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 British Columbia Geological Survey  
 Open File 2024-12

**Geology of the Rossland-Trail map sheet (NTS 082F/04)**

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scale 1:50,000

- QUATERNARY**
- Qal Alluvium
- PALEOGENE CENOZOIC**
- PElfp dyke: feldspar porphyry; syenite, granite
- MIDDLE EOCENE**
- Ec undifferentiated dikes (commonly feldspar porphyry)
  - Ec Coryell intrusion: syenite, monzonite, quartz monzonite
  - Es Sheppard intrusion: granite, rhyolite dikes
  - PEg College Creek pluton: leucocratic biotite quartz monzonite, granite (47.2 ± 0.5 Ma, U-Pb Zr)
  - Edg undifferentiated dikes
- PENTICTON GROUP**
- Em Marron Formation: andesite flows, minor lapilli tuff, tuffaceous sandstone and conglomerate
  - Ekr Kettle River Formation: sandstone, conglomerate, tuffaceous sandstone
- MESOZOIC**
- UPPER CRETACEOUS**
- Ksm Sophie Mountain Formation: coarse conglomerate with quartzite and/or siltstone
  - Kkg Kinnaird pluton: granite, quartz porphyry, granitic gneiss (71 ± 1 Ma, K/Ar Hb)
  - Kxp quartz porphyry, porphyritic dike
- MIDDLE JURASSIC**
- Jn Nelson intrusion, undifferentiated: granodiorite (Jgd), granite (mJg), leucocratic granite (mJg)
  - Jrd Rainy Day pluton: quartz diorite, massive to porphyritic (166.3 ± 1.4 Ma, U-Pb Zr)
  - Jb Bonnington pluton: granodiorite
  - Jm Rosslund monzonite: monzodiorite, monzonite (167.5 ± 0.5 Ma, U-Pb Zr)
- LOWER JURASSIC(?)**
- Jdi diorite, includes Rosslund sill (Js)
- ROSSLAND GROUP**
- Je Hail Formation: siltstone, sandstone, conglomerate, argillite; minor limestone units
  - Je Elise Formation: undifferentiated volcanic and metasedimentary rocks; minor subvolcanic intrusions
  - Upper Elise Formation
    - Je11 tuffaceous conglomerate: Je11a - predominantly mafic volcanic clasts; Je11b - mixed mafic to felsic volcanic clasts; Je11c - predominantly intermediate to felsic volcanic and intrusive clasts; Je11d - abundant limestone clasts; Je11e - siltstone and mafic volcanic clasts
    - Je10 tuffaceous siltstone, sandstone; Je10a - argillaceous siltstone
    - Je8 andesite tuff, minor basaltic tuff; Je8i - lapilli tuff with plagioclase + augite bearing volcanic clasts; Je8x - plagioclase + augite crystals tuff; Je8k - undifferentiated Je8x and Je8l
    - Je7 basaltic tuff; Je7i - augite-phyric lapilli tuff; pyroclastic breccia; Je7r - fine grained mafic tuff; Je7x - mafic crystal tuff
    - Je5 plagioclase ± amphibole andesite flows
    - Je4 augite ± plagioclase basalt flows, flow breccia
  - Lower Elise Formation
    - Je2 basaltic lapilli tuff with augite ± plagioclase-bearing volcanic clasts
    - Je1 augite ± plagioclase basalt flows, flow breccia, subvolcanic intrusions
- Archibald Formation**
- Ja3 siltstone, sandstone, argillite, commonly rusty weathering
  - Ja1 maroon siltstone, wacke
  - Ja2 turbidite siltstone, wacke, minor conglomerate; Ja2a - conglomerate, commonly with limestone clasts
- PALEOZOIC**
- PERMIAN**
- KASLO ASSEMBLAGE**
- Um1 O.K. ultramafic: serpentinitized pyroxene peridotite; locally dunite and pyroxene dunite
  - Um1-2 Record Ridge ultramafic: Um1 - intensely serpentinitized dunite; Um2 - moderately serpentinitized dunite; Um3 - pyroxene-bearing dunite; Um4 - olivine wherlitz; Um5 - pyroxene-bearing dunite
- PENNSYLVANIAN to PERMIAN**
- Pmtr Mount Roberts Formation: siliceous siltstone, argillite, silty chert, minor sandstone; minor limestone; Pmtr - limestone or dolomite
  - Pmrgn paragneiss, quartz-feldspathic mica schist, granofels; some pegmatite sheets and augen gneiss (includes the Castlegar Gneiss of Simony, 1979)
- MISSISSIPPIAN to PENNSYLVANIAN**
- mPcs Chabonau Creek assemblage: siliceous argillite, black phyllite, slate; black limestone; mPc - limestone (may correlate with mPcs or mPh)
  - mPh Harcourt Creek assemblage: mafic tuff and volcanic breccia; chert, banded marble, quartzite, black argillite
- DEVONIAN to TRIASSIC(?)**
- Tgn Trail Gneiss: grey, intensely foliated biotite-diorite gneiss, hornblende gneiss; metagabbro, minor schist; amphibolite; granitic dikes, pegmatite
- DEVONIAN**
- Jc Johnson Creek pluton: trondhjemite
- ORDOVICIAN**
- Or Active Formation: black carbonaceous argillite and shale; grey argillaceous limestone; silicified; dolomite, limestone
- CAMBRIAN to ORDOVICIAN**
- Ci Index Formation: black phyllite, mica schist, micaceous quartzite, calcareous phyllite
  - Clb Laib Formation: grey limestone (Reeves member); dark phyllite with limestone interbeds (Truman member); black phyllite and argillite (Emerald member)

