DIGITAL MAPPING TECHNIQUES 2023

The following was presented at DMT’23
May 21 - 24, 2023

The contents of this document are provisional

See Presentations and Proceedings from the DMT Meetings (1997-2023)

http://ngmdb.usgs.gov/info/dmt/
The WSGS started having discussions about how its publications (map and reports) are organized on its website, the portals used to access them, the popularity of the different deliverables, and how products are delivered to the public. A survey was created using Google Forms and shared with the public to develop a baseline to assist in future decision making. Over 400 people participated in the survey.
Wyoming State Geological Survey
“How to best serve the needs of the public? Take our survey—motivation, methodology, and results”

JAMES AMATO
Digital Mapping Techniques 2023
Motivation:

The WSGS started having discussions about how our publications (map and reports) are organized on our website, the portals used to access them, the popularity of the different deliverables, and how products are delivered to the public.

Are people accessing our publications from mobile devices or is everyone using a desktop or laptop? Do zipfiles restrict people from accessing publications or other datasets on mobile devices? Which portals of delivery are the most popular? How many people use the specific products we deliver? What does the public need? Where can the WSGS improve?
Motivation:

Last year was my first DMT in Rolla, MO. One talk that really stuck in my head was a talk that Al Guiseppe from the Pennsylvania Geological Survey gave toward the end of the conference about map products and how to best serve public needs.

It inspired me to share with my colleagues that we are creating and organizing our deliverables based upon our assumptions of what the public wants (how we use the products) vs. really knowing the needs of the public.
We put together a survey via Google Forms and passed around the office for input on questions and answers.
The survey was shared with:

- WSGS Email List 5,000+ subscribers
- Social Media (Facebook/Twitter/Instagram) 13,000+ subscribers
- Banner on homepage of www.wsgs.wyo.gov
- Various State Agencies: (e.g., Dept. of Environmental Quality, Engineer’s Office)
- Wyoming Geological Association
- Wyoming Geospatial Organization
- University of Wyoming: Department of Geology and Wyoming Geographic Information Science Center
- And any other related channels we could think of

We offered an incentive to participate: All participants will be entered into a drawing to win a geologic map of their choice (5 winners).
Over 400 people participated
Thank you for taking the time to provide the Wyoming State Geological Survey (WSGS) with feedback on how you use and access the data we provide on our website, wsgs.wyo.gov. Your feedback will help us improve our services. The answers you provide in this survey will remain anonymous unless permission is given. At the end of the survey, you can include your email address to be entered into a drawing for a free WSGS geologic map. Your email address will not be shared.
Which device do you most often access WSGS publications from our website?

- Desktop/laptop
- Smartphone
- Tablet
Which device do you most often access WSGS publications from our website?

418 Participants
68% Desktop/laptop
32% Mobile device
Which publication format do you prefer?

- Print
- Digital
- Both
Which publication format do you prefer?

415 Participants
59% Both (Digital and print)
30% Digital
11% Print
Which available format(s) do you use most often? (Check all that apply)
Which available format(s) do you use most often? (Check all that apply)
What other formats would you like to see the WSGS offer?
What other formats would you like to see the WSGS offer?

In summary:
• Rest services for streaming
• Elevation data (LIDAR)
• Mobile friendly website
What page(s) on the WSGS website do you often visit to access our publications and/or datasets? (Check all that apply)
What page(s) on the WSGS website do you often visit to access our publications and/or datasets? (Check all that apply)
Do you use GIS software?

- Yes
- No
- No, but I plan to soon.
Do you use GIS software?

416 Participants
51% No
49% Yes, or plan to
If you do use GIS or plan to, what is or will be your primary GIS platform?

- ArcGIS
- QGIS
- Other: 

[Check one or more options]
If you do use GIS or plan to, what is or will be your primary GIS platform?

195 Participants
90% ArcGIS
10% QGIS
Are you aware that you can download data from our interactive/online maps?
Are you aware that you can download data from our interactive/online maps?

407 Participants
63% Yes
37% No
What industry are you in?

- Academic/research/teaching
- Governmental agency (state/federal)
- Energy resources/minerals
- Consulting/environmental
- Engineering
- Geology enthusiast
- Student
- Other: _________________________
What industry are you in?

372 Participants

31% Geology enthusiast
20% Government agency
13% Academic
9% Energy
9% Environmental
8% Retired
4% Engineering
3% Student
1% Land management
Please share any additional feedback on how the WSGS can improve the delivery of publications and/or datasets to the public:
Please share any additional feedback on how the WSGS can improve the delivery of publications and/or datasets to the public:

In summary:

- Better tutorials and instructions for online maps
- More awareness of products and services
- Improving ease of access
- More educational content
What age bracket do you fall in?

- Under 25
- 25-34
- 35-44
- 45-54
- 55-64
- 65+
What age bracket do you fall in?

<table>
<thead>
<tr>
<th>Age Bracket</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>3%</td>
</tr>
<tr>
<td>26-34</td>
<td>11%</td>
</tr>
<tr>
<td>35-44</td>
<td>12%</td>
</tr>
<tr>
<td>45-54</td>
<td>18%</td>
</tr>
<tr>
<td>55-64</td>
<td>19%</td>
</tr>
<tr>
<td>65+</td>
<td>37%</td>
</tr>
</tbody>
</table>

416 Participants

- 37% 65+
- 19% 64–55
- 18% 54–45
- 12% 44–35
- 11% 34–26
- 3% under 25

*Age breaks derived from Facebook analytics*
Where do you live?

- In Wyoming
- Elsewhere in the United States
- Outside the United States
What age bracket do you fall in?

