



Mining Data Digitalisation Platform

SANSA 2019 Earth Observation Data Challenge

Pitch Deck - Regina Molloy

14th November 2019



Who is EGC and what we do?

- We are a group of mine finders
- We are **experts** in Mineral Exploration and Mine Development studies
- We work closely with investors and know any investment decision is all about how the data is presented, easy data = easy decisions

We work internationally



The Team – 245 years combined experience

- Regina Molloy – Founding Director EGC
 - 25 years multi-commodity international exploration geologist, 3 continents.
- Christopher Ainsworth – Geoscience Director
 - 30+ years economic geologist specialising in mineral exploration in 6x African countries
- Dr Thinus Jordaan – Sedimentary & Mineral Exploration Expert
 - 40+ years geoscience, mineral exploration and project management, global experience.
- *A team of South African Youth - We want to combine our experience with younger aged digital = knowledge transfer*

5x Others keen to participate

- Stuart Clague – Mineral Exploration, <40 years experience
- Hylton Allison – Environment and Community Specialist, 17 years experience
- Robert Barnett – Industrial Minerals Specialist, 40+ years experience
- Dr Gideon Groenwald – Karroo and Palaeontology Specialist, Gift of the Givers Hydrogeological Leader, 40 years experience
- Stephan Meyer – Hydrogeology Specialist, 13 years experience

The Problem – Mining Data Digitalisation

- South Africa needs **economic growth**. New mine discoveries = taxes, royalties, employment, uplift, builds national self confidence
- The Problem in South Africa
 - Limited new mines discovered in past 30 years, sector is shrinking
 - **10-20 years to discover & develop** a new metalliferous mine
 - Surface mines found, buried deposits next = higher risk
 - Not competitive in attracting exploration investment
 - Data is not easily accessible
- South Africa does **not have a free mine data platform** and yet it has all the knowledge, expertise, historical data and known mineral endowment.

Bigger Problem

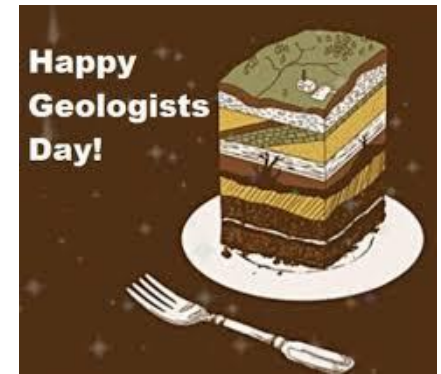
- Government wants to ensure cost recovery on their spending, but that defeats the strategic purpose: to encourage investment and reduce the barriers to entry (junior minors)

The Solution – Mine Data Platform

- **Source public and private data and geographically reference on a platform** for anyone to access
- **Five technical categories** that drive Mineral Exploration Investment & will be included in the Data Platform
 1. Geology (rocks)
 2. Hydrogeology (water)
 3. Biology (flora and fauna)
 4. Population Distribution
 5. Transport Routes and Capacities
- **Simple solution, no R&D, capitalises on the work already done**
- **This is a disruptive innovation & badly needed**
- **The data portal needs to be free to encourage mining investment at all levels incl. education sector contribution**

Earth Observation – How do we use it?

- Geologists are some of the largest Earth Observation scientists in the world
- In Exploration, we use satellite imagery for everything...
- The satellite imagery is critical for mapping, referencing historical data and determining data accuracy.



Geologist toolbox + satellite imagery = happy geologist

Business Model

- unique opportunity
- Just 1x mine discovery = R4Bn value (Orion Prieska mine) => R8Bn by mine closure = good value initiative.
- Motivate Mineral Exploration **to discover the next generation of mines**
- Help lift junior miners with data = big impact
- Create internationally competitive national mining companies (JSE benefit)
- Could be applied to other countries

Value Proposition & Market

- We are looking for **benevolent funder(s)** in return for **portal branding**
- **Compete for exploration funds**, improve Fraser Index Ranking and Corruption Perceptions Index (Transparency International)
- No co-incidence successful Mining Nations with **\$20-30Bn pipelines** have free mine data platforms as they know this increases **Mineral Exploration investment.**
- EGC is well informed, our investor exploration knowledge is unique

