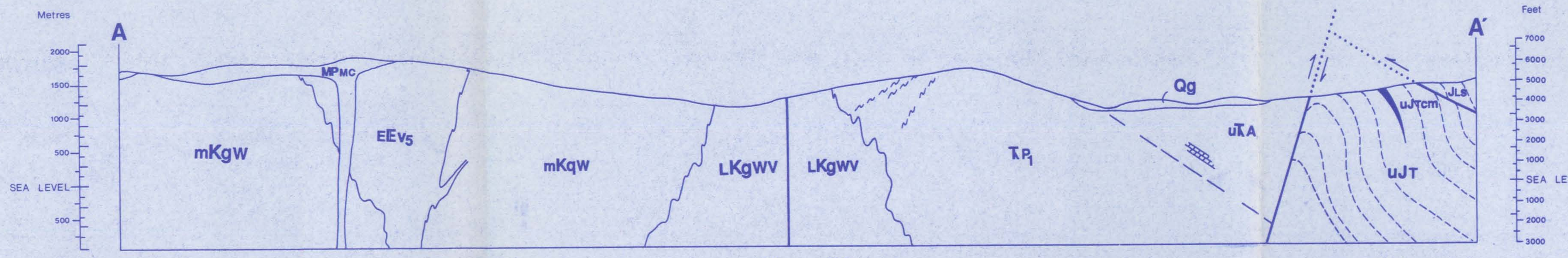
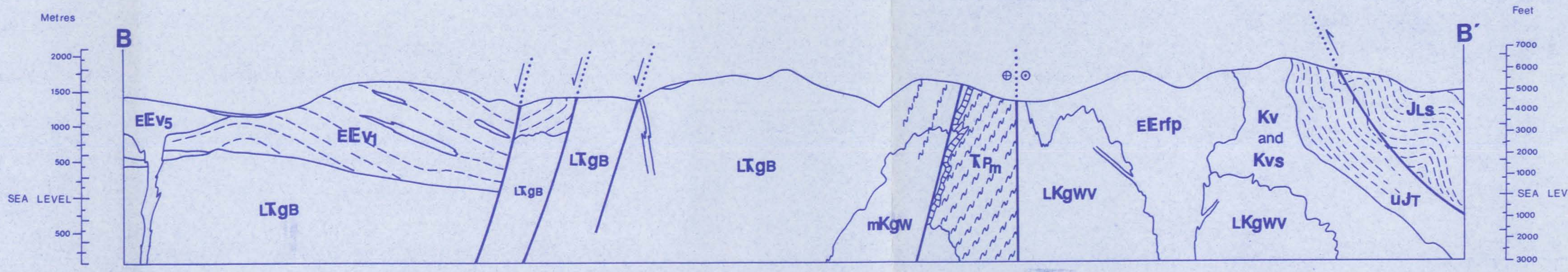
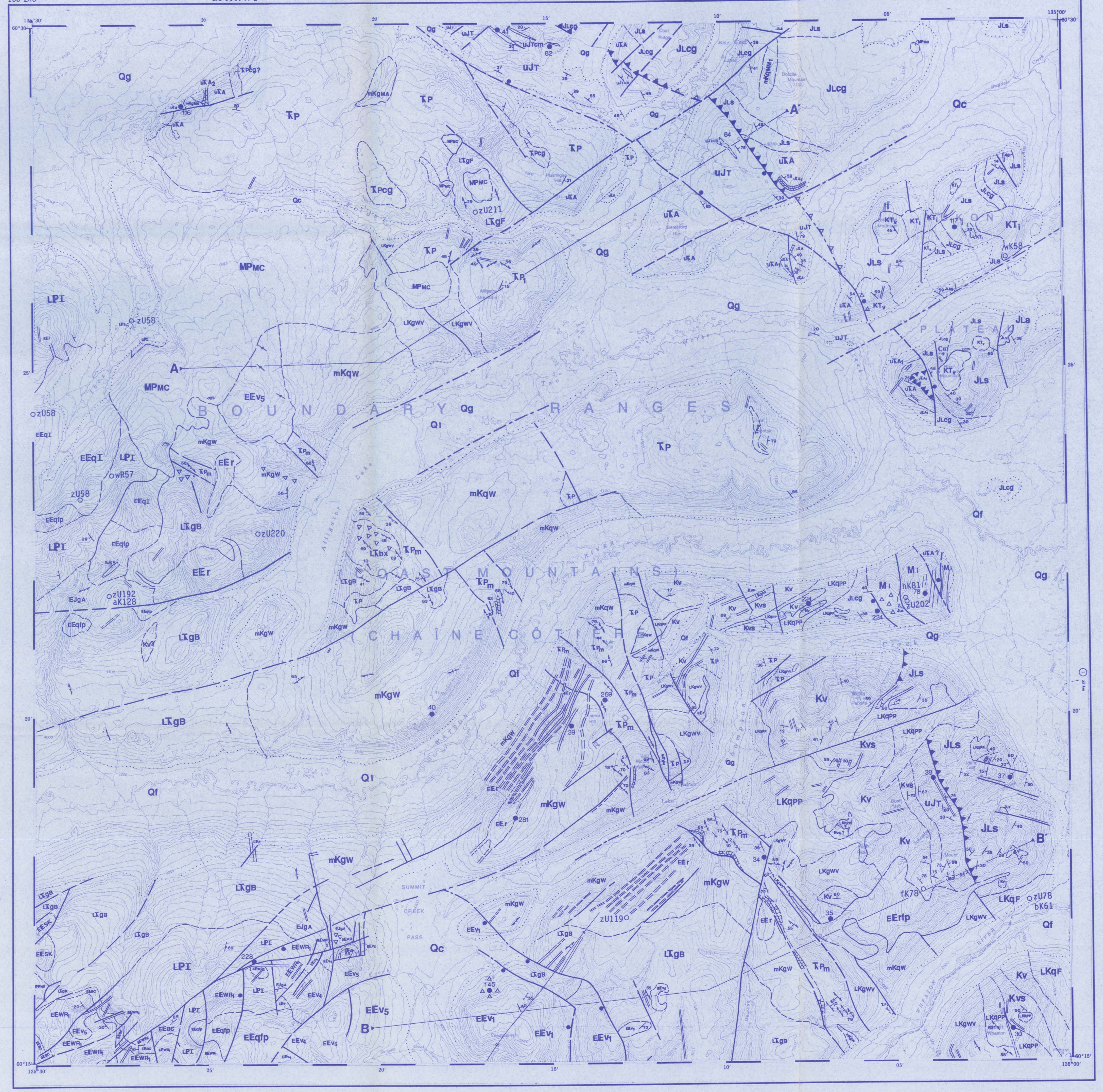
