

Building digital infrastructure for Alaska’s mineral industry: A conversation on public–private resource leveraging

By

Jennifer E. Athey

Alaska Division of Geological & Geophysical Surveys, jennifer.athey@alaska.gov

Since 1972 when the Alaska Division of Geological & Geophysical Surveys’ (DGGS) current name and governing statutes were established, and even before 1959 as the Territorial Department of Mines, the State geological survey has created, compiled, and distributed copious information on the State’s complex geology and the mineral potential of Alaska’s lands. This work fulfills DGGS’s mission to encourage the exploration, development, and production of Alaska’s mineral resources that bring revenue to the State and create high-paying jobs. As of September 1, 2017, DGGS released its 5,000th publication, which equates to an average publication rate of one new product every four business days since statehood in 1959. DGGS and other agency publications are available at <http://dggs.alaska.gov/publications>. Currently, DGGS is developing interactive online applications to increase data discoverability and compiling statewide datasets that companies can download and use to develop exploration targets. Examples include:

****NEW**** Alaska geochemistry: <http://doi.org/10.14509/geochem>

Unpublished geoscience information (AGDI): <http://doi.org/10.14509/agdi>

Geophysical surveys: <http://doi.org/10.14509/gp>

Geologic map index: <http://doi.org/10.14509/mapindex>

DGGS endeavors to create products that deliver information essential to the mineral industry’s discovery of economic mineral deposits. To use our resources most effectively, DGGS seeks detailed feedback from the mineral industry regarding (1) the types of geologic data most helpful for discovering mineral properties and (2) the digital data formats most compatible with companies’ business processes and preferred software.

Furthermore, both DGGS and industry need access to high-quality basemap layers, geophysics, remote-sensing imagery, and other geospatial information. Increasing communication within the mineral industry/geosciences community regarding the kinds of data we want, and proactively determining how to obtain, disseminate, and pay for them will help everyone achieve their goals more quickly. Examples of industry and agency partnerships include cooperatively funded airborne geophysical surveys, the State elevation data portal (<http://elevation.alaska.gov>), DGGS’ Geologic Materials Center sample inventory (<http://maps.dggs.alaska.gov/gmc>), and DGGS-published maps and datasets incorporating State-funded and industry-donated information. Leveraging resources, especially in times of decreased funding and limited investment capital, helps all of us.

The Alaska Miners Association fall conference is the premier venue to discuss industry’s Alaska-specific data needs. DGGS encouraged company and agency representatives and other stakeholders to participate in live polls and discussion during the presentation on the following topics:

- To what geologic and geospatial data do you wish you had access?
- What digital data formats are most useful for spatial and non-spatial data?
- What are the best platforms used by you to discover new datasets?
- What platform would most encourage communication within the mineral industry/geosciences community?

- What factors hinder communication and collaboration in the community?
- Are there State policies that could be made or changed to facilitate data creation or information sharing?
- What steps can we take now to promote the leveraging of our resources?

The poll questions were also generously posted by the Alaska Miners Association on the event app and social media. If you have not already done so, please consider answering the questions online at <https://www.zetings.com/DGGS/0003-8757-0001> or contact DGGS directly with your thoughts and ideas.

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Alaska Miners Association Convention
Anchorage, Alaska
November 5-11, 2017



The following slides display responses to poll questions that were asked during the Building Digital Infrastructure presentation on Thursday morning, November 9. Responses are compiled here through December 8, 2017.

The Alaska Miners Association also generously posted the poll questions via the event app and on social media.

DGGS is very interested to hear thoughts and ideas from the mineral industry. The poll questions may be answered online at <https://www.zetings.com/DGGS/0003-8757-0001> or contact [Jen Athey](#) directly at 907.451.5028.

DGGS' mission: Determine the potential of Alaskan land for production of metals, minerals, fuels, and geothermal resources, the locations and supplies of groundwater and construction material, and the potential geologic hazards to buildings, roads, bridges, and other installations and structures (AS 41.08.020).



Photo provided by Karri Sicard, DGGS



How often do you access DGGS' website <<http://www.dggs.alaska.gov>>?



32 Responses



Did you successfully find the data you were looking for on DGGs' website?