Funding Request – 2 years of budget – USD\$2.5M

Year 1 Budget Estimate

| Item | Monthly rate* | # staff | # months | Per year Total | | 15 USD Total | ZAR Total | USD Total | % |
|-------------|---------------|-----------|----------|----------------|-------------|--------------|--------------|----------------|-----|
| | | | | | | | | | |
| People Hire | EGC | R 135,000 | 6 | 12 | R 9,720,000 | \$ 648,000 | | | |
| | Junior staff | R 40,000 | 15 | 12 | R 7,200,000 | \$ 480,000 | R 17,380,800 | \$1,158,720.00 | 66% |
| | Legal | R 38,400 | 1 | 12 | R 460,800 | \$ 30,720 | | | |

| Item | Price/unit | # units | Total | Total | | | | |
|-------------------|---------------|----------|-------|-----------|-----------|-------------|------------|----|
| Office & Hardware | Office hire | R 50,000 | 12 | R 600,000 | \$ 40,000 | | | |
| | Office bills | R 20,000 | 12 | R 240,000 | \$ 16,000 | | | |
| | Computing | R 50,000 | 15 | R 750,000 | \$ 50,000 | R 2,450,000 | \$ 163,333 | 9% |
| | Software | R 50,000 | 15 | R 750,000 | \$ 50,000 | | | |
| | Scanning Unit | R 55,000 | 2 | R 110,000 | \$ 7,333 | | | |

| | | | | | | |
|---------------|--|-------------|------------|-------------|------------|-----|
| Portal | Servers, Portal cost and Development** | R 4,000,000 | \$ 266,667 | R 4,000,000 | \$ 266,667 | 15% |
|---------------|--|-------------|------------|-------------|------------|-----|

** Estimated cost only

| | | | | | | |
|--------------|--------------------|--------------|--------------|-------------|------------|------|
| TOTAL | Sum Total | R 23,830,800 | \$ 1,588,720 | | | |
| | Contingency 10% | R 2,383,080 | \$ 158,872 | R 2,383,080 | \$ 158,872 | 9% |
| | Grand Total | R 26,213,880 | \$ 1,747,592 | | | 100% |

Year 1 R26 million = USD\$1.75M
18-24 months to complete

- Initial engagement = R200-300K
- Continued to be built over many years – this is the start – no end

