

# **EXPLORATION ASSESSMENT DATA DIGITAL FORMATS:** **Improving geoscience data to increase discovery rates**

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Northwest Territories**

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**PROSPECTORS &  
DEVELOPERS  
ASSOCIATION  
OF CANADA**

## Key Priorities

**Access to Capital**

**Access to Land**

**Aboriginal Affairs**

**Responsible Exploration**

**Access to Skills**

**Canadian Industry Abroad**



## Program Goals

1. Improving the type, quality, quantity and accessibility of geoscience data
2. Catalyzing the adoption and development of new techniques and technologies that improve exploration efficiency and effectiveness.



# CURRENT STATE OF THE MINERALS INDUSTRY IN CANADA

Competitiveness for attracting investment at risk – Canada vs. other mining nations

Signs of recovery following a prolonged industry downturn – financing and exploration activity slowly increasing

Need continual generation and analysis of geoscience data

Increasing availability of digital geoscience information including georeferenced materials will help to increase discovery rates



## What is it?

- A proposal for a national standard for submission of mineral exploration assessment data in digital format
- An attempt to start a discussion on what such a standard should look like

## History

2009 - Richard Moore, led the early efforts of the committee with this initiative

2014 to 2016 - PDAC established a technical team to move the project forward

Lead: Charles Beaudry, Chair of PDAC Geoscience Committee

Special Advisor: Ken Wright, MPH

Geology: Blair Hrabí, Ana Fonseca, SRK

Diamond Drilling: Michael Kociumbas, WGM

Geochemistry: Pim van Geffen, REFLEX Geosciences

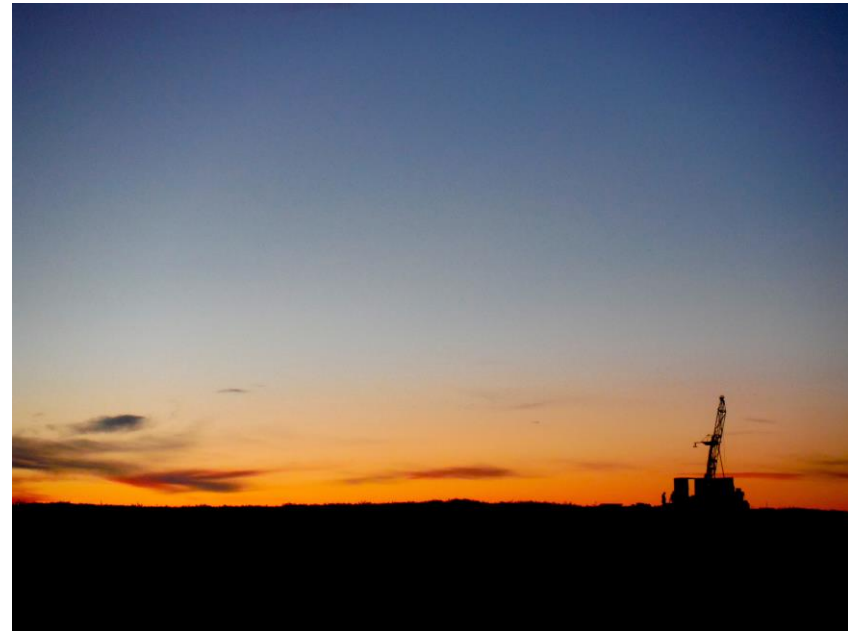
Geophysics: Jeremy Brett, MPH

PDAC: Nadim Kara, Anne Belanger



## The project was guided by four principles with respect to the creation of the final guidance document:

1. Simplicity - junior companies may lack the resources for complex assessment requirements
2. Durability - Formats should be readable 30 years from now
3. Extensibility - As programs and standards evolve, they must also remain compatible with older versions
4. Originality - Submission guidelines for future reports only



The standards are modelled on Australia's Requirements for the Submission of Digital Exploration Data that was first published in April 1999, however the current version, 4.3, was published in December 2015.