84%

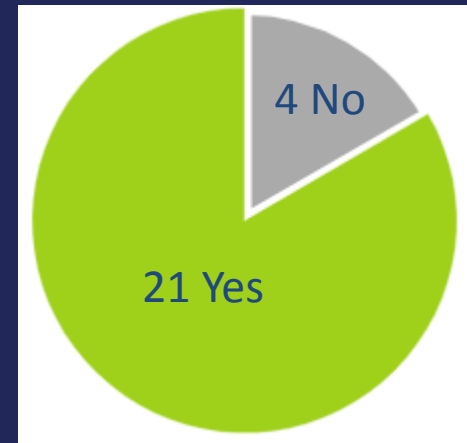
21 of 24 responses



16%

4 of 24 responses

25 Responses



DGGS provides access to more than 14,300 publications, 231 GIS datasets, and 12 interactive maps.

Publications Search

Browse

Publications series

- [DGGS](#) - Alaska Division of Geological & Geophysical Surveys reports, maps, and geospatial datasets
- [MIRL](#) - A nearly comprehensive listing of publications released by the University of Alaska Fairbanks, Mineral Industry Research Laboratory
- [USBM](#) - Selected U.S. Bureau of Mines reports. DGGS is actively accessioning this collection. New reports will be added as they become available to us.
- [USGS](#) - Alaska related U.S. Geological Survey publications. The collection is not complete but includes most of the pertinent documents published prior to 2002.

Other search options

- [Quadrangle](#)
- [WebGeochem](#): DGGS Geochemical Sample Analysis Search
- [Guide to Geologic Hazards in Alaska](#)

Advanced Search

The keyword search does not check the contents of a publication. Successful search results based on keywords are dependent upon the publication's associated keywords, which are indicated by the author. [Need HELP?](#)

Title

Author

Keyword(s)

Keyword options

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Publication Year **

- All Publication Years - ▼

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- From - ▼ - To - ▼

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<http://dggs.alaska.gov/publications/>

How do you use geologic map data?

Disagree

Agree

I use paper maps.

68 of 135 total responses



I use map images on my field devices and in GIS.

101 of 135 total responses



I use GIS databases and make my own custom maps.

103 of 135 total responses



27 Responses



What geologic data formats work best for you? (may select more than one)



The new Alaska geochemical database contains 63,679 samples, with 74,929 analyses of those samples from 221 publications.

<http://doi.org/10.14509/geochem>



Photo provided by Karri Sicard, DGGS





gold Search Previous Displaying 1 - 250 of 49559 Next

Showing 250 Sort by Score Download All Results

365 (in USBM OFR 1-92)	other	OFR 1-92
418 (in USBM OFR 1-92)	other	OFR 1-92
423 (in USBM OFR 1-92)	other	OFR 1-92
424 (in USBM OFR 1-92)	other	OFR 1-92
425 (in USBM OFR 1-92)	other	OFR 1-92
332 (in USBM OFR 1-92)	other	OFR 1-92
422 (in USBM OFR 1-92)	other	OFR 1-92
15 (in USBM OFR 1-92)	other	OFR 1-92
368 (in USBM OFR 1-92)	other	OFR 1-92
419 (in USBM OFR 1-92)	other	OFR 1-92
440 (in USBM OFR 1-92)	other	OFR 1-92
2801 (in USBM OFR 1-92)	other	OFR 1-92
343 (in USBM OFR 1-92)	other	OFR 1-92
381 (in USBM OFR 1-92)	other	OFR 1-92
1557 (in USBM OFR 1-92)	other	OFR 1-92
2602 (in USBM OFR 1-92)	other	OFR 1-92
366 (in USBM OFR 1-92)	other	OFR 1-92
1563 (in USBM OFR 1-92)	other	OFR 1-92
1706 (in USBM OFR 1-92)	other	OFR 1-92
1717 (in USBM OFR 1-92)	other	OFR 1-92
2711 (in USBM OFR 1-92)	other	OFR 1-92
2990 (in USBM OFR 1-92)	other	OFR 1-92

Sample Detail

Sample Number [368 \(in USBM OFR 1-92\)](#)