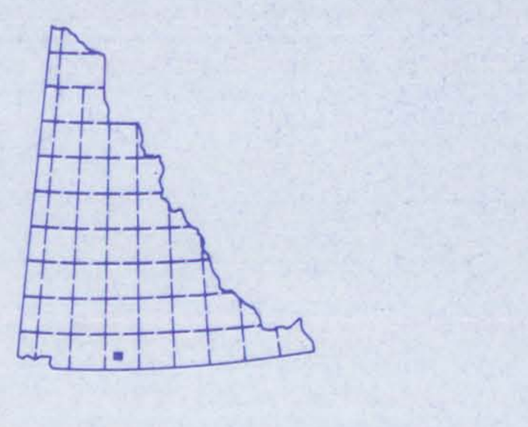
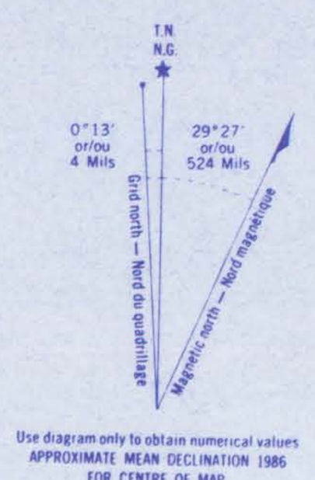