## Key Elements

- Language: English or French
- Measurement system: Metric
- Location UTM coordinates: NAD83
  - A local grid coordinate system is allowed
  - Latitude and longitude coordinates are acceptable for airborne geophysical surveys
- Acceptable Media
  - Online data submission is preferable
  - CD or DVDs, read only
  - USB Drives (non-returnable)
  - Hard drives (non-returnable)
- Hard copy or paper reports are unacceptable



## Key Elements

- Consistent file name conventions for the four specialities
  - Drilling, geology, geochemistry and geophysics
- File names should include:
  - Project name (e.g. BlueLagoon)
  - Year (e.g. 2014)
  - Data type (e.g. DrillLithology, GeochemicalSurvey)
  - Template format (e.g. DL1, SG1)
  - File extension (e.g. csv, jpg, tif, shp)

### Examples:

- BlueLagoon\_2014\_20\_GeochemicalSurvey\_SG1.csv - Surface sampling data
- BlueLagoon\_2014\_23\_DrillLithology\_DL1.csv - Downhole lithology data

## Header data file

e.g. BlueLagoon\_2014\_23\_DrillLithology\_hdr.csv

## Dictionaries

e.g. BlueLagoon\_2014\_23\_DrillLithology\_dict\_Lithology.csv



# MANIFEST FILE

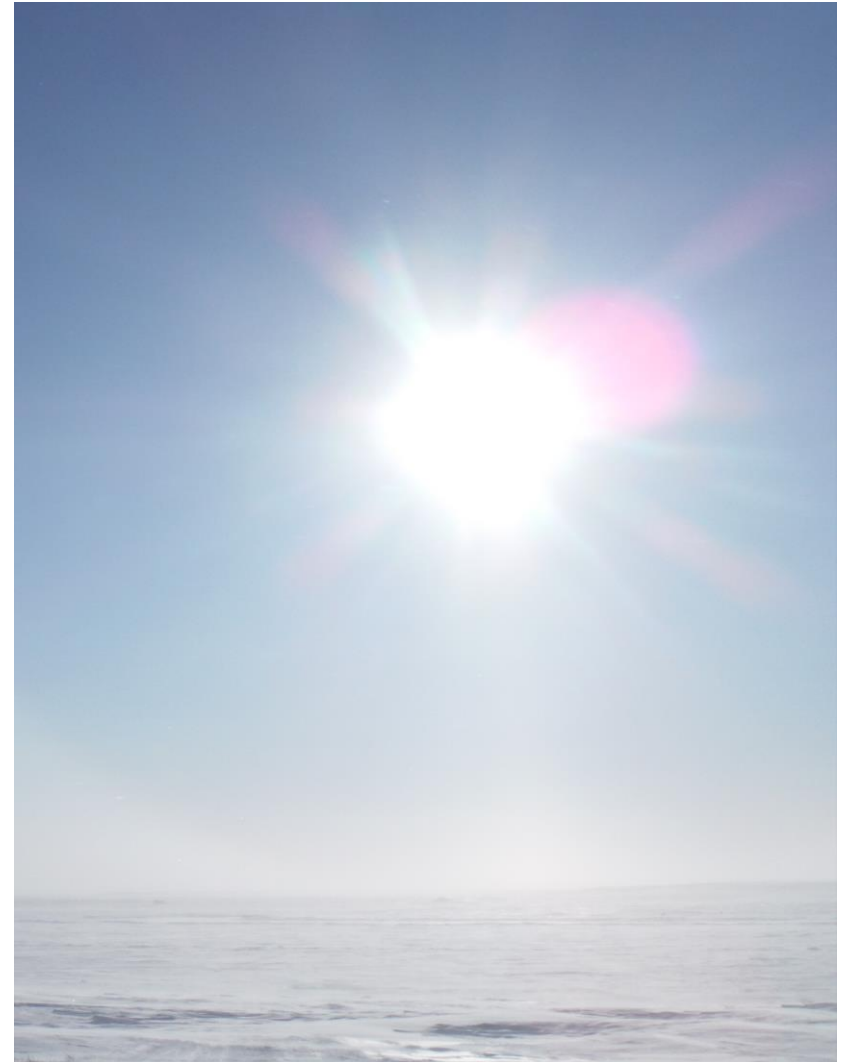
Exploration Work Type *	Num	File Name	Format
<b>Number of Files In Submission</b>			
<b>PDF Assessment Report</b>			
<b>Office Compilation</b>			
Geological Compilation			
Geophysical Compilation			
Geochemical Compilation			
Other (specify)			
<b>Airborne Surveys</b>			
Aeromagnetism			
Radiometrics			
Electromagnetics			
Gravity			
Digital terrain modelling			
Other (specify)			
<b>Ground Surveys</b>			
<b><i>Geological Mapping</i></b>			
Regional			
Reconnaissance			
Prospect			
Underground			
Other (specify)			

