

CLO_CobarPbZn_MineralPotentialMap.img

Raster Dataset



Tags

Cobar Pb-Zn, Cobar Superbasin, Cobar, posterior probability, mineral potential map, Central Lachlan Orogen, Zone 55W

Summary

Posterior probability raster (mineral potential map) created from the sum of the weights for the Cobar Pb-Zn mineral system.

Description

Posterior probability raster (mineral potential map) created from the sum of the weights for the Cobar Pb-Zn mineral system.

Credits

Dataset Authors:

Ford A.
Peters K.
Greenfield J.
Blevin P.
Downes P.
Fitzherbert J.

Use limitations

There are no access and use limitations for this item.

Extent

West 144.835378 **East** 148.459348
North -30.035729 **South** -36.242174

Scale Range

Maximum (zoomed in) 1:5,000
Minimum (zoomed out) 1:150,000,000

ArcGIS Metadata ►

Topics and Keywords ►

THEMES OR CATEGORIES OF THE RESOURCE geoscientificInformation

* CONTENT TYPE Downloadable Data

[Hide Topics and Keywords ▲](#)

Citation ►

* **TITLE** CLO_CobarPbZn_MineralPotentialMap.img
PUBLICATION DATE 2020-06-01 00:00:00

EDITION 1a
EDITION DATE 2022-08-24

PRESENTATION FORMATS * digital map

OTHER CITATION DETAILS

It is recommended that this dataset be referred to as:

Ford A., Peters K., Downes P., Blevin P., Greenfield J. and Fitzherbert J. 2020. Central Lachlan Orogen Mineral Potential Data Package version 1 [Digital Dataset]. Geological Survey of New South Wales, Maitland.

The data package was further modified in August 2022 to improve usability. No reinterpretation of the data was conducted. For further details refer to the 'README.txt' file in the root directory of the data package.

[Hide Citation ▲](#)

Citation Contacts ►

RESPONSIBLE PARTY

ORGANIZATION'S NAME Mining, Exploration and Geoscience, Department of Regional NSW
CONTACT'S POSITION Mineral Systems Manager
CONTACT'S ROLE custodian

CONTACT INFORMATION ►

ADDRESS

TYPE physical
DELIVERY POINT 516 High st
CITY Maitland
ADMINISTRATIVE AREA NSW
POSTAL CODE 2320
COUNTRY AU
E-MAIL ADDRESS minsys.info@geoscience.nsw.gov.au

ONLINE RESOURCE

LOCATION <https://www.regional.nsw.gov.au/meg>
NAME Mining, Exploration and Geoscience website
DESCRIPTION The website of the Department of Regional NSW, Mining, Exploration and Geoscience
FUNCTION PERFORMED information

[Hide Contact information ▲](#)

[Hide Citation Contacts ▲](#)

Resource Details ►

DATASET LANGUAGES * English (AUSTRALIA)
DATASET CHARACTER SET utf8 - 8 bit UCS Transfer Format

STATUS completed
SPATIAL REPRESENTATION TYPE * grid

* PROCESSING ENVIRONMENT Version 6.2 (Build 9200) ; Esri ArcGIS 10.4.0.5524

CREDITS

Dataset Authors:

Ford A.
Peters K.
Greenfield J.
Blevin P.
Downes P.
Fitzherbert J.

ARCGIS ITEM PROPERTIES

* NAME CLO_CobarPbZn_MineralPotentialMap.img
* LOCATION file:///D:/Mineral Potential Data Packages/Central Lachlan Orogen Mineral Potential Data Package/Cobar_PbZn/Prospectivity/CLO_CobarPbZn_MineralPotentialMap.img
* ACCESS PROTOCOL Local Area Network

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Extents ►

EXTENT

DESCRIPTION

The dataset covers the land areas of Central Lachlan Orogen in New South Wales, Australia.

