AUSTRALIAN GRANITE DATABASE: A CASE STUDY FOR LARGE SCALE DATABASE DEVELOPMENT

Kenex
Creating opportunities in the spatial world

Elham Y. Zadeh, Katie Peters

Eli@Kenex.co.nz

DATABASE AND GIS

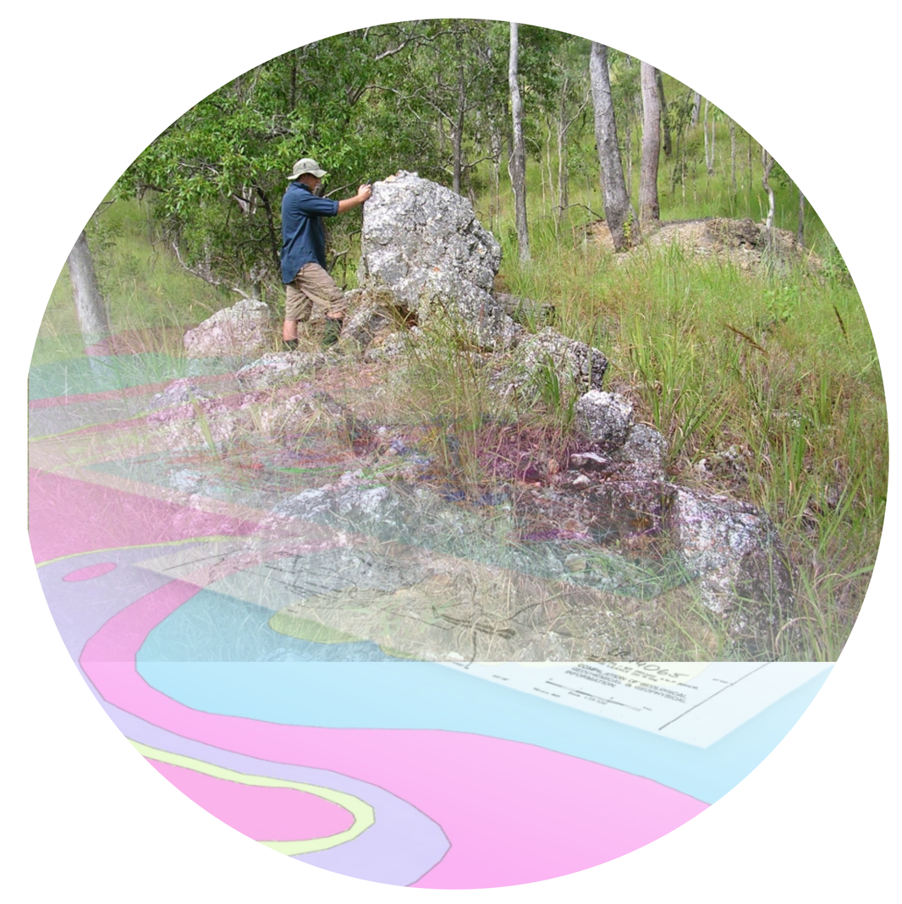
DATABASE (DB)

- Easy access to large amounts of data.
- Data safety, integrity and standardisation.
- Information sharing between many users.
- Manipulation of complicated information.
- Can manage a large amount of data in a single software.
- Prevention of data duplication, dispersion and corruption is easier.

GEOGRAPHIC INFORMATION SYSTEM (GIS)

- Traditional map drawing and analysis process can be replaced by GIS & Saving time and increasing usability.
- Increases efficiency in all geoscience areas including exploration and mining, assessing environmental impact, and geological mapping.
- Well-designed DB and GIS management structure is fundamental for successes in any earth-related activities.

GRANITE DATABASE



INTRODUCTION

The aim of this project was to create a single spatial database of felsic and intermediate intrusive rocks for Australia.

The database will be critical for targeting granite related mineral systems including tin and lithium. Currently the available granite mapping is variable between states and is not well attributed with information relevant to identifying these mineral systems.

The Australian Granite Database combines data from geology mapping undertaken by each state into a single country wide dataset that is attributed with information from the original mapping, the Australian Stratigraphic Database, and other spatial and non-spatial sources.

