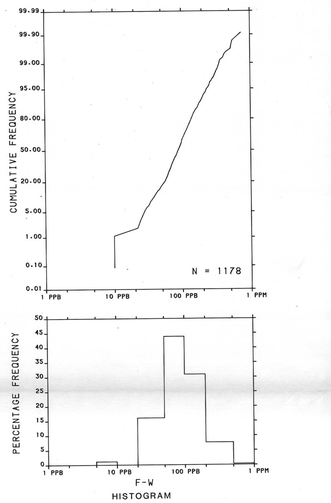

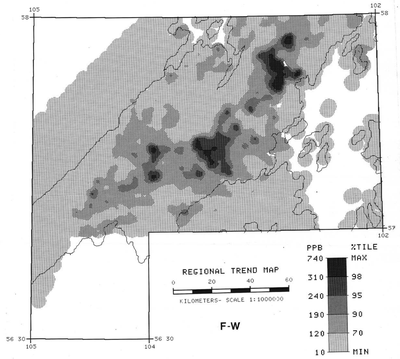

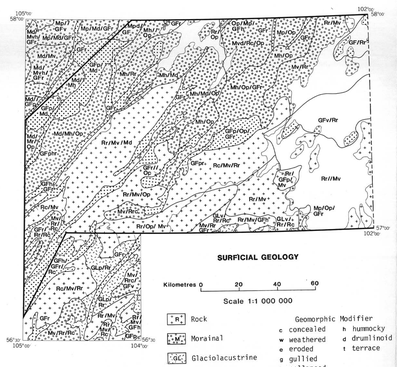

Complexes: where two or more classes of terrain are interspersed in a mosaic or repeating pattern the proportion of each component in the combination is given in a three-position designation set off by slashes denoting arbitrary percentage limits. For example, "Mv/D/R" means that at least 60% of the area is underlain by thin till, with up to 40% boggy areas, and less than 15% scattered rock outcrops. "Rc/R" indicates more than 60% bedrock concealed by vegetation and less than 15% outcrop.

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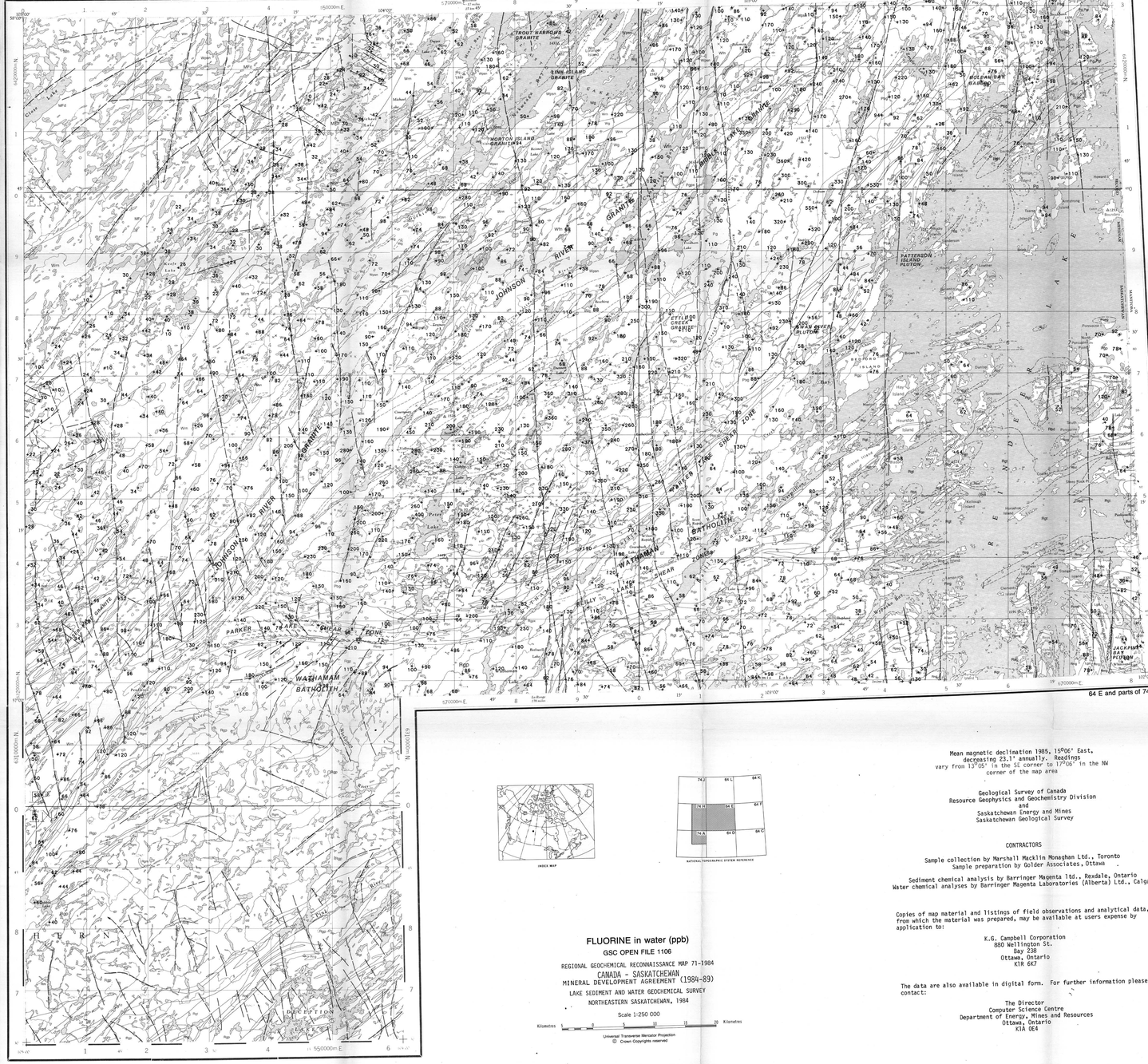
64 E, and parts of 74 A, H