ALLIGATOR LAKE

YUKON TERRITORY TERRITOIRE DU YUKON

Scale 1:50 000 Échelle

Miles 1 0 1 2 3 Milles

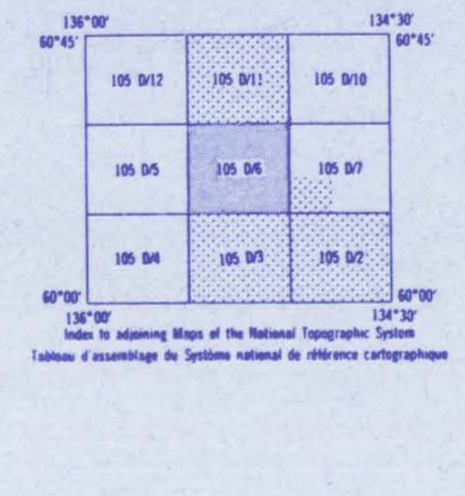
Metres 1000 0 1000 2000 3000 4000 Mètres

CONVERSION SCALE FOR ELEVATIONS ÉCHELLE DE CONVERSION DES ALTITUDES

Metres 30 20 10 0 50 100 150 200 250 300 Mètres

Feet 100 50 0 100 200 300 400 500 600 700 800 900 1000 Pieds

CONTOUR INTERVAL 100 FEET
Elevations in Feet above Mean Sea Level
North American Datum 1927
Transverse Mercator Projection



Index to adjoining Maps of the National Topographic System
Tableau d'assemblage du Système national de référence cartographique

LEGEND

QUATERNARY

- **Qf** Unconsolidated gravel, sand and silt of fluvial or glaciofluvial origin
- **Ql** Unconsolidated gravel, sand, silt and varved clay of lacustrine or glaciolacustrine origin
- **Qg** Unconsolidated glacial moraine, kame, esker and drift material
- **Qc** Unconsolidated, locally derived colluvium and felsenmeer

TERTIARY

MIOCENE-PLIOCENE

- **MPMC** **Miles Canyon Basalt**: Dark red to brown weathering, columnar jointed olivine basalt flows commonly amygdaloidal and vesicular with ultramafic xenoliths (8.8 Ma; 2.4 Ma, both K-Ar)[1]

EARLY EOCENE

SKUKUM GROUP

- **EEqfp** Pale to rusty oranage weathering,coarse grained quartz-feldspar rhyolite porphyry with accessory fluorite; occurs as small plugs and ring dykes (Bennett Lake Complex); may be equivalent to Nisling Range Alaskite (51 Ma K-Ar)[3]

MOUNT SKUKUM VOLCANIC COMPLEX

- **EErfp** Buff weathering domes, plugs and laccoliths of coarse-grained rhyolite feldspar porphyry; may be equivalent to Nisling Range Alaskite (53 Ma Rb-Sr)[4]
- **EEr** Flaggy, orange, rusty orange, to white orange, mauve or tan, fine-grained rhyolite dykes, dyke swarms, and flow domes; composite dykes are common
- **EESK** Undifferentiated Skukum Group volcanic rocks

UPPER VESUVIUS FORMATION

- **EEV6** Light tan-brown, well-bedded airfall tuff, epiclastic sandstone and siltstone
- **EEV5** Flaggy, dark red, purple to grey, white to pale green flow banded, auto-brecciated and spherulitic rhyolite flows
- **EEV4** Well-bedded, purple and grey rhyolite tuff and lithic tuff; probably equivalent to EE_{V2} or EE_{V5}

LOWER VESUVIUS FORMATION

- **EEV2** Dark reddish brown, columnar jointed densely welded tuff; includes unwelded tuff on Vesuvius Hill
- **EEV1** Massive to well-bedded, pastel coloured, slightly altered rhyolite to intermediate tuff, lithic tuff and welded tuff

UPPER WATSON RIVER FORMATION

- **EEWR3** Massive, dark green and brown monolithic andesite breccia, composed of andesite porphyry fragments