Simple Product Development

Risk at front of project (FEL), not at back

Mine Data Digitisation Process

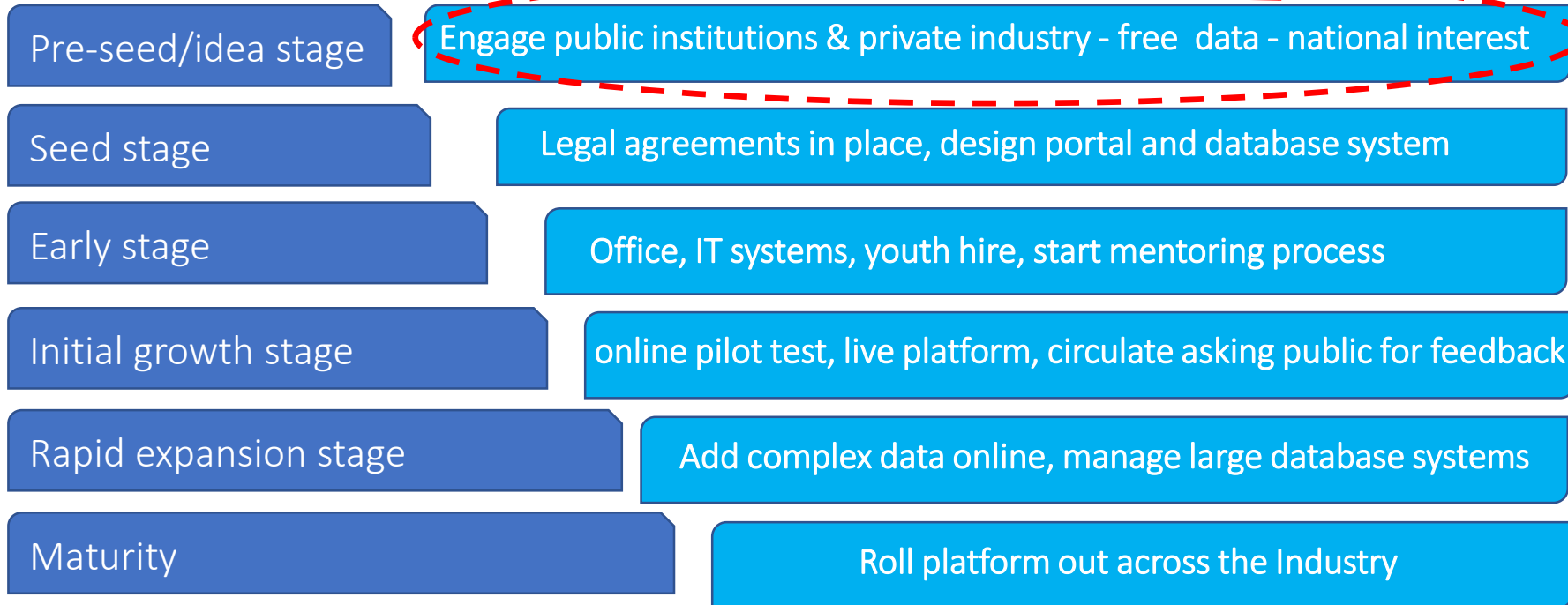
We are here



3 months

Year 1

Year 2



Simple & straight forward project



Conclusion

- The Future in Mining is in Digitalisation
- South Africa desperately needs mine investment
- Its time to take a leap of faith, knock down the walls and make data freely available
- We must use our vast knowledge and resources to find new mines
- Providing geoscience data is one of the best investments a country can make in terms of return

Request

I want to come & show you how data portals from around the world help to discover new mines **for you to decide how you can help make this project happen**



Exploration Geological Consulting (Pty) Ltd (EGC) is a Mineral Exploration, Geological and Mine Development specialist group based in South Africa.

EGC members have worked for the world's largest down to the world's smallest mining companies fulfilling technical, advisory and managerial roles in Africa, Australasia and the America's. We are explorers at heart and our passion is mineral exploration discovery followed by successful mine development.

Commodity experience includes gold, base metals (lead, zinc, copper, cobalt, nickel), platinum, bauxite, titanium, tin, BIF and itabirite iron ore, coal, graphite, manganese, rare earth elements, uranium, lithium & potash brine systems and industrial minerals.



Support By



MINERALS COUNCIL
SOUTH AFRICA



Competitors

- Exploration and Mine Data is currently spread across the following:
 - Council for Geoscience
 - Private historical files - inaccessible
 - Educational institutions - Universities
 - Other government departments
- There is currently no centralised data portal in South Africa

Current EGC Projects

- Nigeria lead-zinc greenfield project, national company, geophysical survey in progress
- USA project assessments for base metal investment (copper, gold)
- Venture Capital evaluations;
 - DRC - copper-cobalt
 - Uganda - nickel
 - Mali - gold and lithium
 - Zambia - manganese
- Pakistan in search for base metals, Lesedi for KSA nuclear project (K-A-CARE)



What's New?