64 E and parts of 74 A, H

Mean magnetic declination 1985, 15°06' East, decreasing 23.1' annually. Readings vary from 13°05' in the SE corner to 17°06' in the NW corner of the map area

Geological Survey of Canada
Resource Geophysics and Geochemistry Division
and
Saskatchewan Energy and Mines
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Sample preparation by Golder Associates, Ottawa

Sediment chemical analysis by Barringer Magenta ltd., Rexdale, Ontario
Water chemical analyses by Barringer Magenta Laboratories (Alberta) Ltd., Calgary

Copies of map material and listings of field observations and analytical data, from which the material was prepared, may be available at users expense by application to:

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The data are also available in digital form. For further information please contact:

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FLUORINE in water (ppb)
GSC OPEN FILE 1106
REGIONAL GEOCHEMICAL RECONNAISSANCE MAP 71-1984
CANADA - SASKATCHEWAN
MINERAL DEVELOPMENT AGREEMENT (1984-89)
LAKE SEDIMENT AND WATER GEOCHEMICAL SURVEY
NORTHEASTERN SASKATCHEWAN, 1984

Scale 1:250 000

Kilometres 5 0 5 10 15 20 Kilometres

Universal Transverse Mercator Projection

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FLUORINE in water (ppb)
GSC OPEN FILE 1106
NORTHEASTERN SASKATCHEWAN, 1984

LEGEND

Note: This legend is common for Regional Geochemical Reconnaissance Map 71-1984, Open File 1106

NEOHELIKIAN-HADRYNIAN

dd — **Diabase-gabbro:** fine to coarse-grained, massive to weakly foliated ± olivine ± biotite ± hypersthene

PALEOHELIKIAN

ATHABASCA GROUP

MF — **Manitou Falls Formation:** sandstone and conglomerate
MFc-fluvial sandstone member, locally pebbly
MFb-conglomerate member

LATE APHEBIAN (HUDSONIAN)

X — **Cataclasite:** mylonite and sheared rocks of the Needle Falls Shear Zone, derived from rocks of the Wollaston and Peter Lake domains

WOLLASTON DOMAIN

LATE APHEBIAN (HUDSONIAN)

Wgmp — **Granitic pegmatite:** variable grain size, generally massive, ± biotite ± muscovite ± garnet; contacts with migmatitic supracrustal gneisses commonly gradational

Wg — **Granite and aplasite:** fine to coarse grained, massive to weakly foliated, ± biotite ± hornblende ± magnetite ± microcline megacrysts; contacts with migmatitic supracrustal gneisses commonly gradational

Wgdb — **Biotite-granodiorite-tonalite:** medium to coarse grained, massive to foliated, grey to buff, local xenoliths and rafts of amphibolite, mica schist and psammitic gneiss

EARLY TO MIDDLE APHEBIAN

Wollaston Group

Wsh — **Quartz-muscovite schist:** pelitic to psammopelitic, fine to medium grained, ± biotite; locally intensely sheared