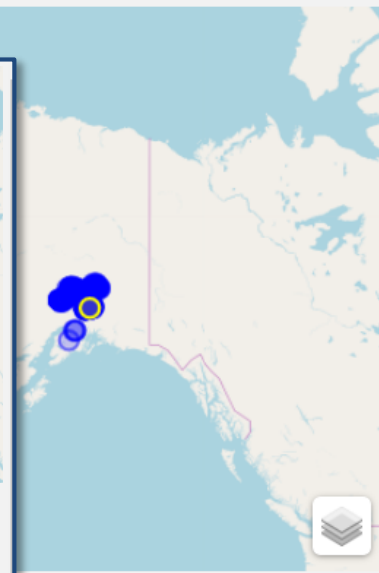
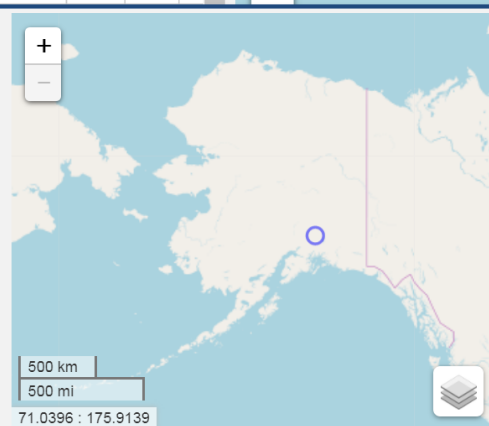
Sample Documentation

Datum NAD27
 Accuracy 50 m
 Latitude 62.152173162
 Longitude -147.404315588
 Sample Description Placer concentrate; 0.1 cubic yd.; Alluvium
 Field Station Number 368 (in USBM OFR 1-92)

Analyses [\[Download All\]](#)

Reference Number OFR 1-92-1
 Citation [OFR 1-92](#)
 Laboratory Chemex Labs, Inc.
 Description Gravimetric recovery of gold and platinum was performed before the remaining portion was ground to a 140 mesh. Pan concentrates were analyzed by atomic fluorescence for gold, platinum, and palladium, and inductively coupled plasma for all other elements analyzed.
 Sample Type other

Au
oz/cy
-5

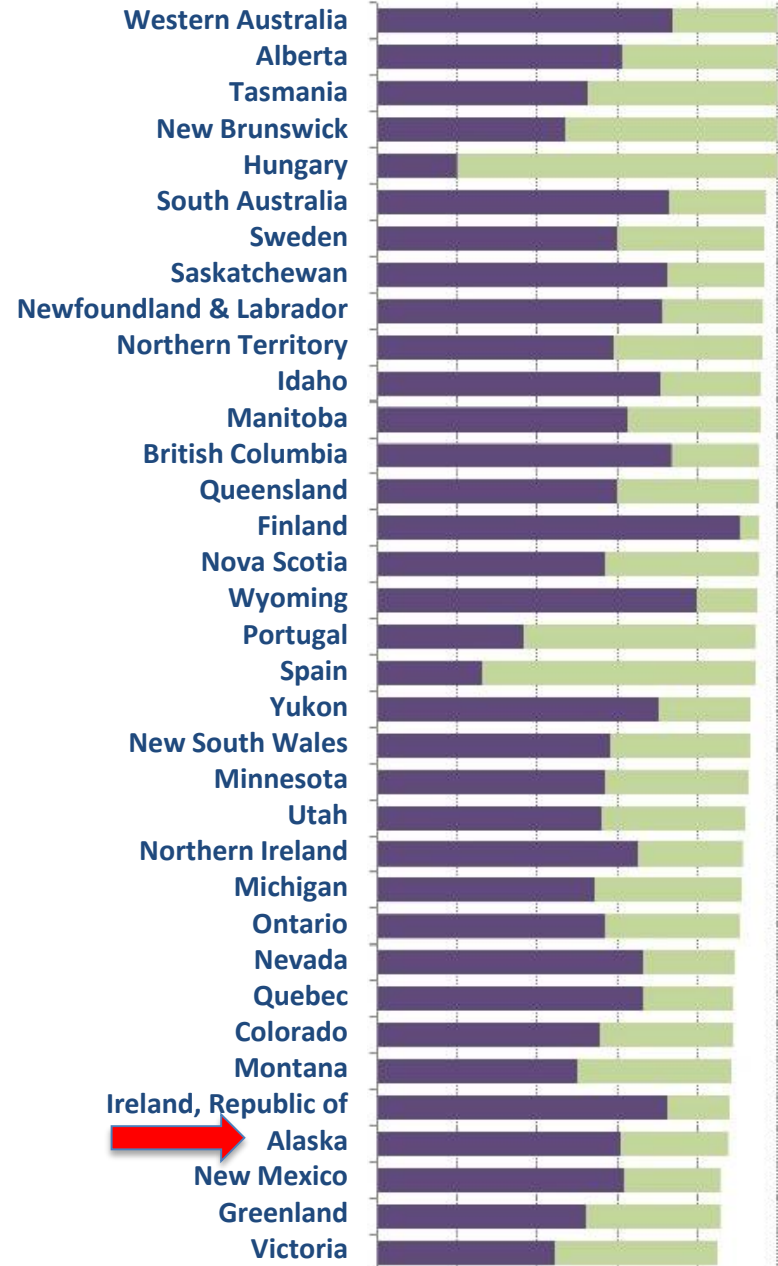
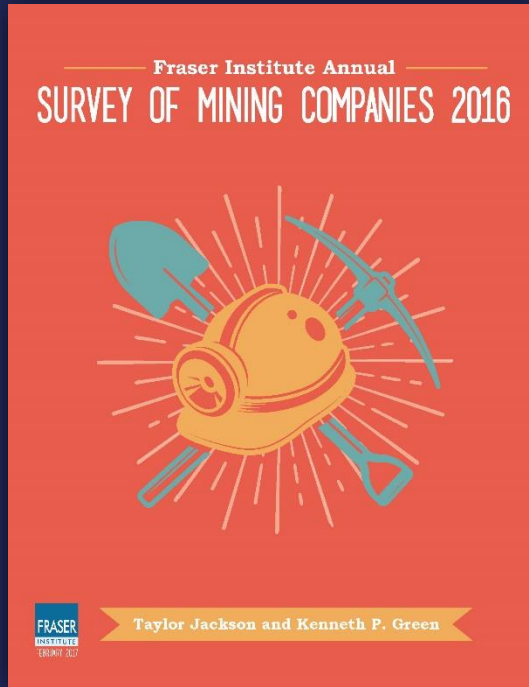


