## BEDROCK GEOLOGY, SEARCH PHASE I PROJECT AREA, WESTERN SKEENA ARCH, WEST-CENTRAL BRITISH COLUMBIA **INTRUSIVE ROCKS VOLCANIC AND SEDIMENTARY ROCKS Detailed Geology of the Tatsi Creek Area** MDRU **Lower to Upper Cretaceous** Carpenter intrusive suite Skeena Group Geoscience BC Granodiorite to granite; coarse-grained and equigranular; titanite-, hornblende-, and biotite-bearing; minor rhyolite and andesite dyke complexes; undeformed to foliated **Rocky Ridge Formation** luksrrv Dark green-grey to brown basalt to basaltic andesite flows and breccia; augite-, plagioclase- and hornblende-phyric to aphanitic; flow-banded rhyolite to dacite domes, breccia and lapilli Nanika intrusive suite tuff; intercalated sedimentary rocks including sandstone, siltstone and shale Granite; fine-grained, plagioclase-, K-feldspar-, quartz-, biotite- and hornblende-porphyritic; **Bulkley Canyon Formation** Diorite to gabbro; medium- to coarse-grained, equigranular; black and white; locally IKSBCs Sandstone, siltstone, mudstone and coal; sandstone is typically medium to thick-bedded; local flaser bedding, laminated siltstone and sandstone; abundant plant fossils; ubiquitous detrital muscovite; local chert pebble and volcanic-derived conglomerate and tuff Undivided Nanika intrusive suite; granite, granodiorite and quartz monzonite; fine- to medium-grained, equigranular to hornblende-, biotite-, plagioclase- and/or quartz-porphyritic lukssv Undivided Skeena Group sedimentary and volcanic rocks Cretaceous to Eocene Undivided Cretaceous to Eocene intrusions; granodiorite, granite, quartz diorite, quartz monzonite, tonalite; fine- to medium-grained, equigranular to porphyritic **Jurassic to Cretaceous Upper Jurassic to Lower Cretaceous** JKB/S Undivided Bowser Lake Group and Skeena Group sedimentary rocks **Late Cretaceous Bowser Lake Group** Granodiorite and quartz diorite; fine-grained, plagioclase- and hornblende-porphyritic; light to dark grey Trout Creek assemblage Diorite; fine-grained, equigranular to plagioclase-, hornblende- or pyroxene-porphyritic; Thick-bedded granule to boulder conglomerate, sandstone, calcareous sandstone, siltstone typically biotite-bearing; dark green to grey and shale; thick-bedded conglomerate with volcanic, plutonic and sedimentary rock derived clasts including sandstone and chert predominates; contains marine and nonmarine fossils Quartz monzonite, granite, quartz diorite and diorite; equigranular, medium- to coarsegrained; white, pink and black **Netalzul volcanics** Undivided Bulkley intrusive suite; granodiorite, quartz diorite, quartz monzonite, granite, and **Detailed Geology of the Venture Peak Area** diorite; fine- to medium-grained, equigranular to plagioclase-, hornblende-, biotite-, quartz-, UJBNV Dark grey to green feldspar- and hornblende-phyric andesite flows, breccia and tuff; intercalated mudstone, sandstone and pebble conglomerate; minor marine fossils and/or K-feldspar-porphyritic Jurassic to Cretaceous Muskaboo Creek assemblage Undivided Jurassic to Cretaceous intrusions in the CPC; diorite, gabbro and minor Sandstone, siltstone, and conglomerate; fine- to medium-grained, grey to brown to green sandstone in thin to thick planar beds predominates; interbedded with dark grey siltstone; granodiorite; unfoliated to weakly foliated rare granule to pebble conglomerate; common ripple marks, trough and hummocky cross-Mount O'Brien bedding, bivalve coquina and trace fossils Kleanza intrusive suite JKBs Undivided Bowser Lake Group sedimentary rocks EJKdi Diorite, quartz diorite, gabbro and monzonite; fine- to coarse-grained, equigranular to porphyritic; minor andesite dykes **Hazelton Group** EJKqd Granodiorite and granite; equigranular, medium- to coarse-grained **Quock Formation** EJKpx Pyroxenite; equigranular, medium- to coarse-grained; locally layered Thin-bedded dark grey siliceous mudstone and tan to pale pink tuff with feldspar fragments; locally massive mudstone and lapilli tuff Undivided Kleanza intrusive suite; granodiorite, granite, quartz monzonite, monzonite, quartz diorite, diorite, gabbro and pyroxenite; fine- to coarse-grained, equigranular to porphyritic **Smithers Formation** Tuffaceous sandstone, siltstone, shale and granule conglomerate; thin to thick planar beds of green to grey to brown sandstone and dark grey to black shale; abundant marine fossils Saddle Hill Formation Miligit intrusive suite Maroon to brick-red tuff; well-bedded crystal-lithic, ash and lapilli tuff and breccia; locally LTMqd Quartz diorite to diorite; fine- to coarse-grained, equigranular contains limestone fragments that weather recessively; minor aphanitic basalt Nilkitkwa Formation Granodiorite; fine- to medium-grained, plagioclase-, biotite- and hornblende-porphyritic IJHNs Well-bedded tuffaceous shale, siltstone, greywacke and limestone **Mississippian to Permian? Upper Telkwa Formation** Delta intrusive suite Flow-banded rhyolite and dacite domes, lapilli tuff, and crystal tuff; beige, cream, red, MPDi Diorite, granodiorite, tonalite and gabbro; foliated to mylonitic maroon, lavender and pink; spherulites locally up to 3 cm in diameter 54°30'N **METAMORPHIC ROCKS** Red dacite tuff; well-bedded ash and lapilli tuff and breccia, rare coherent flows and welded tuff; minor rhyolite and aphanitic, vesicular basalt Paleozoic to Tertiary **Central Gneiss