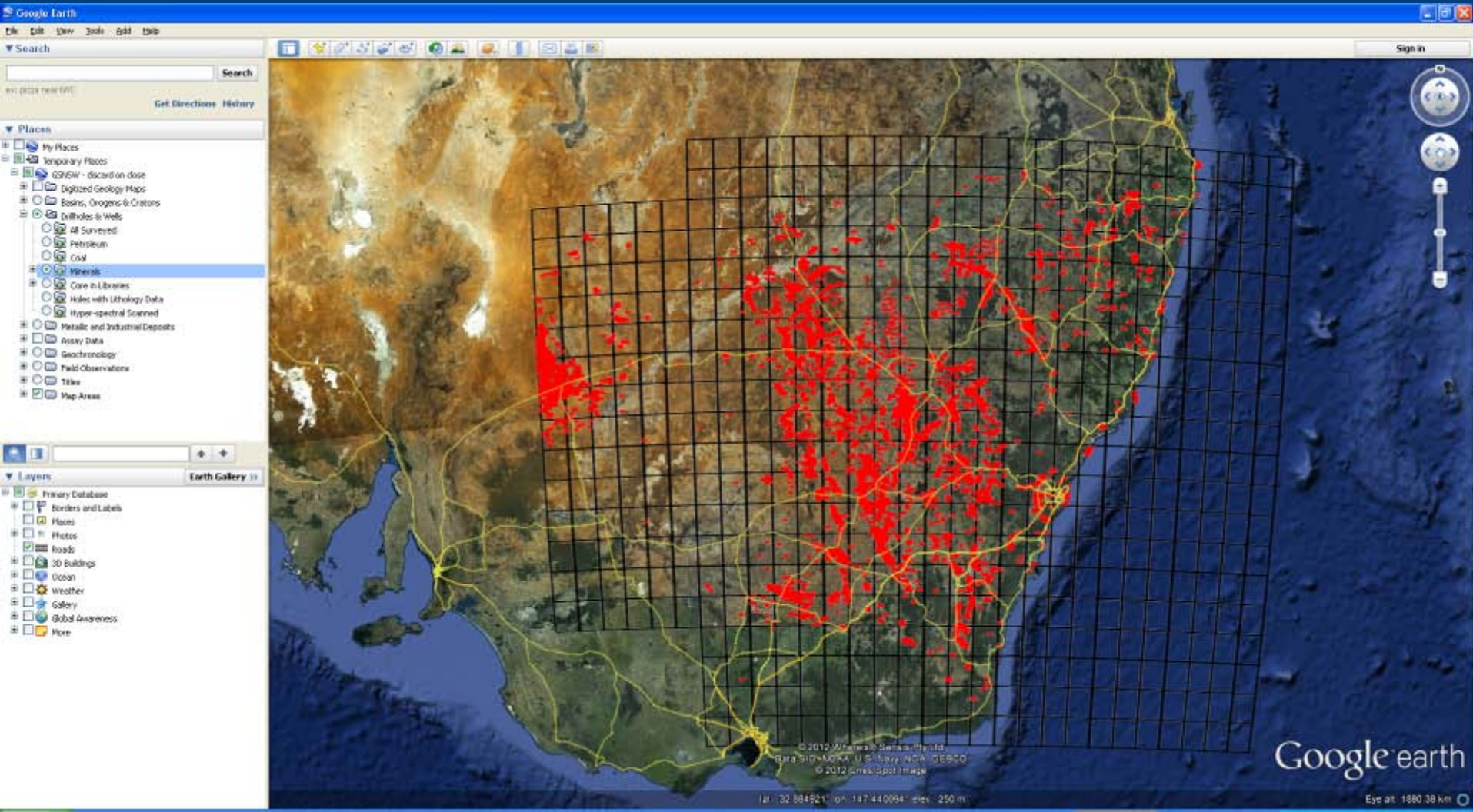
DOWNLOAD Google EARTH

Energy

Google Earth opens to NSW

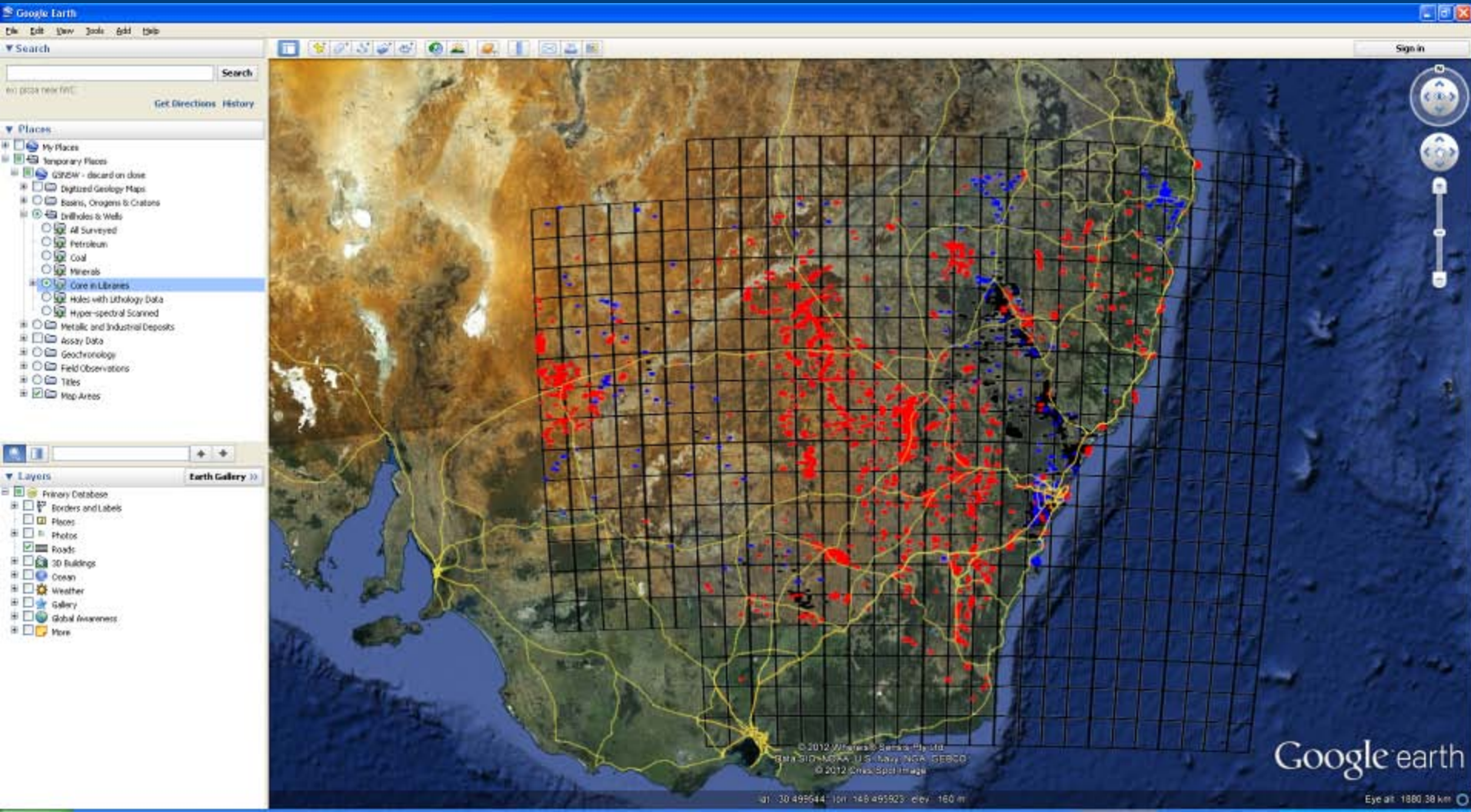


Minerals drillholes

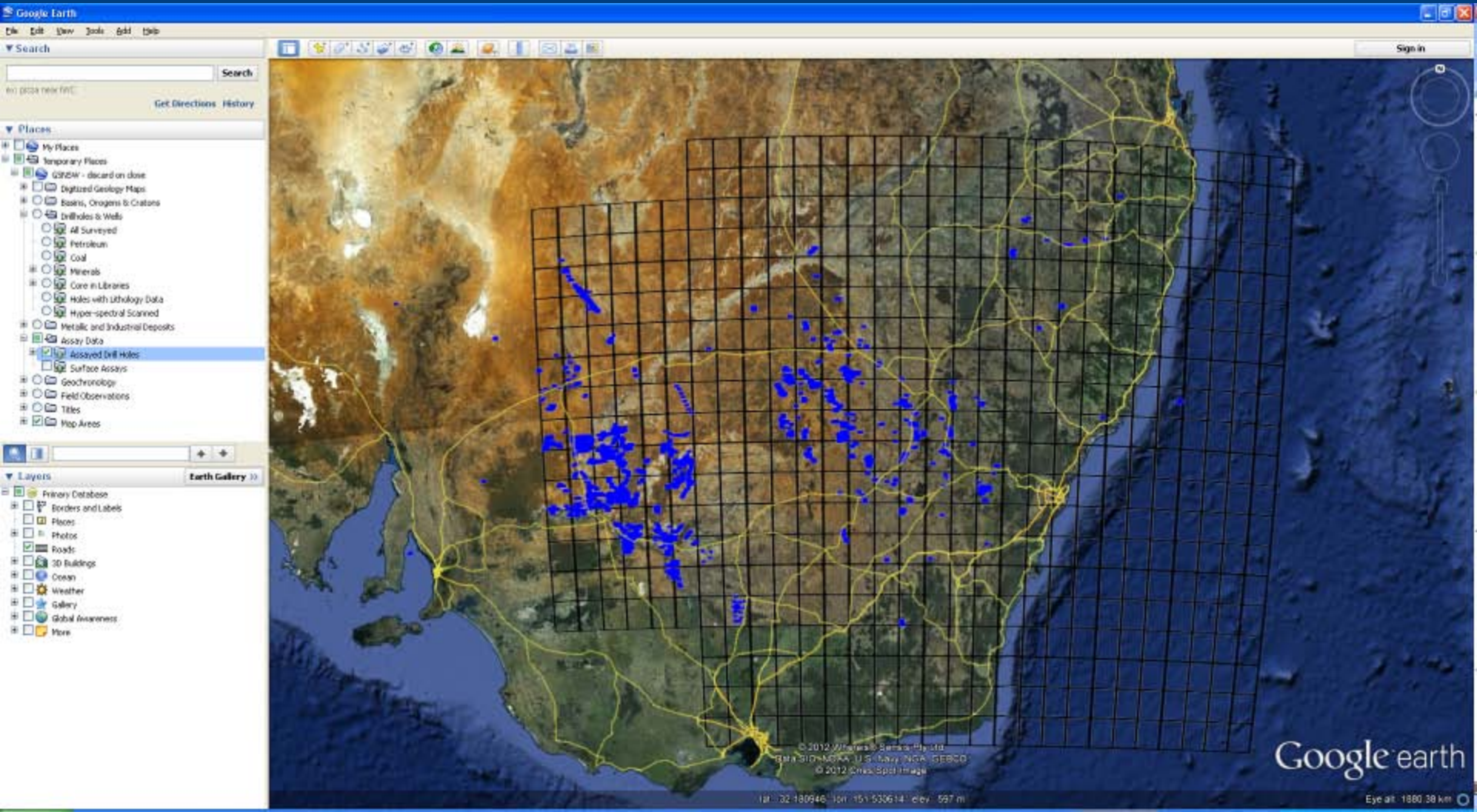


Drill core in department library

- Londonderry, Broken Hill



Assayed drill holes

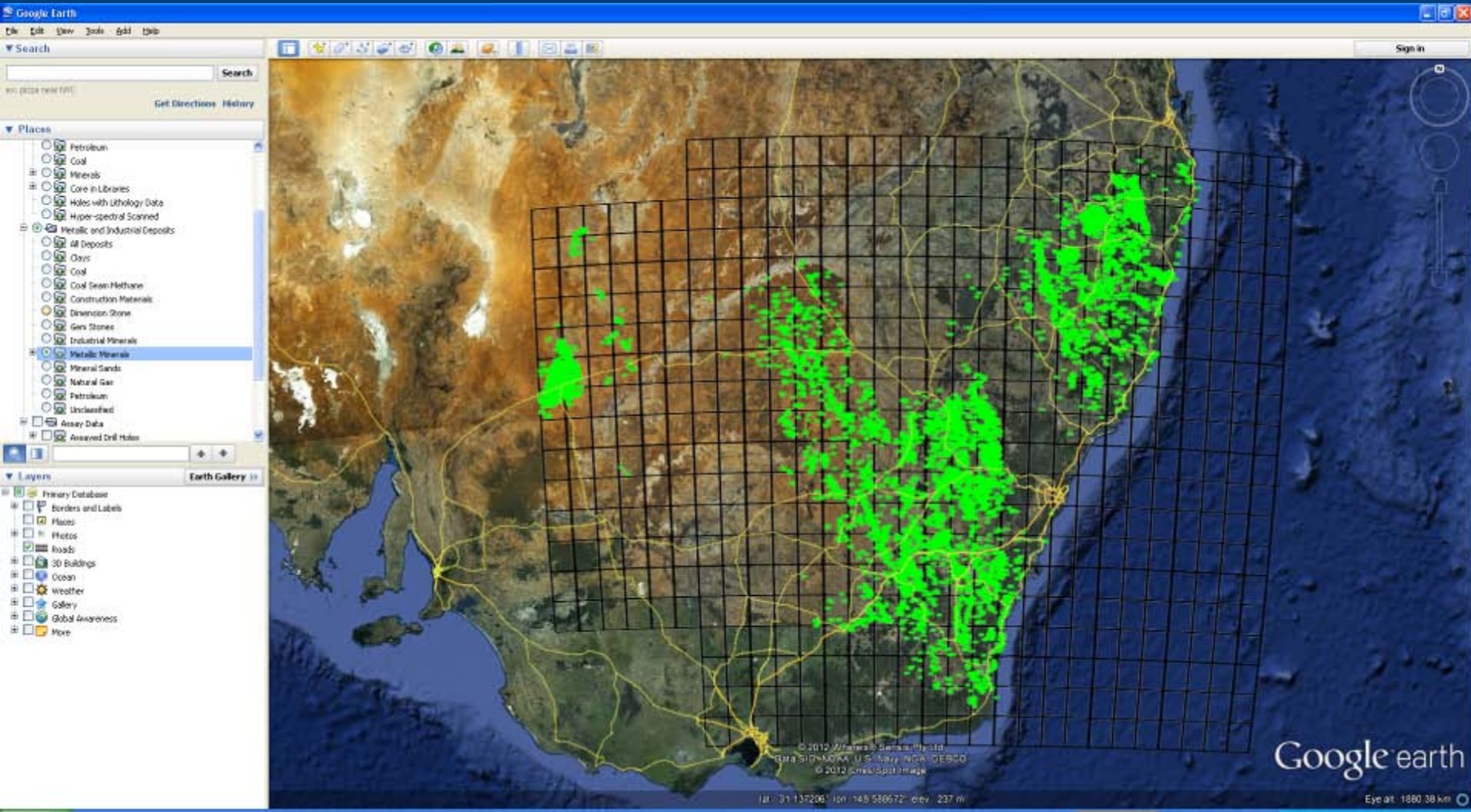


Surface exploration geochemistry



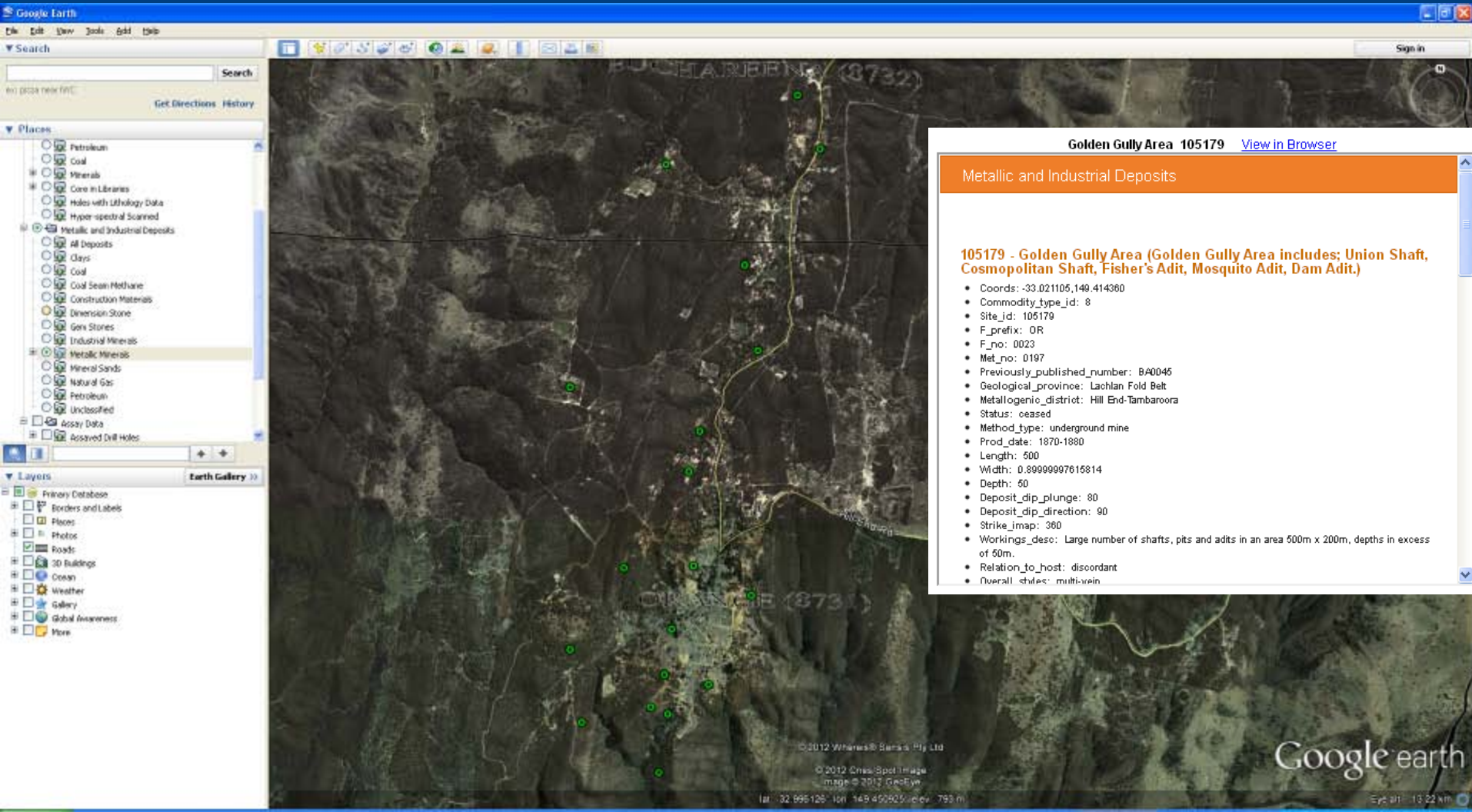
Metallic minerals

- Displays at raster when >1000 records in view



Metallic minerals

- Change to vector points when <1000 records in view
- Click on points to see info