<http://doi.org/10.14509/geochem>



Alaska's geological database

- Ranks 32 out of 106 countries
- 60% successful at encouraging investment



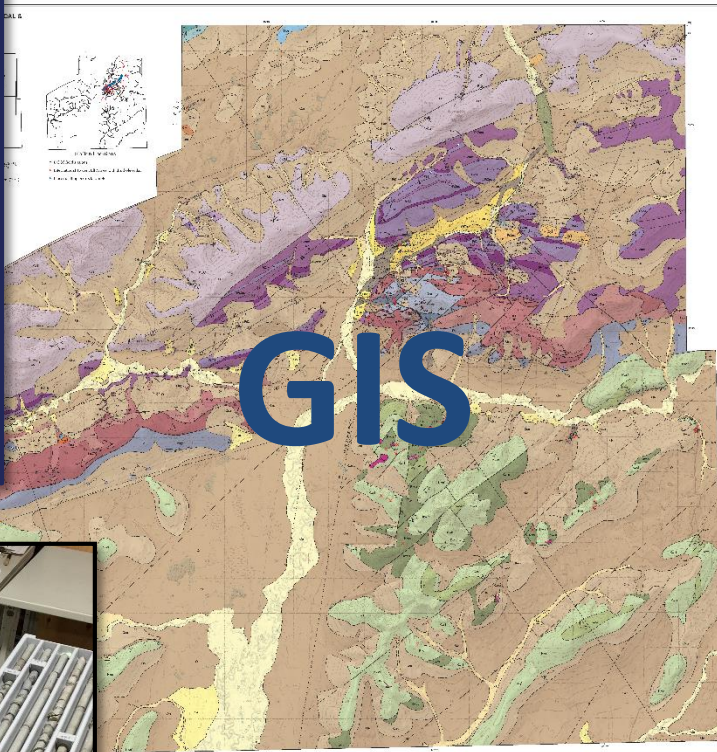
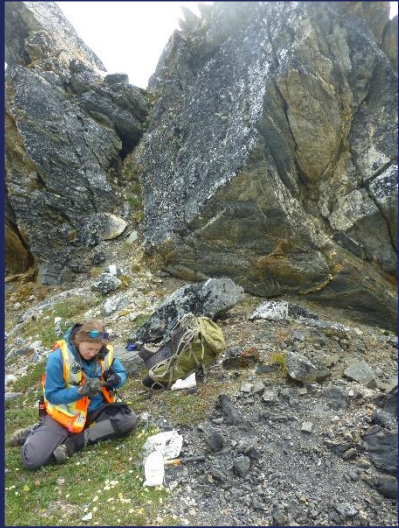
How do you currently find out about new DGGGS products?