LOWER WATSON RIVER FORMATION

- **EEWR2** Massive to poorly-bedded, dark brown and purple to pale green, commonly columnar-jointed andesite and andesite porphyry flows and associated tuff; exposures on Carbon Hill are lithologically similar and assumed to be equivalent
- **EEWR1** Pale green dacitic to andesitic lithic tuff, commonly densely welded

BUTTE CREEK FORMATION

- **EEBC** Undivided tuff and epiclastic rocks
- **EEBC1** Moderately well-bedded, pastel coloured felsic and altered felsic pyroclastic rocks, commonly interbedded with associated grey, green, and purple epiclastic rocks

MOUNT REID FORMATION

- **EEMR** Massive, hematitic, clast-supported, cobble and boulder conglomerate, contains locally derived basement fragments

EARLY EOCENE TO LATE PALEOCENE

NISLING RANGE PLUTONIC SUITE

- **EEqI** **Ibex Alaskite**: light pink to buff weathering, miarolitic, fine-to medium-grained alaskite (58 Ma U-Pb)[1]

IBEX FORMATION

- **LPI** Dark, vitreous flow-banded rhyo-dacite flows with sparse feldspar phenocrysts and welded tuff, commonly contains granitic fragments; older than Ibex Alaskite and unconformably (?) below Butte Creek Formation; may be part of Skukum Group
- **Pgc** **Carcross Pluton**: Fine- to medium-grained, biotite-hornblende granite to leucocratic granodiorite with sparse, white, alkali feldspar phenocrysts (64 Ma K-Ar)[3]

CRETACEOUS AND TERTIARY

- **KTi** Undifferentiated intrusive rocks of uncertain age and affinity, may be plutonic roots to volcanics on Lakeview Mountain
- **KTv** Undifferentiated, intermediate to felsic, subaerial volcanic rocks, maybe equivalent to Carmacks or Skukum Groups

MESOZOIC

- **Mi** Undifferentiated, protracted intrusive complex containing Late Triassic and mid- and Late Cretaceous aged hornblende-rich granodiorite and diorite

CRETACEOUS

LATE CRETACEOUS

- **LKqF** **Folle Mountain Stock**: pale pink weathering, medium- to coarse-grained, biotite, quartz-rich granite (78 Ma U-Pb)[1]
- **LKgWV** **Wheaton Valley Granodiorite**: dark grey weathering light grey, medium-grained, hornblende diorite, quartz diorite and lesser granodiorite; locally foliated (78 Ma U-Pb)[1]
- **LKqPP** **Perkins Peak Plug**: pale pink weathering, white porphyritic alaskite and granite with plagioclase and quartz-eye phenocrysts in fine-grained mafic matrix; coarse-grained and mafic phases (70-97 Ma Rb-Sr)[1]

CARMACKS (?) GROUP

- **Kv** **Wheaton River Volcanics**: dark grey to green and maroon, aphanitic and porphyritic andesite to dacite flows, heterolithic breccia, agglomerate and associated epiclastic rocks (62-78 Ma K-Ar)[1]
- **Kvs** **Intercalated Epiclastic Rocks**: Light grey and buff weathering, well-bedded tuff and epiclastic greywacke with minor sandy tuff and limestone

MID-CRETACEOUS

MT. MCINTYRE PLUTONIC SUITE

- **mKqMM** **Mt. McIntyre Pluton**: pale orange weathering, fine- to medium-grained, pink granophyric with phases of quartz monzonite, granite and monzodiorite; xenoliths common along margins (109 Ma U-Pb)[1]
- **mKqMM1** **Granite Phase**: medium-grained, euhedral biotite granite to granodiorite border phase