Complex** Black to dark green basalt flows and breccia; pyroxene- and plagioclase-phyric PzTCGm Amphibolite facies felsic and mafic volcanic rocks; tonalitic to granodioritic orthogneiss; Andesitic breccia, lapilli-tuff, crystal tuff and flows; maroon to purple and plagioclase-phyric; minor marble and skarn; schistose and mylonitic **Detailed Geology of the Cariboo Mountain Area** minor basalt, dacite, rhyolite and volcanic derived sedimentary rocks **Lower Telkwa Formation BC MINFILE Occurrences** Geochronology (ages in Ma) Coherent andesite flows; variably amygdaloidal and plagioclase-phyric, locally megacrystic; minor basalt and dacite Subvolcanic Cu-Ag-Au (As-Sb) ■ K-Ar biotite ⊕ FT apatite Andesitic breccia and lapilli tuff; monomict to polymict; minor flows Intrusion-related Au pyrrhotite veins Epithermal Au-Ag: low sulphidation Rhyolite flows and tuff; flow-banded coherent and lesser thin-bedded tuff Porphyry Cu ± Mo ± Au **Structures** Polymictic conglomerate, sandstone, siltstone and lapilli tuff Porphyry Mo (Low F- type) **Undivided Telkwa Formation** Foliation or cleavage Cu skarn **2016 Data Collection Locations** Volcanic-derived sandstone, siltstone, minor conglomerate and tuff; well-bedded, green to → Fold hinge line **Detailed Geology of the South Outcast Peak Area** naroon; includes well-bedded and massive reef limestone and calcareous sandstone and Au skarn Stretching lineation Volcanic Redbed Cu Undivided Telkwa Formation volcanic and sedimentary rocks → Bedding, tops unknown, right way up ♦ Polymetallic veins Ag-Pb-Zn+/-Au ♦ Polymetallic manto Ag-Pb-Zn Noranda/Kuroko massive sulphide Cu-Pb-Zn Igneous layering, flow banding Argillite, siltstone and chert; black to dark grey and light grey to beige; typically thin-bedded Feldspar-quartz pegmatite Mississippian to Permian **Zymoetz Group** General Limestone, marble, silty limestone, calcareous mudstone, minor green and pink lapilli tuff ' / Road and volcanic sandstone; locally fossiliferous **Mount Attree volcanics** Contour line Magnetic declination MPZMAvs Dark green andesitic to basaltic breccia, tuff and flows; aphyric to plagioclase- and augite-Year 2018 uTIJHta 127°46'30"W Latitude 54.5° N phyric; minor rhyolitic and dacitic breccia and tuff; intercalated with thin-bedded limestone, Longitude 127.9° W marble, calc-silicate, conglomerate, sandstone and mudstone Model used IGRF12 **Detailed Geology of the Limonite Creek Area** 18.12° E changing by 0.23° W per year Thrust fault, defined / approximate / inferred / interpreted from geophysics Normal fault, defined / approximate / inferred / interpreted from geophysics **Geoscience BC** MAP 2019-03-01 \_\_\_\_ Dextral fault, inferred / interpreted from geophysics **MDRU MAP 17-2018 BCGS OPEN FILE 2019-07** BEDROCK GEOLOGY, SEARCH PHASE I PROJECT AREA, WESTERN SKEENA ARCH, WEST-CENTRAL BRITISH COLUMBIA -- Fold axial trace, inferred Outcrop Boundary **National Topographic System** PART OF 1:250 000 NTS SHEETS 093L AND 103I YUKON TERRITORY **Detailed Geology of the Paleo Peak Area** J.J. Angen, M. Rahimi, J.L. Nelson and C.J.R. Hart 127°49'30"W 1:150 000 UTM Zone 9; North American Datum 1983 Detailed Geology of the Zymo Ridge Area February 2019 Product of the MDRU - Mineral Deposit Research Unit of The University of British Columbia with contributions by the British Columbia Geological Survey (BCGS) as part of Geoscience BC's SEARCH Project. This map comprises new mapping carried out during the summer of 2016 as well as interpretation of aeromagnetic data (Precision Geosurveys Inc., 2016) and compilation of previous mapping (Richards and Tipper, 1976; Handy, 1979; MacIntyre et al., 1989; Desjardins et al., 1990; Ryan, 1993; MacIntyre et al., 1994; Nelson et al., 2006; MacIntyre, 2007; Nelson et al., 2007; Evenchick et al., 2008; Nelson et al., 2008a; Nelson et al., 2008b; AMEC, 2009; Wasteneys and Yang, 2013). Geoscience BC is an independent, non-profit organization that generates earth science in collaboration with First Nations, local communities, government, academia and the resource sector. Our independent earth science enables informed resource management decisions and attracts investment and jobs. Geoscience BC gratefully acknowledges the financial support of the Province of British Columbia. MDRU is a collaborative venture between the mining industry and The University of British Columbia. The unit, which operates on the support and financial assistance provided by the mining industry and the Natural Sciences and Engineering Research Council of Canada, is an internationally recognized research group devoted to solving mineral exploration-related problems. The BCGS is the government agency responsible for providing inventories, assessments, and archives of British Columbia's geology. It links government, the minerals industry, and communities to geoscience information and mineral resources. To stimulate investment and inform decisions about responsible land and resource management in the province, geoscience data are released through MapPlace, the BCGS online web service. Recommended Citation: Angen, J.J., Rahimi, M., Nelson, J.L. and Hart, C.J.R. (2019): Bedrock geology, Search phase I project area, western Skeena arch, west-central British Columbia; Geoscience BC Map 2019-03-01, MDRU Map17-2018 and BCGS Open File 2019-07, scale 1:150 000.