Yukon Government

CELEBRATING 10 YEARS!
YUKON GEOLOGY PROGRAM

NATMAP
CARTNAT
Canada's National Geoscience Mapping Program
Le Programme national de cartographie géoscientifique du Canada

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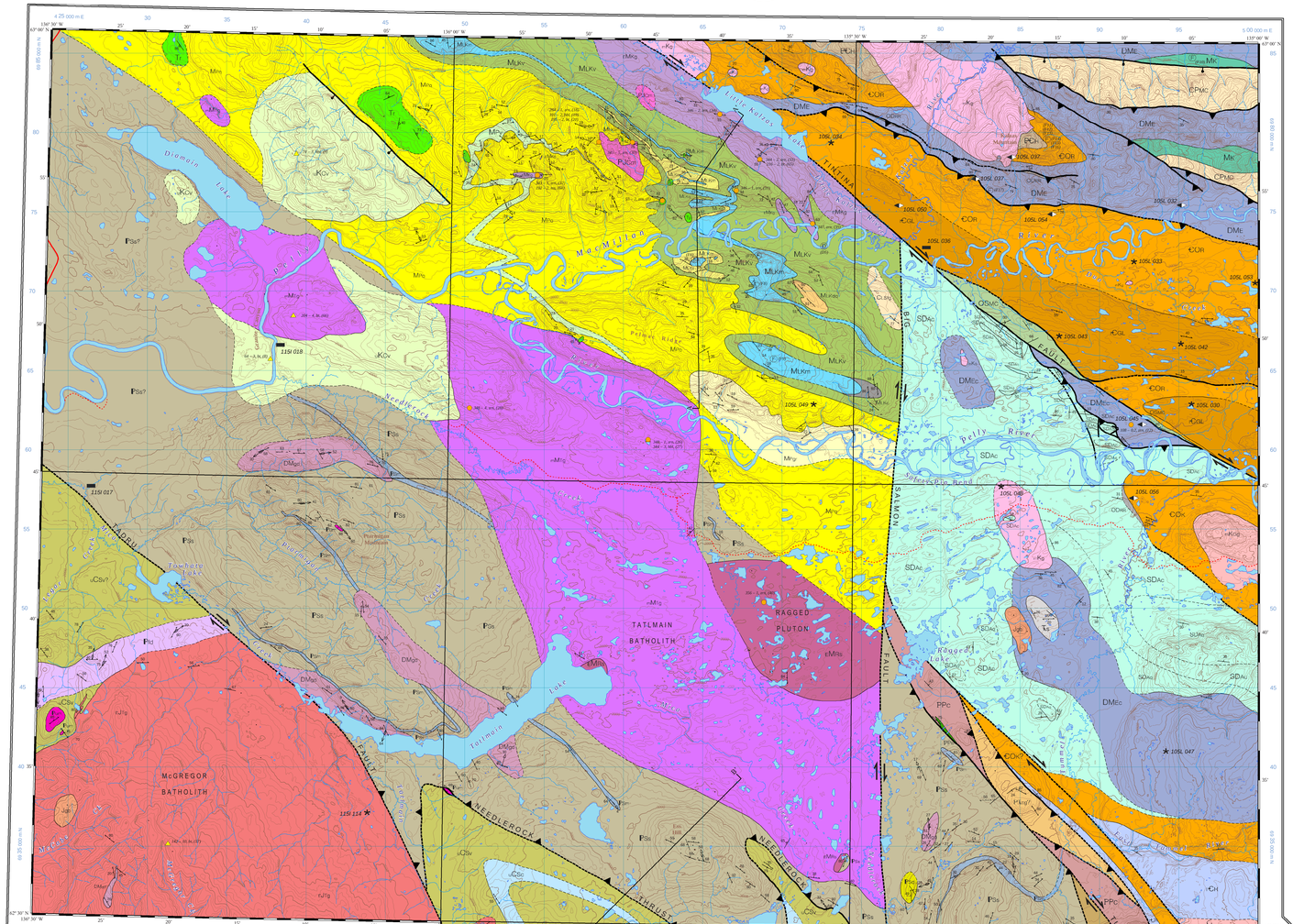


Data Sources

- Basnet et al. (1992) Assessment Report 093060
- Hall (1982) Assessment Report 091065
- Hall (1983) Assessment Report 091461
- K. Gladwin (2001, 2002)
- U. Schmidt (1999) unpub.
- Templeman-Kluit (1984) & Gordey and Makepeace (1999)
- Colpron, Murphy, Nelson, Roots, Gordey, Abbott (2002)
- Colpron (1998, 1999)
- Colpron (1999, 2000, 2001)
- Campbell (1967) & Gordey and Makepeace (1999)
- Paterson (1982) Assessment Report 091372
- A. Carlos in Garagan (1990) Assessment Report 092835

Symbol Legend:

- Station
- Bedding (inclined, upright, overturned)
- Compositional layering
- Dominant foliation
- Igneous fabric
- Mylonitic fabric
- Elongation or mineral lineation
- Intersection lineation; vergence determined by bedding/foliation relation (vergence unknown, m, s)
- Fold axis (vergence unknown, m, s, z)

Yukon MINFILE Occurrences (see page 2 for details):

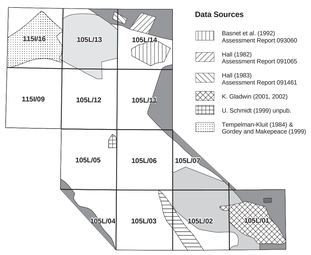
- Coal — *MINFILE No.*
- Volcanogenic
- SEDEX
- Skarn (Zn, Other)
- Vein (Cu)
- Unknown

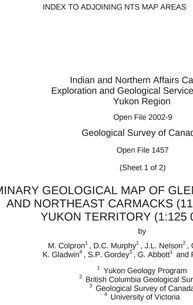
AGE DATES (see page 2 for details):

- U/Pb
- $^{40}Ar/^{39}Ar$
- K/Ar
- U/Pb detrital ages — *(table entry no.)*
- Labels (all ages in Ma) — *Age – (2 sigma error) Ma, mineral, (table entry no.)*

Dated Materials:
bt - biotite
kfs - K-feldspar
hbl - hornblende
ms - muscovite
tit - titanite
wr - whole rock
zrn - zircon

- Fossils — *(table entry no.)*
- Roads (highway, secondary)
- Trails
- Line of cross-section
- Geological contacts (approximate, inferred)
- Normal fault (approximate, inferred)
- Thrust fault (approximate, inferred)
- Strike-slip fault (approximate, inferred)





INDEX TO ADJOINING NTS MAP AREAS

Indian and Northern Affairs Canada
Exploration and Geological Services Division
Yukon Region

Open File 2002-9

Geological Survey of Canada

Open File 1457

(Sheet 1 of 2)

PRELIMINARY GEOLOGICAL MAP OF GLENLYON (105L/1-7,11-14) AND NORTHEAST CARMACKS (115I/9,16) AREAS, YUKON TERRITORY (1:125 000 scale)

by

M. Colpron[1], D.C. Murphy[1], J.L. Nelson[2], C.F. Roots[3], K. Gladwin[4], S.P. Gordey[3], G. Abbott[3] and P.S. Lipovsky[1]

[1] Yukon Geology Program
[2] British Columbia Geological Survey
[3] Geological Survey of Canada
[4] University of Victoria

Scale 1:125 000

5 0 5 10 15 Kilometres

(1 centimetre equals 1.25 kilometres)

LEGEND

OVERLAP ASSEMBLAGE

INTRUSIVE ROCKS

TERTIARY

- Tfp — Quartz-feldspar ± biotite porphyry; grey rhyolite porphyry; dated at 55.0±1.7 Ma and 56.3±0.2 Ma (U-Pb zircon) [105L/3,13]

LATE CRETACEOUS

- mKg — Medium-grained, equigranular biotite granite; K-feldspar megacrystic granite [105L/1,2,6,11,13,14]

EARLY CRETACEOUS

Glenlyon Batholith

- mKGg — Medium- to coarse-grained biotite granite, biotite-muscovite granite, biotite-hornblende granodiorite, muscovite-plagioclase pegmatite [105L/1,6,7,8,11]

EARLY JURASSIC

Tatchun Batholith

- eJTg — (1) Beige weathering, fine-grained leucogranite and aplite (dated at 197.1±0.4 Ma - U-Pb zircon), rare pegmatite; (2) medium-grained K-feldspar megacrystic granodiorite, locally weakly foliated; (3) variably foliated, coarse-grained equigranular to hornblende porphyritic, hornblende-biotite granodiorite. (Phases listed from young to old) [105L/3,4,5,6,12, 115I/9]

EARLY JURASSIC (?)