1	Conferences/meetings	147 of 175 total responses
2	Email	115 of 175 total responses
3	Casual internet browsing	112 of 175 total responses
4	Word of mouth	108 of 175 total responses
5	Facebook	90 of 175 total responses
6	Twitter	70 of 175 total responses
7	RSS feeds	58 of 175 total responses



25 Responses

DGGS concentrates on providing 1:63,360-scale geologic mapping and supporting data in high-mineral-potential areas

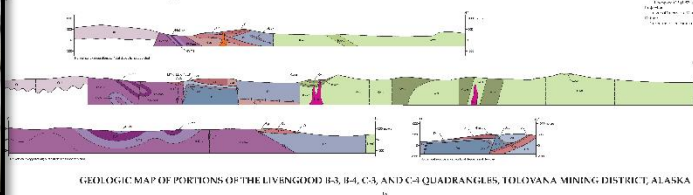
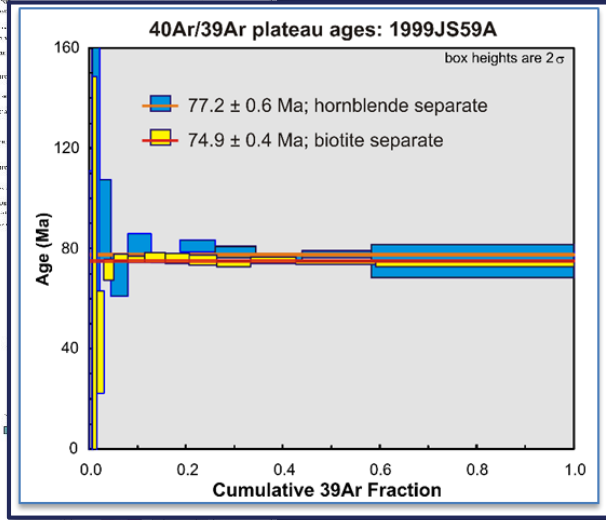


THE GREAT STATE OF ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

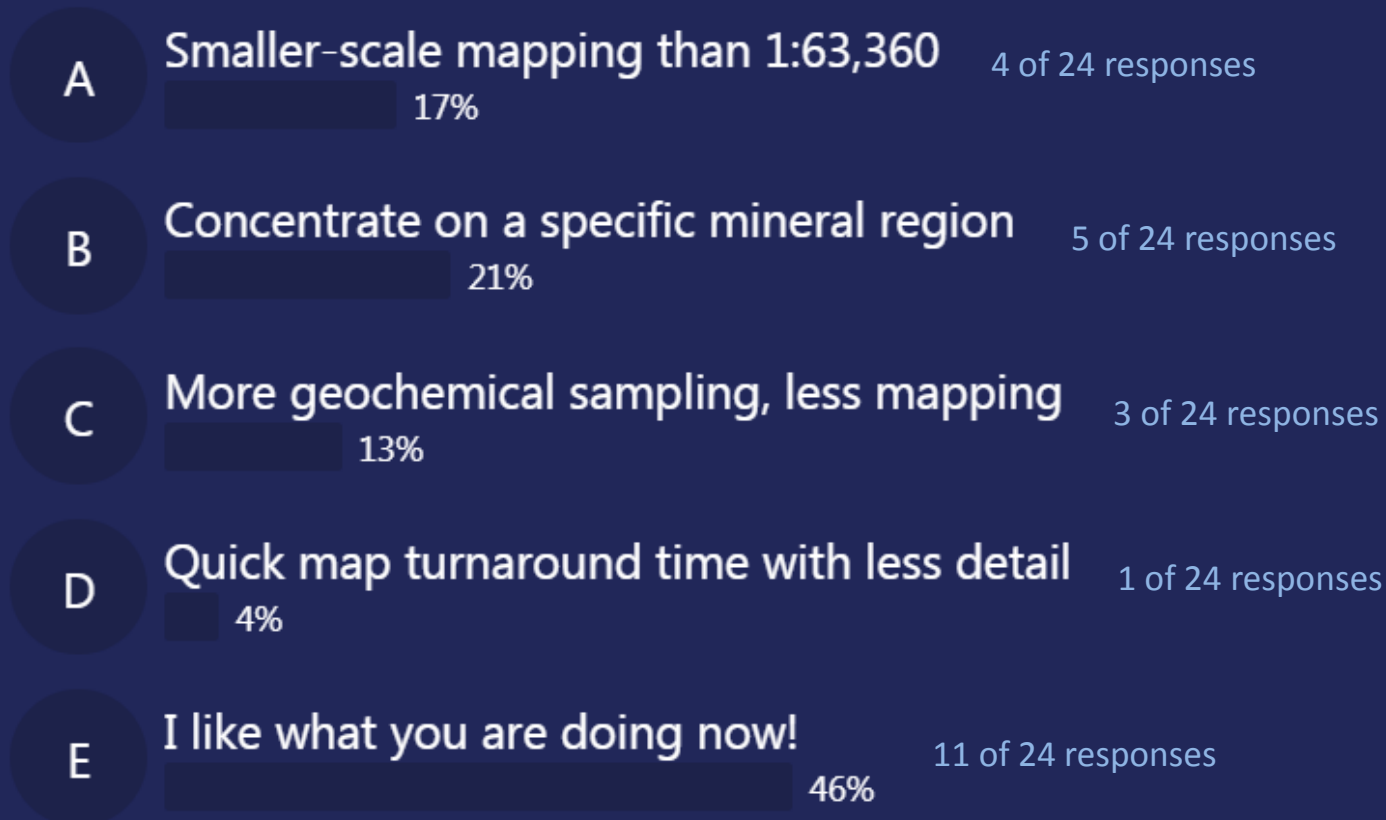
State of Alaska | Natural Resources | Geological & Geophysical Surveys | Geochemistry