This project shows that continuous improvement is needed to make spatial datasets fit-for-purpose particularly for large scale projects.

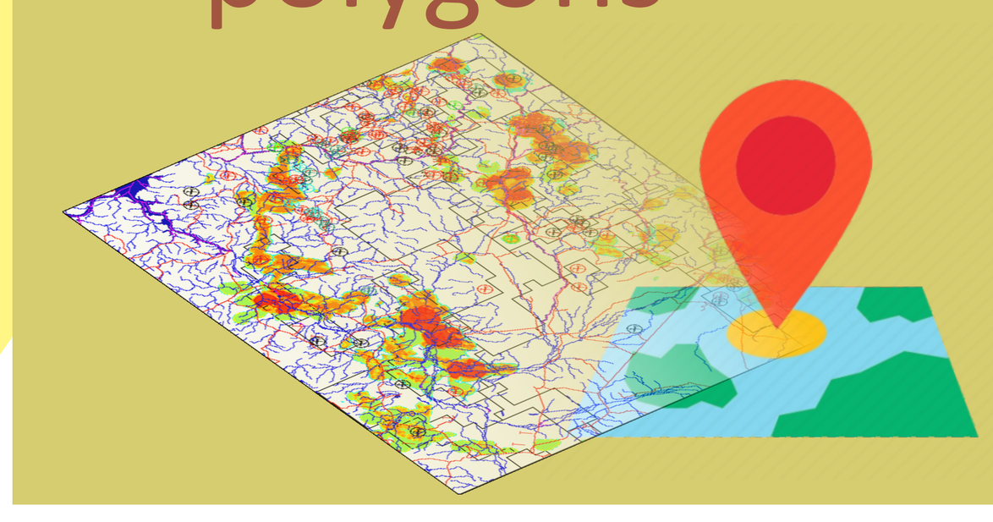
PROJECT STAGES

1 DATA COMPILATION

- Gathering existing data
- Reviewing and comparing data
- Editing data

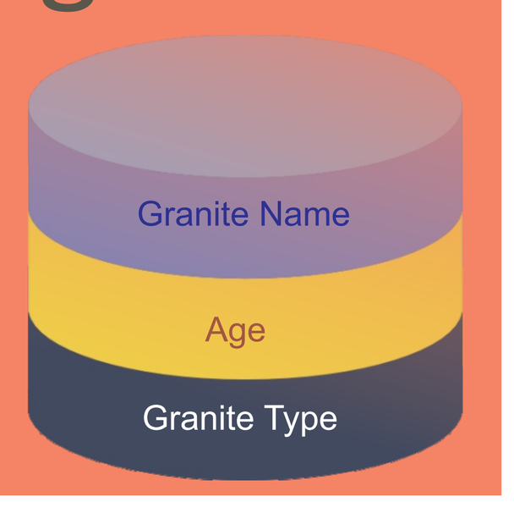
2 SPATIAL DATA

- Selecting features
- Integrating datasets
- Cleaning polygons



3 DATABASE CREATION

- Designing DB
- Formatting data
- Adding attributes
- Data integration

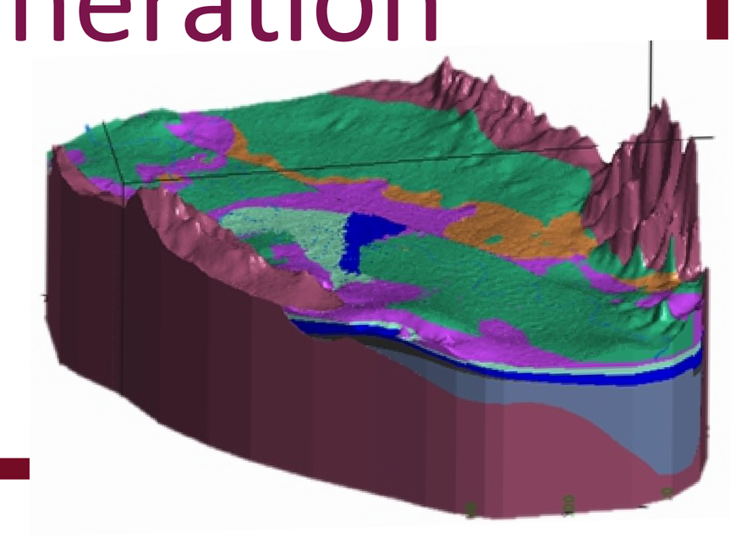


4 DATA VERIFICATION

- QA/QC data
- Final edits
- Populating DB

5 USING THE DATABASE

- Modelling (2D & 3D)
- Exploration targeting
- Project generation



RESULTS

Field Name
ID
Map_symb
Unitname
Lith_desc
Lith_desc2
Complex
Lith_group
Supersuite
Suite
Geo_prov
Form_event
Geoage
Ga_min
Ga_Min_Error
Ga_max
Ga_max_Error
Age_meth
Grantype
Granox
Grancomp
GranTexture
GranPeg
GranApl
GranMior
GranGran
GranAlt
GranDef
GranFrac
GranFracRange
Comments
Scale
State
GranGoldAlluvial
GranTinAlluvial
GranGoldHardRock

GranTinHardRock	Char(2)	36
GranBisHardRock	Char(2)	37
GranMolyHardRock	Char(2)	38
GranTungHardRock	Char(2)	39
Sio2_min	Float	40
Sio2_max	Float	41
Sio2_mean	Float	42
K2o_min	Float	43
K2o_max	Float	44
K2o_mean	Float	45
Na2o_min	Float	46
Na2o_max	Float	47
Na2o_mean	Float	48
Rb_min	Float	49
Rb_max	Float	50
Rb_mean	Float	51
Sr_min	Float	52
Sr_max		
Sr_mean		
Au_min		
Au_max		
Au_mean		
Bi_min		
Bi_max		
Bi_mean		
Mo_min		
Mo_max		
Mo_mean		
Sn_min		
Sn_max		
Sn_mean		
W_min		
W_max		
W_mean		

Unitname	Lith_desc	Lith_desc2	Complex	Lith_group	Supersuite	Suite	Geo_Prov