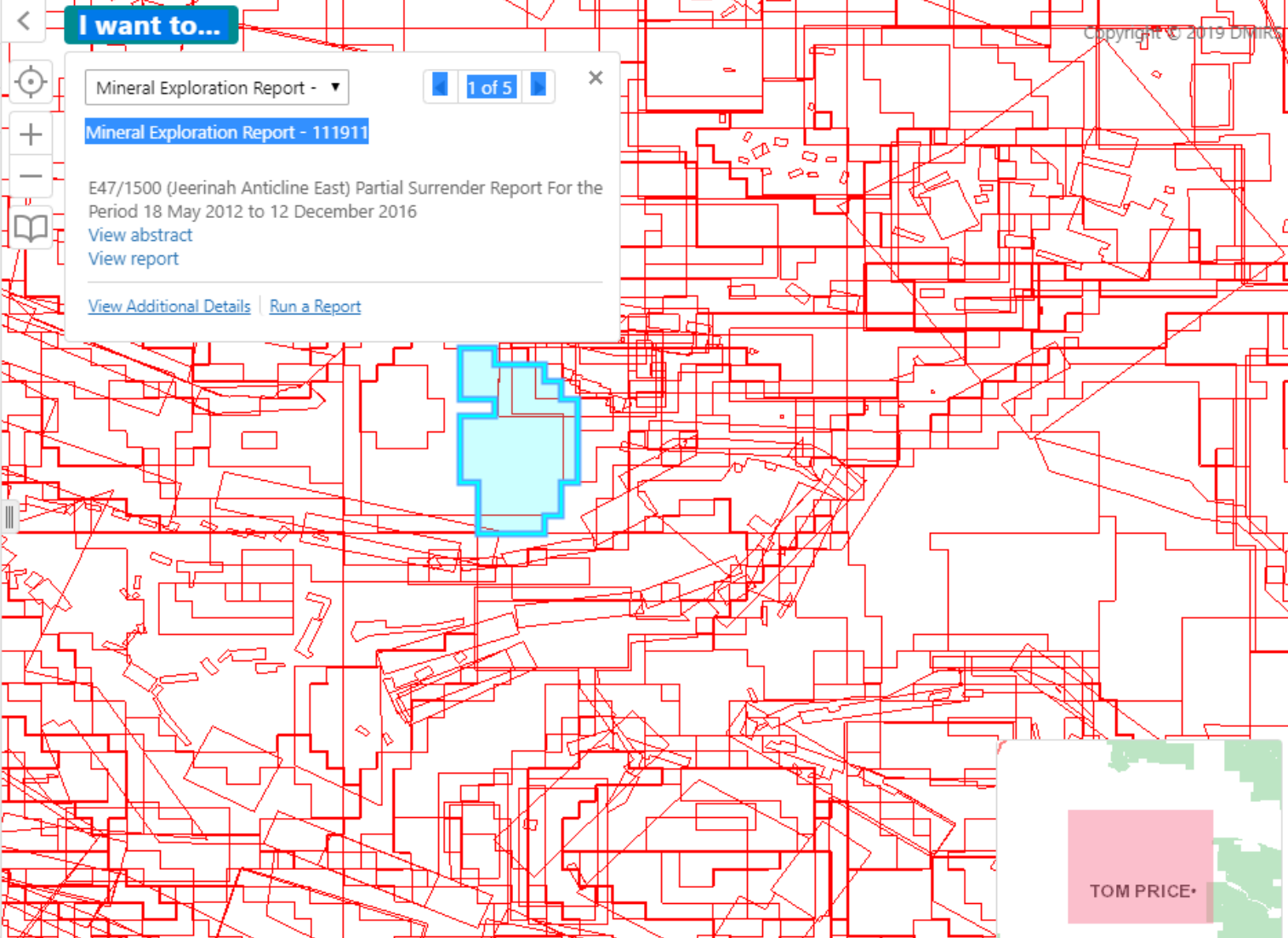
Zoom Tools

Layers

WAMEX

Filter Layers...

- Minerals
 - Abandoned Mines Inventory >
 - Mines and Mineral Deposits (MINEDEX) >
- + Historical Exploration Activities
- + Mineral Exploration Reports (WAMEX) >
 - Major Resource Projects >
 - Operating Mines >
- + Drillholes
- + Tenements
- + Native Title
- + Special Category Lands
- + Geochronology
- + Geochemistry
- + Geophysical Surveys
- + Petroleum
- Indexes
 - 1:50 000 Geological Digital Index >
 - 1:100 000 Geological Digital Index >
 - 1:250 000 Geological Digital Index >
 - 3D Digital Products Index >
 - 1:100 000 Map Sheet Index >
 - 1:250,000 Map Sheet Index >