WHITEHORSE PLUTONIC SUITE

- **mKgW** **Whitehorse Pluton**: dark grey weathering, medium-grained biotite-hornblende granodiorite, tonalite, and diorite with common mafic xenoliths and local weak foliation (116 Ma K-Ar)[3]
- **mKqW** **Leucocratic phase:** similar to and assumed to be equivalent with Whitehorse Pluton but with few mafic minerals
- **mKgMA** **Mt. Anderson Pluton**: Euhedral biotite and porphyritic hornblende granodiorite; local white crumbly weathering areas indicative of argillic alteration (119 Ma U-Pb)[2]

JURASSIC

UPPER JURASSIC

- **uJT** TANTALUS FORMATION (OXFORDIAN-KIMMERIDGIAN) Massive to thickly bedded chert pebble conglomerate with recessive, poorly indurated, gritty sandstone and quartz sandstone with interbedded dark grey shale
- **uJTcm** Recessive weathering, highly fractured, high ash anthracite to low volatile bituminous coal

LOWER AND MIDDLE JURASSIC

LABERGE GROUP (HETTANGIAN? TO BAJOCIAN)

- **JLv** Competent, massive, drab olive to dark green, feldspar-hornblende andesite porphry in pillowed flows, dykes, and small plugs; interbedded with upper Laberge sedimentary rocks
- **JLa** Dark red-brown weathering, rhythmically and thinly bedded, tawny to dark green and grey, silty argillite, shale and siltstone; local hornfels; contains amminoid fossils and rare coaly plant fragments; minor interbedded massive sandstone and conglomerate
- **JLs** Pale to dark orange weathering, dark grey, massive and thickly to medium bedded, medium to coarse-grained feldspathic and lithic greywacke with lesser arkose, arenite, and grit; uncommon argillite and
- **JLcg** Rust-orange weathering, resistant, thickly bedded to massive, clast- and matrix-supported polymict cobble conglomerate; clasts of granitic rock and Lewes River Group volcanics with lesser schist, metamorphic quartz, limestone, and other sedimentary clasts; granitic clasts dominant higher in section; interbedded greywacke, arenite and argillite

EARLY JURASSIC

- **EJgA** **Alligator Quartz Monzonite**: foliated hornblende quartz monzonite to granodiorite; white K-feldspar makes it appear like a quartz diorite (190 Ma U-Pb)[1]

LATE TRIASSIC

- **LTRbx** **Intrusion (?) Breccia**: Cataclastically deformed , heterolithic breccia containing fragments of Bennett Granite, hornblende granodiortie, foliated augite porphyry and rare metamorphic clasts
- **LTRgF** **Friday Creek Diorite**: foliated, fine- to medium-grained hornblende quartz diorite to diorite with minor biotite (211 Ma U-Pb)[1]
- **LTRgB** **Bennett Granite**: pink, potassium feldspar megacrystic, hornblende granite to granodiorite; associated easterly trending mafic dyke swarms (220 Ma U-Pb)[2]

UPPER TRIASSIC

LEWES RIVER GROUP (CARNIAN TO SINEMURIAN)

AKSALA FORMATION

- **uTRH** **Hancock Member** (Norian): resistant, white to light grey weathering massive and thickly bedded limestone, bioclastic horizons and marble; minor sooty black limestone and tan dolostone;
- **uTRH1** Resistant, thin, well-bedded, white limestone interlaminated with tan weathering, dark grey siltstone
- **uTRA** **Annie Member** (Karnian to Norian): Resistant, massive to moderately well-bedded, red, purple, and green matrix (and clast) supported agglomerate, pebble conglomerate, and lahaaric debris flows; clasts of augite porphyry and subvolcanic dacite porphyry with crystal-rich wacke matrix; interbedded arenite and minor tuff;
- **uTRA1** Andesite feldspar (and augite) porphyry flows, agglomerate and breccia; minor red siltstone;
- **uTRA2** Massive, grey, white to pink (commonly sheared or recrystallized) limestone and bioclastic limestone breccia; located near the base of this member

POVOAS FORMATION (CARNIAN AND OLDER?)