- Jgb — Coarse- to very coarse-grained hornblende - biotite gabbro, locally pegmatitic; anorthosite; locally ultramafic [105L/1,5,11, 115I/9]

PERMIAN - JURASSIC (?)

Cornolio Pluton

- PJCm — Medium-grained hornblende ± biotite quartz monzonite, locally weakly foliated (magmatic foliation?) [105L/13]

LAYERED ROCKS

TERTIARY (PLIOCENE ?)

Walsh Creek formation

- Tw — Resistant, thick bedded to massive, well-indurated conglomerate with minor interbedded sandstone [105L/2]

TERTIARY (?)

- Tr — Rhyolite and quartz-feldspar porphyry, commonly spherulitic and/or flow banded; locally, intermediate ash tuff and crystal-lithic lapilli tuff [105L/2,3, 115I/16]

UPPER CRETACEOUS

Carmacks Group

- uKCv — Dark green to black, reddish brown weathering aphanitic basalt, commonly amygdaloidal (agate); agglomerate [105L/1,2,3,4,13, 115I/16]

LOWER CRETACEOUS

Tantalus Formation (?)

- lKT — Light grey tuffaceous siltstone, lignite, tuff (U-Pb zircon date - 92±1.3 Ma) [105L/3]

TRIASSIC

- Ts — Finely laminated, soft, dark grey, buff weathering shale/slate and siltstone; fine-grained sandstone; commonly contains detrital micas; minor dark grey limestone [105L/6,7,11]

PERMIAN - TRIASSIC (?)

- PTcg — Dark grey to black polymictic pebble conglomerate and breccia; white and black quartzite; light green, fine-grained arkosic sandstone; brown weathering, black siliceous phyllite [105L/6,7,11]

STIKINE TERRANE

LAYERED ROCKS

LOWER JURASSIC

Laberge Group

- lJL — Red weathering polymictic pebble to cobble conglomerate with graded sandstone matrix; red to dark brown siltstone; orange weathering brecciated limestone [105L/3,4,5]

UPPER TRIASSIC

Lewes River Group

Aksala Formation

Hancock Member

- uTLc — Grey, fine-grained, massive limestone [105L/3,4]

Povoas Formation (?)

- uTLv — Massive to variably foliated, brown and green augite- (± olivine) phyric basalt, local pillows; lapilli tuff; rare quartz-feldspar-phyric rhyolite [105L/3,4,5]

SLIDE MOUNTAIN TERRANE (?)

INTRUSIVE ROCKS

PERMIAN (?)

- Pd — Medium- to coarse-grained, weakly to moderately foliated, hornblende diorite [105L/1]
- PUm — Serpentinite; talc - antigorite (± brucite) schist; locally relict cumulate texture [105L/1]

LAYERED ROCKS

PENNSYLVANIAN TO LOWER PERMIAN (?)

- PPc — Greenish-grey, fine to medium-grained, foliated andesite and basaltic andesite; olive-green weathering fragmental basalt, locally spherulitic; grey weathering, medium green tuff [105L/1,6,7,8,11]
- PPc — Foliated, pale green, greenish-grey, maroon and red, pale grey to tan weathering, massive to thinly bedded chert; fine-grained vitreous quartzite; minor grey, red and black argillite and phyllite, locally graphitic [105L/1,6,7,11]

SEMENOF BLOCK

INTRUSIVE ROCKS

PALEOZOIC (?)

- Pfd — Coarse-grained, foliated hornblende diorite to granodiorite [115I/9]

LAYERED ROCKS (1)

CARBONIFEROUS

Semenof formation

- uCSv — Dark green, massive to foliated andesite and basalt; medium-grained plagioclase-phyric diorite; dark green to black biotite amphibolite and greenstone; plagioclase-phyric greenstone; white marble [105L/2,3,4,5,6,11,12, 115I/9,16]
- uCSls — Foliated greywacke and volcanic-lithic sandstone (volcaniclastic rocks) [105L/4]
- uCSd — Pink to pale green, feldspar-phyric dacite and dacite breccia; felsic tuff [105L/4]

Boswell formation (?)

- uCSs — Dark grey siltstone and siliceous argillite; chert pebble to boulder conglomerate [105L/3,4]
- uCSc — Dark grey weathering, thick bedded to massive, finely crystalline limestone; medium- to coarse-grained, white and grey streaky marble [105L/2,3,4,5,6,12]

YUKON-TANANA TERRANE (?)

LAYERED ROCKS (2)

PALEOZOIC (?)

Bearfeed formation

- PBb — Dark grey siliceous phyllite; graded sandstone; minor dark grey marble and carbonate-cobble conglomerate [105L/2,7]

YUKON-TANANA TERRANE

INTRUSIVE ROCKS

MIDDLE MISSISSIPPIAN

Little Salmon Plutonic Suite

- mMqd — Fine- to medium-grained, foliated hornblende quartz diorite to granodiorite. U-Pb zircon dates range from 338-340 Ma [105L/1,2]
- mMgb — Fine- to coarse-grained, massive augite gabbro, weakly foliated (U-Pb zircon - 339.4±0.9 Ma); medium-grained, equigranular, weakly foliated hornblende leucogabbro [105L/6,7]

Tatlmain Batholith

- mMTg — Unfoliated, homogeneous, medium- to coarse-grained, equigranular biotite (± hornblende) quartz diorite to granite (U-Pb zircon - 339.7±0.9 Ma); rare K-feldspar porphyritic granite, weak magmatic foliation [105L/11,12,13, 115I/16]

EARLY MISSISSIPPIAN

Little Kalzas Plutonic Suite

- eMKg — Fine to medium-grained, medium to dark green, variably foliated, biotite ± hornblende ± K-feldspar granodiorite gneiss, locally K-feldspar megacrystic; coarse-grained biotite granite strongly foliated (U-Pb zircon dates - 343-347 Ma) [105L/13,14]

Telegraph Plutonic Suite

- eMTqd — Fine-grained, moderately to strongly foliated horblende - biotite quartz diorite to granodiorite (U-Pb zircon dates - 348-349 Ma); may be equivalent to Little Kalzas Plutonic Suite [105L/1,2]

Ragged Pluton

- eMRs — Coarse-grained augite syenite and gabbro (U-Pb zircon date - 356.4±1 Ma) [105L/11,12]

DEVONIAN - MISSISSIPPIAN (?)

Undivided

- DMgd — Strongly foliated, dark grey to dark green, fine- to medium-grained, equigranular hornblende ± biotite tonalite; hornblende diorite to granodiorite; locally contains garnet; leuco-tonalite [105L/1,2,3,5,6,11,12, 115I/9,16]

PALEOZOIC (?)

- PUm — Serpentinite; talc - antigorite (± brucite) schist; locally relict cumulate texture [105L/1,7,12, 115I/9]

YUKON-TANANA TERRANE

LAYERED ROCKS (2)

Little Salmon formation

PENNSYLVANIAN (?)

