I. Introduction

The Skeena arch is a northeast trending (anti-metamorphic) high that transects the Skeena terrane in central BC (Figure 1). It is considered to have significant metamorphic potential, with the majority of mineral occurrences interpreted as generically related to Late Cretaceous and Eocene intrusive suites (MacIntyre, 2000). Improvements to the structural framework have been made through interpretation of aeromagnetic data, targeted mapping and geochronology. In particular, northeast and southeast trending structures have been identified and have been borne out in mineral exploration in the Skeena Arch.

Structural features identified through detailed mapping are emphasized herein along with their bearing on new and previously documented mineralization. Aeromagnetic interpretation is discussed in detail by Rahimi et al. (2017).

II. Targeted Mapping

The Skeena arch is a northeast trending (anti-metamorphic) high that transects the Skeena terrane in central BC (Figure 1). It is considered to have significant metamorphic potential, with the majority of mineral occurrences interpreted as generically related to Late Cretaceous and Eocene intrusive suites (MacIntyre, 2000). Improvements to the structural framework have been made through interpretation of aeromagnetic data, targeted mapping and geochronology. In particular, northeast and southeast trending structures have been identified and have been borne out in mineral exploration in the Skeena Arch.

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III. Northeast Trending Structures

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IV. Southeast Trending Structures

Two U-Pb zircon ages of 170 ± 1 and 217 ± 1 Ma (Figure 4a) confirm the presence of a Late Triassic intrusive suite (herein called the Mulpit suite) in the Skeena Range originally documented by Deytel et al. (2009). A strong aeromagnetic lineament along the west side of the Skeena Range (Figure 2) juxtaposes these Late Triassic plutons and the older volcanic rocks which they intrude to the east against Middle Jurassic Bower Lake Group sedimentary rocks to the west near Telkwa Pass (Figure 2). This lineament is therefore interpreted to reflect a southwest-sloping normal fault. Parallel minor faults were documented in the Telkwa and Mount Felber map areas (Figure 5).

The Mulpit suite intrusions contain geochemical similarities with the Bulkley (Late Cretaceous) and to a lesser extent Nanika (Eocene intrusive) both of which are known to be associated with porphyry and related mineralization in the Skeena Arch. All these suites have characteristic isotopic composition and high water content (Figure 5). These control the Warfield River to the west and to the Skeena Range and Tatsi Lake area to the east. These are porphyry-copper type intrusions whose ages do not appear to be problematic according to the same geochemical criteria (Figure 5). The epithermal alteration and mineralization at the LaMoore Creek prospect is interpreted to be genetically related to the adjacent Mulpit suite intrusions (Figure 3e).

The base of the Houton Group, marked by a volcanoclastic conglomerate, occurs in the Mount Felber map area. A crystal-lithofacies slightly above the conglomerate yields a U-Pb zircon age of 204 ± 2 Ma confirming a Late Triassic age for the base of the Houton Group in this area. Progressing to the Triassic-Jurassic boundary has been empirically correlated with many significant deposits in Strike (x) of Northern mining (2015).

V. Conclusion

New detailed mapping in conjunction with aeromagnetic interpretation has improved our understanding of the structural framework of the western Skeena Arch and its impact on localizing and exploring mineralization. In particular, the northeast-northeast trending structures have located known magmatic emplacement and associated hydrothermal systems and southwest-trending extensional fault west of the Skeena Range has exposed rocks to the depth of the Triassic-Jurassic boundary.

VI. References


The Skeena arch is a northeast trending (anti-metamorphic) high that transects the Skeena terrane in central BC (Figure 1). It is considered to have significant metamorphic potential, with the majority of mineral occurrences interpreted as generically related to Late Cretaceous and Eocene intrusive suites (MacIntyre, 2000). Improvements to the structural framework have been made through interpretation of aeromagnetic data, targeted mapping and geochronology. In particular, northeast and southeast trending structures have been identified and have been borne out in mineral exploration in the Skeena Arch.

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