- **TRPcg** Well rounded, clast supported, polymict cobble conglomerate containing granitic, sedimentary and metamorphic clasts
- **TRP** Resistant, massive light to dark green weathering, dark green to black, augite phyric basalt and basaltic andesite flows and breccia; minor well-indurated dark grey greywacke, agglomerate, tuff, and associated epiclastic rocks with thin carbonate beds.
- **TRP1** Resistant, massive dark green to black, variably altered, coarse-grained augite porphyritic basalt and breccia, commonly with coeval (?) hornblendite
- **TRPm** **Metamorphosed equivalent**: Foliated to massive pale to dark green plagioclase-hornblende amphibolite; laminated pale green quartzofeldspathic gneiss and massive amphibolite with relict augite phenocrysts; marble and rare quartzite

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[1] ARMSTRONG, R.L., 1990. Written communications.

[2] DOHERTY, R.A. and HART, C.J.R., 1988. Preliminary geology of Fenwick Creek (105D/3) and Alligator Lake (105D/6) map areas; Indian and Northern Affairs Canada: Yukon Region, Open File 1988-2.

[3] MORRISON, G.W., GODWIN, C.J., ARMSTRONG, R.L., 1979. Interpretation of isotopic ages and $^{87}Sr/^{86}Sr$ initial ratios for plutonic rocks in the Whitehorse map area, Yukon; Can. Jour. Earth Sci., Vol. 16, p. 1988-1997.

[4] PRIDE, M.J. and CLARK, G.S. 1985. An Eocene Rb-Sr isochron for rhyolite plugs, Skukum area, Yukon Territory; Can. Jour. Earth Sci., Vol. 22, p. 1747-1753.

SYMBOLS

- Limit of outcrop
- Geological boundary (defined, approximate, assumed)
- Bedding (top known, tops unknown)
- Primary igneous flow banding
- Dyke (inclined, vertical)
- Schistosity (foliation, cleavage or gneissosity)
- Mineral lineation
- Shear band
- Fault (defined, approximate, covered; ball on down dropped side)
- Thrust fault (defined, approximate, covered; teeth on upper plate)
- Fault (transcurrent)
- Mafic dike swarm
- Adit, caved
- Locality of isotopic age determination — aK106
  - Igneous, metamorphic, sedimentary rock
  - Material: amphibole, biotite, zircon, whole rock — a,b,z,w
  - Method: U-Pb, K-Ar, Rb-Sr — U,K,R
- Cross section line — A A'
- Fossil, microfossil locality — F, f
- Mineral occcurrence (Numbers refer to INAC Yukon Exploration volume) — 259
- Volcano
- Lineament
- Gossan — G
- Breccia

MINERAL OCCURRENCES

YEX Number	NAME	Commodity
30	MT. WHEATON	Au,Ag,Cu,Pb
35	DAIL	Au,Ag,Te
36	GOLDREEF	Au,Ag,Te
37	UNION MINE	Ag,Pb,Zn
38	MT. BUSH	COAL
39	LEGAL TENDER	Ag,Pb,Zn
40	ALLIGATOR	Cu,Mo
41	WHITEHORSE COAL	COAL
78	INCO	Cu,Mo
82	PTARMIGAN	COAL
83	COAL RIDGE	COAL
84	BERESFORD	COAL
116	DAYIR	Cu,Fe,Zn,Ag
117	EVIEW	Ag,Pb,Zn
145	BEAR	Au,Ag
224	RED RIDGE	Au,Ag,Pb,Cu
228	SAID/THE	Au,Ag
259	LUCKY BOY/MINERAL HILL	Cu,Pb
281	VIN	Au

COMPILATION SOURCES

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

GEOLOGICAL MAP OF ALLIGATOR LAKE (105D/ 6) MAP AREA

Geology by C.J.R. Hart, R.A. Doherty, J.K. Radloff, J.A. Hunt, and M.P. Fingland and J. Wegenast

to accompany

OPEN FILE REPORT 1990-4

Geology of Whitehorse, Alligator Lake, Fenwick Creek, Carcross and part of Robinson map areas (105D/11,6,3,2,7); C.J.R. Hart and J.K. Radloff of Aurum Geological Consultants, Inc.

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