- CLSc — Light grey, pink and purple siliceous exhalite; at the top, 1-2 metre-thick horizon of banded, white, light green and red Mn chert (exhalite) [105L/7]

UPPER MISSISSIPPIAN - MIDDLE PENNSYLVANIAN (*LATE VISÉAN - MOSCOVIAN*)

- CLSm — Light to medium grey marble, light grey phyllitic marble, black calcareous phyllite and minor dark grey carbonaceous phyllite; locally carbonate rhythmite with poorly sorted carbonate micro-conglomerate beds; locally contains rugose corals and crinoid fragments [105L/1,2,6,7]

MIDDLE MISSISSIPPIAN - PENNSYLVANIAN (?)

- CLSv — **Intermediate to mafic metavolcanic rocks** - predominantly medium green, massive chlorite - plagioclase - epidote ± biotite schist; locally intercalated with minor light green, banded calcareous schist, dark grey carbonaceous schist and marble; locally display pillow structures; plagioclase-phyric crystal lithic tuff; polymictic volcanic conglomerate and breccia.
  Metavolcaniclastic rocks - predominantly light grey, light green and medium green sandstone intercalated with dark grey phyllite, brown-weathering calcareous schist and olive-green phyllite; locally graded (epiclastic); banded chlorite - epidote - plagioclase schist (intermediate to mafic tuff); minor barite [105L/1,2,6,7]

MIDDLE MISSISSIPPIAN

- mMLSp — Quartz - feldspar meta-porphyry; light grey to light green meta-rhyolite (U-Pb zircon date - 340,1±1 Ma) [105L/2]
- CLSlg — Coarse-grained, K-feldspar crystal grit and conglomerate (youngest detrital zircons 347 Ma - U-Pb) [105L/14]
- CLSpg — Quartzite cobble to boulder conglomerate [105L/1,2]

YUKON-TANANA TERRANE

LAYERED ROCKS (2)

LOWER MISSISSIPPIAN

Little Kalzas formation

- MLKdq — White, green and pink dolomitic quartzite; buff weathering dolomitic marble [105L/13]
- MLKv — Medium grey to greenish-grey, plagioclase-phyric meta-andesite; minor felsic quartz-muscovite-feldspar schist and metarhyolite (U-Pb zircon dates - 344-345 Ma); light green quartz-muscovite-chlorite phyllite and light green quartzite and grit (metavolcaniclastic rocks); metabasalt (chlorite-epidote-actinolite-plagioclase schist); minor carbonaceous phyllite and micaceous quartzite [105L/13,14, 115I/16]
- MLKm — Light grey to white marble, locally dolomitic and/or cherty; crinoidal packstone; carbonate breccia; phyllitic marble [105L/13,14, 115I/16]
- MLKc — Pale green to grey chert and argillite; grey marble [105L/13,14]
- MLKq — White to dark grey quartzite [105L/13]

Pelmac formation

- MPq — Massive, white to light grey quartzite, locally gritty; minor dark grey to black carbonaceous phyllite and micaceous quartzite, locally calcareous; minor brown-weathering dolomitic marble [105L/1,2,3,6,7,11,12,13,14, 115I/16]
- MPv — Light green quartz-muscovite-chlorite (±carbonate) phyllite and feldspathic grit (metavolcaniclastic rocks); minor greenstone [105L/13]
- MPgr — Beige weathering, medium to dark grey quartz-muscovite-dolomite schist; dark grey dolomitic quartzite; coarse-grained quartz grit with dolomitic cement; minor light green quartz-muscovite-chlorite-dolomite (±biotite) schist; quartzite pebble to cobble conglomerate [105L/13,14]

Lokken member

- MLp — Foliated, fine- to medium-grained quartz-feldspar porphyry, up to 50% phenocrysts; fine-grained green to maroon tuffaceous volcaniclastic rocks (U-Pb zircon date - 350.4±1.3 Ma) [105L/1]
- MLv — Mint-green to yellow-green foliated intermediate volcanic and volcaniclastic rocks. Minor marble, psammitic schist intercalations [105L/1]

UPPER DEVONIAN TO LOWER MISSISSIPPIAN

Drury formation

- DMDq — Coarse-grained arkosic grit; grey and light green quartzite; minor dark grey phyllite, psammitic schist; marble (detrital zircons 365-370 Ma - U-Pb) [105L/1,2,6,7,8,11]

DEVONIAN AND OLDER (?)

Snowcap Assemblage

- PSs — **Undivided**: light to medium grey quartzite and psammitic schist, commonly garnetiferous; medium to dark grey carbonaceous muscovite - quartz (± garnet) schist; light green chlorite + actinolite + carbonate schist; light green quartzite; minor marble [105L/1,2,3,5,6,7,11,12, 115I/9,16]
- PSq — Light grey to light green quartzite, locally calcareous, locally gritty; minor dark grey phyllite; quartz - muscovite (± calcite) schist; minor light grey schistose marble [105L/2,6,11]
- PSa — Fine- to medium-grained, dark green, hornblende - biotite - garnet - plagioclase ± calcite amphibolite; greenstone; minor brown-weathering marble [105L/2]
- PSm — Grey marble; yellow, buff and cream-weathering dolomitic marble; polymictic pebble to boulder conglomerate with either calcareous or siliceous matrix; light to dark grey quartzite; carbonaceous schist [105L/2,11,12, 115I/9,16]

ANCESTRAL NORTH AMERICA (*Selwyn Basin*)

LAYERED ROCKS

CARBONIFEROUS -PERMIAN

Mount Christie Formation

- CPMc — Interbedded greenish grey cherty shale and green shale; black siliceous slate and siltstone; locally calcareous and/or graphitic [105L/14]

LOWER MISSISSIPPIAN (*LATE TOURNAISIAN*)

Kalzas Formation

- MK — Grey and buff weathering, generally thick-bedded to massive, dark grey to black fetid limestone; fine crystalline to cryptocrystalline; commonly bioclastic; minor argillite and chert [105L/14]

DEVONIAN - LOWER MISSISSIPPIAN

Earn Group

- DMEc — Thin-bedded, laminated slate interbedded with fine- to medium-grained chert-quartz sandstone; chert pebble conglomerate; black siliceous siltstone; rare limestone [105L/13,14]

ORDOVICIAN - DEVONIAN

Road River Group

- ODRr — Black, gun-blue, or silvery white weathering, black graptolitic shale; minor thin-bedded limestone and sandstone [105L/11,14]

ORDOVICIAN

Menzie Creek Formation (?)

- OSMc — Green, mafic volcanic flows, breccia, and tuff; varicoloured volcaniclastic siltstone, mudstone and grit; tuffaceous chert; minor limestone [105L/14]

CAMBRIAN - ORDOVICIAN

Rabbitkettle (Vangorda) Formation

- COR — Thin-bedded, wavy banded, grey lustrous calcareous phyllite interbedded with silty limestone and dolostone; minor light green tuffaceous phyllite [105L/13,14]

LOWER CAMBRIAN

Gull Lake (Mount Mye) Formation

- CGL — Chlorite - muscovite ± biotite phyllite; locally calcareous and/or graphitic [105L/13,14]

NEOPROTEROZOIC - LOWER CAMBRIAN

Hyland Group

- PCH — Thin- to thick-bedded, brown to pale green shale, fine to coarse grained quartz-rich sandstone, grit, and quartz-pebble conglomerate [105L/13,14]

ANCESTRAL NORTH AMERICA (*Cassiar Terrane*)

LAYERED ROCKS

DEVONIAN - LOWER MISSISSIPPIAN

Earn Group

- DMEc — Dark grey, recessive weathering, thin-bedded, black siliceous slate with interbeds of quartz-chert greywacke, chert granule grit and chert pebble to cobble conglomerate; chert; minor limestone and mafic volcanic rocks; barite [105L/11,14]

SILURIAN - DEVONIAN

Askin Group

- SDAq — Medium- to thick-bedded to massive, grey orthoquartzite [105L/11,14]
- SDAc — Medium grey to buff weathering, medium to thick bedded dolomite, silty and sandy dolomite, limestone; light to medium grey to black, fine- to coarse-grained marble, locally graphitic; minor quartzite [105L/1,11,14]
- SDAs — Dark grey argillite, locally dolomitic; rare andesite [105L/14]

CAMBRIAN - ORDOVICIAN

Kechika Group

- COK — Thin-bedded, lustrous, calcareous, grey to black slate, phyllite; thin, buff weathering dolostone interbeds. In 105L/1: quartz-muscovite-biotite-garnet schist; light green to white, medium- to coarse-grained diopside-wollastonite ± garnet calc-silicate [105L/1,6,7,8,11,14]

LOWER CAMBRIAN

Roselia Formation

- KCR — Light to dark grey, thin bedded limestone [105L/6,7,11]

NOTES:
(1) Stratigraphic units in the Semenof Block were first introduced by Tempelman-Kluit (1984) but were never formally defined.