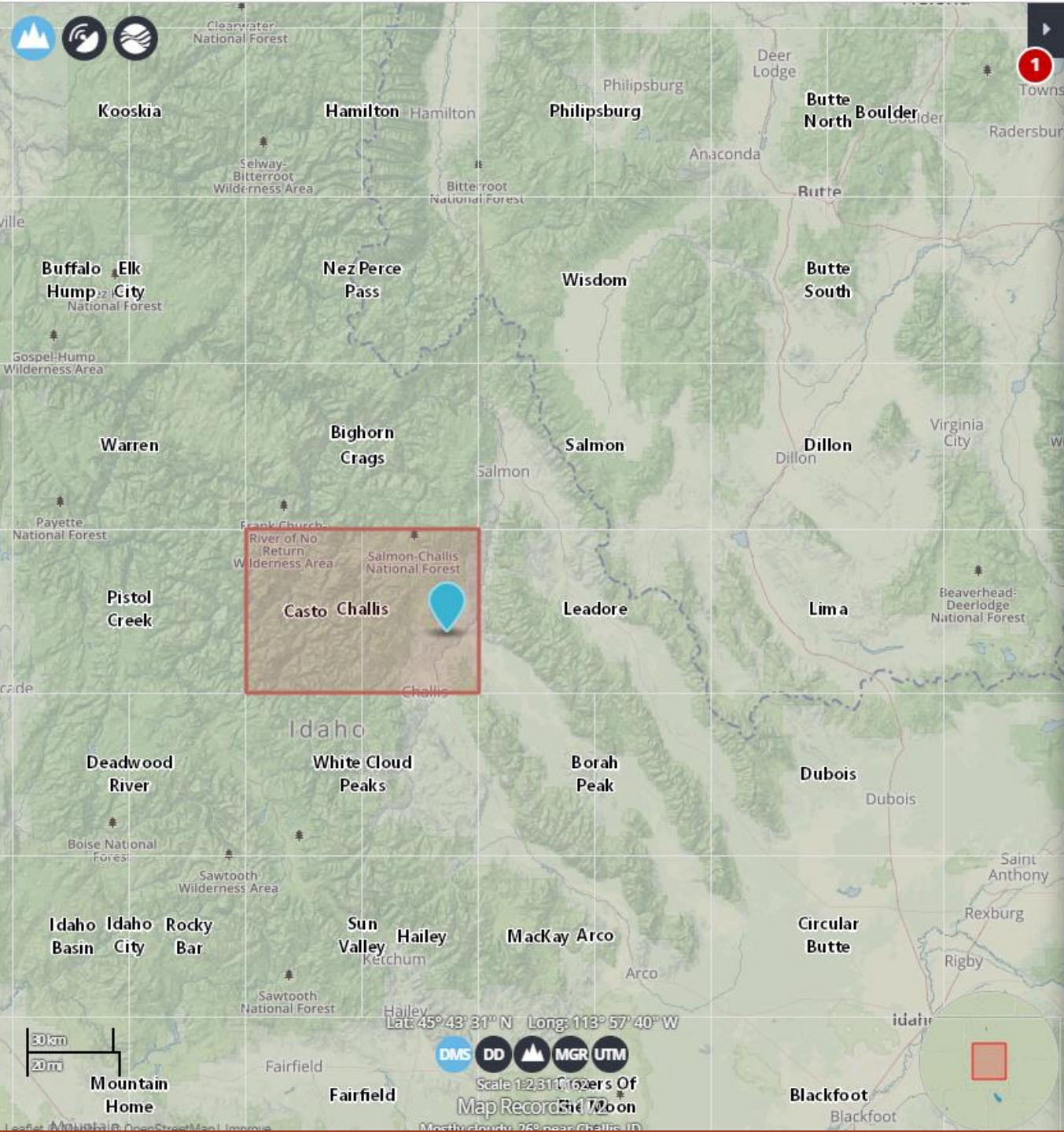


Layers

Lat Long Scale 1:

TOM PRICE

PARABURDOO



Location | Map Name

Search by location

1880 | 2019

All 250K 100K 63K 48K 24K HTMC UST All

1 map here | Scale: 100K, Date: 1880-2019, Series: All

83226, ID | Elev: 6,323 ft

Filter records

Name Date Scale State

Challis, ID

1982 (HTMC, 1982 ed.) Scale 1:100000

JPEG (7 MB) GeoTiff (23 MB)

KMZ (4 MB) GeoPDF (38 MB)

SHOW INFO ZOOM PAN PIN FIX

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DMS DD MGR UTM

Scale 1:231,162
Map Records 1720

Search location

Press down to start and let go to finish

60mi

-124.054 41.330 Degrees

Enhanced Search

By Shape | By Value | Results

Features selected: 37

- m057**
 Title: Million-scale geologic map of Nevada
 Year: 1977
 Scale: 1:1,000,000
 Publisher: NBMG
[Download/Purchase](#)
- m044**
 Title: Modified geologic map of Nevada
 Year: 1972
 Scale: 1:1,000,000
 Publisher: NBMG
[Download/Purchase](#)
- m016**
 Title: Progress geologic map of Nevada
 Year: 1962
 Scale: 1:500,000
 Publisher: NBMG
[Download/Purchase](#)
- of2010-04**
 Title: Geologic terrane map of Nevada
 Year: 2010
 Scale: 1:500,000
 Publisher: NBMG
[Download/Purchase](#)
- of2010-04**
 Title: Geologic terrane map of Nevada
 Year: 2010
 Scale: 1:3,000,000
 Publisher: NBMG
[Download/Purchase](#)
- e030**
 Title: Generalized geologic map of Nevada
 Year: 1999
 Scale: 1:500,000
 Publisher: NBMG



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Thank-you for your time, we appreciate it.



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