DIGITAL MAPPING TECHNIQUES 2022

The following was presented at DMT ‘22
May 22 - 25, 2022

The contents of this document are provisional

See Presentations and Proceedings from the DMT Meetings (1997-2022)

http://ngmdb.usgs.gov/info/dmt/
The Butte Mining District
Merging Google Earth with ArcGIS Pro
In the Beginning

The Google Earth side of my work started in 2014 by “pinning” map locations to get Latitude and Longitude information for our current database.
The MBMG Data Preservation Department was working with the Montana Historical Society scanning a small collection of historical maps in the Flint Creek Mining District and the claims shown on the maps had to be Geo-referenced.
Flint Creek Mining District Claims from 1890 map.
The MBMG acquired a substantial amount of information from the U.S. Forest Service. Again, the mining claims within the New World Project had to be geo-referenced, so “pinning” claim locations was again a great way to keep track claims that the location was completed for.
Aside from claim locations, map and drill hole locations had to be referenced also.
Over 1,740 mining claims have been verified throughout Montana in the MBMG Mines database.

709 of these locations are located in the Butte Mining District.
To keep track of the mine shafts and mining claims in the Butte District, I reverted back to “pinning” the locations, but, I added outlines of the claims also.
T3N R8W Sections 12 & 13 are a small portion of the Butte Mining District.
Claim # 728
Lot # 131
Palen # 13
M.E. # A-544
Location Date: Feb 20, 1880
Claimant: George W. Folin
Survivor: Thomas F. Baker

This information is for display and secondary reference. It is and does not purport to be a legal claim survey and is not to be used as such.

Montana Bureau of Mines and Geology
Mining Archives Dept
1300 West Park Street
Butte, MT 59701
(406) 498-4181
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The links will allow a user to access all information that the MGMG or the Bureau of Land Management have on the mine claim.
Besides the 709 claim locations, I currently have accumulated 1,429 possible hazard locations within the Butte Mining District.
Each hazard location is interactive and will give the end user information on where the hazard originated from.
The database kept getting larger and larger until the Butte Stope Book grant came along! Then hazard locations started to become abundant.
Started out as a NGGDPP Priority 2 Grant (July 2019 to July 2020)

Sponsored by the National Geological and Geophysical Data Preservation Program (NGGDPP)

Received grant due to a portion of the collection being in danger of theft or destruction

Unique to Butte’s mining heritage

Holds underground mining data (workings) from early 1880’s to 1987

If lost, the information could not be replaced or reduplicated
There are 353 Stope Books that cover a total of approximately 12.19 square miles of surface space and hold the workings of every mine within the index guide.
Index Guide Footprint of area covered by the Stope Book collection (in yellow)
Emma Mine – 100 Sill Stope Book Page

Each book footprint covers 16,600 square feet of surface and 6.67’ of elevation.
Emma Mine

Surface to 200 Sill

The brighter the yellow, the more vertical the workings are.
Eventually, I hope to include full color mine "workings" in ArcPro!
Hopefully, the base files I create will be used by professionals in other MBMG projects, such as Earth MRI, the Groundwater Information Center (GWIC), and the Abandoned Mines Inventory (AIM).
New Funding

NGGDPP Priority 1 Grant
(July 2022 to June 2023)

With our upcoming grant, we will be scanning 156 Stope Books that are currently reside at Montana Resources.

When completed, we will have a total of 202 out of 303 total books scanned.
One question you may be asking yourself is

Why are these “Stope Books” so important to the Butte Mining District?
Look out down below: Four-foot sinkhole opens in Butte back yard

Subsidence, my fellow mappers!

Subsidence!!
Look out down below: Four-foot sinkhole opens in Butte back yard

How deep is it? Butte homeowner watches sinkhole grow in back yard

Charlie Muthen sawed the ground loose when he looked at his back yard. He thought nothing of it...
Spring equals sinkhole

By John Grant Emigh of The Montana Standard  Apr 9, 2011

Bob Chasing Elk sinks hole with water on a street in Butte's North Side while fellow Butte-Circa Bow road department workers, from left, Tom Lippke and Jim Peritz, and county recreation director Tom Malloy look on Friday. The hole occurred that morning after an abandoned manhole collapsed on 16th Street near Walker's Flat Avenue. Crews filled the hole with water to see if it would collapse further, and then filled it with concrete and soil.

John Grant Emigh / The Montana Standard
Look out down below: Four-foot sinkhole opens in Butte back yard

Sinking in deep

Old mine shaft opens leaving 100-foot deep sinkhole in Uptown street

How deep is it? Butte homeowner watches sinkhole grow in back yard

By April Sabatke

Montana Bureau of Mines and Geology

Springfield
Look out down below: Four-foot sinkhole opens in Butte back yard

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Sinking in deep

Old mine shaft opens leaving 100-foot dr

Sprin' Mine shaft opens in Walkerville

Roll Lash, left, of Jordan Construction, and Ron Terrick of the county planning department inspect a sinkhole over the Cairo

Twin mine shaft. Tuesday in Walkerville. The sink hole was discovered Saturday and will be filled Wednesday. Lisa Kunkel / The
Old mine shaft 'surfaces' beneath swing set in Butte

By MIKE SMITH For The Gazette  Apr 7, 2016

Butte-Silver Bow Reclamation Manager Tom Malloy peers into a man-made 100-year-old shaft Thursday morning that was discovered in the backyard of a home in the 800 block of North Montana Street. He says it is likely an old mine discovery shaft that was later used as a sewage dump by a nearby billiard hall and saloon that existed a century ago.

Walter Hinick/Montana Standard
30-foot sinkhole opens up in Butte resident's backyard

SUSAN DUNLAP susandunlap@mtstandard.com Nov 26, 2010

A bedroom was over this spot before the hole opened up on a June night. The homeowners had just had the bedroom torn down a couple of months before.