MINERAL MAPPING USING ASTER DATA, SEARCH PHASE I PROJECT AREA, WESTERN SKEENA ARCH, WEST-CENTRAL BRITISH COLUMBIA

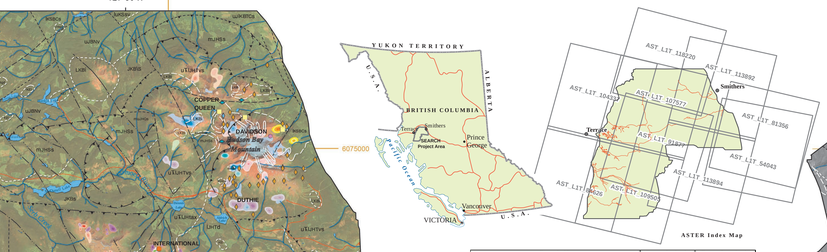
MDRU
MINERAL DEPOSIT RESEARCH UNIT

UBC

Geoscience BC

Predicted Mineral Assemblage Zones

ASTER-Derived Minerals



Granule ID	Center Latitude	Center Longitude
AST_L1T_003081420011945 37_20150501182409_113892	54°47'18.24"N	127°06'57.96"W
AST_L1T_003021720012005 56_20150414212851_118220	54°58'00.84"N	127°46'42.96"W
AST_L1T_003990420061947 46_20150516010940_107577	54°40'38.64"N	127°53'05.28"W
AST_L1T_003072320021949 49_20150423103111_81356	54°29'32.64"N	126°40'38.64"W
AST_L1T_003070920021937 37_20150423055351_54043	54°23'38.40"N	126°45'15.84"W
AST_L1T_003110620031954 31_20150501215120_91877	54°25'50.52"N	127°50'19.68"W
AST_L1T_003081420011945 46_20150501182409_113894	54°16'03.36"N	127°22'17.04"W
AST_L1T_003081920061948 04_20150515194252_84626	54°14'09.96"N	128°41'24.36"W
AST_L1T_003081920061947 51_20150515194247_104337	54°45'24.84"N	128°26'03.84"W
AST_L1T_003990420061947 55_20150516011000_109505	54°09'26.64"N	128°08'46.68"W

VOLCANIC AND SEDIMENTARY ROCKS

Lower to Upper Cretaceous

- luKSRRv Rocky Ridge Formation
- lKSBCs Bulkley Canyon Formation
- luKSsv Undivided Skeena Group sedimentary and volcanic rocks

Upper Jurassic to Lower Cretaceous

- JKB/S Undivided Bowser Lake Group and Skeena Group sedimentary rocks
- uJlKBTCs Trout Creek assemblage
- uJlBNv Netalzul volcanics
- JKBMCs Muskaboo Creek assemblage
- JKBs Undivided Bowser Lake Group sedimentary rocks

Triassic to Jurassic

- muJHQs Quock Formation
- mJHSs Smithers Formation
- lmuHSHv Saddle Hill Formation
- lJHNs Nilkitkwa Formation
- lJHTf Flow-banded rhyolite and dacite domes, lapilli and crystal tuff
- lJHTd Red dacite tuff; well-bedded ash and lapilli tuff and breccia
- lJHTb Black to dark green basalt flows and breccia
- lJHTa Andesitic breccia, lapilli-tuff, crystal tuff and flows
- u'LUHTa Coherent andesite flows
- u'LUHTbx Andesitic breccia and lapilli tuff, rhyolite flows and tuff
- u'LHTbg Polymictic conglomerate, sandstone, siltstone and lapilli tuff
- u'LUHTb Volcanic-derived sandstone and siltstone
- u'LUHTvs Undivided Telkwa Formation volcanic and sedimentary rocks

Upper Triassic

- u'LTsS Stuhini Group

Mississippian to Permian

- u'LUHTr Zymoetz Group
- PZAls Ambition Formation
- MPZMAvs Mount Attree volcanics

INTRUSIVE ROCKS

Eocene

- Eci Carpenter intrusive suite
- Ehgr Granite
- Ehdi Diorite to gabbro
- Ehi Undivided Nanika intrusive suite

Cretaceous to Eocene

- KEi Undivided Cretaceous to Eocene intrusions

Late Cretaceous

- LKBgd Granodiorite and quartz diorite
- LKBdi Diorite
- LKBqm Quartz monzonite, granite, quartz diorite and diorite
- LKBi Undivided Bulkley intrusive suite

Jurassic to Cretaceous

- EJKi Undivided Jurassic to Cretaceous intrusions in the CPC

Early Jurassic

- EJKdi Diorite, quartz diorite, gabbro and monzonite
- EJKgd Granodiorite and granite
- EJKpx Pyroxenite
- EJKi Undivided Kleanza intrusive suite

Late Triassic

- L'LTMqd Quartz diorite to diorite
- L'LTMgd Granodiorite

Mississippian to Permian?