Wcs — **Calc-silicate gneiss, marble and amphibolite:** medium grained to pegmatitic, variable composition and texture, ± diopside ± albite ± hornblende ± biotite ± actinolite-tremolite ± calcite ± scapolite ± grossularite; commonly conformable bands and lenses in supracrustal sequence

Wms — **Meta-ultramafic gneiss:** fine to medium grained, massive to foliated, locally layered, ± biotite ± hornblende ± diopside ± muscovite ± sillimanite ± garnet ± cordierite ± magnetite ± pyrite; locally interlayered with metapsammitic pelitic and calc-silicate rock; commonly anaretic with more than 50 percent leucogranitic neosome

Wmp impure metapyrite

Wpsm — **Pelitic to psammopelitic gneiss:** fine to medium grained, foliated to gneissic, ± biotite ± quartz ± feldspar ± graphite ± sillimanite ± muscovite ± cordierite ± garnet ± pyrite/pyrrhotite; interlayered metaquartzite, meta-arkose, meta-arenite, calc-silicate rock, marble and rare banded iron formation; commonly anatectic with more than 50 percent leucogranitic to tonalitic neosome

Wpt graphite-bearing pelitic gneiss

Ws — **Mixed metasediment:** variable unit both along and across strike, generally fine grained and foliated, interlayered laminated slate, meta-argillite, metaquartzite, metachert, meta-arkose, calc-silicate rock, marble and rare banded iron formation

Wq — **Metaquartzite:** fine grained, massive to foliated, locally layered, ± muscovite ± biotite ± garnet ± feldspar ± cordierite ± sulphide; local conglomerate and interlayered graphitic meta-argillite ± andalusite ± garnet ± sulphide

PROBABLY EARLY APHEBIAN (LATE ARCHEAN?)

Wr — **Meta-arkose:** fine to medium grained, massive to foliated, locally layered and cross stratified, ± muscovite ± magnetite ± lithic fragments; local conglomerate with granite, granitic gneiss, metavolcanic and metasedimentary clasts; interbedded pelitic schist ± andalusite ± staurolite ± garnet

Wv — **Amphibolite:** fine grained, massive to poorly foliated, locally pillowed; local intercalated pelitic gneiss

COURTENAY-CAIRNS LAKE BELT

UNCONFORMITY

ARCHEAN, DEFORMED AND METAMORPHOSED WITH APHEBIAN SUPRACRUSTAL ROCKS DURING THE HUDSONIAN OROGENY

Wfn — **Felsic gneiss:** fine to coarse grained, foliated to gneissic, generally homogenous rocks of pyroxenoid to granodioritic composition ± biotite ± amphibole ± sillimanite, with rare hypersthene (of granulite facies metamorphic origin); local migmatitic and anatectic and pelitic schist; locally partially anatectic with

Wfb biotite-hornblende bearing

ROTTENSTONE DOMAIN

APHEBIAN (HUDSONIAN) WITH POSSIBLE ARCHEAN ELEMENTS

WATHAMAN BATHOLITH (c.1880 Ma)

Rgp — **Megacrystic granitoid:** medium to coarse grained, massive to foliated, with local layered flow banding; microcline megacrysts, ± biotite ± hornblende quartz monzonite, monzogranite and granodiorite; local pelitic, amphibolite and/or metabiotite xenoliths; locally abundant pegmatite, aplite and non-megacrystic granitoid toward margins

Rgpx: sheared variants, with strongly foliated granodioritoid and foliated microcline megacrysts, locally subporphyroid

Rgm — **Melanogranite-granodiorite:** containing abundant xenoliths and rafts of amphibolite and amphibole gneiss derived from unit Rm

Rbd — **Quartz monzodiorite, diorite and gabbro:** fine to coarse grained, massive to foliated, ± hornblende ± plagioclase ± potassium feldspar ± quartz ± biotite; local paragneiss inclusions; contact zones commonly injected with granitic material

Rpeg — **Granitic pegmatite:** massive to foliated, ± biotite ± muscovite ± hornblende ± garnet

Rgt — **Tonalite, granodiorite and trondhjemite:** compositionally variable, generally petrofabric poor, fine to coarse grained, locally pegmatitic, massive to foliated, ± biotite ± muscovite ± garnet ± hornblende; local amphibolite and/or pelite inclusions

Rgtz: metasomatized biotitemarble, pink, massive, ± diopside, with introduced potassium feldspar and quartz in aureole of Wathaman Batholith

