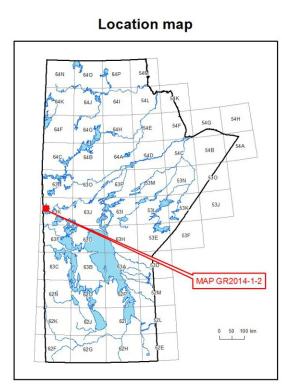


Bedrock geology of the Athapapuskow Lake area (east half), western Flin Flon belt, Manitoba (part of NTS 63K12)

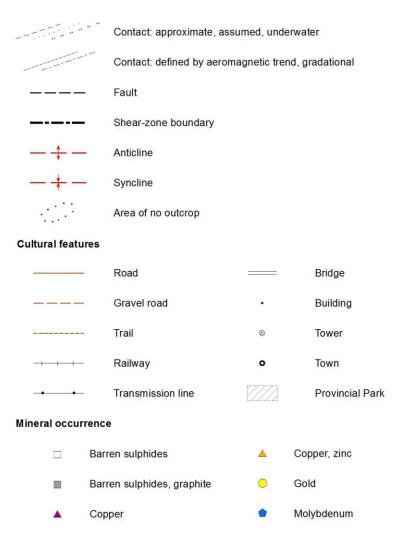


Symbols

Planar structu	re				
ATTAT	Foliation: generation unknown, relative ages 1, 2, 3, 4				
11.4	Bedding: tops unknown, known, overturned				
AAA	Flow contact: tops unknown, known, overturned				
1	Flow banding: tops known				
1 × ×	Igneous layering: tops unknown, known, overturned				
p p f	Pillows: tops unknown, known, overturned				
J. J.	Crenulation cleavage: relative ages 2, 3				
Å	Spaced cleavage: generation unknown				
A A A	Fault: sense unknown, dextral, sinistral				
FFF	Shear zone: sense unknown, dextral, sinistral				
Linear structure					
1	Fold axis: generation unknown				
1 ŧ	Fold axis (symmetric): generation unknown, 2				
5 t	Fold axis: generation unknown, S asymmetry, Z asymmetry				