(2) A number of new stratigraphic units in Yukon-Tanana Terrane are introduced informally on this map. These units will be formally defined in a report in preparation.

Magnetic declination 2002 for 105L varies from 26 24' easterly at centre of west edge to 26 39' easterly at centre of east edge.

Topographic base produced by SURVEYS AND MAPPING BRANCH DEPARTMENT OF ENERGY, MINES AND RESOURCES

CONTOUR INTERVAL 100 FEET
Elevations in Feet above Mean Sea Level
North American Datum 1983
Transverse Mercator Projection

ONE THOUSAND METRE
Universal Transverse Mercator Grid
ZONE 8

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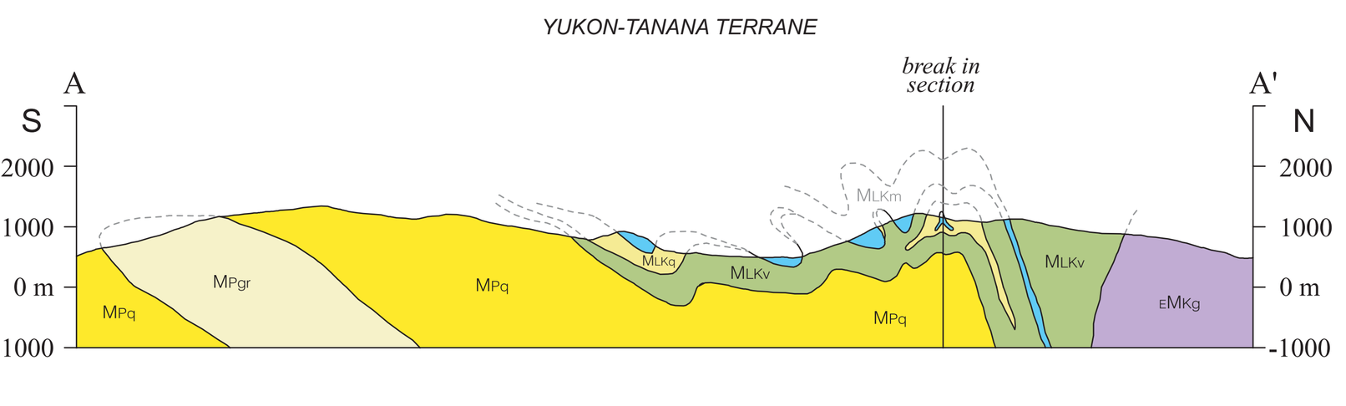
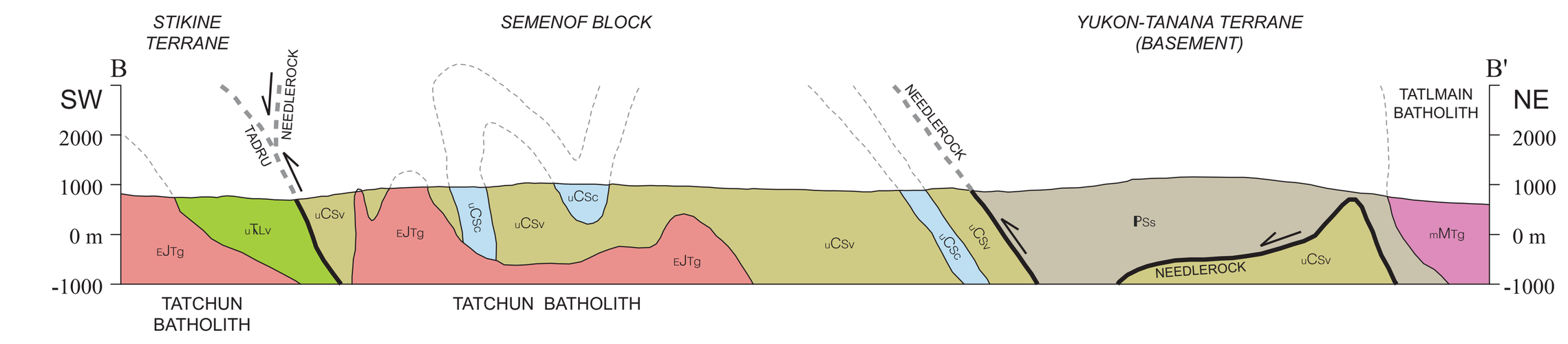
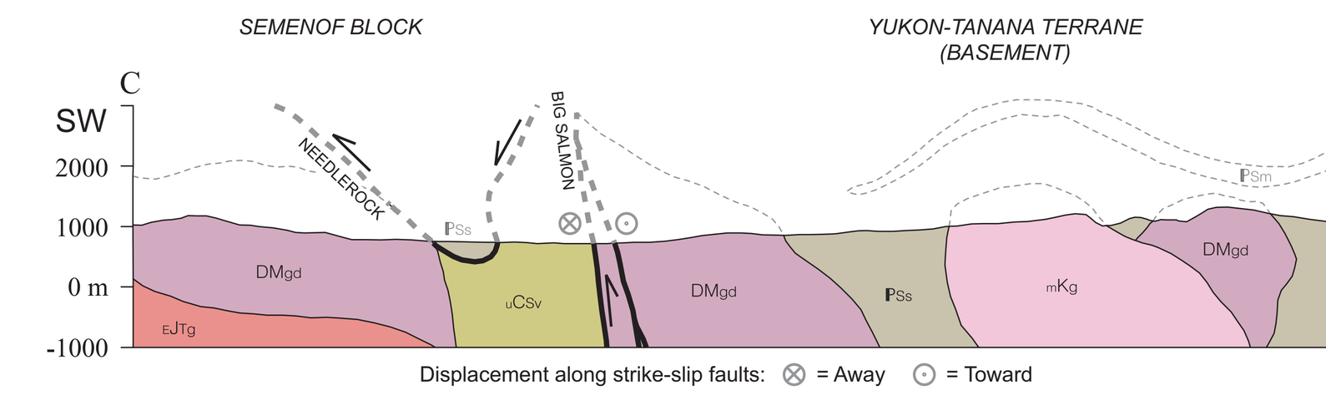
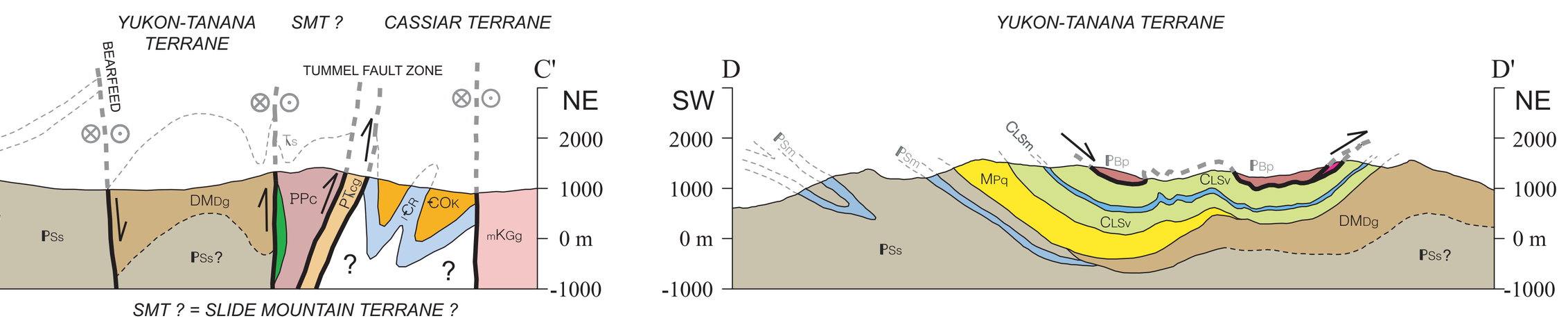








