INTRODUCTION

• The Mount Thompson Quadrangle is located in the central Boulder Batholith, SW Montana. The Boulder batholith is host to numerous polymetallic vein deposits, including those in the Butte District.
• Understanding the depositional time frame of the batholith and veins is important to economic geologic exploration and resource acquisition.
• Recent USGS (EDMAP)-funded geologic mapping in the Mount Thompson Quadrangle is focusing on remapping an existing map, gathering new data of vein and fault orientation/s, gathering a suite of samples for geochemical analysis to verify and updating a compilation of previous data.
• My goals are to estimate the formation ages of the Lowland Creek Volcanic vent formation and associated veins

  • by providing robust Ar$^{40}$, Ar$^{39}$ ages.
  • Testing previously estimated Lowland Creek Volcanic vent ages
  • generating the first pyroclastic rock ages in this region

STUDY AREA

Butte North
30° x 60' quadrangle

Lowland Creek Volcanic Field
Ages (Ma)

0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5
0 10 20 30 40 50 60

0 0.1 0.2 0.3 0.4

NHO-16-10
53.33 ± 0.15 Ma (2σ)
Unit: Tldb

NHO-16-75
51.89 ± 0.13 Ma (2σ)
Unit: Tld

NHO-16-81
51.81 ± 0.07 Ma (2σ)
Unit: Tld

NHO-16-05
51.81 ± 0.07 Ma (2σ)
Unit: Tldb

REFERENCES

DISCUSSION AND CONCLUSIONS

• The results show that Lowland Creek Volcanic vent formation happened 51.9 million years ago in the Mt. Thompson quadrangle.
• The ages overlap with dikes and vein systems ages that are economically significant in the Butte district.
• The formation ages of 51.9 Ma support and fit with the geologic context of the region.

ACKNOWLEDGEMENTS

A Special thanks to Dr. John Döllner for his tutelage and patience with this project.
Thank you for the guidance, insight, and support to Dr. kale Kupper, Dr. Dan Miggins, Dr. Anthony Koppers, Nansen Olson, Michael Sepp, and Neal Mankins.
Thank you Dr. Kaplan Yalcin and CEOAS for the grant funding.