EXTENT

GEOGRAPHIC EXTENT

BOUNDING RECTANGLE

EXTENT TYPE Extent used for searching

* WEST LONGITUDE 144.835378
* EAST LONGITUDE 148.459348
* NORTH LATITUDE -30.035729
* SOUTH LATITUDE -36.242174
* EXTENT CONTAINS THE RESOURCE Yes

EXTENT IN THE ITEM'S COORDINATE SYSTEM

* WEST LONGITUDE 305443.409845
* EAST LONGITUDE 631143.409845
* SOUTH LATITUDE 5989190.398900
* NORTH LATITUDE 6675540.398900
* EXTENT CONTAINS THE RESOURCE Yes

[Hide Extents ▲](#)

Resource Points of Contact ►

POINT OF CONTACT

ORGANIZATION'S NAME Mining, Exploration and Geoscience, Department of Regional NSW
CONTACT'S POSITION Mineral Systems Manager
CONTACT'S ROLE custodian

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FUNCTION PERFORMED information

[Hide Contact information ▲](#)

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Resource Maintenance ►

RESOURCE MAINTENANCE

UPDATE FREQUENCY unknown

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Resource Constraints ►

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Spatial Reference ►

ARCGIS COORDINATE SYSTEM

```
* TYPE      Projected
* GEOGRAPHIC COORDINATE REFERENCE  GCS_GDA_1994
* PROJECTION  GDA_1994_UTM_Zone_55S
* COORDINATE REFERENCE DETAILS
  PROJECTED COORDINATE SYSTEM
    X ORIGIN  -5120900
    Y ORIGIN  1900
    XY SCALE  450445547.3910538
    Z ORIGIN  -100000
    Z SCALE   10000
    M ORIGIN  -100000
    M SCALE   10000
    XY TOLERANCE  0.001
    Z TOLERANCE  0.001
    M TOLERANCE  0.001
    HIGH PRECISION  true
    WELL-KNOWN TEXT  PROJCS["GDA_1994_UTM_Zone_55S",GEOGCS
["GCS_GDA_1994",DATUM["D_GDA_1994",SPHEROID
["GRS_1980",6378137.0,298.257222101]],PRIMEM["Greenwich",0.0],UNIT
["Degree",0.0174532925199433]],PROJECTION["Transverse_Mercator"],PARAMETER
["false_easting",500000.0],PARAMETER["false_northing",10000000.0],PARAMETER
["central_meridian",147.0],PARAMETER["scale_factor",0.9996],PARAMETER
["latitude_of_origin",0.0],UNIT["Meter",1.0]]
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REFERENCE SYSTEM IDENTIFIER

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* VALUE  0
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[Hide Spatial Reference ▲](#)

Spatial Data Properties ►

GEORECTIFIED GRID ►

* NUMBER OF DIMENSIONS 2

AXIS DIMENSIONS PROPERTIES

DIMENSION TYPE column (x-axis)

* DIMENSION SIZE 6514

* RESOLUTION 50.000000 m (meter)

AXIS DIMENSIONS PROPERTIES

DIMENSION TYPE row (y-axis)

* DIMENSION SIZE 13727

* RESOLUTION 50.000000 m (meter)

* CELL GEOMETRY area

* POINT IN PIXEL center

* TRANSFORMATION PARAMETERS ARE AVAILABLE Yes

* CHECK POINTS ARE AVAILABLE No

CORNER POINTS

* POINT 305443.409845 5989190.398900

* POINT 305443.409845 6675540.398900

* POINT 631143.409845 6675540.398900

* POINT 631143.409845 5989190.398900

* CENTER POINT 468293.409845 6332365.398900

Hide Georectified Grid ▲

ARCGIS RASTER PROPERTIES ►

GENERAL INFORMATION

* PIXEL DEPTH 32

* COMPRESSION TYPE RLE

* NUMBER OF BANDS 1

* RASTER FORMAT IMAGINE Image

* SOURCE TYPE continuous

* PIXEL TYPE floating point

* NO DATA VALUE -3.4028231e+038

* HAS COLORMAP No

* HAS PYRAMIDS Yes

Hide ArcGIS Raster Properties ▲

Hide Spatial Data Properties ▲

Spatial Data Content ►

IMAGE DESCRIPTION

* TYPE OF INFORMATION image

BAND INFORMATION

* DESCRIPTION Layer_1

* MAXIMUM VALUE 0.282233

* MINIMUM VALUE 0.000000

* NUMBER OF BITS PER VALUE 32

TRIANGULATION HAS BEEN PERFORMED No

RADIOMETRIC CALIBRATION IS AVAILABLE No
CAMERA CALIBRATION IS AVAILABLE No
FILM DISTORTION INFORMATION IS AVAILABLE No
LENS DISTORTION INFORMATION IS AVAILABLE No

[Hide Spatial Data Content ▲](#)

Lineage ►

LINEAGE STATEMENT

Central Lachlan Orogen Mineral Systems - Mineral Potential Report Executive Summary

The central Lachlan Orogen (CLO) in MGA Zone 55 in New South Wales (NSW) is prospective for Cu-Au-Pb-Zn-Ag and Sn-W mineralisation. In collaboration with the Geological Survey of New South Wales (GSNSW), mineral potential mapping using a weights of evidence approach for three key mineral systems in the CLO has resulted in a comprehensive assessment of the mineral resource potential of the region.