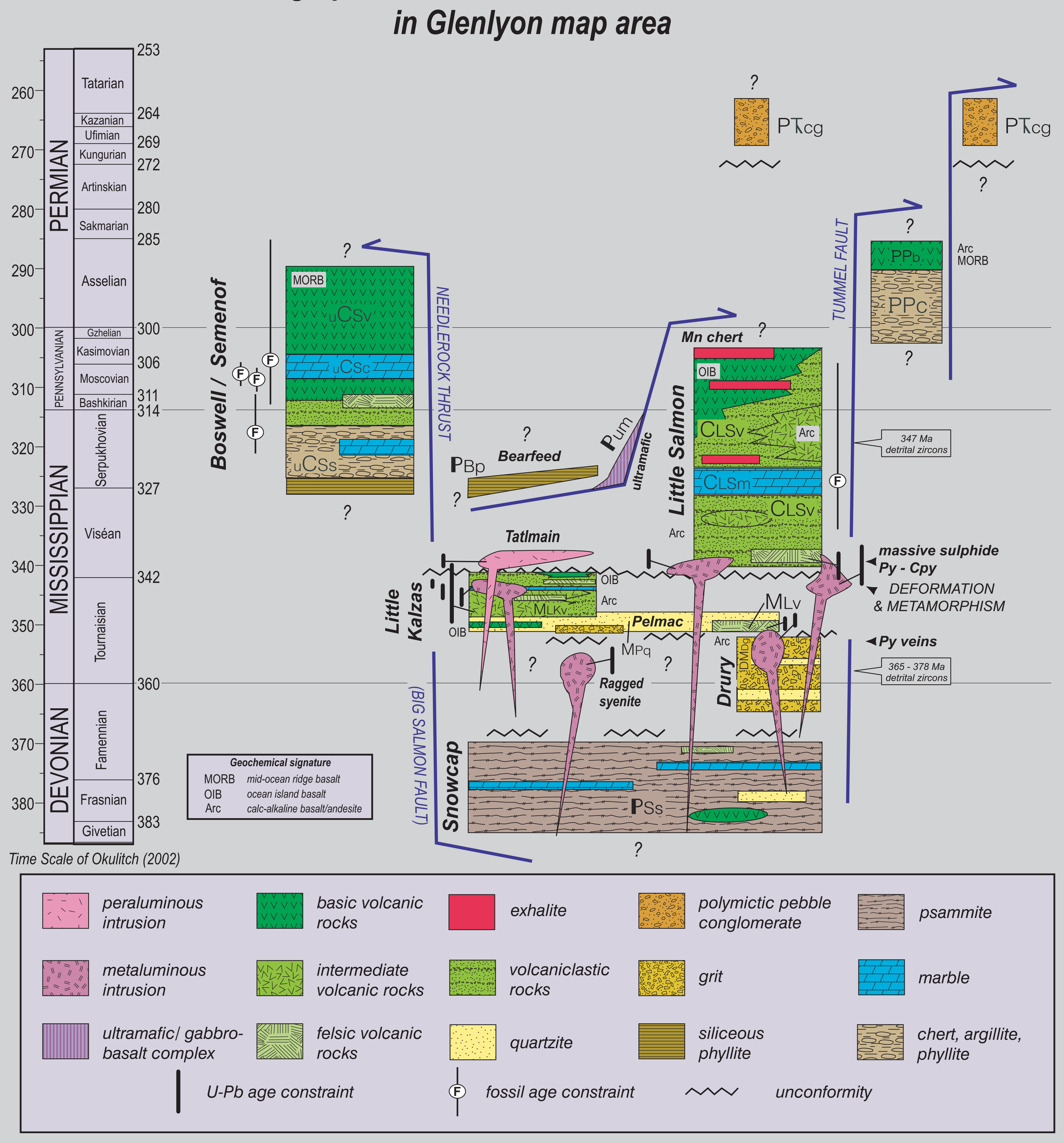
FOSSIL COLLECTIONS

	Sample (GSC loc. #)	Fossil Taxa	Age	Source	NTS
LITTLE SALMON FORMATION - CLSm					
F1	85GGA-66 (C-118094)	conodonts: *Periodon?* sp	Ordovician *(Note: probably detrital)*	GSC fossil report OF-1992-11 (M.J. Orchard); collected by S.P. Gordey (Poulton et al., 1999)	105L/2
F2	98LS-2 (C-304131)	echinoderms	Phanerozoic	GSC fossil report MJO-1999-4 (M.J. Orchard); collected by M. Colpron (1998)	105L/2
F3	99MC041 (C-413001)	solitary dibunophyllid? corals; unidentifiable echinoderm ossicles	Carboniferous or Permian; possibly mid-Carboniferous (Viséan to Moscovian)	GSC fossil report 3-EWB-1999 (E.W. Bamber); collected by M. Colpron	105L/2
F4	99MC042 (C-413002)	colonial aulophyllid coral, possibly *Corwenia* sp.	mid-Carboniferous, late Viséan to Moscovian	GSC fossil report 3-EWB-1999 (E.W. Bamber); collected by M. Colpron	105L/2
F5	99-RAS-MC-031-1 (C-304669)	conodonts: ramiform elements; *gnathodid* sp.	Carboniferous - Permian	GSC fossil report MJO-2000-4 (M.J. Orchard); collected by M. Colpron	105L/2
LITTLE KALZAS FORMATION - MLKm					
F6	98MC142	echinoderm fragments	Ordovician - Triassic?	Campbell (1967)	105L/13
F7	98MC158 (C-304129)	conodonts: gnathodid?; ramiform elements; *Hindeodus?* sp.; *Vogelgnathus?* sp.	Early? Carboniferous	GSC fossil report MJO-1999-4 (M.J. Orchard); collected by M. Colpron (1998)	105L/13
F8	98MC160	echinoderm fragments	Ordovician - Triassic?	Campbell (1967)	105L/13
F9	98MC167 (C-304130)	conodonts: ramiform elements	Ordovician - Triassic	GSC fossil report MJO-1999-4 (M.J. Orchard); collected by M. Colpron (1998)	105L/13
KALZAS FORMATION - MK					
F10	(C-20186)	*Camarotoechia* sp.; Crinoid stems; fish tooth; spirifer fragments	Lower Mississippian	identified by P. Harker in Campbell (1967)	105L14
F11	82-DY-2381 (C-081691)	conodonts: ramiform elements; *Bispathodus ex gr. stabilis* (Branson & Mehl 1934)	Early Carboniferous	GSC fossil report OF-1992-5 (M.J. Orchard); collected by K.M. Dawson (Poulton et al., 1999) *[Note: reported location - shown on map - probably incorrect]*	105L/14
F12	82-DY-2382 (C-081689)	conodonts: ramiform elements; *Bispathodus ex gr. stabilis* (Branson & Mehl 1934); *Polygnathus sp. cf. P. communis* (Branson & Mehl 1934)	Early Carboniferous, Tournaisian	GSC fossil report OF-1992-5 (M.J. Orchard); collected by K.M. Dawson (Poulton et al., 1999) *[Note: reported location - shown on map - probably incorrect]*	105L/14
F13	82-DY-2383 (C-081686)	conodonts: carminate element; ramiform element	Ordovician-Triassic	GSC fossil report OF-1992-5 (M.J. Orchard); collected by K.M. Dawson (Poulton et al., 1999) *[Note: reported location - shown on map - probably incorrect]*	105L/14
F14	82DY-23-79a (C-102623)	spiriferid brachiopods	Carboniferous	GSC fossil report C3-EWB-1983 (E.W. Bamber); collected by K.M. Dawson (1982) (Poulton et al., 1999) *[Note: reported location - shown on map - probably incorrect]*	105L/14
F15	82DY-23-81a (C-102624)	echinoderm columnals; spiriferid? Brachiopods	Carboniferous or Permian	GSC fossil report C3-EWB-1983 (E.W. Bamber); collected by K.M. Dawson (1982) (Poulton et al., 1999) *[Note: reported location - shown on map - probably incorrect]*	105L/14
ROAD RIVER GROUP (?) - ODRR					
F16	82DY-23-74 (C-102622)	*Monograptus?* sp.; *Orthograptus* sp.; retiolitid	Late Ordovician to early Silurian	GSC fossil report O-S-10-BSN-1983 (B.S. Norford); collected by K.M. Dawson (1982) (Poulton et al., 1999) *[Note: reported location - shown on map - probably incorrect]*	105L/14
F17	82GGA-58A (C-107906)	dictyonemid graptolite?; fenestellid bryozoan indeterminate; gastropod? indeterminate; ramose bryozoan indet.	Silurian to Permian	GSC fossil report C4-EWB-1983 (E.W. Bamber); collected by S.P. Gordey (1982) (Poulton et al., 1999) *[Note: reported location - shown on map - probably incorrect]*	105L/14