The screenshot shows the Google Earth interface. On the left, the 'Places' panel is expanded to 'Metallic and Industrial Deposits', with 'Metallic Minerals' selected. The main map area shows a topographic view of a hilly region with several green circular markers representing mineral deposits. A popup window is open over one of these markers, displaying the following information:

Golden Gully Area 105179 [View in Browser](#)

Metallic and Industrial Deposits

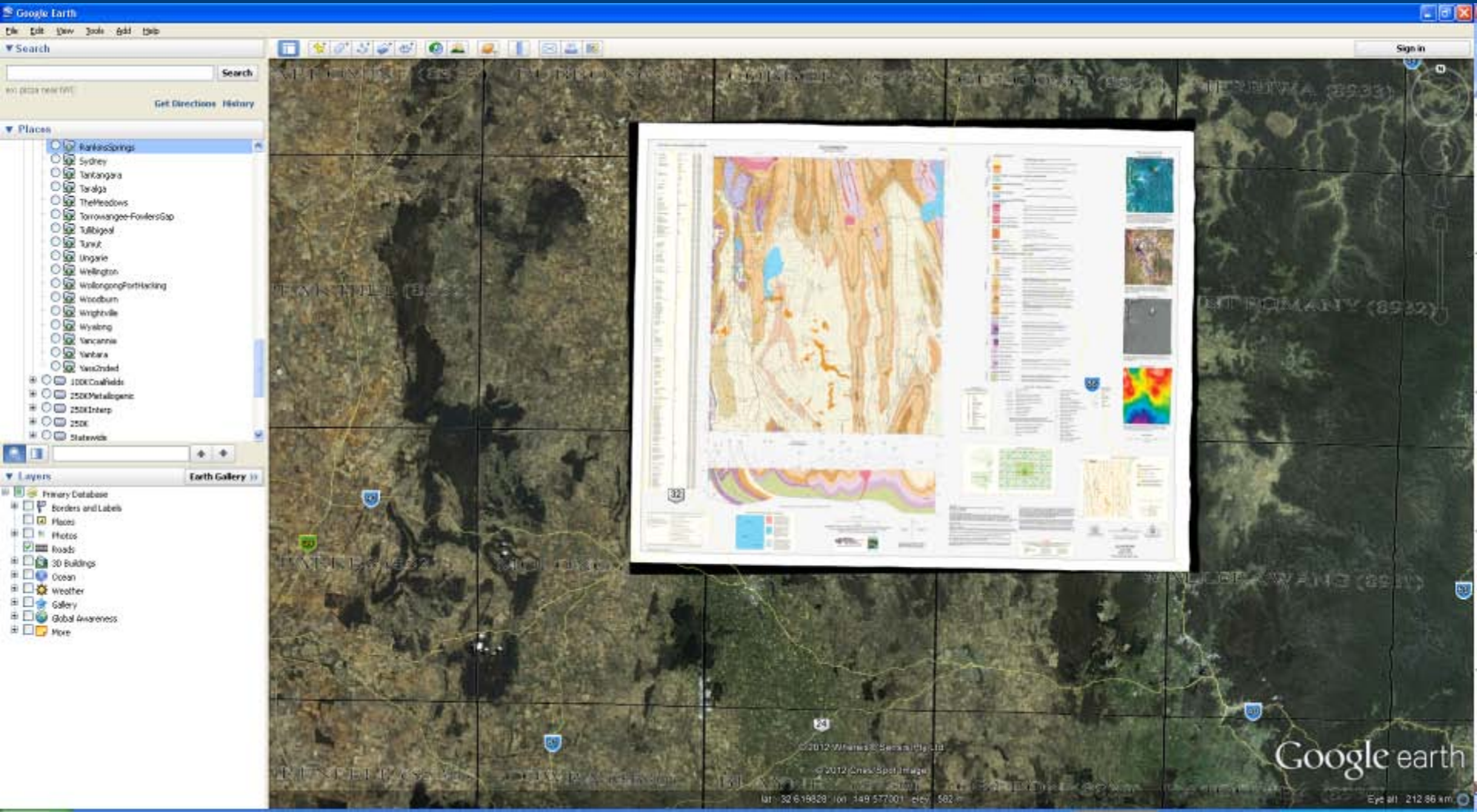
105179 - Golden Gully Area (Golden Gully Area includes; Union Shaft, Cosmopolitan Shaft, Fisher's Adit, Mosquito Adit, Dam Adit.)