416 Participants
- 62% In Wyoming
- 37% Elsewhere in the U.S.
- 1% Outside the U.S.
Other questions

May we follow-up with you if needed?

- Yes
- No

If you answered "yes" to the question above, please provide your name and email address.

Your answer
Which device do you most often access WSGS publications from our website?

- **(152) Participants 65+**
  - Desktop / Laptop: 76%
  - Smartphone: 15%
  - Tablet: 9%

- **(82) Participants 64–55**
  - Desktop / Laptop: 65%
  - Smartphone: 30%
  - Tablet: 5%

- **(74) Participants 54–45**
  - Desktop / Laptop: 66%
  - Smartphone: 30%
  - Tablet: 4%

- **(49) Participants 44–35**
  - Desktop / Laptop: 63%
  - Smartphone: 37%

- **(47) Participants 34–26**
  - Desktop / Laptop: 60%
  - Smartphone: 40%

- **(13) Participants 25 and younger**
  - Desktop / Laptop: 46%
  - Smartphone: 46%
  - Tablet: 8%
Which publication format do you prefer?

- **Print + Digital**
- **Digital**
- **Print**

### (152) Participants 65+
- Print: 62%
- Digital: 24%
- Print + Digital: 14%

### (82) Participants 64–55
- Print: 67%
- Digital: 23%
- Print + Digital: 10%

### (74) Participants 54–45
- Print: 50%
- Digital: 38%
- Print + Digital: 12%

### (49) Participants 44–35
- Print: 71%
- Digital: 29%

### (47) Participants 34–26
- Print: 45%
- Digital: 15%

### (13) Participants 25 and younger
- Print: 46%
- Digital: 39%
- Print + Digital: 15%
Do you use GIS software?

- (152) Participants 65+
  - Yes: 65%
  - No: 35%

- (82) Participants 64–55
  - Yes: 56%
  - No: 44%

- (74) Participants 54–45
  - Yes: 47%
  - No: 53%

- (49) Participants 44–35
  - Yes: 65%
  - No: 35%

- (47) Participants 34–26
  - Yes: 72%
  - No: 28%

- (13) Participants 25 and younger
  - Yes: 85%
  - No: 15%
What industry are you in?

- **(114) Geology enthusiast**
  - Partipants 25 and younger: 7
  - Partipants 26-34: 3
  - Partipants 35-44: 21
  - Partipants 45-54: 27
  - Partipants 55-64: 55
  - Partipants 65+: 0

- **(45) Academic and research**
  - Partipants 25 and younger: 3
  - Partipants 26-34: 7
  - Partipants 35-44: 10
  - Partipants 45-54: 10
  - Partipants 55-64: 8
  - Partipants 65+: 7

- **(70) Government agency**
  - Partipants 25 and younger: 1
  - Partipants 26-34: 13
  - Partipants 35-44: 14
  - Partipants 45-54: 19
  - Partipants 55-64: 19
  - Partipants 65+: 4

- **(34) Energy**
  - Partipants 25 and younger: 2
  - Partipants 26-34: 2
  - Partipants 35-44: 6
  - Partipants 45-54: 6
  - Partipants 55-64: 3
  - Partipants 65+: 15
What industry are you in?

(33) Environmental

- Participants 25 and younger: 1
- Participants 26-34: 6
- Participants 35-44: 6
- Participants 45-54: 6
- Participants 55-64: 1
- Participants 65+: 13

(15) Engineering

- Participants 25 and younger: 2
- Participants 26-34: 2
- Participants 35-44: 2
- Participants 45-54: 2
- Participants 55-64: 4
- Participants 65+: 5

(13) Student

- Participants 25 and younger: 4
- Participants 26-34: 4
- Participants 35-44: 2
- Participants 45-54: 2
- Participants 55-64: 3
- Participants 65+: 3

(35) Retired

- Participants 25 and younger: 7
- Participants 26-34: 4
- Participants 35-44: 3
- Participants 45-54: 2
- Participants 55-64: 7
- Participants 65+: 28
Preliminary conclusions:

- ~1/3 of participants primarily access our website using a mobile device (smartphone or tablet). Use of smartphones to access our website increases in popularity among younger generations.
- ~2/3 of participants prefer both digital and print publications. Use of digital only products slightly increases in popularity among younger generations.
- ~1/2 of participants use or plan to use GIS; 90% of which use ArcGIS platforms. Use of GIS significantly increases in popularity among younger generations.
- ~2/3 of users live in Wyoming, ~1/3 of users live elsewhere in the U.S.
- Our Map Search, Interactive Maps, and Big C are the most popular “portals” to access publications and datasets via the WSGS website.
- Our interactive/online maps are extremely popular, but more work needs to be done to educate users on how to use these ESRI web apps more efficiently.
Zipfiles:

Do zipfiles prohibit or restrict people from easily accessing publications or other datasets on mobile devices (smartphone / tablet / GPS)?

Are people able to easily open zipfiles on their mobile device or are they required to install an additional app, or take additional steps to have this functionality? Are people aware of how to do this?

As cloud hosted endpoints (storage), cloud optimized products, and GIS streaming are increasing in popularity, zipfiles are becoming more obsolete. Cloud optimized datasets (COG and COPC) can’t be zipped as it prohibits range requests in the cloud. This is why when you download a raster such as a DEM (GeoTIFF) or topographic map (GeoTIFF) from the USGS it’s not zipped.

Unfortunately, much like the shapefile, we can’t fully move away from some file types being zipped as a bulk download option.
À la carte map products:

Questions / Discussion

James Amato
Wyoming Geological Survey
Map Editor & Geospatial Technical Principal
james.amato@wyo.gov
307-766-2286 ext.250