Minor intr K4	Intrusion breccia
	a Intrusion breccia with fine-grained, leucocratic tonalite matrix b Intrusion breccia with quartz diorite to tonalite matrix, in part pegmatitic
К3	Quartz diorite, tonalite Ledge Lake plagioclase-phyric, leucocratic quartz diorite
	b Buff-weathering, fine-grained, equigranular quartz diorite
	d Fine- to medium-grained, equigranular tonalite
K2	Gabbro, diorite a) Fine- to medium-grained, equigranular gabbro, diorite b) Plagioclase-phyric diorite
Gabbro si	c) Plagioclase-pyroxene-phyric gabbro, diorite
K1	White Lake sill Gabbro
	b Ferrogabbro c Quartz ferrodiorite
	38 Ga volcanic rocks of arc affinity; associated
volcanio Sedimenta	
J14	Greywacke, mudstone a) Mafic greywacke, siltstone b) Greywacke, siltstone, mudstone
Heterolith	 c) Pyritic mudstone, mudstone d) Interbedded mafic mudstone, greywacke, felsic tuff ologic breccia
J13	Heterolithologic breccia a) Heterolithologic breccia with dominantly mafic fragments
Felsic vol	 b) Heterolithologic breccia with dominantly felsic fragments c) Heterolithologic breccia with subordinate scoria clasts caniclastic rocks
J12	Felsic breccia, tuff a) Felsic breccia
J11	 b) Felsic tuff White Lake dacite tuff and associated sedimentary rocks a) Pumice-bearing dacite tuff
Intermedia	b) Layered, redeposited dacite tuff and sedimentary rocks ate volcaniclastic rocks
J10	Little Spruce Lake andesitic lapilli tuff and associated sedimentary rocks a) Andesitic lapilli tuff, tuff breccia b) Fine-grained sedimentary rocks and tuff
	aniclastic rocks Mafic tuff
J9	 a) Mafic tuff with subordinate interbeds of scoria tuff, minor scoria breccia b) Fine-grained mafic tuff c) Mafic lapilli tuff
J8	c) Matic lapilli tuff Mafic plagioclase crystal-lapilli tuff, breccia Crystal-lapilli tuff with very large plagioclase
	b Crystal-lapilli tuff, scoria breccia
J7	Mafic pyroclastic breccia, tuff Scoria breccia
	b Interlayered scoria breccia and tuff Pillow-fragment breccia
J6	 a) Aphyric pillow-fragment breccia b) Porphyritic pillow-fragment breccia
Rhyolite, o J5	Rhyolite flows a) Rhyolite bodies on Northwest Arm and Inlet Arm (Schist Lake)
	 b) Campground rhyolite c) Islands rhyolite d) Paradise rhyolite complex
	e) Unnamed rhyolitef) Quartz-sericite schist derived from rhyolite
J4	saltic andesite, andesite Scotty Lake basalt (>1894 Ma) a) Basalt flows; synvolcanic basalt dikes, sills
J3	 Porphyritic mafic and intermediate flows a) Plagioclase±pyroxene—phyric or glomeroporphyritic mafic flows
	 b) Plagioclase-pyroxene-phyric mafic flows c) Amoeboid pillow breccia
J2	 d) Porphyritic intermediate (andesitic) flows Aphyric to sparsely porphyritic mafic flows a) Aphyric basalt
J1	 b) Amoeboid pillow breccia Bear Lake basaltic andesite (>1886 Ma)
	 Epidotized and strongly deformed pillowed and massive basaltic
ca. 1.90	andesite flows, related synvolcanic dikes; derived tectonite
Mafic and	andesite flows, related synvolcanic dikes; derived tectonite Ga intrusive rocks of ocean-floor affinity ultramafic sills and dikes Gabbro, diorite
	andesite flows, related synvolcanic dikes; derived tectonite Ga intrusive rocks of ocean-floor affinity <u>ultramafic sills and dikes</u> Gabbro, diorite a) Fine- to medium-grained, equigranular gabbro, diorite b) Clotty gabbro, diorite c) Medium-grained diorite and quartz diorite, commonly with xenoliths and
