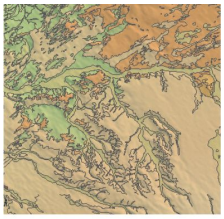
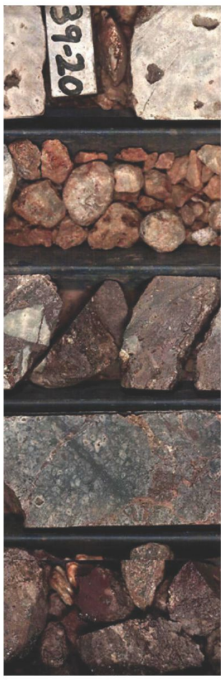
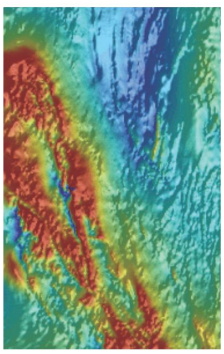




Department of State Development

Metadata: South Australian Mineralogical Data package - SWIR_GROUP_KAOLIN_uTSAS

Date Printed: 25/11/2016



Government of South Australia

Department of State Development

Dataset

Title: South Australian Mineralogical Data package - SWIR_GROUP_KAOLIN_uTSAS

Custodian: Department of State Development

Jurisdiction: South Australia

Description

Abstract:
The data package contains three sets of GOCAD™ 3D objects. Data assembled in the sets comprise complete spectral logs for all drillholes that have been scanned with the Hylogger™, a derived 1m down-sampled series of curves for a specific property, and an interpolated voxet for the same property.

Background

As part of the AuScope National Virtual Core Library (NVCL) program, the Geological Survey of South Australia (GSSA) acquired a HyLogger™ spectral core scanner developed and supported by CSIRO Exploration and Mining. The GSSA is in the process of scanning the State drill-core collection, obtaining spectral data and linescan images. To date ~210 km of core from 852 drill holes have been scanned (Figure 1). At present HyLogger™ data is available as The Spectral Geologist™ (TSG) files, continuous linescan images, summary histograms and basic text files. Data are accessible either via the AuScope Discovery portal (http://portal.auscope.org/portal/gmap.html) or via the South Australian Resource Information Geoserver (SARIG) (https://sarig.pir.sa.gov.au/Map).

A complementary data set has been developed to meet the needs of a broader cross section of users. To achieve this:

1.A consistent and automated workflow for processing and storing the spectral data was developed

2.The entire South Australian archive as of April 2016 has received consistent reprocessing. The Level-1 HyLogger™ data prepared using TSG 7 and automated scripts has delivered a consistent format to enable whole of State analysis. [‘Level-1’ data refers to HyLogger data that has been processed to mask out non-core material from the spectral record. The term ‘User’ or ‘u’ as a prefix indicates that the mineral interpretation using the TSA library has received some attention from a specialist].

3.This data format will be made available through the South Australian Geological Survey web delivery services

A workflow was developed to export CSV files from the TSG software, perform a series of quality assurance procedures, and produce a CSV file that can be imported into a Microsoft Access 2010 database (Figure 2). A version of the data, down-sampled to one metre intervals, has been produced for the purpose of integrating spectral data into GOCAD™ and these enable analysis and assessment at various scales. To aid interpretation of this point data, 3D interpolations, in the form of voxets, are also available for download.

ANZLIC Search Terms:
GEOSCIENCES Hylogger, GEOSCIENCES Spectral, MINERALS Exploration

Geographic Extent Polygon: -280,000 mE, 7,360,000 mN; 1,248,000 mE, 7,360,000 mN; 280,000 mE, 5,652,000 mN; 1,248,000 mE, 5,652,000 mN;

North bounding latitude: 7,360,000 mN

South bounding latitude: 5,652,000 mN

East bounding longitude: -280,000 mE

West bounding longitude: 1,248,000 mE

Data Currency
Beginning Date: 2015-07-01

End Date: 2016-04-30

Dataset Status
Progress: Not known

Maintenance: As required

Version Number: 1

Access
Stored format: DIGITAL GOCAD data

Available format(s): DIGITAL GOCAD project and object files (.vo, .vs, .pl, .gp)

Access constraint(s): Data is not to be redistributed without approval from Authorisation Officer.