## Digital Metadata

- Metadata is necessary to assess the quality and pertinence of the data for a particular application
- Submitted in CSV or tab delimited format in a header file

Three tiers of suggested data submission:

1. Mandatory
2. Recommended (e.g. cut grid coordinates)
3. Data that can be included in the mandatory PDF report



# DIGITAL METADATA

## Template DL1 - Drill hole log

H0001	Version_of_ Format	1.0							
H0100	Table_name	DL1-Drill Hole Log							
H0101	Property_ owner	Great Plains Mining Inc.							
H0102	Project_ name	Polkadot Lake Project/2016 Drilling Program							
H0200	Start_date_ of_data_ aquisition	23/09/2016							
H0201	End_date_ of_data_ aquisition	29/09/2016							
H0203	Number_of_ data_records	2							
H0300	Location_ data_file	Downhole_ survey_data_ file	Lithology_ dictionary	Texture_ dictionary	Alteration_ dictionary	Mineralization_ dictionary			
H0301	RP2016_02_ SL1.csv	RP2016_03_ DS1.csv	RP2016_04_ Lithology_ dict.csv	RP2016_05_ Texture_dict. csv	RP2016_06_ Alteration_ dict.csv	RP2016_07_ Mineralization_ dict.csv			
H0600	Drill_code	DD							
H0601	Drill_type	NQ diamond core							
H0900	Comment								
H1000	Hole_ID	From_m	To_m	Drill_code	Lithology_ code	Texture_code	Alteration_ code	Mineralization_ code	Comment
D	TDH001	0	10	DD	Czl				
D	TDH001	10	65	DD	Ab				

# DIGITAL METADATA

## Template SL1 – Drill hole collar locations

H0001	Version_of_Format	1.0								
H0100	Table_name	SL1-Drill Hole collars								
H0101	Property_owner	Great Plains Mining Inc.								
H0102	Project_name	Polkadot Lake Project/2016 Drilling Program								
H0200	Start_date_of_data_aquisition	23/09/2016								
H0201	End_date_of_data_aquisition	29/09/2016								
H0203	Number_of_data_records	2								
H0300	Downhole_survey_data_file									
H0301	RP2016_02_DS1.csv									
H0400	Drilling_code	RC	DD							
H0401	Drilling_contractor	Better Drilling Inc.	Faster Drilling Inc.							
H0402	Drilling_description	Reverse Circulation	HQ, NQ Diamond drilling							
H0500	Surveyed_feature	Hole collar								
H0501	Geodetic_datum	NAD83								
H0503	Projection	UTM								
H0504	Projection_zone	17								
H0505	Survey_instrument_code	WGPS								
H0506	Survey_instrument_description	WAAS-enabled Garmin eTrex-30 GPS								
H0900	Comment									
H1000	Hole_ID	UTM_E	UTM_N	Grid_East	Grid_North	Elevation	TD	Azimuth	Dip	Drill_code
D	TRC001	348928.1	7719052	-2015.5	504.6	325.6	50	178	-74	DD
D	TRC002	348947.6	7719037.2	1007.8	-238.6	334.9	56	0	-90	RC