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Mafic and H3 H2 H1	andesite flows, related synvolcanic dikes; derived tectonite Ga intrusive rocks of ocean-floor affinity <u>ultramafic sills and dikes</u> Gabbro, diorite a) Fine- to medium-grained, equigranular gabbro, diorite b) Clotty gabbro, diorite c) Medium-grained diorite and quartz diorite, commonly with xenoliths and rafts of amphibolite; veins and dikes in amphibolite Diabase (1904 ±4 Ma) a) Fine- to medium-grained diabase Peridotite mafic—ultramafic intrusions
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Mafic and H3 H2 H1 Layered n G2 G1 ca. 1.90	andesite flows, related synvolcanic dikes; derived tectonite Ga intrusive rocks of ocean-floor affinity ultramafic sills and dikes Gabbro, diorite a) Fine- to medium-grained, equigranular gabbro, diorite b) Clotty gabbro, diorite c) Medium-grained diorite and quartz diorite, commonly with xenoliths and rafts of amphibolite; veins and dikes in amphibolite Diabase (1904 ±4 Ma) a) Fine- to medium-grained diabase Peridotite Mafic – ultramafic intrusions South Athapapuskow layered sill Gabbro Pyroxenite C Peridotite Limestone Narrows mafic – ultramafic complex Gabbro Pyroxenite Gabbro Cabbro, gabbro, gabbroic anorthosite, anorthosite C Pyroxenite C Paridotite C Pyroxenite C Poridotite C Pyroxenite
Mafic and H3 H2 H1 Layered n G2 G1 ca. 1.90	andesite flows, related synvolcanic dikes; derived tectonite Ga intrusive rocks of ocean-floor affinity ultramafic sills and dikes Gabbro, diorite a) Fine- to medium-grained, equigranular gabbro, diorite b) Clotty gabbro, diorite c) Medium-grained diorite and quartz diorite, commonly with xenoliths and rafts of amphibolite; veins and dikes in amphibolite Diabase (1904 ±4 Ma) a) Fine- to medium-grained diabase Peridotite nafic – ultramafic intrusions South Athapapuskow layered sill a Gabbro b Pyroxenite c Peridotite Limestone Narrows mafic–ultramafic complex a Gabbro b Leucogabbro, gabbro, gabbroic anorthosite, anorthosite c Pyroxenite d Peridotite Ga volcanic, volcaniclastic and sedimentary rocks of oor affinity try rocks
Mafic and H3 H2 H1 Layered n G2 G1 G1 Ca. 1.90 ocean-fl Sediment: F8	andesite flows, related synvolcanic dikes; derived tectonite Ga intrusive rocks of ocean-floor affinity ultramafic sills and dikes Gabbro, diorite a) Fine- to medium-grained, equigranular gabbro, diorite b) Clotty gabbro, diorite c) Medium-grained diorite and quartz diorite, commonly with xenoliths and rafts of amphibolite; veins and dikes in amphibolite Diabase (1904 ±4 Ma) a) Fine- to medium-grained diabase Peridotite mafic-ultramafic intrusions South Athapapuskow layered sill a Gabbro b Pyroxenite c Peridotite Limestone Narrows mafic-ultramafic complex a Gabbro b Leucogabbro, gabbro, gabbroic anorthosite, anorthosite c Pyroxenite c Pyroxenite d Peridotite a Gabbro b Leucogabbro, gabbro, gabbroic anorthosite, anorthosite c Pyroxenite d Peridotite a Gabbro gabbroic pegmatite a Gabbro a Gabbro b Leucogabbro, pabbro, gabbroic anorthosite, anorthosite c Pyroxenite d Peridotite a Gabbro gabbroic pegmatite a Gabbro a Greywacke, mudstone, mafic tuff