- Coords: -33.021105,149.414360
- Commodity_type_id: 8
- Site_id: 105179
- F_prefix: OR
- F_no: 0023
- Met_no: 0197
- Previously_published_number: BA0046
- Geological_province: Lachlan Fold Belt
- Metallogenic_district: Hill End-Tambaroora
- Status: ceased
- Method_type: underground mine
- Prod_date: 1870-1880
- Length: 500
- Width: 0.89999997615814
- Depth: 60
- Deposit_dip_plunge: 80
- Deposit_dip_direction: 90
- Strike_lmap: 360
- Workings_desc: Large number of shafts, pits and adits in an area 500m x 200m, depths in excess of 50m.
- Relation_to_host: discordant
- Overall_style: multi-vein

© 2012 Wharfedale Ben's Pty Ltd
© 2012 China Spot Image
Image © 2012 GeoEye
lat: 32.896126 lon: 148.452605 elev: 793 m
Google earth
Eye alt: 13.22 km

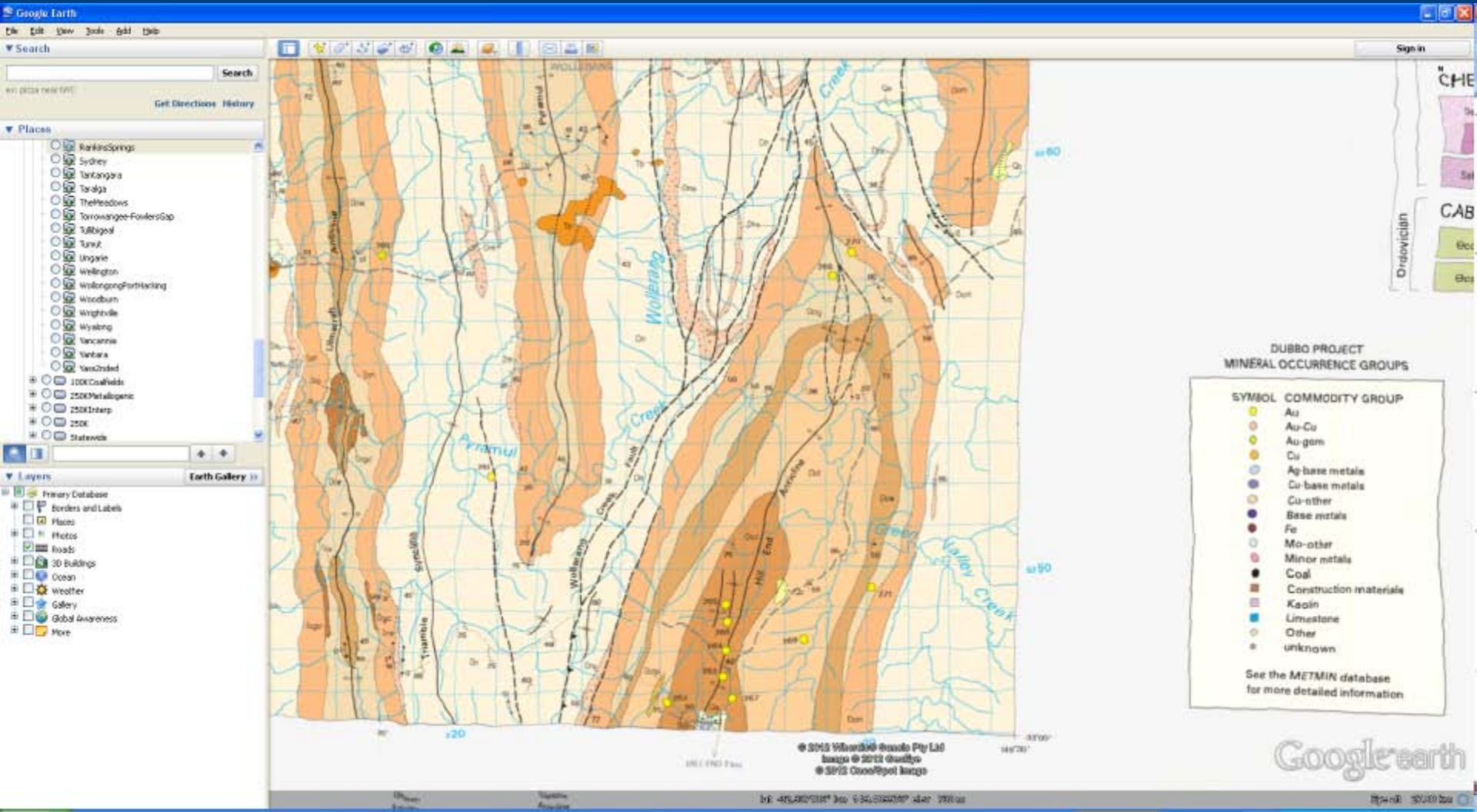
GSNSW maps

- Georeferenced



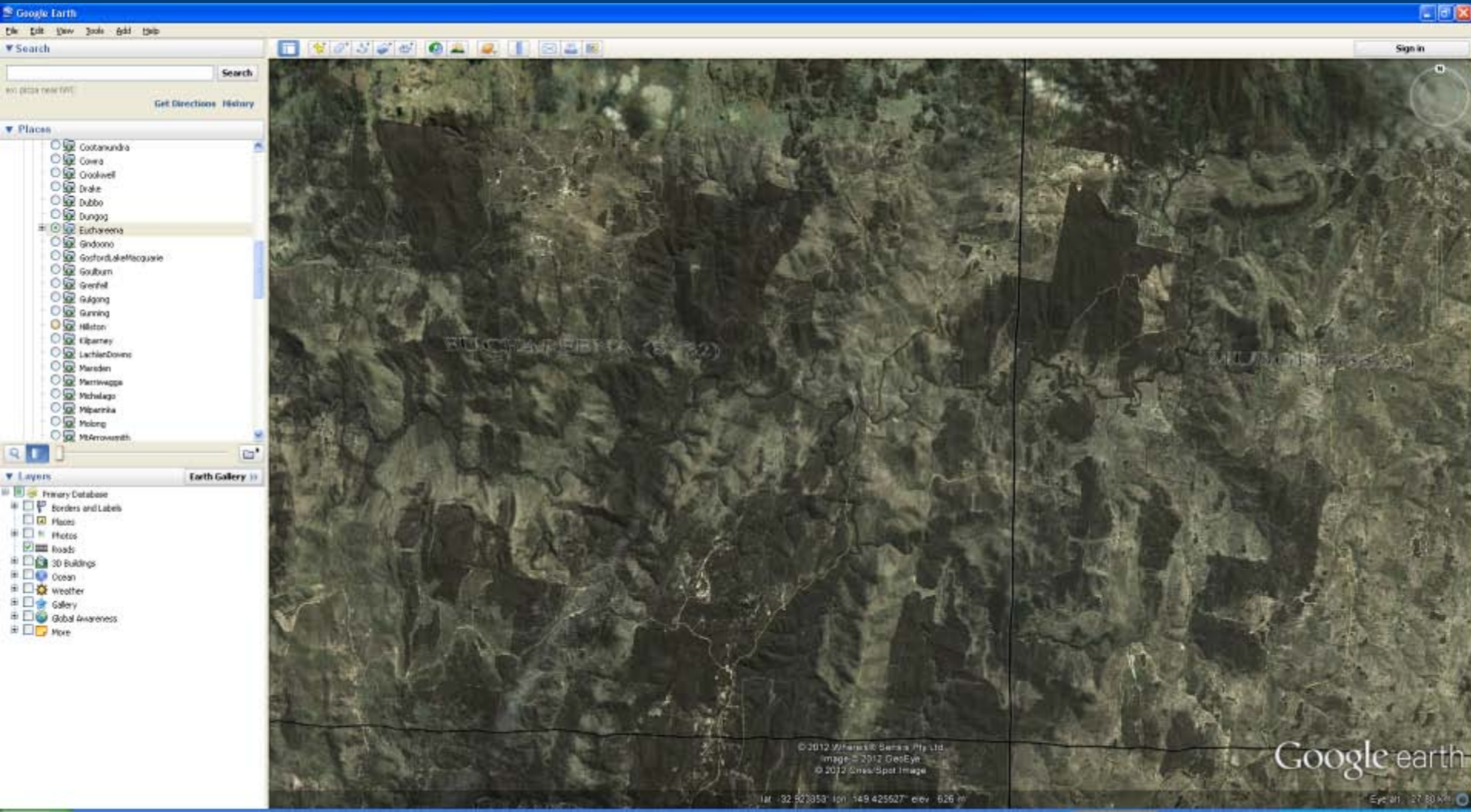
GSNSW maps

- Yep, useful to see geology ...