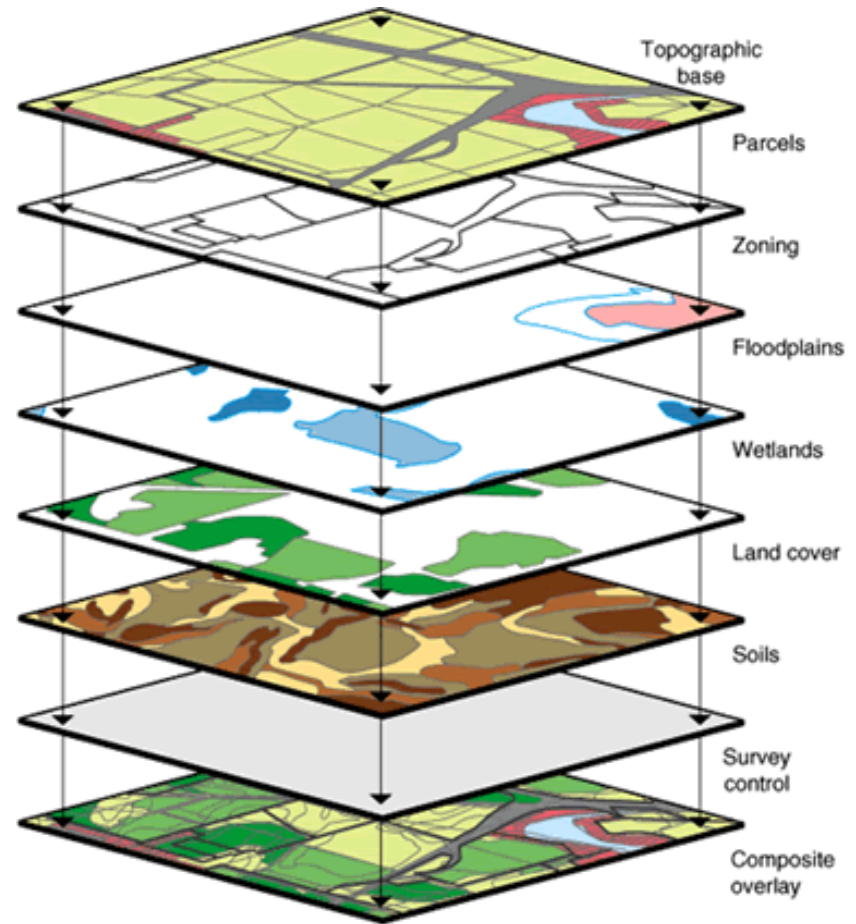
# DIGITAL METADATA

## List of template tables for submission of digital assessment data.

Table Name Suffix	Content of Table	Links to Other Tables
SL1	Drill Hole collars	DS1
DS1	Downhole Survey	SL1
DG1	Sample Downhole Location and Description	SL1, DS1 and various dictionaries
DL1	Drill Hole Log	SL1, DS1 and various dictionaries
SG1	Geochemical Sample Location and Results	SL1, DG1 and GM1
G01	Geology Outcrop Description	Various dictionaries
GS1	Geology Structural Description	G01 and Structure dictionary
GM1	Geology Mineral Occurrence	Various dictionaries
GL1	Geology Line Data	Shapefile and various dictionaries
GP1	Geology Polygon Data	Shapefile and various dictionaries
PS1	Geophysics, Single Variable Results	Data columns description file,SL1, DS1
PA1	Geophysics, Array Variable Results	Data columns description file,SL1, DS1