Mafic and H3 H2 H1 Layered n G2 G1 G1 Ca. 1.90 ocean-fl Sediment: F8	andesite flows, related synvolcanic dikes; derived tectonite Ga intrusive rocks of ocean-floor affinity ultramafic sills and dikes Gabbro, diorite a) Fine- to medium-grained, equigranular gabbro, diorite b) Clotty gabbro, diorite c) Medium-grained diorite and quartz diorite, commonly with xenoliths and rafts of amphibolite; veins and dikes in amphibolite Diabase (1904 ±4 Ma) a) Fine- to medium-grained diabase Peridotite nafic – ultramafic intrusions South Athapapuskow layered sill a Gabbro b Pyroxenite c Peridotite Limestone Narrows mafic–ultramafic complex a Gabbro b Leucogabbro, gabbro, gabbroic anorthosite, anorthosite c Pyroxenite d Peridotite Ga volcanic, volcaniclastic and sedimentary rocks of oor affinity try rocks
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Mafic and H3 H2 H1 Layered n G2 G1 G1 G1 G2 G1 G1 G2 G1 G2 G1 F8 Sediment F8 Mafic volc F7 F6 Basalt	andesite flows, related synvolcanic dikes; derived tectonite
Mafic and H3 H2 H1 G2 G1 G1 G1 G1 G2 G1 F8 Mafic volc F7 F6	andesite flows, related synvolcanic dikes; derived tectonite Ga intrusive rocks of ocean-floor affinity utramafic sills and dikes Gabbro, diorite a) Fine- to medium-grained, equigranular gabbro, diorite b) Cloty gabbro, diorite c) Medium-grained diorite and quartz diorite, commonly with xenoliths and rafts of amphibolite; veins and dikes in amphibolite Diabase (1904 ±4 Ma) a) Fine- to medium-grained diabase Peridotte mafic-ultramafic intrusions South Athapapuskow layered sill a) Gabbro b) Pyroxenite c) Peridotite Limestone Narrows mafic-ultramafic complex a) Gabbro b) Leucogabbro, gabbro, gabbroic anorthosite, anorthosite c) Pyroxenite d) Peridotite a) Gabbro b) Leucogabbro, gabbro, gabbroic anorthosite, anorthosite c) Pyroxenite d) Peridotite a) Gabbro b) Leucogabbro, gabbro, gabbroic anorthosite, anorthosite c) Pyroxenite d) Peridotite a) Gabbroic pegmatite Gabbroic pegmatite a) Greywacke, mudstone, mafic tuff a) Greywacke, mudstone, mafic tuff Athapapuskow mafic volcaniclastic rocks Undivided mafic flows
Mafic and H3 H2 H1 Layered n G2 G1 G1 G2 G1 G1 G2 G1 G2 G1 F8 Nafic volc F8 Mafic volc F7 F6 Basalt	andesite flows, related synvolcanic dikes; derived tectonite Ga intrusive rocks of ocean-floor affinity ultramatic sills and dikes Gabbro, diorite a) Fine- to medium-grained, equigranular gabbro, diorite b) Cloty gabbro, diorite c) Medium-grained diorite and quartz diorite, commonly with xenoliths and rafts of amphibolite; veins and dikes in amphibolite Diabase (1904 ±4 Ma) a) Fine- to medium-grained diabase Peridotite matic_ultramafic intrusions South Athapapuskow layered sill a Gabbro b Pyroxenite c Peridotite Limestone Narrows mafic—ultramafic complex a Gabbro b Leucogabbro, gabbro, gabbroic anorthosite, anorthosite c Pyroxenite c Pyroxenite d Peridotite Ga volcanic, volcaniclastic and sedimentary rocks of South Athapapuskow, mudstone, mafic tuff anclastic and volcaniclastic rocks Athapapuskow mafic volcaniclastic rocks
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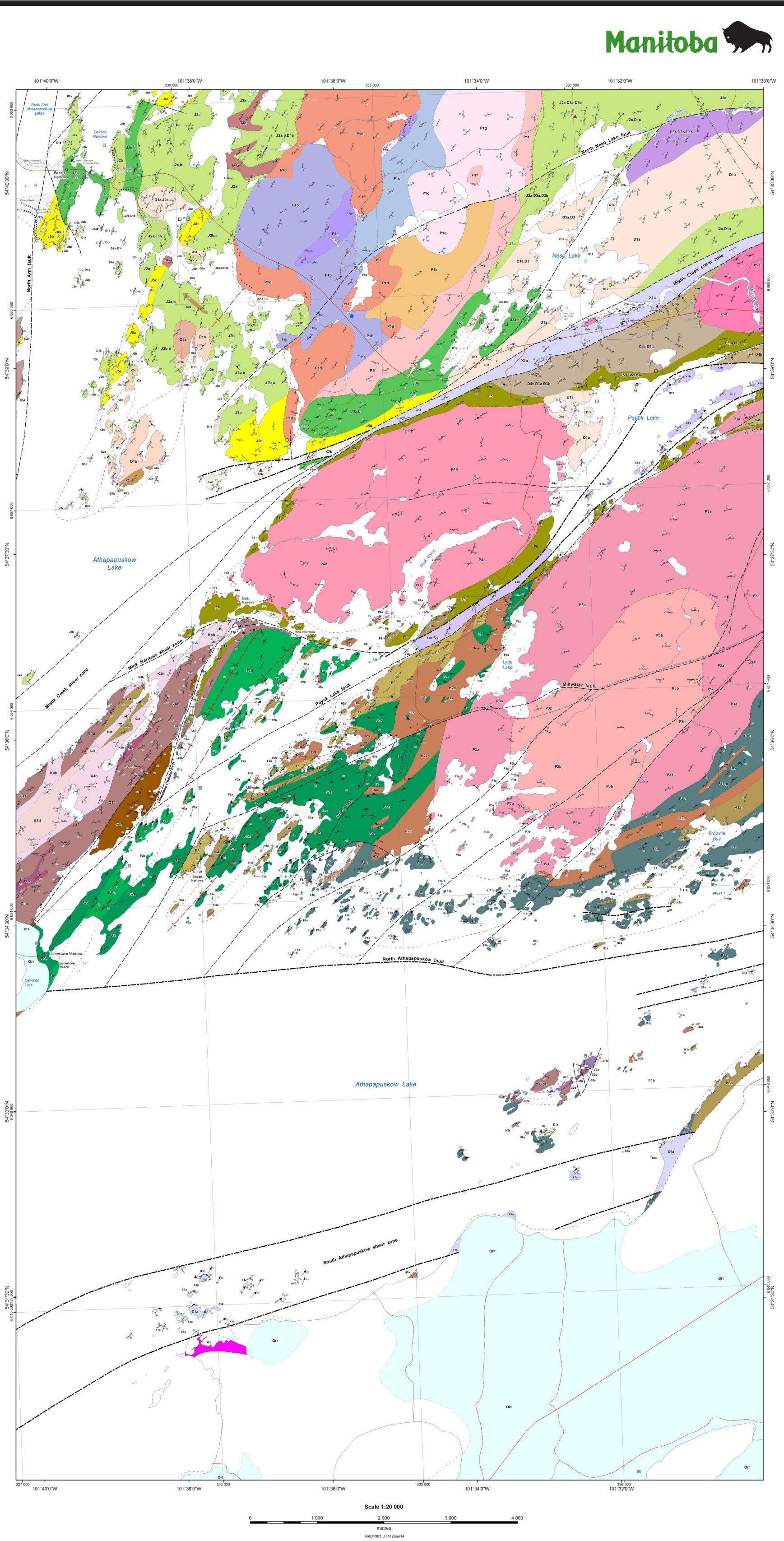
Geology by: E.C. Syme Digital cartography by: M.E. McFarlane