Arthurton Granite	Pink, coarse-grained, A-type monzc			igneous felsic intrusive	Hiltaba Supersuite	Hiltaba Suite	Olympic Domain
Arthurton Granite	Pink, coarse-grained, A-type monzc			igneous felsic intrusive	Hiltaba Supersuite	Hiltaba Suite	Olympic Domain
Arthurton Granite	Pink, coarse-grained, A-type monzc			igneous felsic intrusive	Hiltaba Supersuite	Hiltaba Suite	Olympic Domain
Arthurton Granite	Pink, coarse-grained, A-type monzc			igneous felsic intrusive	Hiltaba Supersuite	Hiltaba Suite	Olympic Domain
Arthurton Granite	Pink, coarse-grained, A-type monzc			igneous felsic intrusive	Hiltaba Supersuite	Hiltaba Suite	Olympic Domain
Arthurton Granite	Pink, coarse-grained, A-type monzc			igneous felsic intrusive	Hiltaba Supersuite	Hiltaba Suite	Olympic Domain
Arthurton Granite	Pink, coarse-grained, A-type monzc			igneous felsic intrusive	Hiltaba Supersuite	Hiltaba Suite	Olympic Domain
Arthurton Granite	Pink, coarse-grained, A-type monzc			igneous felsic intrusive	Hiltaba Supersuite	Hiltaba Suite	Olympic Domain
Arthurton Granite	Pink, co						
Arthurton Granite	Pink, co						
Ayers Range Granite	Porphyr						
Ayers Range Granite	Porphyr						
Ayers Range Granite	Porphyr						
Ayers Range Granite	Porphyr						
Balta Granite	Granite						
Balta Granite	Granite						
Balta Granite	Granite						
Balta Granite	Granite						
Balta Granite	Granite						
Balta Granite	Granite						
Balta Granite	Granite						
Balta Granite	Granite						
Balta Granite	Granite						
Balta Granite	Granite						
Basso Suite	A-type						
Basso Suite	A-type						