MOTTENSTONE MIGMATITE COMPLEX

Rmg — **Amphibolite and derived migmatite:** gabbronorite fine to medium grained, foliated, locally layered, ± hornblende ± feldspar ± biotite ± muscovite ± garnet ± quartz; local pelite to psammopelite inclusions; commonly migmatitic, granodioritic to granitic (to 50 percent of unit) and pegmatitic; fine grained to pegmatitic, massive to foliated, ± biotite ± muscovite ± garnet ± hornblende

Rng — **Pelite to psammitic gneiss and derived migmatite:** gabbronorite fine to medium grained; well foliated to gneissic, locally layered, ± biotite ± quartz ± feldspar ± muscovite ± garnet ± sillimanite ± graphite; assumed to be metasedimentary in origin; commonly migmatitic (to 50 percent of unit), medium to coarse grained to pegmatitic, massive to foliated, ± biotite ± muscovite ± garnet ± hornblende

PETER LAKE DOMAIN

APHEBIAN AND ARCHEAN ROCKS, STRONGLY REWORKED PROBABLY LATE IN THE HUDSONIAN

Mylonite: fine grained to aphanitic stronsky to finely laminated, interlayered mafic and felsic gneiss

Pm — **Mylonite:** fine grained to aphanitic stronsky to finely laminated, interlayered mafic and felsic gneiss

Pgn — **Felsic gneiss:** medium grained, strongly foliated to gneissic locally subhomoclinic granoblastic rock ± biotite ± hornblende ± flattened microcline megacrysts

Pn — **Hornblende-biotite gneiss:** tonalitic to gabbroic composition, medium to coarse grained, with minor metagabbro and amphibolite

PARKER LAKE GNEISSES

Pbn — **Mafic gneiss:** fine to medium grained, foliated to gneissic, locally subhomoclinic, ± hornblende ± plagioclase ± biotite ± quartz ± potassium feldspar; local pods of weakly foliated to massive mafic rock

Pbng: area out by numerous granitic dykes and sills likely derived from the Wathaman Batholith

PETER LAKE COMPLEX

Pgp — **Megacrystic granitoid** (undistinguishable in places from unit Rgp)

Pgpx: sheared variants

PROBABLY MAINLY ARCHEAN

Pbg — **Mafic gneiss:** fine to coarse grained, massive to weakly foliated, metatonalite to metadiorite to metagabbro; local relict cumulic to subcumulic texture; ± hornblende ± plagioclase ± biotite ± actinolite/tremolite, with local metasedimentary xenoliths

Inclusions amphibolitic rocks of possible metavolcanic origin

Pbx: layered metagabbro, minor anorthosite, ultramafic rock and granoblastite

Pgp: megacrystic diorite, massive with potassium feldspar megacrysts

Pqd — **Quartzofeldspathic gneiss:** fine to medium grained, equigranular, generally well foliated to gneissic, locally compositionally banded; granitic to granodioritic ± biotite ± hornblende; local biotite-hornblende gneiss lenses

'Campbell River Group'

Psl — **Slate, phyllite and biotite schist:** very fine to fine grained, well foliated, locally layered, ± biotite ± muscovite ± pyrrhotite/pyrite ± carbonaceous material; local hornblende-biotite schist, psammite, amphibolite and metagabbro

SYMBOLS

- Single bedrock exposure; approximate area of abundant bedrock exposure
- Geological contact: defined to approximate; inferred
- Structural lineament, possible to probable fault, as interpreted from geological, geophysical and/or airphoto evidence
- Major fold axial trace: antiform; synform
- Trend and approximate dip of dominant foliation surface: gentle (0-20°); moderate (20-59°); steep (60-84°); subvertical (85-90°)
- Mineral prospect:
  1. George Lake, Zn-Pb; Karup-Møller and Brummer, 1975; Coombe, 1977)
- Sample location (geochronology)
  1. 1075±35 Ma, K-Ar muscovite (Wanless et al., 1973)
  2. 1765±30 Ma, Rb-Sr whole rock isochron (Bell and Macdougall-Davis, 1983); location is approximate centre of collecting area
- ✳ No analytical result

✳ A mnemonic name recorded as rock types as part of field observations

This legend was modified and the geology derived for these geochemical maps from Compilation Bedrock Geology Series 220A, 229A and 232A, Saskatchewan Energy and Mines, Saskatchewan Geological Survey

This map forms one of a series of maps released by the Geological Survey of Canada, Open file 1106. The Open File consists of maps of various geochemical variables: 16 for lake sediment, 3 for lake water and 1 sample site location

FLUORINE in water (ppb)
GSC OPEN FILE 1106
NORTHEASTERN SASKATCHEWAN, 1984

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