SARIG Layer(s): SARIG: Geology/3D Geological Model Areas

Data Quality
Lineage: Source data and lineage is summarised in table below.

Positional accuracy: Horizontal accuracy of the drillholes is variable due to the method of capture (map, handheld GPS, differential GPS, etc)

Attribute accuracy: Spectral attributes are based on interpretation of reflectance spectrums produced by the Hylogger™. Mineralogy determined by The Spectral Analyst are subject to alternative interpretations.

Contact Information
Contact organisation: Department of State Development

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Metadata Dates
Add date: 2016-11-15

Change date: 2016-11-25

Responsible Party

Responsible party: Program Leader, Geoscientific Information Management

Responsible party function: Custodian/Steward

Description

Dataset classification: Principal version

Spatial representation type: Matrix

Dimension: x,y,h

Sample Graphic(s)

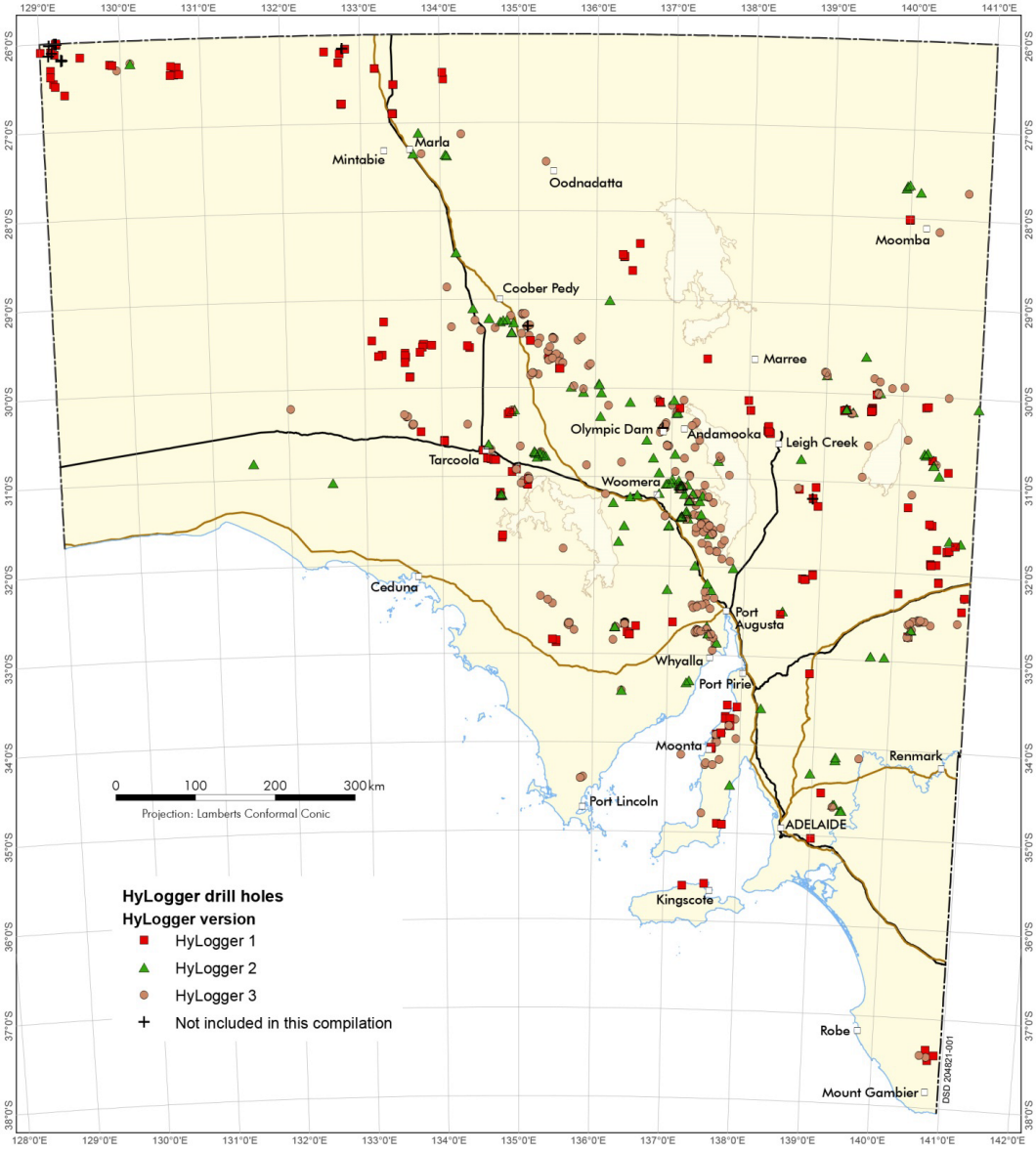

Figure 1: Location of drill holes in South Australia that have been scanned with various generations of the HyLoggerTM spectral