Geoage	GA_Min	Ga_min_Error	GA_Max	Ga_max_Error	Age_meth	GranType	GranOx	Grancomp	GranTexture	GranPeg	GranApl	GranMior	GranGran	GranAlt	GranDef	GranFrac
Mesoproterozoic	1,582	+/- 7	1,600		Isotopic	A-Ty	U	monzogranite	U	Y	N	Y	N	U	Foliated t	Fractionated?
Mesoproterozoic	1,582	+/- 7	1,600		Isotopic	A-Ty	U	monzogranite	U	Y	N	Y	N	U	Foliated t	Fractionated?
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Mesoproterozoic	1,582	+/- 7	1,600		Isotopic	A-Ty	U	monzogranite	U	Y	N	Y	N	U	Foliated t	Fractionated?
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Mesoproterozoic	1,152	+/- 3	1,159	+/- 17	Isotopic	U	U	monzonite, gra	Porphyritic	N	N	N	N	U	U	U
Mesoproterozoic	1,152	+/- 3	1,159	+/- 17	Isotopic	U	U	monzonite, gra	Porphyritic	N	N	N	N	U	U	U
Mesoproterozoic	1,152	+/- 3	1,159	+/- 17	Isotopic	U	U	monzonite, gra	Porphyritic	N	N	N	N	U	U	U
Mesoproterozoic	1,152	+/- 3	1,159	+/- 17	Isotopic	U	U	monzonite, gra	Porphyritic	N	N	N	N	U	U	U
Mesoproterozoic	1,450	+/- 18	1,586	+/- 3	Isotopic	U	U	granite	Porphyritic	N	N	N	N	U	U	Fractionated?
Mesoproterozoic	1,450	+/- 18	1,586	+/- 3	Isotopic	U	U	granite	Porphyritic	N	N	N	N	U	U	Fractionated?
Mesoproterozoic	1,450	+/- 18	1,586	+/- 3	Isotopic	U	U	granite	Porphyritic	N	N	N	N	U	U	Fractionated?
Mesoproterozoic	1,450	+/- 18	1,586	+/- 3	Isotopic	U	U	granite	Porphyritic	N	N	N	N	U	U	Fractionated?
Mesoproterozoic	1,450	+/- 18	1,586	+/- 3	Isotopic	U	U	granite	Porphyritic	N	N	N	N	U	U	Fractionated?
Mesoproterozoic	1,450	+/- 18	1,586	+/- 3	Isotopic	U	U	granite	Porphyritic	N	N	N	N	U	U	Fractionated?
Mesoproterozoic	1,450	+/- 18	1,586	+/- 3	Isotopic	U	U	granite	Porphyritic	N	N	N	N	U	U	Fractionated?
Mesoproterozoic	1,450	+/- 18	1,586	+/- 3	Isotopic	U	U	granite	Porphyritic	N	N	N	N	U	U	Fractionated?
Mesoproterozoic	1,450	+/- 18	1,586	+/- 3	Isotopic	U	U	granite	Porphyritic	N	N	N	N	U	U	Fractionated?
Mesoproterozoic	1,450	+/- 18	1,586	+/- 3	Isotopic	U	U	granite	Porphyritic	N	N	N	N	U	U	Fractionated?
Palaeoproterozoic	1,699	+/- 10	1,712	+/- 2	Isotopic	A-Ty	U	Granite	U	N	N	N	N	U	U	U
Palaeoproterozoic	1,699	+/- 10	1,712	+/- 2	Isotopic	A-Ty	U	Granite	U	N	N	N	N	U	U	U
Palaeoproterozoic	1,699	+/- 10	1,712	+/- 2	Isotopic	A-Ty	U	Granite	U	N	N	N	N	U	U	U
Palaeoproterozoic	1,699	+/- 10	1,712	+/- 2	Isotopic	A-Ty	U	Granite	U	N	N	N	N	U	U	U
Palaeoproterozoic	1,699	+/- 10	1,712	+/- 2	Isotopic	A-Ty	U	Granite	U	N	N	N	N	U	U	U

FOR NOW & FUTURE

- The development of the Australian Granite Database is an example of how we can improve geospatial data on a large scale.
- The database aids project generation for critical mineral deposits needed for green technologies.
- GIS databases are an important tool to add value and improve decision making and management of projects.