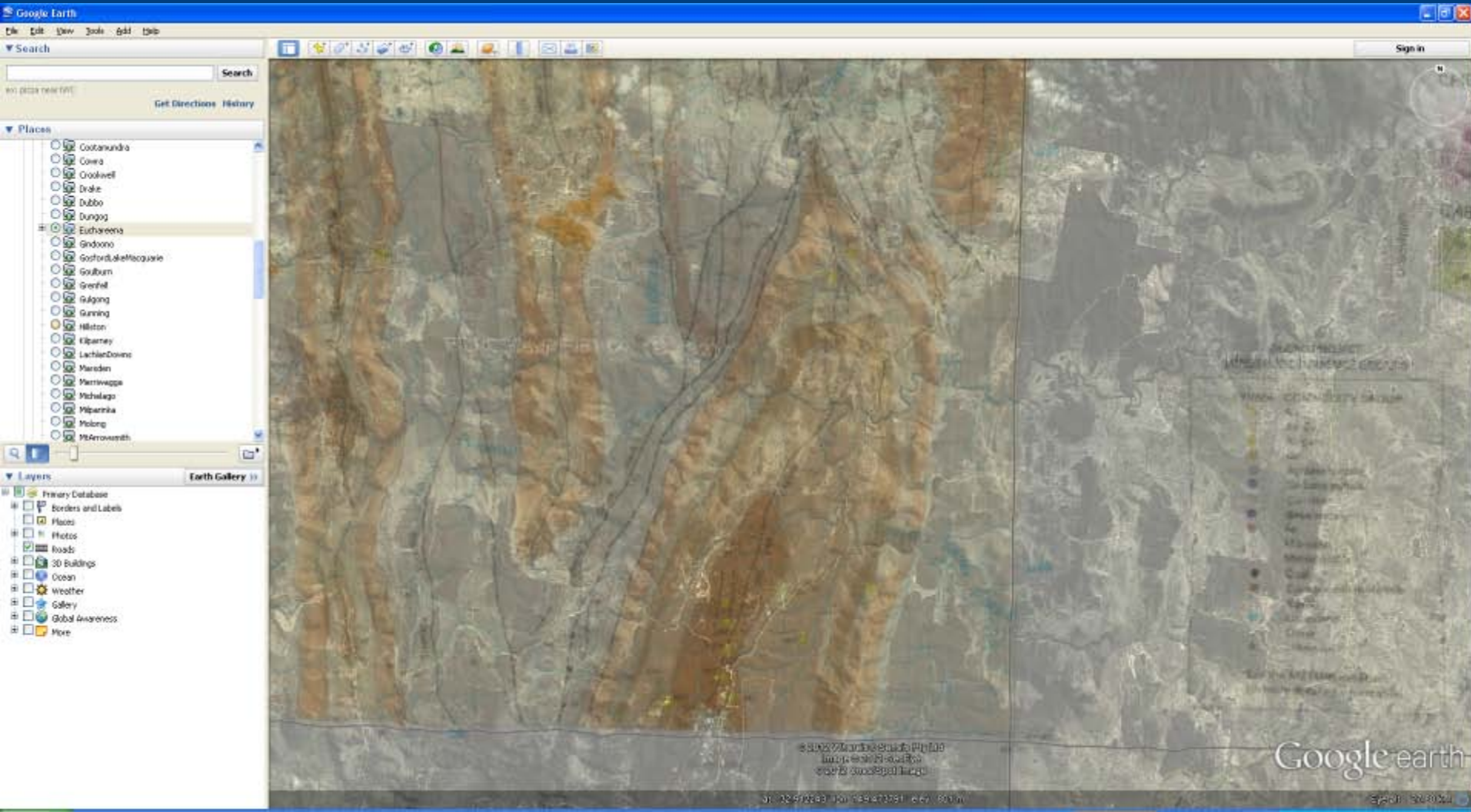
GSNSW maps

- And useful to see imagery ...



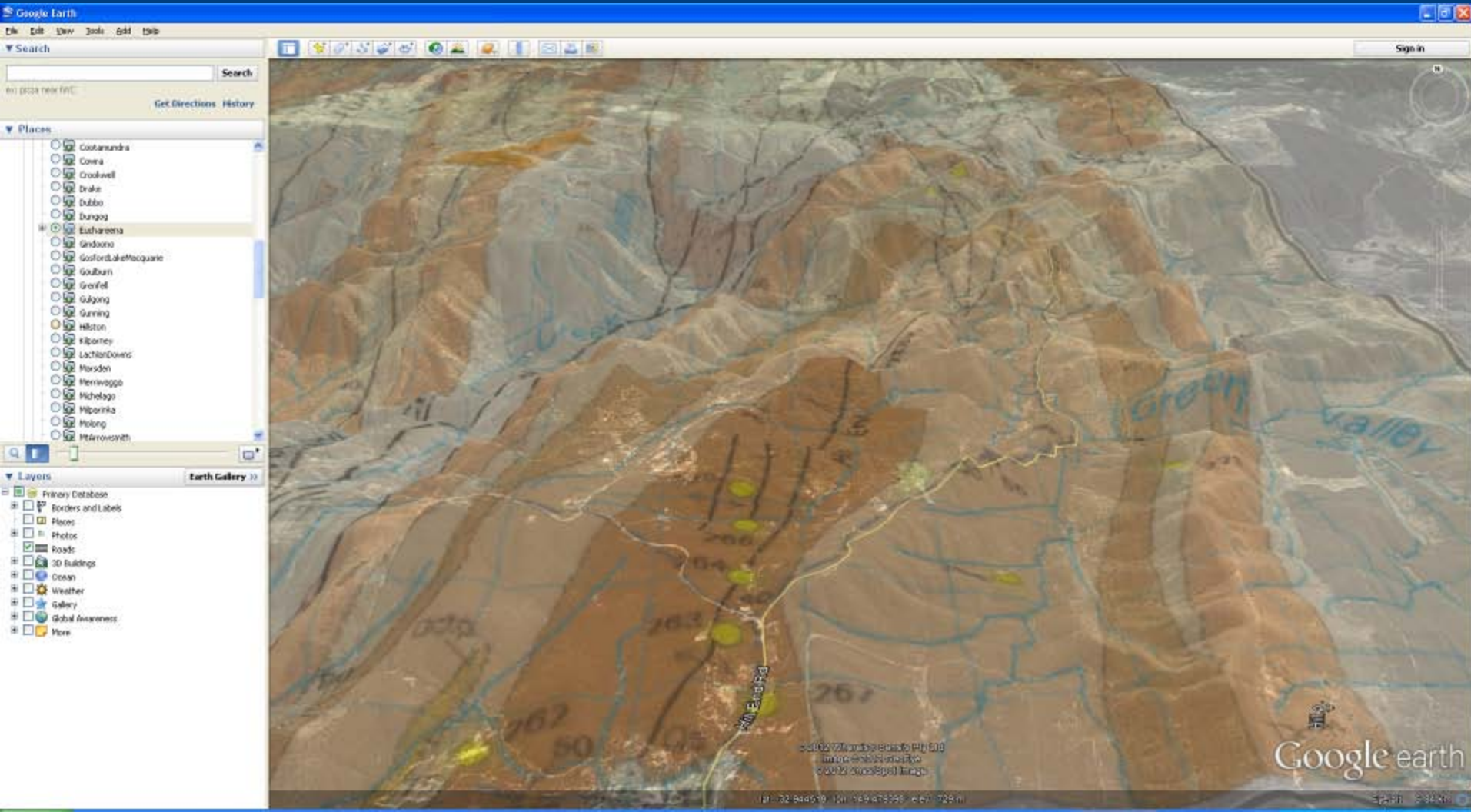
GSNSW maps

- Even better when transparency applied to maps ...



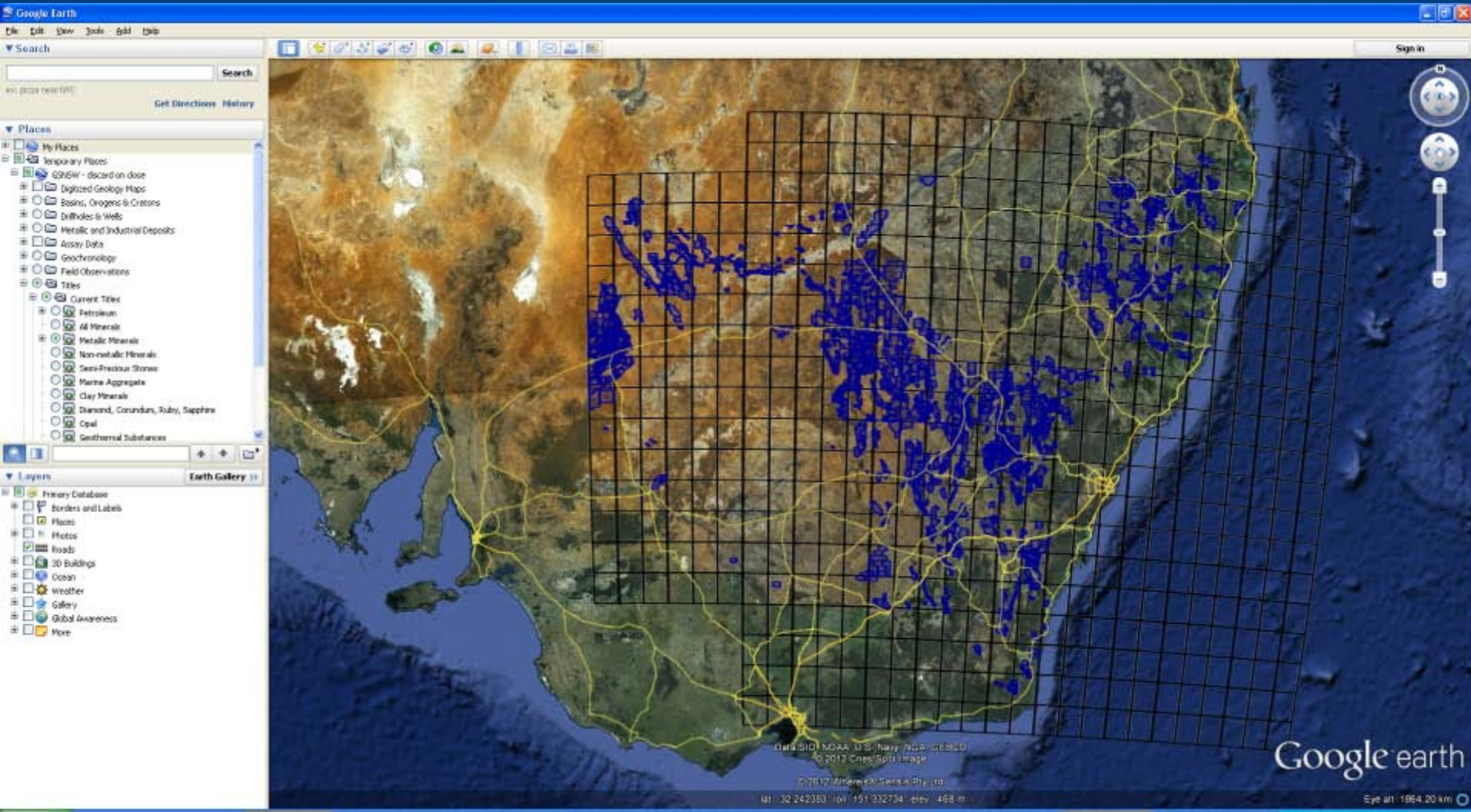
GSNSW maps

- And Google Earth tilting and zoom used



Titles

- By licence type



Titles

- Draped over topography with semi-transparent map
- Click for info

The screenshot shows the Google Earth interface. The main map displays a topographic view of a mountainous region with a semi-transparent map overlay. The overlay is a dark purple/blue color with white lines indicating boundaries. A yellow line represents a road, and a green line represents a river. The text 'Hill End Rd' and 'EL5868' are visible on the map. The left sidebar shows the 'Places' list with 'Eucharensia' selected. The 'Layers' panel shows various map layers like 'Primary Database', 'Borders and Labels', 'Places', 'Photos', 'Roads', '3D Buildings', 'Ocean', 'Weather', 'Safety', 'Global Awareness', and 'More'. The bottom right corner shows the 'Google earth' logo and coordinates: 'lat: -32.967366 lon: 149.443739 elev: 816 m'. The information window on the right is titled 'EL5868' and contains the following details:

EL5868 (1992 Act)

Company: HILL END GOLD LIMITED
Grant_date: 18 Jun 2001
Expiry_date: 17 Jun 2012
Last_renewed: Renewal Sought
Target: Group 1
Resource Type: MINERALS

Approval for ..
Metallic minerals (Group 1): antimony, arsenic, bismuth, cadmium, caesium, chromite, cobalt, columbium, copper, galena, germanium, gold, indium, iron minerals, lead, lithium, manganese, mercury, molybdenite, nickel, niobium, platinum group minerals, platinum, rare earth minerals, rubidium, scandium and its ores, selenium, silver, sulphur, tantalum, thorium, tin, tungsten and its ores, vanadium, zinc, zirconia

Links to more information on titles ..
Search for Tenement in DIGS: [EL5868](#)
Titles: <http://www.dpi.nsw.gov.au/minerals/titles>

Drill holes (open file only)

- And mineral drill holes added
- Click for info

MIN 10293 [View in Browser](#)

Drill Holes

MIN:10293

- Coords: -32.993257, 149.424303
- Program: Red Hill - Hill End
- Hole_name: RC08
- Title_type: EL
- Title_no: 6968
- Licencee: Hill End Gold Ltd
- Completed_dt: 2004-03-01

Core Library Intervals
...