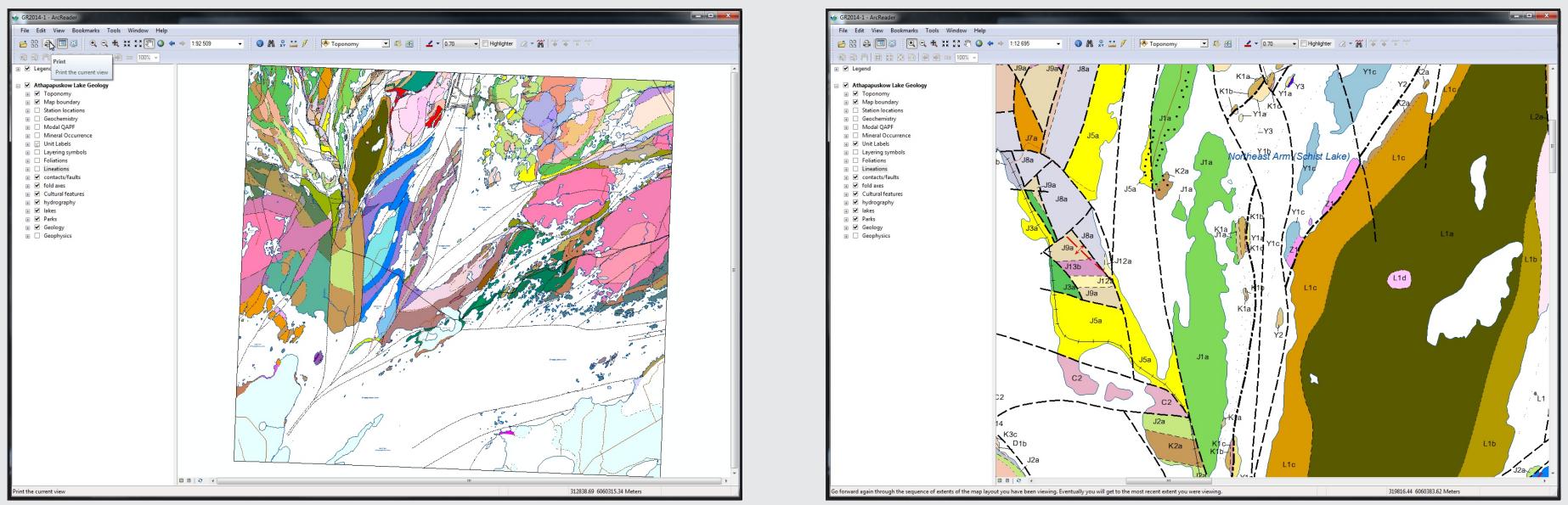
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scale 1:20 000.