Livengood gold Showing: 50 Sort by: Score

Sample No	Sample Type	Citation	Ag ppm	Al ppm	As ppm	Au ppm
01MBW450A	rock	RDE 2004-2	0.5	6.82	309	0.306
01MBW456A	rock	RDE 2004-2	-1	7.84	2640	0.228
01MBW449A	rock	RDE 2004-2	-1	6.27	182	0.046
01MBW456B	rock	RDE 2004-2	-1	0.46	1955	0.145
03REM006A	standard		15	0.15	346	3.05
03Z255A	rock	RDE 2004-2	-1	9.27	30	-1
01MBW458A	rock	RDE 2004-2	9.2	0.81	-2	-2
01MBW457A	rock	RDE 2004-2	1.9	7.57	-2	0.676
03MBW018C	rock	RDE 2004-2	-1	1	311	0.007
03MBW065A	rock	RDE 2004-2	-1	0.34	72	-1
03MBW066A	rock	RDE 2004-2	-1	0.06	10	-1
03Z082A	rock	RDE 2004-2	-1	0.46	7	-1
03EA137A	rock	RDE 2004-2	-1	0.44	-1	-1
03Z178B	rock	RDE 2004-2	-1	7.01	-1	0.005
03EA259A	rock	RDE 2004-2	-1	0.45	413	
03MBW251A	rock	RDE 2004-2	-1	6.49	221	0.068
03REM002A	standard		-1	7.49	37	0.005
03REM002A	standard		-1	4.31	844	0.241
03Z248A	rock	RDE 2004-2	-1	0.42	170	-1
03MBW256A(1)	rock	RDE 2004-2	-1	6.36	3320	0.553



What style of geologic mapping would help you the most? (select one)



What data do you wish DGGGS provided, or would like us to provide in the future?

Comments during or after the 2017 AMA presentation:

- Provide abandoned core rescue services, too much information rots away in alder choked backlots.
 - I agree. It would make sense to collect this core.
- Reference library of pulps/reject material that is available for analysis.
- Provide detailed geologic mapping and regional concepts throughout the state.
- Create KML/KMZ map images that I can bring into Google Earth.
- Paper mapping is dead. Or, will be soon enough.



Alaska is a big state. How can we leverage our resources to get the data we need?

- Funds – geophysical surveys
- Data – reports and maps
- Samples & core – donations to the GMC
- Data portals – Alaska elevation data
- Networking – consortia to complete goals



Photo provided by Mandy Willingham, DGGS



What platform would you want to use to communicate with others in the mineral industry/geosciences community? (select one)



25 Responses



Comments from during and after the 2017 AMA presentation:

What factors hinder communication and collaboration in the community?