DETRITAL U/Pb ZIRCON AGES

	Sample	Map Unit	Lithology	Age(s) (Ma)	Interpretation notes	Reference	NTS
D1	99MC033	DMDg	arkosic grit	ca. 365	50 single grain analyses - 44 grains have mean of 365.3 ± 9.5 Ma (MSWD = 0.20);	Colpron and Gehrels (unpub.)	105L/1
D2	01MC265	DMDg	arkosic meta-sandstone	ca. 378	56 single grain analyses - 52 grains have a mean of 378 ± 9.3 Ma (MSWD = 0.05);	Colpron and Gehrels (unpub.)	105L/1
D3	99MC144	DMDg	arkosic grit	1700-2400	10 single grain analyses; all discordant and scattered between ~1700-2400 Ma	Colpron and Mortensen (unpub.)	105L/7
D4	99MC206	CLSv	medium-grained, strongly foliated, K-feldspar crystal grit; near base of CLSv - probable equivalent of unit CLSfg	347	5 multiple grain fractions - fraction C is reversely discordant at 346.8 ± 0.8 Ma; other fractions display inheritance to 1.86 and 2.35 Ga	Colpron and Mortensen (unpub.)	105L/7
D5	98MC196c	MLKv	quartz-feldspar schist intercalated with unit MKg	1700-1800	10 single grain analyses; all discordant; most grains are between 1700-1800 Ma; a few strongly discordant grains are scattered up to ~2550 Ma	Colpron and Mortensen (unpub.)	105L/13

Stratigraphic relations of Yukon-Tanana Terrane in Glenlyon map area



Indian and Northern Affairs Canada
Exploration and Geological Services Division
Yukon Region

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Geological Survey of Canada

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(Sheet 2 of 2)

PRELIMINARY GEOLOGICAL MAP OF GLENLYON (105L/1-7, 11-14) AND NORTHEAST CARMACKS (115I/9,16) AREAS, YUKON TERRITORY (1:125 000 scale)

by

M. Colpron[1], D.C. Murphy[1], J.L. Nelson[2], C.F. Roots[3], K. Gladwin[4], S.P. Gordey[3], G. Abbott[1] and P.S. Lipovsky[1]

[1] Yukon Geology Program
[2] British Columbia Geological Survey
[3] Geological Survey of Canada
[4] University of Victoria