- SYMBOLS**
- CONTACT OF ALLUVIUM ..... - - - - -
- CONTACT: DEFINED, APPROXIMATE, INFERRED, HIDDEN ..... - - - - -
- FAULT: DEFINED, APPROXIMATE, INFERRED, HIDDEN ..... - - - - -
- NORMAL FAULT: DEFINED, APPROXIMATE, INFERRED, HIDDEN ..... - - - - -
- THRUST FAULT: DEFINED, APPROXIMATE, INFERRED, HIDDEN ..... - - - - -
- SHEAR ZONE: DEFINED, APPROXIMATE, INFERRED, HIDDEN ..... - - - - -
- BEDDING: INCLINED, VERTICAL, OVERTURNED, TOPS UNKNOWN ..... - - - - -
- FOLIATION, CLEAVAGE: INCLINED, VERTICAL ..... - - - - -
- FOLIATION (igneous intrusions & layered gneisses): INCLINED, VERTICAL ..... - - - - -
- LINATION: INCLINED ..... - - - - -
- MINERAL OCCURRENCE:
- PRODUCER, PAST PRODUCER, DEV. PROSPECT, PROSPECT, SHOWING ..... - - - - -
- U-Pb AGE DATE (Ma) ..... - - - - -
- K/Ar AGE DATE (Ma) ..... - - - - -
- PROVINCIAL RGS SILT-SAMPLE SITE ..... - - - - -
- ROAD ..... - - - - -
- STREAM, RIVER, LAKE ..... - - - - -
- PARK BOUNDARY ..... - - - - -

**BASE MAP INFORMATION**

NAD 1983 UTM ZONE 11  
 TRANSVERSE MERCATOR  
 PROJECTION

APPROXIMATE MEAN DECLINATION 2000  
 FOR CENTRE OF MAP 004°04'