My company asked me not to share some publicly available data at AMA.

Are there State policies that could be made or changed to facilitate data creation or information sharing?

- Submit industry data like the Canadian model. Working in Alaska is expensive and starting at square one every time is not progressive.
- Help determine DNR stake/coordinates lease ownership boundaries.
- DNR is using a different datum than I do, and it's making it difficult for me to know where my claim boundaries are really located.
- I would like the State to provide paperless, online claim staking.

What steps can we take now to promote the leveraging of our resources?

An Esri Mining User Group (MUG) could be a starting point for sharing ideas and data.



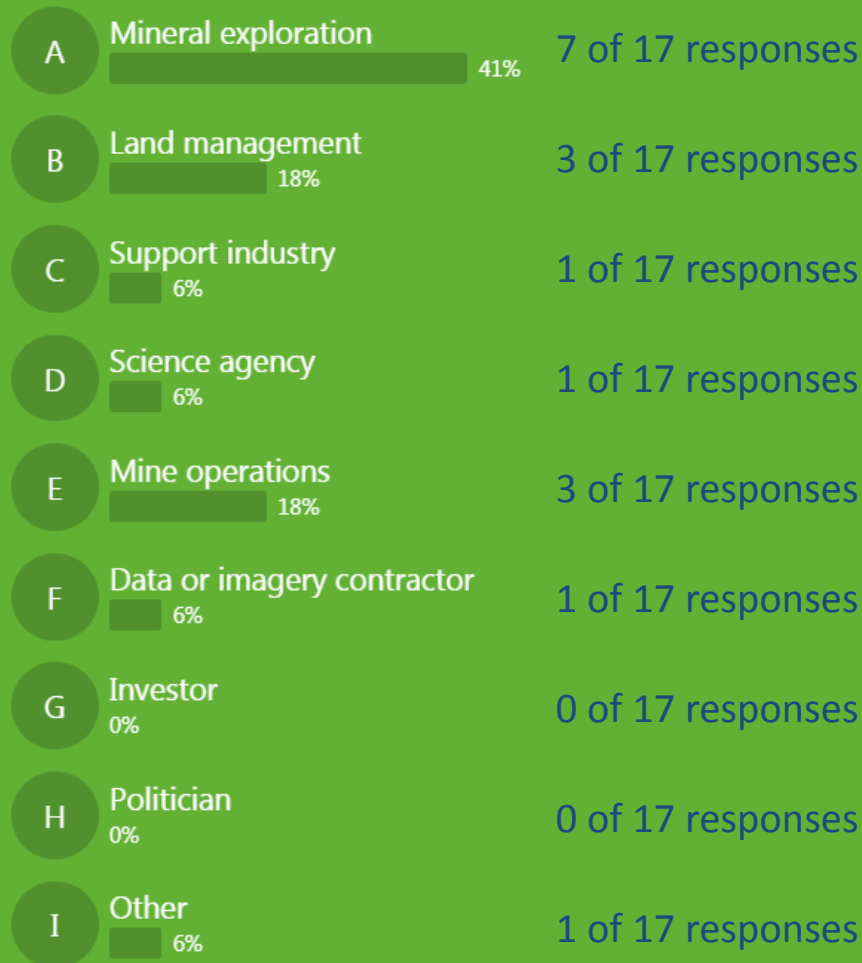
Thank you for your feedback. Please contact DGGS with questions or comments.

For more information, contact Jen Athey at Jennifer.Athey@Alaska.gov, 907.451.5028



The following slides display responses to additional poll questions that were asked during the Data Innovations session on Thursday morning, November 9.

What is your job's focus? (select one)



Do you use GIS? (select one)

A

Yes, I do.