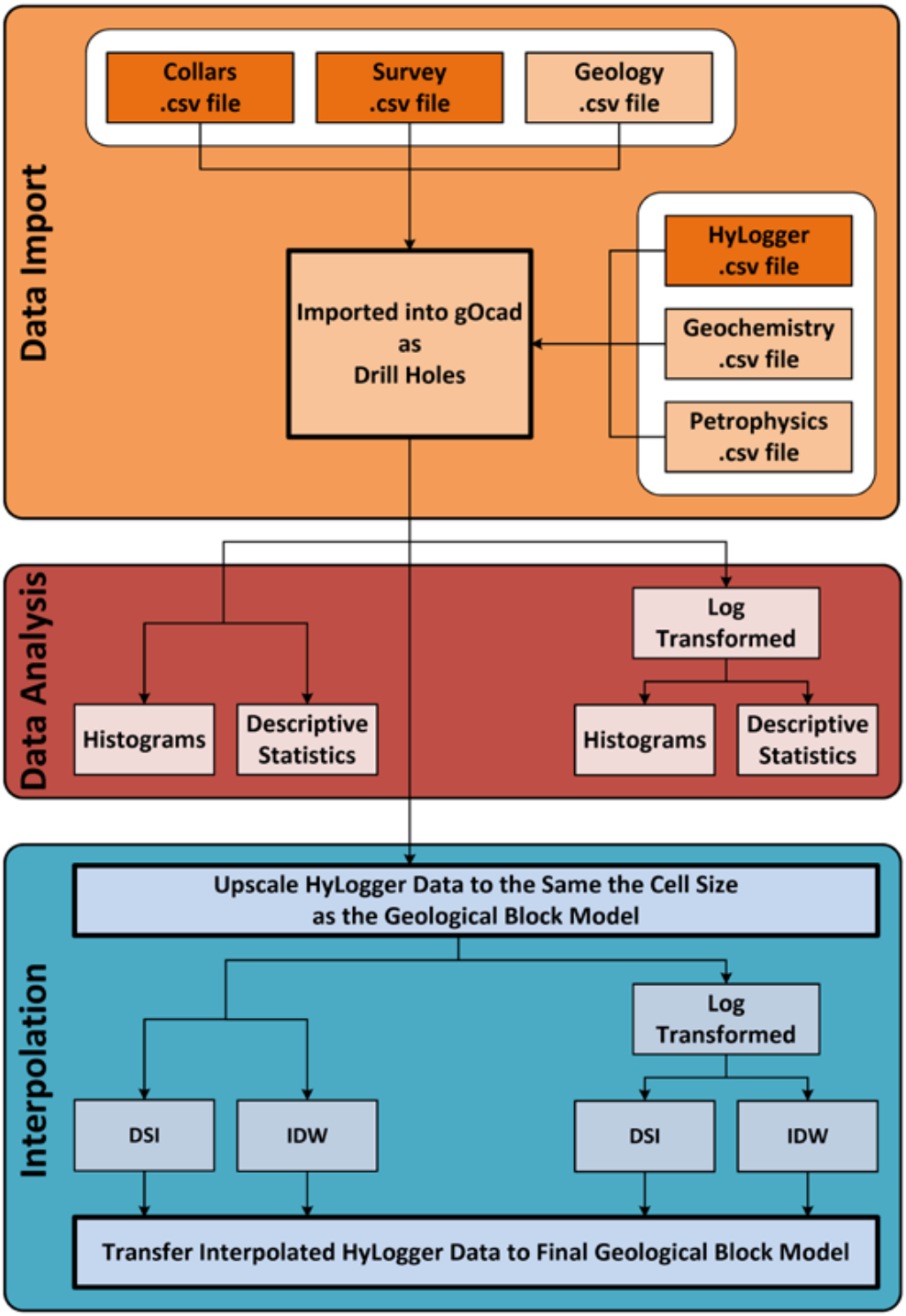

Figure 2: Processing workflow for spectral data in Gocad

File Name	Size	Type	Comments and data sources
HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet.vo	8 KB	Voxet	The spectral abundance for the SWIR kaolin group calculated by an Excel VBA macro form the TSG SWIR weights. sTSAS = system default active SWIR minerals and TSA algorithm settings. uTSAS = user defined active SWIR minerals and TSA algorithm settings. Values range from 0 (not identified) to 1 (only group identified). The list of minerals that makes up the SWIR kaolin group can be found in: ***van der Wielen SE, Fabris A.J, Mauger A.J, Gordon GA, Keeling JL and Giles D 2016. South Australian Spectral Database, Report Book 2016/00023. Department of State Development, South Australia, Adelaide.***
HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet__flags@@	337 MB		
HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_Distance_HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_points@@	674 MB		
HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_DSI@@	674 MB		
HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_DSI_LOG@@	674 MB		
HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_IDW@@	674 MB		
HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_IDW_LOG05@@	674 MB		
HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_IDW_LOG10@@	674 MB		
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HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_IDW_LOG20@@	674 MB		
HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_IDW_LOG30@@	674 MB		
HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_HyLogger_SWIR_GROUP_KAOLIN_uTSAS_UpScale_Average_voxet_Original@@	674 MB		
SA_HyLogger_DrillHoles.gp	73.4 MB	Group (Drill Holes)	Drill holes containing spectral attributes gained from the Hylogger™
SA_HyLogger_DrillHoles__curves@@	332 MB		
SA_HyLogger_DrillHoles__zms@@	0.83 MB		
HyLogger_SWIR_GROUP_KAOLIN_uTSAS_curve.pl	15.6 MB	Curve	The spectral abundance for the SWIR kaolin group of minerals, down-sampled to one metre intervals, displayed as curves.