Core Library Samples
...

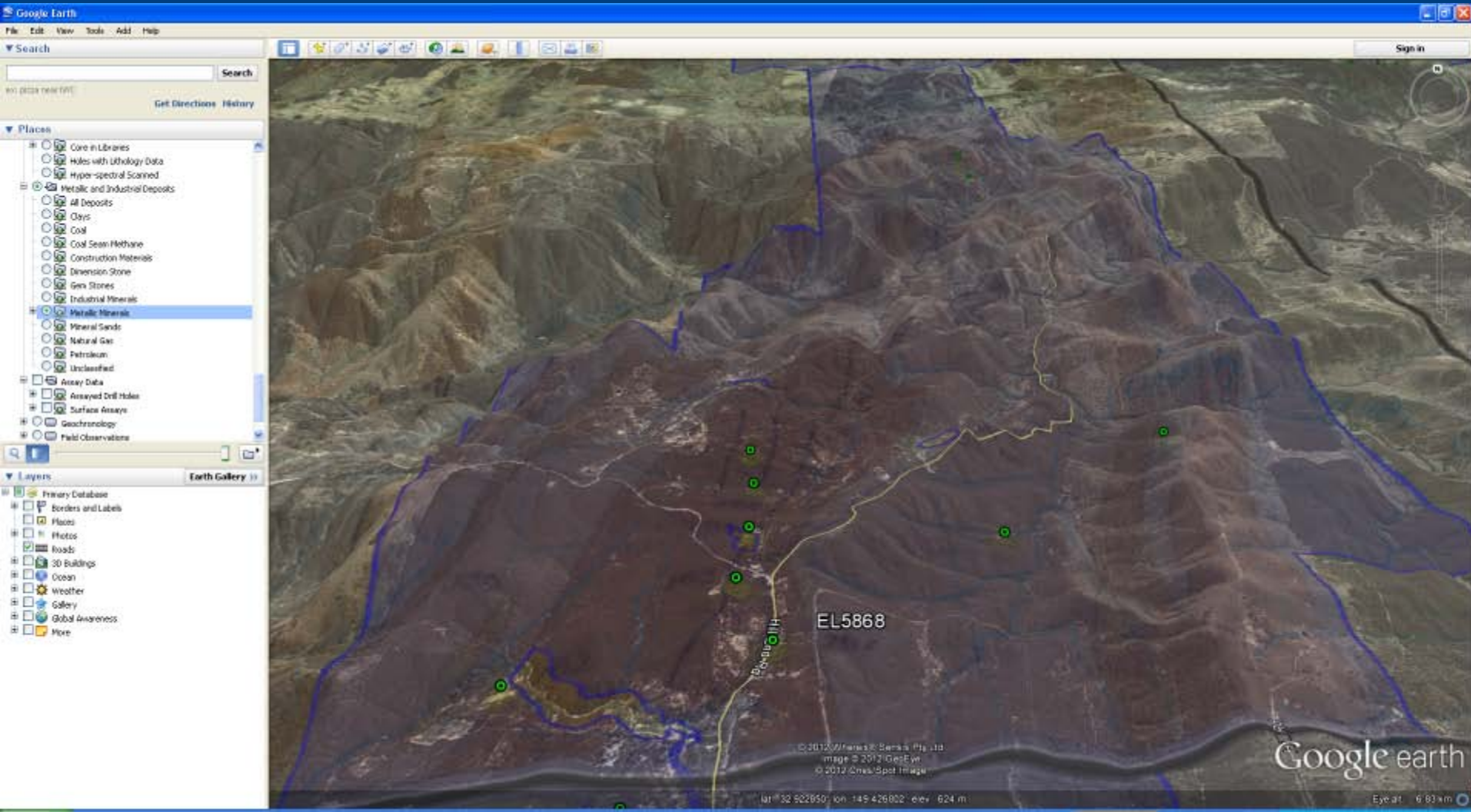
© 2012 Whereis® Sensa, Pty Ltd
Image © 2012 GeoEye
© 2012 Cnes/Spot Image

Google earth

lat: -32.976761 lon: 149.435394 elev: 838 m Eye alt: 6.814 m

Surface exploration geochemistry (open file)

- Rock chips



Downloads

GSNSW Data Warehouse - Mozilla Firefox

File Edit View History Bookmarks Tools Help

GSNSW Data Warehouse

dwh.minerals.nsw.gov.au/CI/warehouse?area=NSW

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Minerals and Petroleum

Trade & Investment
NSW GOVERNMENT
Resources & Energy

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DISCOVER OUR DATA

Our data in Google Earth

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- Assay results
- Drillholes and wells
- Field observations
- Geochronology
- Mineral occurrences


DOWNLOAD OUR DATA

All data sets

FEEDBACK & HELP

Downloads: CSV and GIS Formats

Settings for all downloads below

 The white rectangle shows your area of interest. All queries and downloads are restricted to this area. Click on the graphic to change the area.

Output format:

E-mail download link to:

Assay data

Drillholes

Drillhole types: Minerals Petroleum/CSG Coal

Field observations

Geochronology

Mineral occurrences and quarries

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Downloads – statewide, map or spatial search

The screenshot shows the GSNW Data Warehouse website in a Mozilla Firefox browser. The page title is "GSNSW Data Warehouse - Mozilla Firefox". The address bar shows the URL: `dwh.minerals.nsw.gov.au/CI/warehouse?minx=144.7119148&miny=-34.1981738&maxx=147.9638678&maxy=-31.015279`. The page header includes the "DIVISION OF RESOURCES AND ENERGY" logo and the text "Minerals and Petroleum". Below the header, there is a navigation menu with "Trade and Investment" and "Resources and Energy" links. The main content area is titled "Set Your Area of Interest" and "Area for Downloads and Queries". It features a map of New South Wales with a blue rectangular area selected. The map includes labels for various locations such as Cobar, Dubbo, Narromine, and Griffith. To the right of the map, there is a "Download Area" section with instructions on how to set the area using a mouse or a map sheet. A dropdown menu is open, showing a list of map sheet codes and their scales, with "ARALUEN 1:100000" selected. The page footer contains a "Privacy | Copyright | Disclaimer | Home" link and a "DOWNLOAD Google EARTH" button.

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FEEDBACK & HELP

Set Your Area of Interest

Area for Downloads and Queries

Download Area

The rectangle in the map to the left, shows the area that you currently have selected as the default area for downloads and displaying data. This area is also specified at the top left of this web page.

Set Area using your Mouse

Click the 'Area' button on the map, and move your mouse over your area of interest, while holding down the left mouse button.

Set Area to Map Sheet

Name:

or Code:

Set Area

[Click here](#)

Return to

- ALBURY 1:100000
- ANA BRANCH 1:250000
- ANGLEDPOOL 1:250000
- ARALUEN 1:100000**
- ARDLETHAN 1:100000
- ARMIDALE 1:100000
- ARUMPO 1:100000
- ASHFORD 1:100000
- BAAN BAA 1:100000
- BADEN PARK 1:100000
- BALLINA 1:100000
- BALRANALD 1:250000
- BALRANALD 1:100000
- BANCANNIA 1:100000
- BARADINE 1:100000
- BARE POINT 1:100000
- BARMEDMAN 1:100000
- BARNATO 1:100000
- BARNATO 1:250000

For search area – choose download format

The screenshot shows the GSNW Data Warehouse interface in a Mozilla Firefox browser. The page title is "Downloads: CSV and GIS Formats". A sidebar on the left contains navigation menus for "DISCOVER OUR DATA", "DOWNLOAD OUR DATA", and "FEEDBACK & HELP". The main content area is titled "Settings for all downloads below" and includes a map of New South Wales with a white rectangle indicating the search area. Below the map, there are dropdown menus for "Output format" and "E-mail download link to:", both of which are circled in red. The "Output format" dropdown is currently set to "CSV (spreadsheet)". Below these settings, there are sections for "Assay data", "Drillholes", "Field observations", "Geochronology", and "Mineral occurrences and quarries", each with a "Download" button. The "Drillhole types" section includes checkboxes for "Minerals", "Petroleum/CSG", and "Coal".

GSNSW Data Warehouse - Mozilla Firefox

File Edit View History Bookmarks Tools Help

GSNSW Data Warehouse

dwh.minerals.nsw.gov.au/CI/warehouse?minx=144.711914&miny=-34.198173&maxx=147.963867&maxy=-31.015279

Home | Intranet | NS... | GSNSW Data Wareh... | Home | NSW DPI Intra... | Google Maps | BBC SPORT | Most Visited | Getting Started | Latest Headlines | 128 km Newcastle Ra... | BEER AND BEAST

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Minerals and Petroleum

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Resources & Energy

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FEEDBACK & HELP

Downloads: CSV and GIS Formats

Settings for all downloads below

The white rectangle shows your area of interest. All queries and downloads are restricted to this area. Click on the graphic to change the area.

Output format: CSV (spreadsheet)

E-mail download link to: CSV (spreadsheet) nsw.gov.au

Assay data

Download

Drillholes

Download

Drillhole types: Minerals Petroleum/CSG Coal

Field observations

Download

Geochronology

Download

Mineral occurrences and quarries

Download

Geologic

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DOWNLOAD Google EARTH

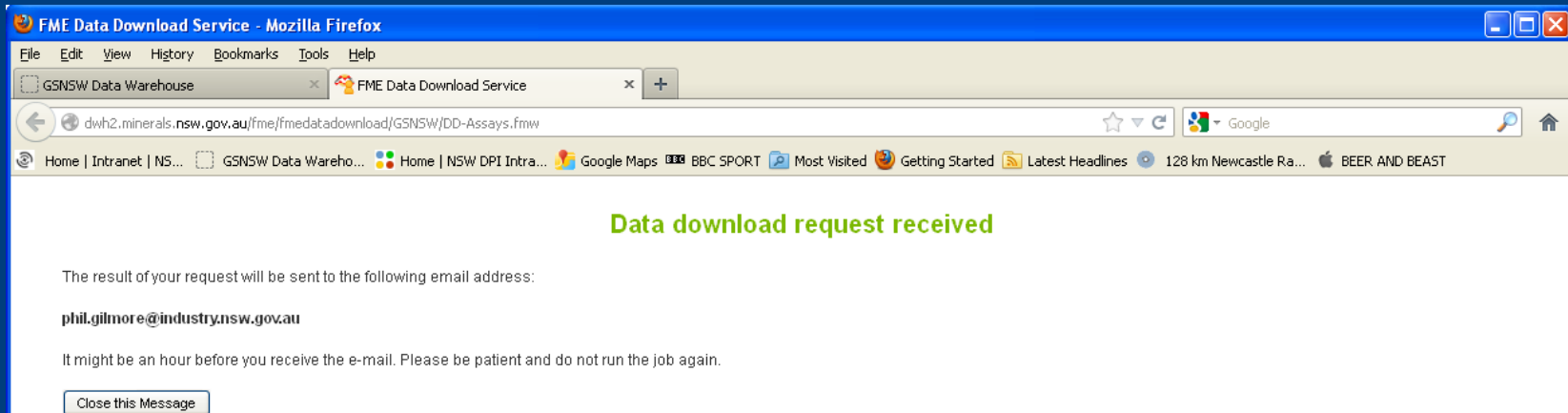
nt & Energy

Enter email address

The screenshot shows a web browser window with the following elements:

- Browser Title:** GSNW Data Warehouse - Mozilla Firefox
- Address Bar:** dwh.minerals.nsw.gov.au/CI/warehouse?area=NSW
- Page Header:** DIVISION OF RESOURCES AND ENERGY, Minerals and Petroleum, Trade & Investment Resources & Energy
- Left Navigation Menu:**
 - DISCOVER OUR DATA
 - Our data in Google Earth
 - Data sets
 - Assay results
 - Drillholes and wells
 - Field observations
 - Geochronology
 - Mineral occurrences
 - DOWNLOAD OUR DATA
 - All data sets
 - FEEDBACK & HELP
- Main Content Area:**
 - Downloads: CSV and GIS Formats**
 - Settings for all downloads below**
 - Map of NSW with a white rectangle indicating the area of interest.
 - Text: "The white rectangle shows your area of interest. All queries and downloads are restricted to this area. Click on the graphic to change the area."
 - Output format: SHAPE (any GIS)
 - E-mail download link to:** phil.gilmore@industry.nsw.gov.au (circled in red)
 - Assay data** [Download]
 - Drillholes** [Download]
Drillhole types: Minerals Petroleum/CSG Coal
 - Field observations** [Download]
 - Geochronology** [Download]
 - Mineral occurrences and quarries** [Download]

FME server processes your request – emails it



The screenshot shows a Mozilla Firefox browser window with the title "FME Data Download Service - Mozilla Firefox". The address bar displays the URL "dwh2.minerals.nsw.gov.au/fme/fmedatadownload/GSNW/DD-Assays.fmw". The main content area features a green heading "Data download request received". Below this, the text states: "The result of your request will be sent to the following email address: phil.gilmore@industry.nsw.gov.au". A follow-up message says: "It might be an hour before you receive the e-mail. Please be patient and do not run the job again." At the bottom of the message is a button labeled "Close this Message".

Data download request received

The result of your request will be sent to the following email address:

phil.gilmore@industry.nsw.gov.au

It might be an hour before you receive the e-mail. Please be patient and do not run the job again.

[Close this Message](#)

Email received with .zip file of data

The screenshot shows an IBM Lotus Notes application window titled "GSNSW - ZIP File Created - IBM Lotus Notes". The interface includes a menu bar (File, Edit, View, Create, Actions, Tools, Window, Help) and a toolbar with various icons. The email content is as follows:

GSNSW - ZIP File Created
From: **geoinfo.admin** to: phil.gilmore
Cc: geoinfo.admin
Date: 05/10/2012 08:43 AM
[Show Details](#)

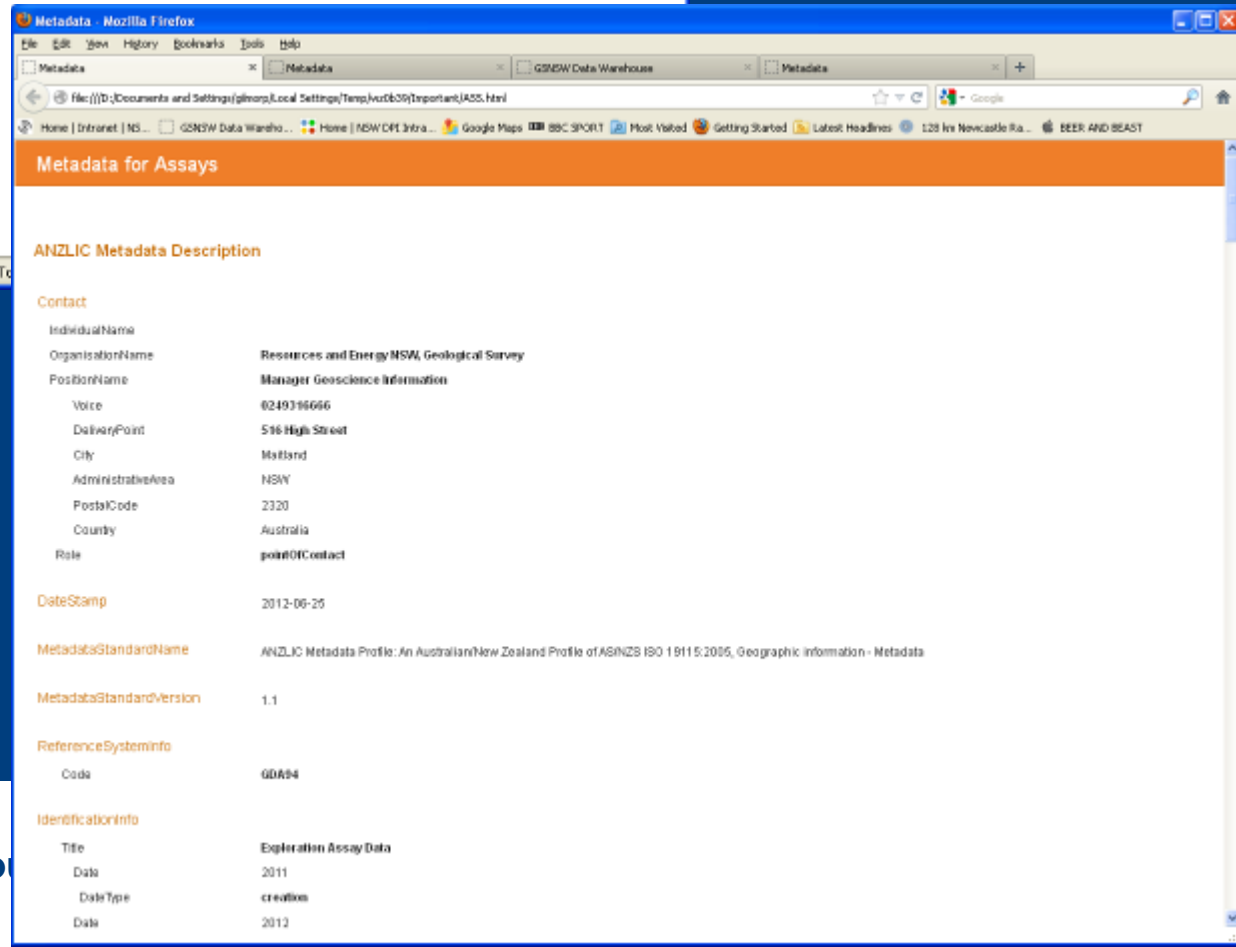
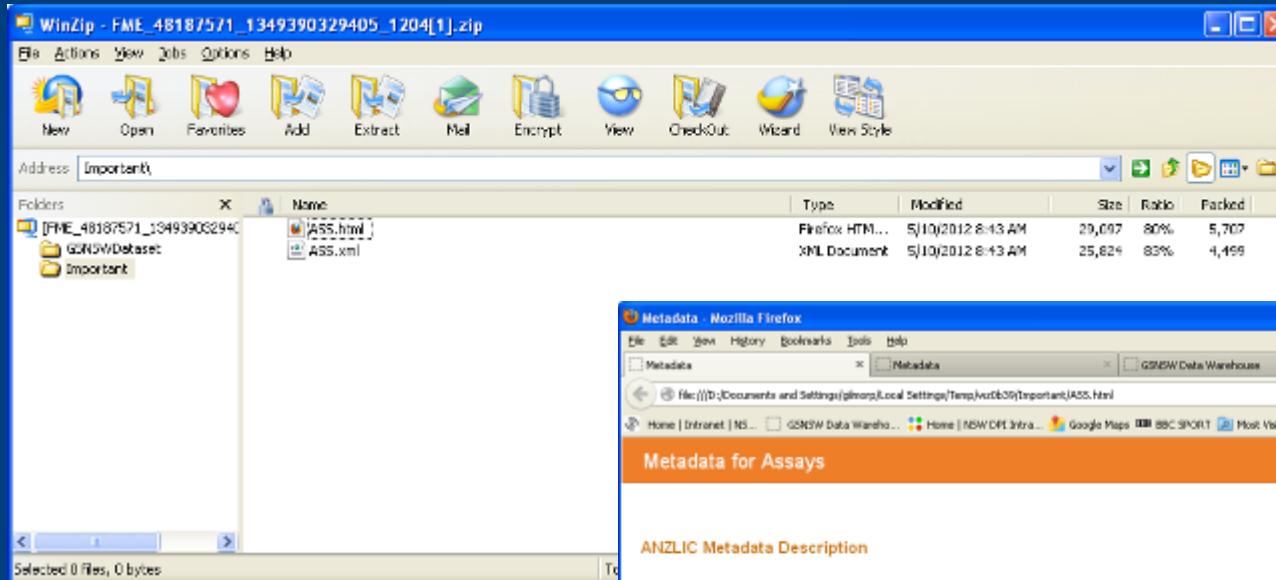
Transformation job 81 succeeded. Click here to download the result:
http://dwh2.minerals.nsw.gov.au/fme/fmedatadownload/results/FME_48187571_1349390329405_1204.zip

A "File Download" dialog box is open in the foreground, asking "Do you want to open or save this file?". The dialog displays the following information:

- Name: FME_48187571_1349390329405_1204.zip
- Type: WinZip File
- From: dwh2.minerals.nsw.gov.au

The dialog has three buttons: "Open", "Save", and "Cancel". At the bottom, there is a warning message with a question mark icon: "While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. [What's the risk?](#)"

Metadata – good idea to read!



This example is for (surface, drill hole) assay data

WinZip - FME_48187571_1349390329405_1204[1].zip

File Actions View Jobs Options Help

New Open Favorites Add Extract Mail Encrypt View CheckOut Wizard View Style

Address: GSNSWDataset\

Name	Type	Modified	Size	Ratio	Packed
DG_DGC_DATA.csv	Microsoft Of...	5/10/2012 8:43 AM	22,200,...	90%	2,252,...
DG_DGC_SAMPLE.csv	Microsoft Of...	5/10/2012 8:43 AM	3,974,218	91%	356,179
DG_GCH_META_HOLE.csv	Microsoft Of...	5/10/2012 8:43 AM	103,379	92%	8,575
DG_GCH_META_SURF.csv	Microsoft Of...	5/10/2012 8:43 AM	151,588	92%	11,677
DG_LOC_DATA.csv	Microsoft Of...	5/10/2012 8:43 AM	1,641,835	89%	187,615
DG_LOC_META.csv	Microsoft Of...	5/10/2012 8:43 AM	14,627	94%	853
DG_RPT_CODE_HOLE.csv	Microsoft Of...	5/10/2012 8:43 AM	41,957	85%	6,471
DG_RPT_CODE_SURF.csv	Microsoft Of...	5/10/2012 8:43 AM	41,802	84%	6,671
DG_RPT_GENERAL_HOLE.csv	Microsoft Of...	5/10/2012 8:43 AM	53,541	80%	10,882
DG_RPT_GENERAL_SURF.csv	Microsoft Of...	5/10/2012 8:43 AM	49,756	78%	10,867
DG_SGC_DATA.csv	Microsoft Of...	5/10/2012 8:43 AM	20,084,...	88%	2,372,...
DG_SGC_SAMPLE.csv	Microsoft Of...	5/10/2012 8:43 AM	6,791,012	88%	832,156
DG_SVY_DATA.csv	Microsoft Of...	5/10/2012 8:43 AM	842,755	94%	48,123
DG_SVY_META.csv	Microsoft Of...	5/10/2012 8:43 AM	7,569	91%	672