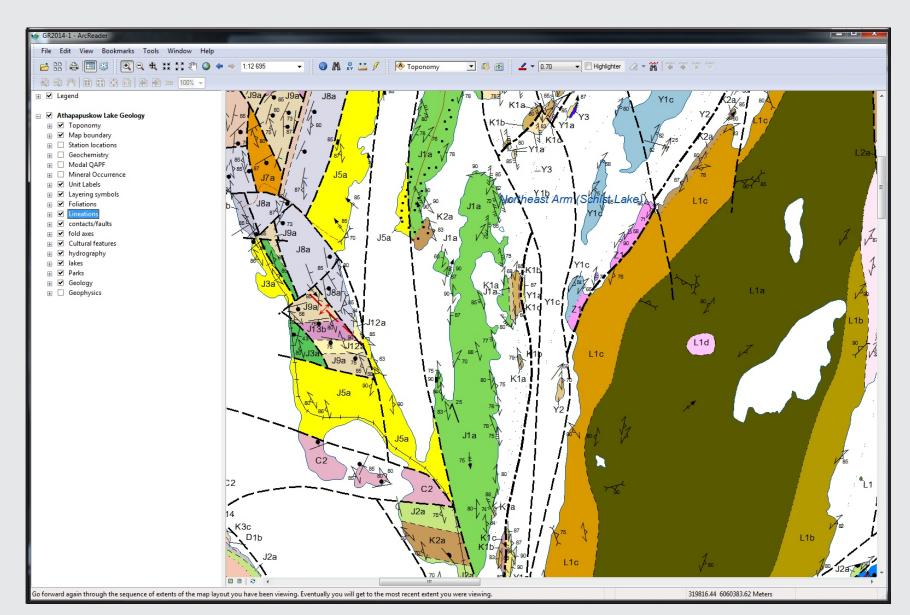
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This map accompanies Geoscientific Report GR2014-1: Syme, E.C. 2015: Geology of the Athapapuskow Lake area, western Flin Flon belt, Manitoba (part of 63K12), Manitoba Mineral Resources, Manitoba Geological Survey, Geoscientific Report GR2014-1, 210 p. Suggested reference for Map GR2014-1-2: ne, E.C. 2015: Bedrock geology of the Athapapuskow Lake area (east half), western Flin Flon belt, Manitoba (part of NTS 63K12); Manitoba Mineral Resources, Manitoba Geological Survey, Geoscientific Report GR2014-1, Map GR2014-1-2,