The expertise of the GSNSW has been utilised to develop mineral system models for the following three mineral systems in the CLO: Cobar Cu-Au, Cobar Pb-Zn, and granite-related Sn-W. These models have been used to determine key predictive variables that represent the different critical ore-forming processes in each mineral system: source, transport, trap, and deposition. This information has been aggregated into a comprehensive spatial data table in MS Excel that records information about all the predictive maps including their relevance to the specified mineral system, the data and methods used to create them, and their spatial correlation with known mineralisation.

High quality pre-competitive geoscience data is available from the GSNSW. This data was value added by using a mineral system approach in the mineral potential mapping project. Available datasets include the seamless basement geology, fault attribution, metamorphic facies, multi-element geochemistry, detailed petrology, and mineral occurrence data. These datasets were developed by the GSNSW prior to initiating this study and allowed for a large number of spatial variables to be tested for relevance to the specific mineral system being modelled. Feedback was provided during data review, processing, and subsequent spatial analysis allowing for improvements to be made to the data. This feedback process was crucial in assessing the exploration relevance of the datasets for each of the modelled CLO mineral systems.

The creation and spatial analysis of predictive maps that represent spatial proxies for the various processes in each mineral system was undertaken using the weights of evidence method for the Cobar Cu-Au, Cobar Pb-Zn, and granite-related Sn-W mineral systems. Between 138 and 196 valid predictive maps were created for each mineral system model. The percentage of predictive maps that correlated well with training data ranged between 46% and 67%. Details of the spatial correlations between the predictive maps and known mineralisation for each of the three mineral systems are provided in the spatial data table. The spatial data table is an important resource for understanding how the predictive maps are relevant to each mineral system that was modelled in the CLO. The results of the spatial data modelling assist with identifying key exploration criteria that can be used to guide further data collection and attribution relevant to each mineral system.

Between 8 and 10 predictive maps were selected and combined to produce mineral potential maps that map the geological potential for each of the three modelled mineral systems in the CLO. The predictive maps were selected based on multiple criteria: (1) having good regional data coverage, (2) showing a significant spatial correlation with the training points used to represent the mineral system, and (3) minimal duplication of predictive map patterns. The mineral potential maps were validated by evaluating the efficiency of classification using area-frequency tables.

The Cobar Cu-Au model has an efficiency of classification of 97.6%. The prospective area covers 13.4% of the Cobar study area and contains all 14 training points. The highly prospective area covers just 0.07% of the Cobar study area and contains 3 of the

14 training points.

The Cobar Pb–Zn model has an efficiency of classification of 96.8%. The prospective area covers 16.6% of the Cobar study area and contains all 10 training points. The highly prospective area covers 0.13% of the study area and contains 2 of the 10 training points.

The granite-related Sn–W model has an efficiency of classification of 99.1%. The prospective area covers 14.0% of the Central Lachlan Orogen study area and contains all 13 training points. The highly prospective area covers 0.33% of the study area and contains 7 of the 13 training points.

Results indicate that the mineral potential maps were successful in predicting the location of known Cobar Cu–Au, Cobar Pb–Zn, and granite-related Sn–W mineralisation, and have also highlighted areas with potential for undiscovered mineralisation.

The mineral potential maps can be used for strategic land use planning and advice purposes, as a resource for guiding further mineral system studies, and for promoting exploration in the central Lachlan Orogen through the delivery of pre-competitive data that can be used for regional-scale targeting by the exploration industry.