Folder: GSNSWDataset Total 16 files, 54,740KB

Drillholes – NVCL (hylogger) core

The image is a screenshot of a Google Earth application window. The main view is a satellite image of a mining site. A white arrow points from a location on the map to a photo overlay. The photo overlay shows a vertical column of dark, layered rock samples, likely a drill core. A metadata window is open over the photo, displaying the following information:

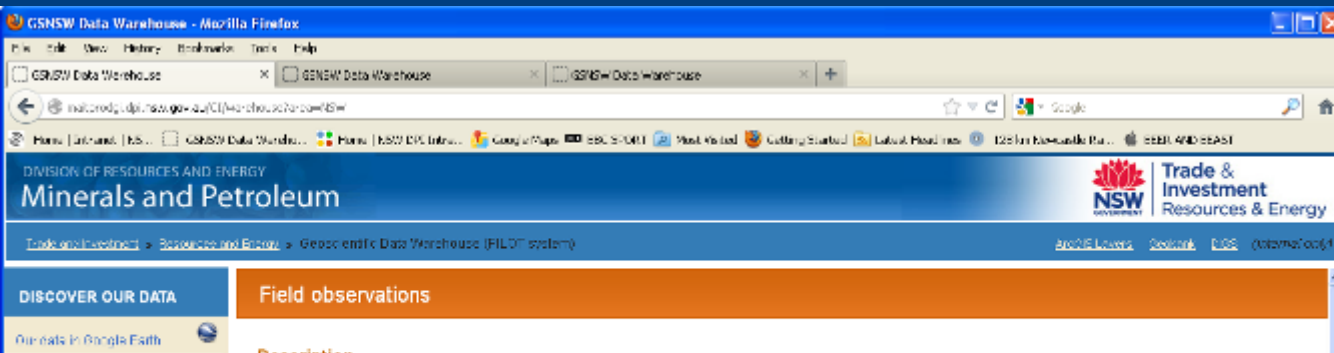
- Filename: DrillholeMCCMPL_40474a.jpg
- Title: Mount Allen Gold Mine DH-PMA-7: Drill Hole Mosaic
- Caption: Mosaic image of core trays from DH-PMA7 (trays 1-3 - the first row)
- Photographer: MC Clelland
- Taken: 2012-07-31
- Category: drillcore
- System: drillhole
- Color: MN_4044

The Google Earth interface includes a search bar, a left sidebar with 'Places' and 'Layers' panels, and a bottom taskbar with various application icons. The Google Earth logo and '© 2012 Google' are visible in the bottom right corner of the map area.

Thanks !

Field Observations

- Collection of geoscience observation and measurements
- Field and office use
 - Synchronise MS Access version in / out of GeoBank



Field observations

Description
Biological field observations have been recorded, mainly by the Geological Survey of New South Wales.

Data description
FieldObs metadata

GBIS
Upload field data to GBIS
Download FieldObs MDR

Retrieve field observations

Project:
Geological:

 The white rectangle shows your area of interest. All queries and downloads are restricted to this area. Click on the graphic to change the area.

Codes
(Internal use only)
Choose:



Field Observations

Microsoft Access - [Field Obs Data Entry]

Project **OXCO** Geologist **PJG** Site **0645** [Create New Site](#) FieldObs version 1.11.30

Site Details | Structure | **Lithology** | Petrophysics

Lithology Descriptions

Number	Lithology	Qualifier	Morphology
01	Clastic sedimentary rock	Meta	

Magnetic Susceptibility for Selected Lithology

Updated 30/10/2011

Instrument **SM30** Unit **10exp-3 SI** Weathering **slightly weathered**

Notes

Instrument Readings					Auto-calculated Values (10 ⁻⁵)							
0.152	0.117	0.099	0.126	0.139	Number	5	Mean	12.66	Min	9.9	Max	15.2

Radioelements for Selected Lithology

Instrument **Potassium** Count **Uranium** Count **Thorium** Count

Minutes **Total Count** Spectra? % **PPM** **PPM** **PPM**

Notes

Density for Selected Lithology

Method **Saturation** Density

Operator **Lab**

Notes

First Record <<< Skip < Previous Next > Skip >>> Last Record Go to Record: **647** Lith Summary Undo Show Toolbars

Instrument used to measure magnetic susceptibility, e.g. SM30

Field Observations

GSNSW Data Warehouse - Mozilla Firefox

mailprodgi.dpi.nsw.gov.au/CI/warehouse?area=NSW

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Trade and Investment > Resources and Energy > Geoscientific Data Warehouse (PILOT system) ArcGIS Layers Geobank DIGS (internal only)

Field observations

Description

Geological field observations have been recorded, mainly by the Geological Survey of New South Wales.

Data description

[FieldObs metadata](#)


GBIS

[Upload field data to GBIS](#)
[Download FieldObs MDB](#)

Retrieve field observations

Project:

Geologist:

 The white rectangle shows your area of interest. All queries and downloads are restricted to this area. Click on the graphic to change the area.

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Field observations

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OXCO - PJG0119



Exposure in rail cut, with hammer for scale
PJ Gilmore (2011-05-25)

- **Observed:** May 25 2011
- **Coords:** -31.558767,146.543410 ([GMaps](#)/[GEarth](#))
- **Accurlocn:** GPS located
- **Stratigraphy:** Girilambone Group
- **Locality:** Rail cut east of flyover on Barrier Hwy
- **Context:** Sequence of interbedded on 0.5 to 1 m scale qtz rich meta sand and micaceous phyllites. Minor qtz veins. Cherty float - sil altn ? - but non seen in outcrop. Strog foliatiin trending 350. Samole of sil musddy unit collected
- **Outcrop:** road/rail cutting
- **Weathering:** moderately weathered

Siltstone

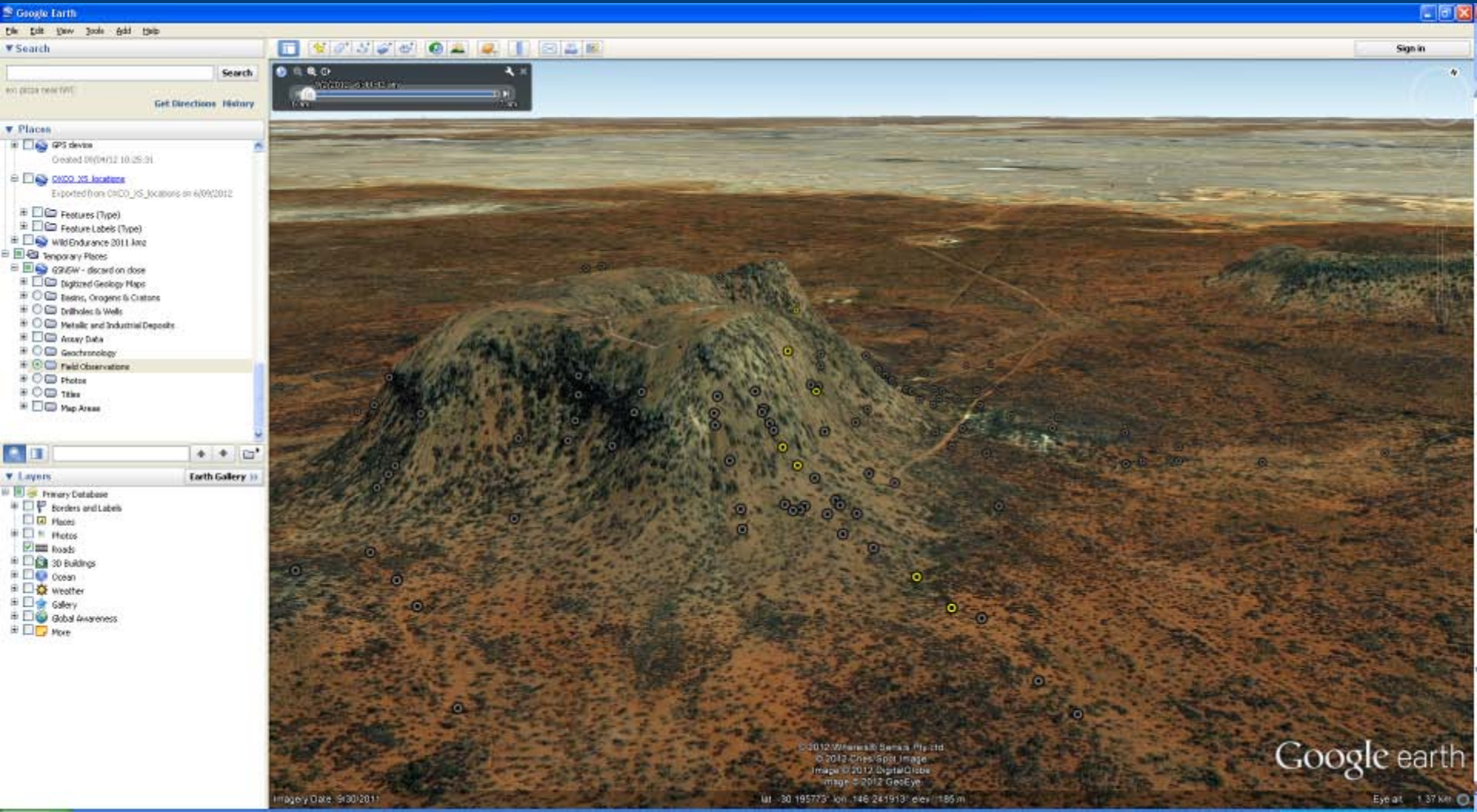
- **Lithqualif:** Meta
- **Morphology:** bed
- **Msinstr:** SM30
- **Ms_unit:** 10exp-3 SI
- **Weathering:** moderately weathered
- **Mssamples:** 5
- **Msmeansi5:** 2.5
- **Msminsi5:** 0.3
- **Msmaksi5:** 3.7

Struct #1 - Foliation

- **Structure2:** Cleavage inclined
- **Generation:** Unknown
- **Measure:** Plane:dip & dip azimuth
- **Plungedip:** 72
- **Azimuth:** 350

ment
es & Energy

Field observations



Field observations

The image shows a Google Earth interface with a 3D terrain view of a hilly, arid landscape. A popup window titled "OXCO - P.JG067" is open, displaying field observation data. The popup includes a small image of a rock outcrop, a description of the observation, and a list of metadata.