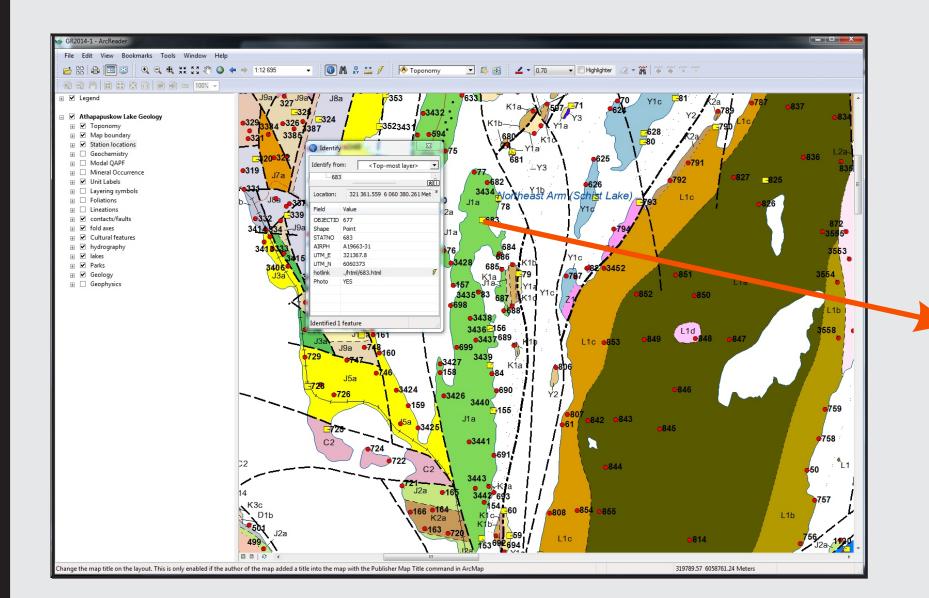


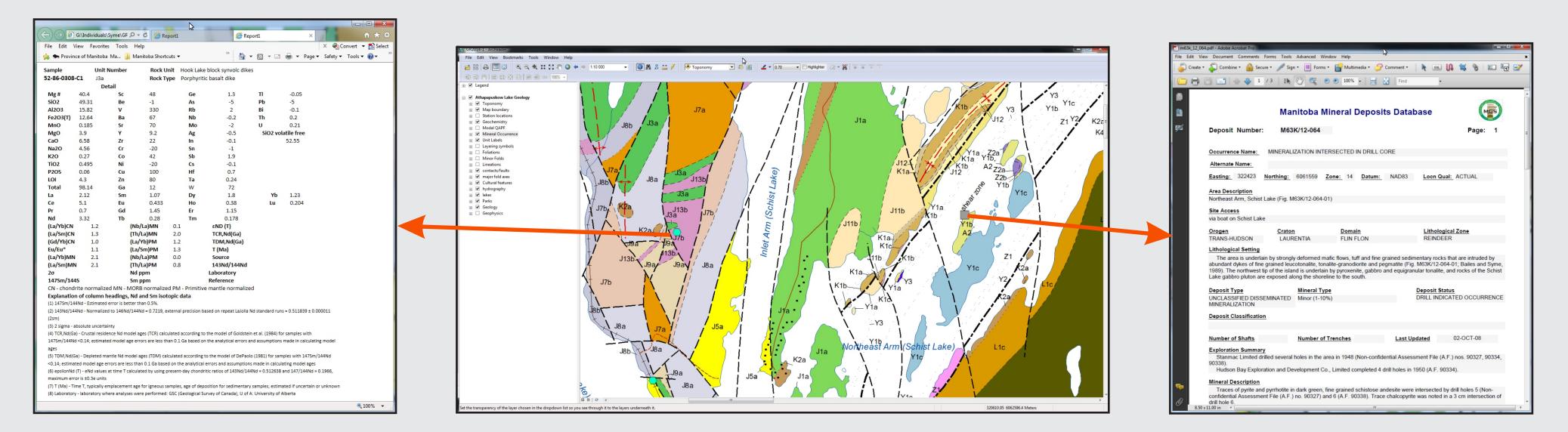


ArcGIS[™] version 10.2.1 or newer.



The map provides independent control of visibility for all elements of the map including structure symbols, unit numbers and station locations. All together there are 3552 individual station locations and 3520 structural symbols visible on the map.





The database associated with the Athapapuskow Lake digital map contains links to 184 geochemical analyses and 50 mineral occurrence descriptions. Using the hyperlink tool and selecting the appropriate tool will open windows to both geochemical records (left side) and mineral occurrence documents (right side). Both of these popup windows can be printed seperately from the ArcReader projects. The geochemical data is also available in Excel spreadsheet in the Appendices folder of the DVD.