# GIS FILE FORMATTING

- Shapefiles are suggested to be submitted accompanied by additional files and the assessment PDF.
  - Lines and polygons should be in separate shape files.
- Important to have dictionaries when codes are used.
- Although no map or cartographic characteristics need to be stored with the lines or polygons, three key fields should be included:
  1. Feature\_code (Feat\_code)
  2. Feature\_value\_code (Feat\_value)
  3. Interpretation\_level (Int\_lvl)



## Canadian Approach to Digital Data

The Canadian approach differs from the current Australian standards as it only includes the submission of the metadata required to:

- Locate the observation in a world coordinate system (UTM NAD83)
- Identify the owners of the property on which the work was done
- Record when the work was done
- Identify the laboratory and method codes used for geochemical work
- Identify the drilling company and record the orientation, length and geological data for drill holes
- Allow geophysical data to be re-processed.



## What should a final assessment report look like?

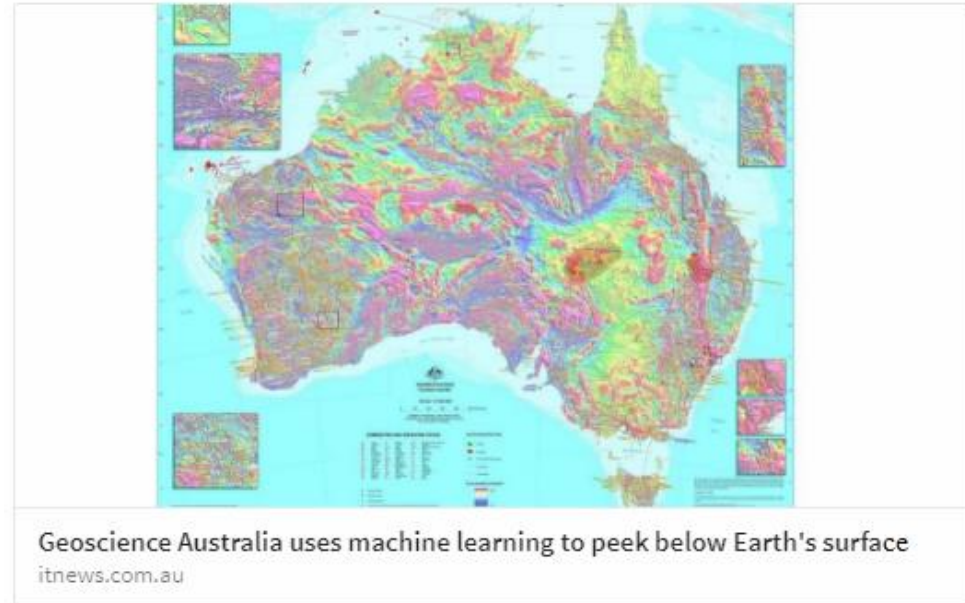
- PDF report
- Manifest File
- Shapefiles for additional information
- Metadata tables for additional information. If applicable:
  - Geophysics table data (PS1, PSA)
  - Drill hole information (DS1, SL1, DG1, DL1)
  - Geochemistry Information (SG1)
  - Geological information (GO1, GS1, GM1, GL1, GP1)
- Dictionary file in order to describe short form.





## Why does Canada need this?

- Canadian exploration projects return 0.77 for every dollar spent between, while Australia returns 0.97.
- Australia is currently on version 4.3 of their requirements for submission which has attributed to their exploration success.
- South Australia (984,377 km<sup>2</sup>) released a state wide 3D geophysical data compilation of public domain data, to 100km depth with an associated geoscience data package.



## Next Steps

- The PDAC is looking to partner with an province or territory interested in and willing to adopt the EADDF guidelines
- We recommend that provincial and territorial governments create an incentive to promote submission of digital assessment data by granting additional credits
- Homepage – [www.pdac.ca](http://www.pdac.ca)



THANK YOU

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