Figure 3: File desciptions

Usage

Purpose: 3D mineralogical data compilation of public domain data

Use: Geoscientific studies and mineral exploration.

Usage limitations: Interpretation of spectra may change depending of the software package or version used.

Dataset Associations

Dependant datasets: van der Wielen SE, Fabris AJ, Mauger AJ, Gordon GA, Keeling JL and Giles D 2016. South Australian Spectral Database, Report Book 2016/00023. Department of State Development, South Australia, Adelaide.

Ayling B, Huntington J, Smith B and Edwards D 2016. Hyperspectral logging of middle Cambrian marine sediments with hydrocarbon prospectivity: a case study from the southern Georgina Basin, northern Australia. Australian Journal of Earth Science http://dx.doi.org/10.1080/08120099.2016.1204625.

Halley S, Dilles JH and Tosdal RM 2015. Footprints: Hydrothermal alteration and geochemical dispersion around porphyry Copper copper deposits. Society of Economic Geologists (SEG) Newsletter 100:12–17.

Laukamp C, Cudahy T, Caccetta M, Chia J, Gessner K, Haest M, Liu YC and Rodger, A 2010. The uses, abuses and opportunities for hyperspectral technologies and derived geoscience information. Geo-computing 2010 Extended Abstracts, AIG Bulletin 51:73–76.

Laukamp C, Termin KA, Pejcic B, Haest M and Cudahy T 2012. Vibrational spectroscopy of calcic amphiboles - applications for exploration and mining. European Journal of Mineralogy 24:863–878.

Sonntag I, Laukamp C and Hagemann S 2012. Low potassium hydrothermal alteration in low sulfidation epithermal systems as detected by IRS and XRD: an example from the Co-O Mine, Eastern Mindanao, Philippines. Ore Geology Reviews 45:47–60.

van der Wielen SE, Fabris AJ, Halley SW, Keeling JL, Mauger AJ, Gordon, GA, Keeping T, Giles D and Hill SM 2013. An exploration strategy for IOCG mineral systems under deep cover. MESA Journal 71:18– 30.

Origin

Dataset size: 7.5 GB

Projection: UTM Zone 53

Datum: GDA94

Dataset Management

Attributes