ISOTOPIC AGE DATES

	Sample	Age (Ma)	2σ	Method	Mineral	Lithology	Interpretation notes	Reference	NTS
Crystallization Ages									
TERTIARY - Tp									
1	25887R1	54.9	± 1.7	U/Pb	zircon	rhyolite porphyry		Breitsprecher et al. (2002)	105L/13
2	J12688-R6	56.3	± 0.2	U/Pb	zircon	quartz-feldspar-hornblende porphyry dyke(?)		Breitsprecher et al. (2002)	105L/3
3	J12688-R6	67.7	± 3.3	K/Ar	hornblende	quartz-feldspar-hornblende porphyry dyke(?)	igneous cooling age	Hunt and Roddick (1992)	105L/3
4	MLB-88-182	57.0	± 0.8	K/Ar	biotite	biotite-plagioclase-hornblende porphyry dyke	igneous cooling age	Breitsprecher et al. (2002)	105L/3
5	MLB-88-185	60.1	± 0.8	K/Ar	biotite	biotite quartz monzonite	igneous cooling age	Breitsprecher et al. (2002)	105L/3
6	MLB-88-185	56.6	± 0.9	K/Ar	biotite	biotite quartz monzonite	igneous cooling age	Breitsprecher et al. (2002)	105L/3
CARMACKS GROUP - uKCv									
7	166876	73.4	± 1.3	K/Ar	whole rock	slightly altered olivine basalt	igneous cooling age	Hunt and Roddick (1992)	105L/3
8	TO-74-74A	63.5	± 3.1	K/Ar	biotite	fresh basalt		Wanless et al. (1979)	115I/16
9	TOR79-23-9	74.4	± 3.0	K/Ar	hornblende	hornblende porphyry		Stevens et al. (1982)	115I/16
LATE CRETACEOUS GRANITE - mKg									
10	00MC173	93.0	± 1.0	U/Pb	zircon	K-feldspar porphyritic granite	3 near-concordant fraction scattered between 92 and 94 Ma	Colpron and Mortensen (unpub.)	105L/2
11	99MC171	94.5	± 1.5	U/Pb	zircon	medium-grained equigranular biotite granite	5 near-concordant fractions scattered between 93 and 96 Ma.	Colpron and Mortensen (unpub.)	105L/2
GLENLYON PLUTONIC SUITE (?) - mKGg									
12	CL-46-660-700_M-CL-	108.1	± 0.2	U/Pb	zircon	quartz-feldspar porphyry dyke in drill core at the Clear Lake deposit		Breitsprecher et al. (2002)	105L/14
13	SYA86-64A-1	105.0	± 4.0	K/Ar	whole rock	hornfels zone associated with a small stock or sill of quartz-feldspar porphyry	metamorphic cooling age; probably closely reflects age of nearby Glenlyon batholith (?)	Hunt and Roddick (1990)	105L/1
TANTALUS FORMATION (?) - lKT									
14	MLB-88-181	92.0	± 1.3	U/Pb	zircon	felsic tuff band within immature clastic sedimentary rocks		Breitsprecher et al. (2002)	105L/3
TATCHUN AND McGREGOR BATHOLITHS - EJTg									
15	99MC227	197.1	± 0.4	U/Pb	zircon	unfoliated, medium-grained hornblende tonalite	age is based on one concordant fraction	Colpron and Mortensen (unpub.)	105L/14
16	99MC227	ca. 193		U/Pb	titanite	tonalite medium-grained hornblende tonalite; unfoliated	igneous cooling age - younger of two concordant fractions; other fraction is concordant at 199 Ma.	Colpron and Mortensen (unpub.)	105L/14
17	TO79-25-2	142.0	± 10.0	K/Ar	biotite	well foliated porphyritic granite/granodiorite	igneous cooling age (300°C)	Stevens et al. (1982)	115I/9
CORNOLIO PLUTON - PJCm									
18	98MC054a	264.2	± 1.0	U/Pb	zircon	unfoliated hornblende-biotite quartz monzonite	6 discordant fractions; age is lower intercept of 3 point regression (MSWD - unresolved)	Colpron and Mortensen (unpub.)	105L/13
19	98MC054a	190.7	± 1.9	Ar/Ar	hornblende	unfoliated hornblende-biotite quartz monzonite	igneous cooling age (500°C) - plateau age	Colpron and Villeneuve (unpub.)	105L/13
20	98MC054a	194.9	± 1.9	Ar/Ar	biotite	unfoliated hornblende-biotite quartz monzonite	igneous cooling age (300°C) - hump-shaped spectra indicate that this sample is probably altered	Colpron and Villeneuve (unpub.)	105L/13
LITTLE SALMON PLUTONIC SUITE - mMqd mMgb									
21	00MC005	339.4	± 0.9	U/Pb	zircon	fine to coarse-grained augite gabbro (unit mMgb)	fraction B concordant - weighted average of fractions B+C = 342.4 ± 6 Ma	Colpron and Mortensen (unpub.)	105L/7
22	99MC014	338.5	± 1.0	U/Pb	zircon	fine-grained foliated and strongly-lineated quartz diorite to granodiorite	single concordant fraction	Colpron and Mortensen (unpub.)	105L/2
23	99MC034	339.8	± 2.3	U/Pb	zircon	medium-grained foliated and lineated granodiorite	3 point regression, MSWD = 17.6	Colpron and Mortensen (unpub.)	105L/1
24	99MC072B	358.2	± 4.2	U/Pb	zircon	strongly foliated, coarse-grained hornblende diorite	poorly resolved age - 5 discordant fractions - A+B are nearer concordia at ca. 340 Ma; weighted average of A+B+C = 358.2 +/- 4.2 Ma	Colpron and Mortensen (unpub.)	105L/2
25	T-454	353.0	± 1.3	U/Pb	zircon	massive, medium-grained equigranular granodiorite	minimum age estimate; 3 point regression	Oliver and Mortensen (1998)	105L/1
TATLMAIN BATHOLITH - mMTg									
26	98MC195	339.5	± 1.3	U/Pb	zircon	unfoliated medium-grained, equigranular hornblende-biotite quartz diorite	2 concordant fractions	Colpron and Mortensen (unpub.)	105L/13
27	98MC195	343.7	± 3.2	Ar/Ar	hornblende	unfoliated medium-grained, equigranular hornblende-biotite quartz diorite	igneous cooling age (500°C) - good, strong reproducible plateaus	Colpron and Villeneuve (unpub.)	105L/13
28	99MC065	347.8	± 4.0	U/Pb	zircon	unfoliated granite medium-grained equigranular granite	weighted mean of 4 discordant fractions; see sample 98MC195 for more reliable age of same pluton; possibly age of xenocrysts	Colpron and Mortensen (unpub.)	105L/13
LITTLE SALMON FORMATION - mMLSp									
29	99MC001-3	340.2	± 2.1	U/Pb	zircon	quartz-feldspar meta-porphyry	4 point regression, MSWD=0.5; one fraction concordant	Colpron and Mortensen (unpub.)	105L/2
LITTLE KALZAS FORMATION - MLKv									
30	98MC063a	344.5	± 5.2	U/Pb	zircon	meta-rhyolite	weighted mean of 4 discordant Pb/Pb ages	Colpron and Mortensen (unpub.)	105L/13
31	98MC125	345.8	± 1.0	U/Pb	zircon	light green quartz-muscovite-feldspar schist	age is single concordant fraction. Remaining 3 fractions discordant, align with concordant fraction albeit poorly	Colpron and Mortensen (unpub.)	105L/13
LITTLE KALZAS PLUTONIC SUITE - EMKg									
32	98MC035a	343.1	± 1.2	U/Pb	zircon	medium-grained, strongly foliated quartz diorite	5 point regression, MSWD = 6.9	Colpron and Mortensen (unpub.)	105L/13
33	98MC111	344.0	± 1.5	U/Pb	zircon	strongly foliated biotite granite to tonalite	4 point regression on discordant fractions (MSWD = 15)	Colpron and Mortensen (unpub.)	105L/13
34	98MC119	346.2	± 1.8	U/Pb	zircon	variably foliated hornblende biotite granodiorite, fine- to medium-grained, contains abundant xenoliths	2 concordant fractions	Colpron and Mortensen (unpub.)	105L/13
35	98MC196d	ca. 347		U/Pb	zircon	strongly foliated K-feldspar megacrystic granite	poorly resolved age - lower intercept of 2 point regression	Colpron and Mortensen (unpub.)	105L/13
TELEGRAPH PLUTONIC SUITE - EMTqd									
36	01MC230-1	349.0	± 0.7	U/Pb	zircon	weakly foliated and boudinaged, coarse-grained hornblende tonalite	2 overlapping concordant fractions; fraction B is most precise at 349 Ma	Colpron and Mortensen (unpub.)	105L/2
37	01MC230-2	348.5	± 1.2	U/Pb	zircon	strongly foliated, fine-grained, Plag-Ms-Qtz-Hbl-Bt schist (quartz diorite)	5 concordant fractions; minor Pb loss for some fractions; A + C are oldest at 348.5 Ma	Colpron and Mortensen (unpub.)	105L/2
38	KG01-220	348.3	± 1.1	U/Pb	zircon	medium-grained, equigranular hornblende granodiorite	3 overlapping concordant fractions at 348.3 Ma	Gladwin, Colpron and Mortensen (unpub.)	105L/1
PELMAC FORMATION (LOKKEN MEMBER) - MLp									
39	01MC288	350.4	± 1.3	U/Pb	zircon	foliated quartz-feldspar porphyry	4 fractions on or near concordia; fraction D is most concordant at 350.4 Ma	Colpron and Mortensen (unpub.)	105L/1
RAGGED PLUTON - EMRs									
40	00Ttl004	356.4	± 1.0	U/Pb	zircon	unfoliated K-feldspar porphyritic augite syenite	2 concordant fractions	Colpron and Mortensen (unpub.)	105L/12
Metamorphic Cooling Ages									
41	RO-87	174.7	± 2.4	Ar/Ar	muscovite	unit €OK	integrated age, age spectrum is stepped - cooling 350°C	Oliver (1996)	105L/1
42	RO-99	185.0	± 4.4	Ar/Ar	muscovite	unit CLSv	integrated age; diffusion loss suggested by age spectrum - cooling 350°C	Oliver (1996)	105L/1
43	SS-406a	187.0	± 2.2	Ar/Ar	muscovite	unit DMDg	integrated age; disturbed age spectrum - cooling 350°C	Oliver (1996)	105L/1
44	T-226	190.3	± 9.0	Ar/Ar	muscovite	unit DMDg	integrated age, climbing spectrum - cooling 350°C	Oliver (1996)	105L/1
45	T-454	214.4	± 5.2	Ar/Ar	biotite	unit mMqd	integrated age, disturbed age spectrum - cooling 300°C; partially reset from igneous cooling?	Oliver (1996)	105L/1
46	T-459	214.2	± 5.9	Ar/Ar	biotite	unit mMqd	integrated age, disturbed age spectrum - cooling 300°C; partially reset from igneous cooling?	Oliver (1996)	105L/1
47	RO-105	153.0	± 2.4	Ar/Ar	biotite	unit DMDg	integrated age - disturbed age spectrum (diffusion loss?) - cooling 300°C	Oliver (1996)	105L/2
48	RO-113	191.5	± 1.9	Ar/Ar	muscovite	unit CLSv	plateau age, 67.4% 39Ar - cooling 350°C	Oliver (1996)	105L/2
49	RO-116	193.4	± 2.5	Ar/Ar	muscovite	unit PSm	plateau age, 68.4% 39Ar - cooling 350°C	Oliver (1996)	105L/2
50	RO-128	183.0	± 2.4	Ar/Ar	muscovite	unit PSs	integrated age, saddle-shaped spectrum - cooling 350°C	Oliver (1996)	105L/2
51	RO-133b	181.0	± 4.0	Ar/Ar	muscovite	unit PSs	integrated age, saddle-shaped spectrum - cooling 350°C	Oliver (1996)	105L/2
52	RO-502	85.6	± 1.0	Ar/Ar	feldspar	unit mKg	integrated age, disturbed age spectrum - cooling 150-200°C	Oliver (1996)	105L/2
53	SS-04b	189.8	± 3.0	Ar/Ar	muscovite	unit PSs	plateau age; 76.8% 39Ar - cooling 350°C	Oliver (1996)	105L/2
54	T-170	233.1	± 10.1	Ar/Ar	muscovite	unit CLSv	integrated age, - cooling 350°C; spectrum is disturbed	Oliver (1996)	105L/2
55	T-178	191.6	± 0.8	Ar/Ar	muscovite	unit PSs	integrated age, disturbed age spectrum - cooling 350°C	Oliver (1996)	105L/2
56	T-178	170.8	± 3.8	Ar/Ar	biotite	unit PSs	integrated age, disturbed age spectrum - cooling 300°C	Oliver (1996)	105L/2
57	T-203	186.9	± 3.1	Ar/Ar	muscovite	unit PSs	integrated age, saddle-shaped spectrum - cooling 350°C	Oliver (1996)	105L/2
58	T-242	184.4	± 7.7	Ar/Ar	muscovite	unit PSs	integrated age, saddle-shaped age spectrum - cooling 350°C	Oliver (1996)	105L/2
59	T-302	191.1	± 1.8	Ar/Ar	muscovite	unit PSs	integrated age, saddle-shaped age spectrum - cooling 350°C	Oliver (1996)	105L/2
	T-302	189.6	± 2.2	Ar/Ar	muscovite	unit PSs	integrated age, saddle-shaped age spectrum - cooling 350°C; Repeated sample.	Oliver (1996)	105L/2
60	T-408	190.7	± 5.7	Ar/Ar	muscovite	unit PSs	integrated age, 75.7% 39Ar; disturbed age spectrum - cooling 350°C	Oliver (1996)	105L/2
61	T-420	192.3	± 2.8	Ar/Ar	muscovite	unit PSs	integrated age for 86.2% 39Ar; saddle-shaped age spectrum - cooling 350°C	Oliver (1996)	105L/2
62	T-420	159.1	± 10.2	Ar/Ar	biotite	unit PSs	integrated age for 42.6% 39Ar; age spectrum strongly disturbed - cooling 300°C	Oliver (1996)	105L/2
63	T-461	99.4	± 5.8	Ar/Ar	muscovite	granitic dike (?) in unit PSs	strongly disturbed age spectrum; two pseudo-plateau ages; 2nd at 134.3 Ma	Oliver (1996)	105L/2
64	98MC035a	191.7	± 1.9	Ar/Ar	muscovite	medium-grained strongly-foliated quartz diorite (unit MKg)	slightly stepped age spectra, but steps overlap within error - cooling 350°C	Colpron and Villeneuve (unpub.)	105L/13
65	98MC111	216.4	± 2.1	Ar/Ar	biotite	strongly-foliated biotite granite to tonalite (unit MKg)	Ar loss is evident, but plateaus are reproducible across aliquots - cooling 300°C; partial reset from igneous cooling age ?	Colpron and Villeneuve (unpub.)	105L/13
66	TO79-25-5	204.0	± 4.0	K/Ar	biotite	coarsely megacrystic biotite quartz monzonite (unit mMTg - Tatlmain batholith)	partial reset from igneous cooling age ?	Stevens et al. (1982)	115I/16