A Mineral Potential Atlas has been created for the CLO project area that contains all the GIS files that were generated during the spatial data modelling process for the three modelled mineral systems. The atlas includes the training points, study areas, predictive maps, weights tables, mineral potential maps with their corresponding unique conditions, and the spatial data table. The spatial data table documents the files and processes used in the generation of predictive maps and the spatial correlation statistics for each map.

The Mineral Potential Atlas allows the predictive maps generated for each mineral system to be viewed independently, providing insight into how each map relates to the modelled mineral system. Different sub-sets of the predictive maps can also be combined to produce new mineral potential maps to highlight prospective areas for mineral exploration for the different mineral systems. Highly prospective areas can be converted into targets that can be attributed, ranked, and filtered in order to prioritise exploration on existing ground and guide tenement acquisition. New predictive maps and subsequent mineral potential maps can be generated when existing datasets are updated, new data becomes available, or new understanding of the mineral system generates new ideas.

The workflows applied during the mineral potential project for the CLO, including mineral systems analysis, data compilation/preparation and mineral potential modelling has been successfully applied to other mineralised regions and mineral systems within NSW.

[Hide Lineage](#) ▲

Distribution ►

DISTRIBUTOR ►

CONTACT INFORMATION

ORGANIZATION'S NAME Mining, Exploration and Geoscience, Department of Regional NSW
CONTACT'S POSITION Mineral Systems Manager
CONTACT'S ROLE custodian

CONTACT INFORMATION ►

ADDRESS

TYPE physical
DELIVERY POINT 516 High st
CITY Maitland
ADMINISTRATIVE AREA NSW

POSTAL CODE 2320
COUNTRY AU
E-MAIL ADDRESS minsys.info@geoscience.nsw.gov.au

ONLINE RESOURCE

LOCATION <https://www.regional.nsw.gov.au/meg>
NAME Mining, Exploration and Geoscience website
DESCRIPTION The website of the Department of Regional NSW, Mining, Exploration and Geoscience
FUNCTION PERFORMED information

[Hide Contact information ▲](#)

[Hide Distributor ▲](#)

DISTRIBUTION FORMAT

* NAME Raster Dataset

[Hide Distribution ▲](#)

References ►

PORTRAYAL CATALOGUE CITATION ►

TITLE Central Lachlan Orogen Mineral Potential Data Package
PUBLICATION DATE 2020-06-01 00:00:00

EDITION 1a
EDITION DATE 2022-08-24

PRESENTATION FORMATS digital map
FGDC GEOSPATIAL PRESENTATION FORMAT raster digital data

OTHER CITATION DETAILS

It is recommended that this dataset be referred to as:

Ford A., Peters K., Downes P., Blevin P., Greenfield J. and Fitzherbert J. 2020. Central Lachlan Orogen Mineral Potential Data Package version 1 [Digital Dataset]. Geological Survey of New South Wales, Maitland.

The data package was further modified in August 2022 to improve usability. No reinterpretation of the data was conducted. For further details refer to the 'README.txt' file in the root directory of the data package.

RESOURCE LOCATION ONLINE

LOCATION <https://www.regional.nsw.gov.au/meg>
FUNCTION PERFORMED download

[Hide Portrayal catalogue citation ▲](#)

[Hide References ▲](#)

Metadata Details ►

* METADATA LANGUAGE English (AUSTRALIA)

SCOPE OF THE DATA DESCRIBED BY THE METADATA * dataset
SCOPE NAME * dataset

* LAST UPDATE 2022-10-20

ARCGIS METADATA PROPERTIES

METADATA FORMAT ArcGIS 1.0

METADATA STYLE ISO 19139 Metadata Implementation Specification

STANDARD OR PROFILE USED TO EDIT METADATA ISO19139

CREATED IN ARCGIS FOR THE ITEM 2022-10-18 13:03:08

LAST MODIFIED IN ARCGIS FOR THE ITEM 2022-10-20 12:59:04

AUTOMATIC UPDATES

HAVE BEEN PERFORMED Yes

LAST UPDATE 2022-10-20 12:58:14

[Hide Metadata Details ▲](#)

Metadata Contacts ►

METADATA CONTACT

ORGANIZATION'S NAME Mining, Exploration and Geoscience, Department of Regional NSW

CONTACT'S POSITION Mineral Systems Manager

CONTACT'S ROLE custodian

CONTACT INFORMATION ►

ADDRESS

TYPE physical

DELIVERY POINT 516 High st

CITY Maitland

ADMINISTRATIVE AREA NSW

POSTAL CODE 2320

COUNTRY AU

E-MAIL ADDRESS minsys.info@geoscience.nsw.gov.au

ONLINE RESOURCE

LOCATION <https://www.regional.nsw.gov.au/meg>

NAME Mining, Exploration and Geoscience website

DESCRIPTION The website of the Department of Regional NSW, Mining, Exploration and Geoscience

FUNCTION PERFORMED information

[Hide Contact information ▲](#)

[Hide Metadata Contacts ▲](#)

Metadata Maintenance ►

MAINTENANCE

UPDATE FREQUENCY unknown

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