OXCO - P.JG067

Looking north at exposure in creek channel
At Gissau (2012-05-31)

- Observed: May 31 2012
- Coordinates: -30.23196, 146.247213
- Accuracy: GPS located
- Stratigraphy: Unlabeled unit
- Local ID: Creek channel
- Feature: 1
- Context: Fair exposure of heavily quartzitic metasediments and silicified sandy silt. Well exposed with foliation overall east west striking and dipping south. Some foliation obscured by rubble from riverbank. Bedding cleavage parallel. Further exposure for 25m up and 10m down drainage.
- Outcrop: In situ outcrop
- Weathering: Moderately weathered

Addresses

- Uffersvick: 146

Image Date: 8-30-2011
lat: -30.195773, lon: 146.241913, elev: 155 m
Eye alt: 1.37 km

Field observations

GSNSW Data Warehouse - Mozilla Firefox


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metrodg.dpi.nsw.gov.au/warehouse/spot/fieldobs/?project=OXCO&site_id=PJG0867

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OXCO - PJG0867



Looking south at exposure in creek channel
PJ Ollmore (2012-05-31)

- **Observed:** May 31 2012
- **Coords:** -30.201198,148.247272
- **AccuLocn:** OPG located
- **Stratigraphy:** Unknown unit
- **Locality:** Creek channel
- **Keysite:** 1
- **Context:** Poor exposure of muddy quartz-rich metasediments and silicified sandy unit. Well cleaved with foliation overall east west striking and dipping south. Some folding but obscured by rubble from mountain. Bedding cleavage parallel. Further exposure for 25m up and 10m down drainage.
- **Outcrop:** In-situ outcrop
- **Weathering:** moderately weathered

Sandstone

- **Lithqualif:** Meta
- **Morphology:** bed
- **Msmstr:** SK30
- **Ms_unit:** 10exp-2 SI
- **Weathering:** moderately weathered
- **Mssamples:** 3
- **Msmeanst5:** 1.200000000000
- **Msmintst5:** 0.8
- **Msmaxst5:** 1.7

Sample OXCO PJG0867 01A

- **Lithology:** Sandstone
- **Lithqualif:** Meta
- **Morphology:** bed
- **Purpose:** Micropalaeontology
- **Comments:** 2x very hopeful samples of siliceous sand

Mudstone

- **Lithqualif:** Meta
- **Morphology:** bed

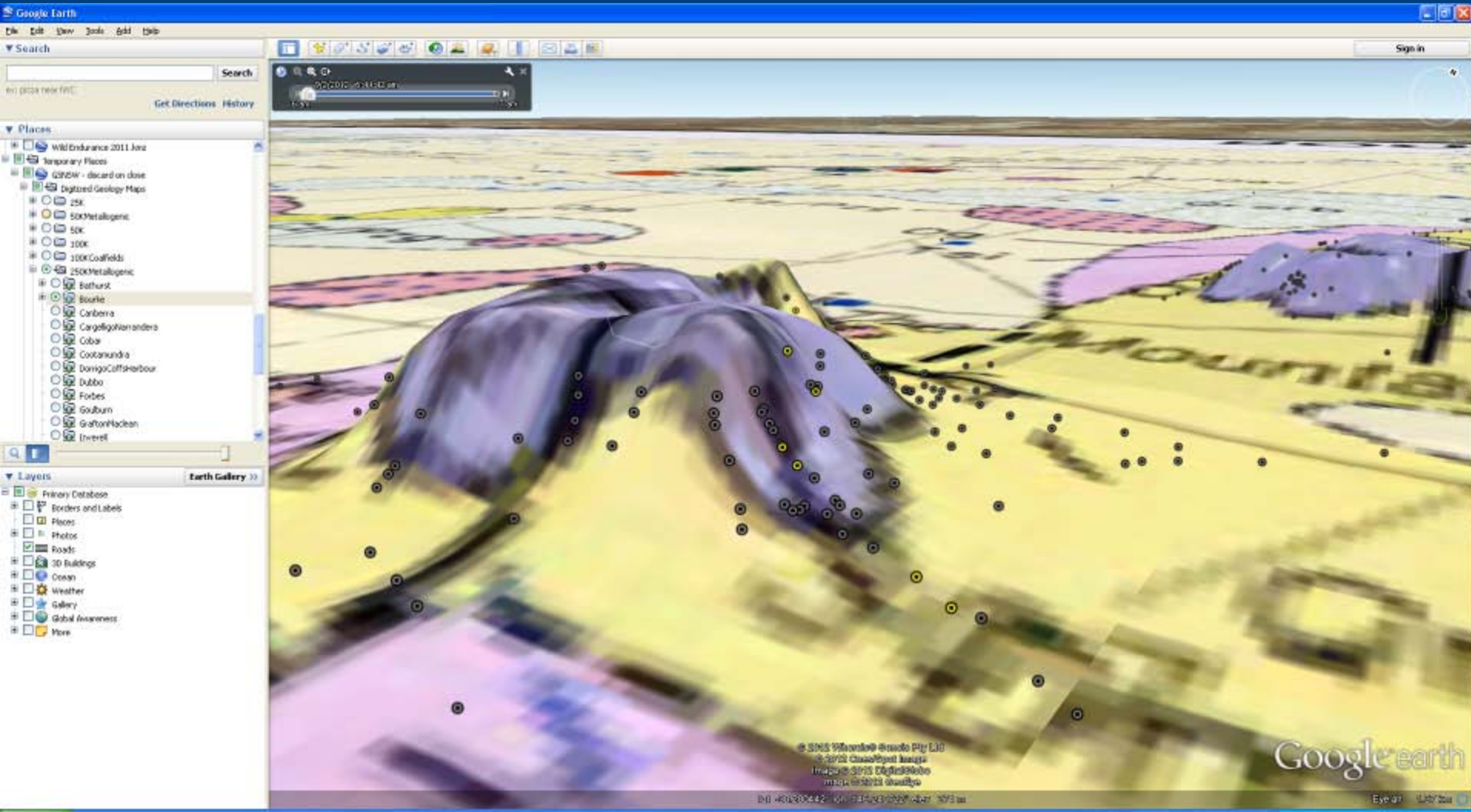
Struct #1 - Foliation

- **Structure2:** Cleavage inclined
- **Measure:** Plane dip & dip azimuth
- **Plunge/dip:** 60
- **Azimuth:** 210

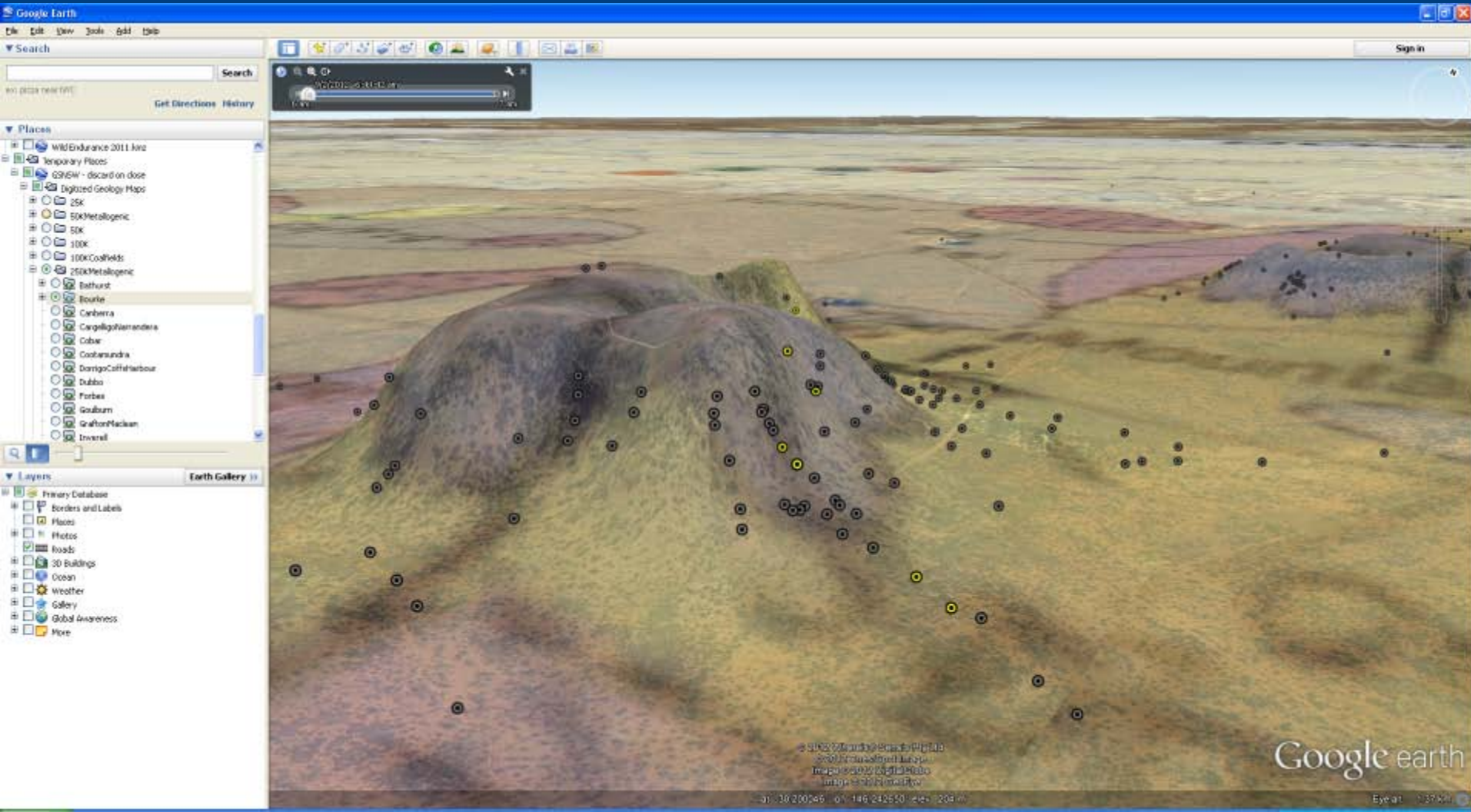
Field observations



Field observations and GSNNSW maps



Field observations and GSNW maps



Mobile Apps - geology

GSNSW Data Warehouse - Mozilla Firefox

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Mobile Apps

FEEDBACK & HELP

Mobile Apps

NSW Geology Map for Smart Phones & Tablets

Summary

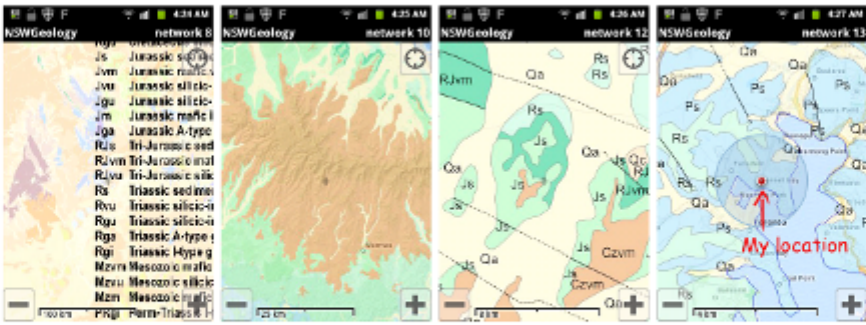
The NSW Geology map has been processed using the [Mobile Atlas Creator \(MOBAC\)](#) to produce a QML file that can be viewed using RMaps on Android phones and tablets and Galileo on iPhones and iPads. OpenStreetMap has been used as an underlay providing relief at low zoom levels as well as roads and towns. At zoom levels 11 and 12 geological symbols are displayed. A list of the symbol descriptions is available by zooming out to the view of whole of NSW. Note that the entire map is downloaded to your phone so that no internet connection is required. This means that wherever you are in NSW, if you have a GPS receiver on your phone, you can see what the underlying Geology is.

Total Downloads

NSWGeology.qmlitedb has been downloaded 15 times.

Screen Shots

level 7 - symbols list level 9 - geology & relief level 11 - faults & symbols any zoom - my location



Android Phones & Tablets - instructions

- > Install RMaps
- > Run RMaps (to create maps folder below) and then exit the app
- > Download NSWGeology.qmlitedb (163 MB) and copy to `rmaps/maps` on the microSD card of your Android phone