- MPDi Diorite, granodiorite, tonalite and gabbro

METAMORPHIC ROCKS

Paleozoic to Tertiary

- PzTCGm Amphibolite facies felsic and mafic volcanic rocks

Faults / Contacts

- Thrust fault, defined / approximate / inferred / interpreted from geophysics
- Normal fault, defined / approximate / inferred / interpreted from geophysics
- Dextral fault, inferred / interpreted from geophysics
- Sinistral fault, interpreted from geophysics
- Unknown fault / strike-slip, defined / approximate / inferred / interpreted from geophysics
- Contact, defined / approximate / inferred / interpreted from geophysics
- Fold axial trace, inferred

BC MINFILE Occurrences

- Intrusion-related Au pyrrhotite veins
- Epithermal Au-Ag: low sulphidation
- Porphyry Cu ± Mo ± Au
- Porphyry Mo (Low F- type)
- Polymetallic veins Ag-Pb-Zn+/-Au
- Subvolcanic Cu-Ag-Au (As-Sb)
- Noranda/Kuroko massive sulphide Cu-Pb-Zn
- Polymetallic manto Ag-Pb-Zn
- Volcanic Redbed Cu
- Feldspar-quartz pegmatite
- Au skarn
- Cu skarn

General

- River
- Road
- Lake
- Protected area

Magnetic declination
Year 2018
Latitude 54.5° N
Longitude 127.9° W
Model used IGRF12
18.12° E changing by 0.23° W per year

PREDICTED MINERAL ASSEMBLAGE ZONES

Probable — Possible

- Epidote, Chlorite ± Calcite
- Epidote, Chlorite ± Calcite ± Fe oxide
- Alunite, Kaolinite, Prophylite (± Epidote ± Chlorite ± Calcite ± Fe oxide)
- Fe oxide: Magnetite, Hematite (± Limonite ± Geotite ± Jarosite)
- Gossan: Hematite, Limonite, Geotite ± Jarosite
- Ferric bearing minerals
- Sericite, Muscovite (± Chlorite ± Clay minerals ± Fe oxide)

ASTER-DERIVED MINERALS

Geoscience BC
MAP 2019-03-03
MDRU MAP 19-2018

MINERAL MAPPING USING ASTER DATA, SEARCH PHASE I PROJECT AREA, WESTERN SKEENA ARCH, WEST-CENTRAL BRITISH COLUMBIA

PART OF 1:250 000 NTS SHEETS 093L AND 103I

M. Rahimi, J.J. Angen, and C.J.R. Hart

1:150 000
UTM Zone 9; North American Datum 1983

February 2019

0 5 10 20 km
0 5 10 20 mi

Product of MDRU - Mineral Deposit Research Unit of The University of British Columbia as part of Geoscience BC's Search Project. This map comprises new mineral mapping which is the result of processing, interpretation and modeling of level T1 images, Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) data. Ten ASTER L1T images based on image quality, cloud cover, snow, dark spots and plants coverage have been selected from the downloaded images through NASA's Earth Observing System data. For methodology refer to "Rahimi, M., Angen, J.J. and Hart, C.J.R. (2018). Application of ASTER data to identify potential alteration zones on Microwave ridge, northeastern Search project area, west-central British Columbia (part of NTS 093L); in Geoscience BC Summary of Activities 2017: Minerals and Mining, Geoscience BC, Report 2018-1, p. 7–22."

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 geological information layer of map is product of the Mineral Deposit Research Unit (MDRU) with contributions by the British Columbia Geological Survey (BCGS). 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: Rahimi, M., Angen, J.J., and Hart, C.J.R. (2019): Mineral mapping using ASTER data, Search phase I project area, western Skeena arch, west-central British Columbia; Geoscience BC Map 2019-03-03 and MDRU Map19-2018, scale 1:150 000.

Background image source: Landsat 8 Operational Land Imager (OLI), Band combination 7 5 3, Natural with Atmospheric Removal

Background image source: Landsat 8 Operational Land Imager (OLI), Band 1, Bandwidth 0.43 - 0.45 µm