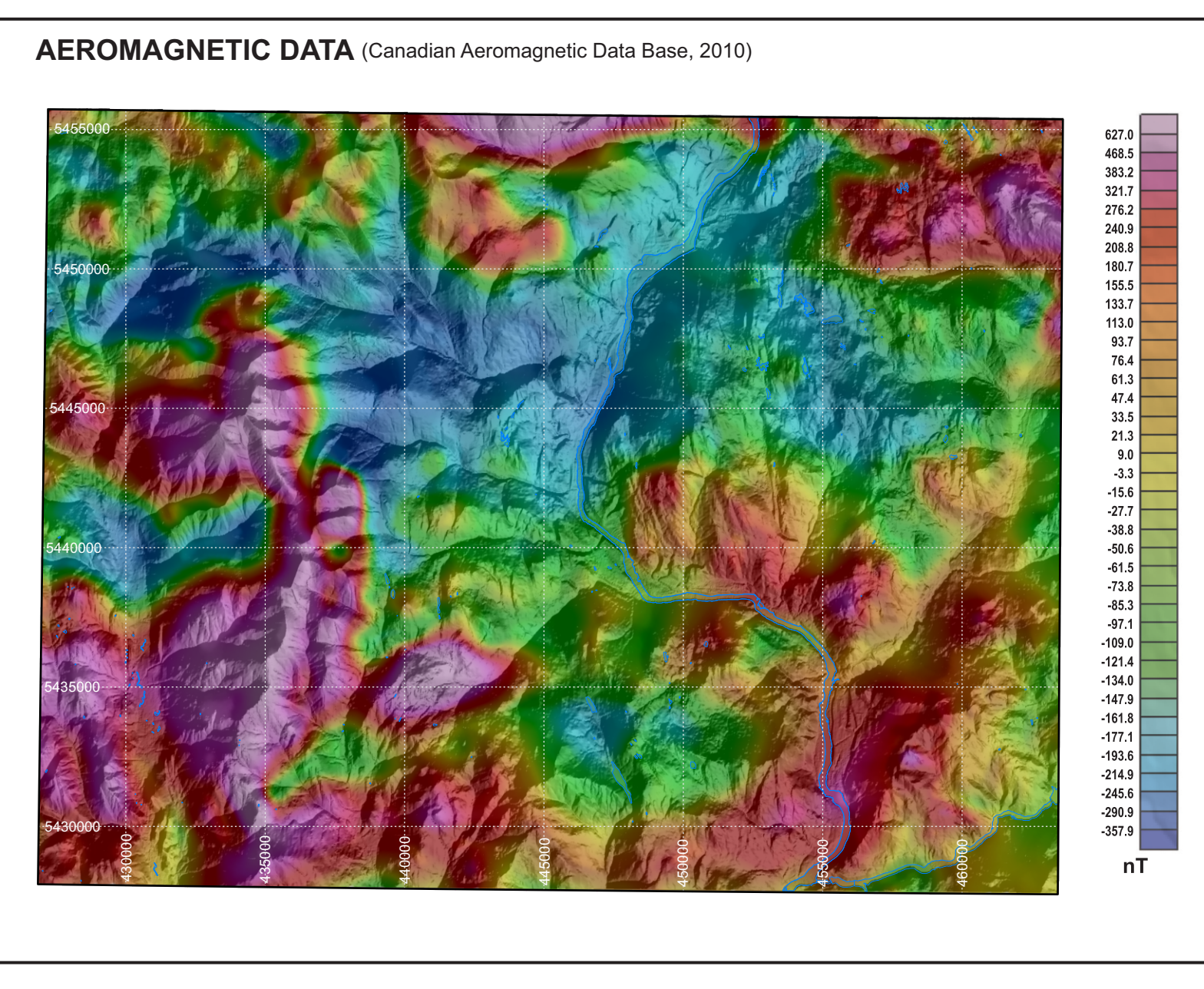
ANNUAL CHANGE DECREASING 2

National Topographic Data Base (NTDB)  
 URL: <http://www.geogratis.ca>

Natural Resources Canada, Centre for Topographic Information  
 Canadian Digital Elevation Data (CDED)  
 URL: <http://www.geoscience.ca>

Base Mapping and Geomatics Services - B.C. Government

**LOCATION MAP**



**SOURCES OF DATA**

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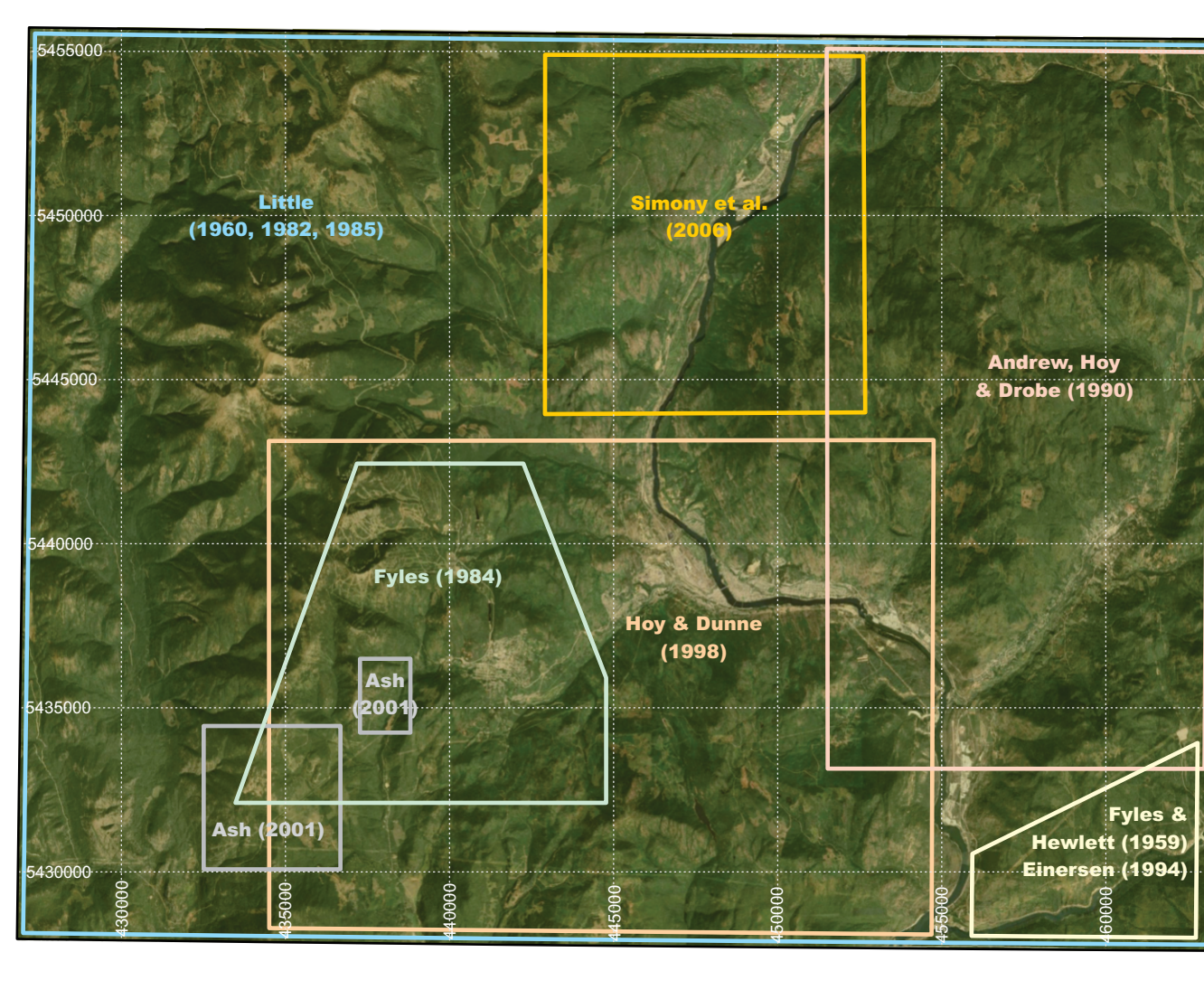
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**AGE DATES**