MINFILE

MINFILE No.	Name	Status	Deposit Type	Commodities	Map Unit	NTS
105L 001	Lokken	Prospect	Skarn	Zn (Ag, Pb, Cu, Au)	€OK	105L/1
105L 002	Colin	Unknown	Unknown		€OK	105L/1
105L 003	Little Salmon	Drilled Prospect	Skarn	Zn, Ag, Pb (Au, Sn) ((As))	€OK	105L/1
105L 004	Moule	Anomaly	Unknown	Cu	SDAc	105L/1
105L 005	Truitt	Drilled Prospect	Unknown		€OK	105L/1
105L 006	Keene	Unknown	Unknown		€OK	105L/1
105L 007	Red Knoll	Unknown	Unknown		DMDg	105L/1
105L 008	Ulrike	Anomaly	Skarn		DMDg	105L/1
105L 009	Wheelton	Anomaly	Unknown		CLSv	105L/7
105L 010	Lark	Unknown	Unknown		CLSv	105L/2
105L 011	Stud	Unknown	Skarn		PSs	105L/2
105L 012	Brandy	Unknown	Unknown	Cu	PSs	105L/2
105L 013	Jumpont	Showing	Coal	Coal	uCSv	105L/2
105L 014	Drury	Unknown	Vein	Cu	uCSv	105L/7
105L 030	Hachey	Drilled Prospect	Unknown	Pb, Zn (Cu)	€GL	105L/14
105L 032	Horsfall	Anomaly	SEDEX	Ba (Pb)	DME	105L/14
105L 033	Nels	Unknown	Unknown		€OR	105L/14
105L 034	Flu	Anomaly	Unknown		€OR	105L/13
105L 036	Duo	Unknown	Coal		€GL	105L/14
105L 037	McArthur	Prospect	SEDEX	Zn, Pb, Ag, Mo ((Au))	€OR	105L/14
105L 042	Tredger	Drilled Prospect	Unknown		€GL	105L/14
105L 043	Conwest	Drilled Prospect	Unknown		€GL	105L/14
105L 045	Clear Lake	Deposit	SEDEX	Zn, Pb, Ag (Ba) ((Ti, Ph))	DME	105L/14
105L 047	Ragged	Unknown	Unknown		DME	105L/11
105L 048	Graf	Unknown	Unknown		mKg	105L/11
105L 049	Hugh	Anomaly	Unknown		MPq	105L/13
105L 050	Hank	Showing	SEDEX	Ba	€GL	105L/14
105L 053	Black Bear	Unknown	Unknown		€OR	105L/14
105L 054	Kal	Prospect	SEDEX	Zn, Ag, Pb, Ba ((Au))	€OR	105L/14
105L 056	Tum	Drilled Prospect	SEDEX	Zn	€OK	105L/11
105L 059	Goo	Anomaly	Unknown		Tr	105L/2
105L 060	Marble	Anomaly	Unknown	Au	Tr	105L/2
105L 061	Oobird	Showing	Volcanogenic	Cu (Ag)	uTLv	105L/5
105L 062	Government	Showing	Volcanogenic	Cu	mMLSp	105L/2
105L 063	Highway	Showing	Vein	Cu (Au, Pb, Ag)	PSs	105L/2
105L 064	Jaspy	Showing	Vein	Cu, Pb, Zn, Ag	CLSv	105L/7
105L065	Glad	Showing	Vein	Cu (Au, Co, Ni)	DMDg	105L/1
105L066	Frenchman	Anomaly	Vein	Cu	uCSv	105L/4
115I 017	Towhata	Anomaly	Coal	Coal	PSs	115I/9
115I 018	Needlerock	Showing	Coal	Coal	uCSv	115I/16
115I 114	Tatlmain	Anomaly	Unknown		EJTg	115I/9

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RECOMMENDED CITATION

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Any revisions or additional geological information known to the user would be welcomed by the Yukon Geology Program.

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