Structural and alteration framework of a base metal mineralized quartz vein system that overlies a Climax-type porphyry Mo deposit at Crested Butte, Colorado, USA

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Introduction

The porphyry system at Mt. Emmons presents a unique challenge.

- Investigating hydrothermal systems in northwest Montana, Idaho, and Minnesota.
- Understanding the porphyry Mo deposit model and its implications for exploration.

The data presented in this paper may help evaluate the structural and alteration framework of the Climax porphyry Mo deposit in Colorado.

- The Climax deposit is a Climax-type porphyry Mo deposit.
- It is located in the Mount Emmons District, near the Climax mine.

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Data

- All fractures (n=623)
- Fractures that occur in zones (n=66)
- Fractures >50 meter (n>29)

- All veins (n=485)
- Veins that occur in zones (n=186)
- Veins >50 meter (n>23)

- Chlorite, epidote, biotite and carbonate veins (11)
- Massive to semi-massive galena, sphalerite and pyrite veins (19)
- Veins with average pyrite size >0.3 cm (n=64)

- 50 faults (n=51)
- Faults >10 cm thick (n=19)
- Faults >100 cm/feet (n=18)

Regional Considerations

- Map showing the location of the Climax deposit in the Mt. Emmons District.
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Conclusions

- Major structural controls, defined by dyke and dyke-related features, are related to a NW-SE striking fault zone.
- The Climax deposit is located near the intersection of two major structural zones.
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