SAMPLE	UTME	UTMN	UNIT	HOST	DESCRIPTION	AGE (Ma) ± ERROR	SYSTEM	MINERAL	LAB	REFERENCE
AK 28	429308	543507	Ec	Coryell	monzonite (?)	59 ± 5.8	K/Ar	Biotite	U of A	Badsgaard et al. (1961)
RT0-18	427401	544026	Ec	Coryell	syenite	49.1 ± 2.8	K/Ar	Biotite	UBC	Fyles (1984)
RT0-5	442709	543658	Ec	Coryell	monzonite	49.8 ± 3	K/Ar	Biotite	UBC	Fyles (1984)
RT0-1	440377	543996	Ec	Coryell	monzonite	49.8 ± 2.8	K/Ar	Biotite	UBC	Fyles (1984)
RT0-3	441506	543759	Ec	Coryell	lamprophyre	49.1 ± 3	K/Ar	Hornblende	UBC	Fyles (1984)
RT0-4	440280	543658	Ec	Coryell	Lampophyre dike	60.4 ± 2.8	K/Ar	White rock	UBC	Fyles (1984)
RT0-11	441462	543692	Ec	Coryell	Lampophyre dike	50.1 ± 2.8	K/Ar	Biotite	UBC	Fyles (1984)
RT0-7	442984	543457	Ec	Coryell	Lampophyre dike	49.8 ± 2.8	K/Ar	Biotite	UBC	Fyles (1984)
RB5-5	438573	543721	Ec	Coryell	quartz diorite	162.3 ± 0.7	U/Pb	Zircon	UBC	Fyles (1984)
RT0-12	440291	543787	Ec	Coryell	diorite	49 ± 3	K/Ar	Biotite	UBC	Fyles (1984)
RT0-9	441462	543692	Ec	Coryell	dike	49.8 ± 3.2	K/Ar	Biotite	UBC	Fyles (1984)
F68-203	435404	5435975	Em	Marron Formation	batte / trachyte	52.5 ± 3.4	K/Ar	White rock	UBC	Fyles (1984)
H88R-cp	438410	5435945	Jd	Rainy Day pluton	porphyritic quartz diorite	166.3 ± 1.4	U/Pb	Zircon	UBC	Høy & Dunne (2001)
H88R-nm	441380	5437020	Jm	Rosslund monzonite	monzonite	167.4 ± 0.5	U/Pb	Zircon	UBC	Høy & Dunne (2001)
R31-4	444678	5435307	Jn	Rosslund monzonite	mafic gneiss	167.5 ± 0.5	U/Pb	Zircon	UBC	Høy & Dunne (2001)
GF-1	438820	5432210	Je11	Elise Formation	detrital zircons	59.7 - 175.5 ± 1.5	U/Pb	Zircon	GSC	Ross & Parrish (1991)

**SOURCES OF DATA - Age Dates**

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