14 of 16 responses

88%

B

I want to. 0 of 17 responses
0%

C

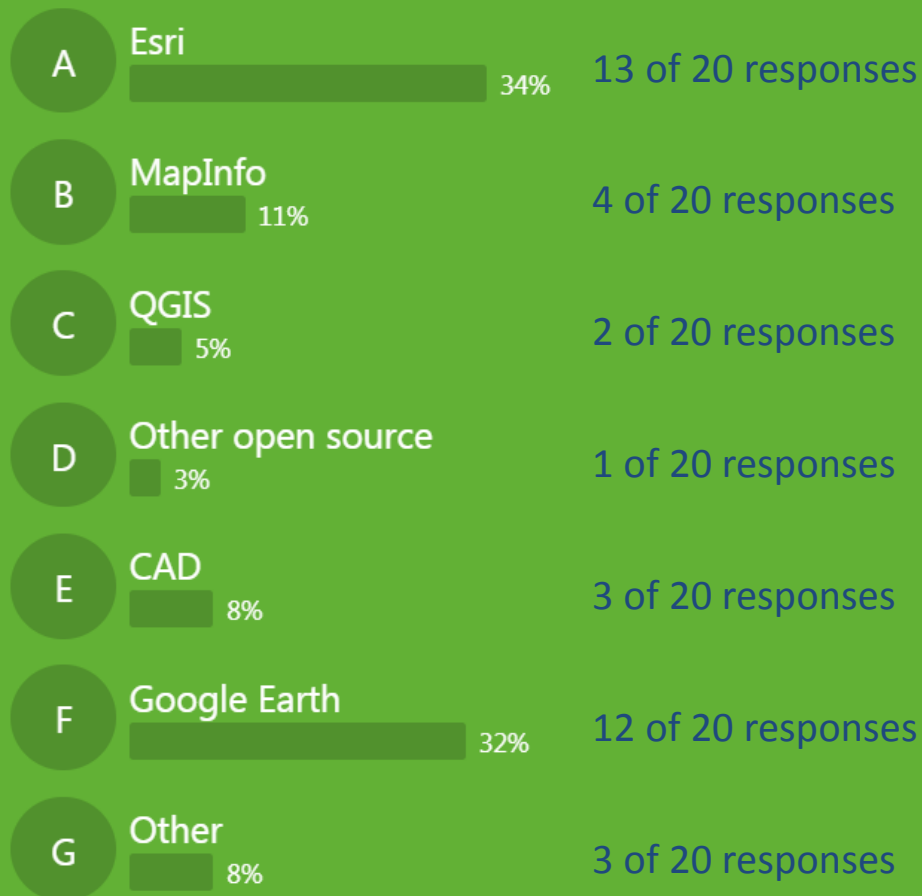
Someone in my office does it for me. 2 of 16 responses
13%

D

We don't use GIS. 0 of 17 responses
0%

16 Responses

What GIS software do you or your company use? (may select more than one)



Have you used the IfSAR data? DEM?

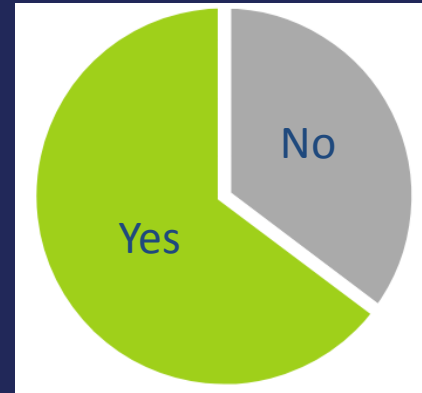


Yes
11 of 17 responses



No
6 of 17 responses

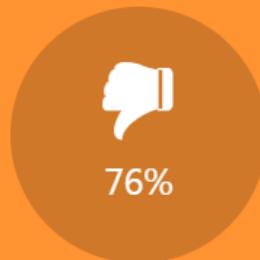
17 Responses



Are you active in collecting lidar in the state?

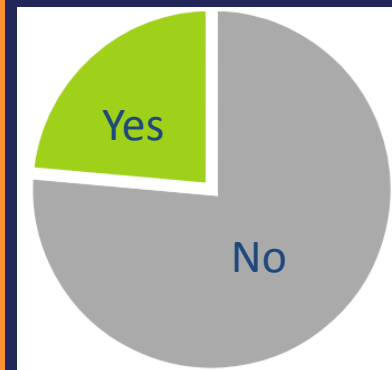


Yes
4 of 17 responses



No
13 of 17 responses

17 Responses



What data did you recently want to use but couldn't find?

- Yearly snapshots of state and federal claim maps.
- Publicly available still (?) logs
- Oil and gas wells
- Updated higher accuracy Shuttle Radar Topography Mission (SRTM) elevation data, but it does not exist north of Anchorage.

What technological advances in mapping do you want to know more about? (may select more than one)