NEW RELEASE

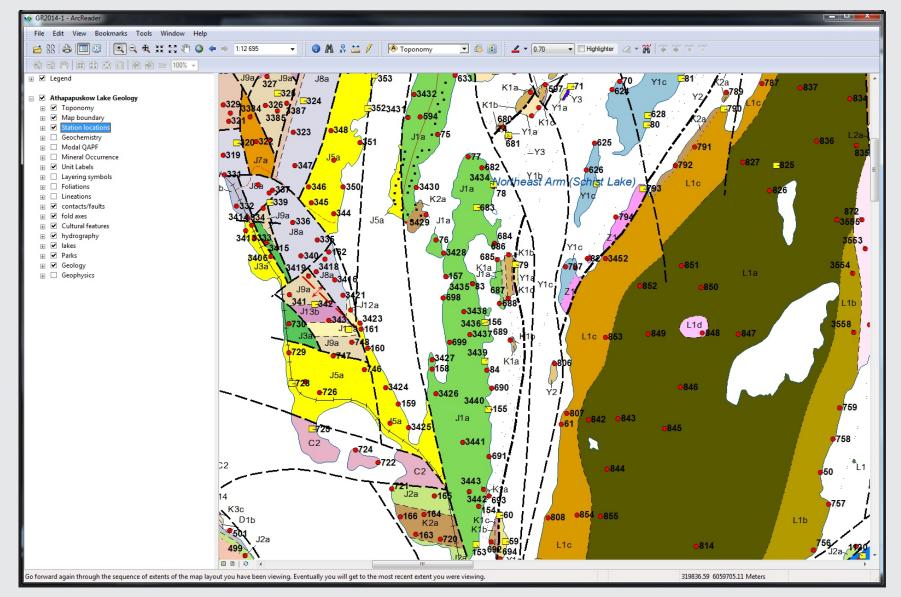
Geoscientific Report GR2014-1 Geology of the Athapapuskow Lake area, western Flin Flon belt, Manitoba (part of NTS 63K12)

by E.C. Syme

Digital compilation by P.G. Lenton Manitoba Geological Survey Manitoba Mineral Resources

The digital version of the Athapapuskow Lake map is included on the DVD as an ESRI© ArcReader™ project and as an ESRI© ArcMap™ document. The required ArcReader™ software is included on the DVD in the folder \ArcReader1021\. You can use the mxd project file if you have

When the map is first opened only the simplest presentation is used comprising geology polygons and contacts, hydrography and cultural features. When the user zooms to the native scale of the map at 1:20 000 other features such as unit number text and structure symbols appear. Optional layers such as station location, geochemistry, mineral occurrence and QAPF points can be made visible.



Athapapuskow	/ Lake	Proj	ect (1985-89)	Manitoba 🗫
Geologist E.C. EASTING 3213 Date of mapping	851 N	ORT	HING 6060377	683 CONE 14 DATUM NAD83
STRUCTURAL	DATA			
	ar Struc			
Structure type	Strike	Dip	Separation	
schistosity	30	70		
kink band	2	85		
PETROLOGIC	DATA			
Rock Number: 1				
Rock Type: epid	otized, d	leforn	ed, Bear Lake basal	ic andesite
Is, or occurs in,	nap uni	it: J1a		
Weathered colou	ır: buff			
Field Description	1:			
"matrix" brown so present. NE trend folds with N axia	chistose ing folia l plane f	portion ation 1 old fo	n. No primary strict is predominant, alth liation 1 and deform	ge augen-shaped epidote domains (buff) which deflect foliation in the re relicts whatever, but not as strongly deformed as 682 - lamination is not ough there is still a Z - north trending overprint locally. Few amygdules. Z epidosite. Intruded by common diorite sheets cm's to m's wide - these are al pseudo lamination.
Rock Number: 2				
Rock Type: diori	te			
Is, or occurs in,	nap uni	it: J1a		
Field Description	1:			
Intrude epidosites				



Manitoba Geological Survey, 2014 Geological Report GR2014-1

Every station location contains a hyperlink to documents containing the full-text description of the outcrop as recorded in the field by E.C. Syme during field mapping. To enhance the utility of these station notes, locations that have good quality photographs that are representative of the outcrop include one or more photographs in the note document. In total there are 372 field photos available from links in the map.