









DOUBLE MER A map that included the present area was published uncoloured with an accompanying report (Gower, 1986), superseding an article by Gower (1984). The present map incorporates field data collected by Stevenson (1970), making use of original field notes recorded by I.M. Stevenson and assistants. Gower's (1986) map and report embedded follow-up examination of stained slabs, petrographic thin sections, whole-rock geochemical analyses, and, on the south shore of Double Mer, field data from Erdmer (1984). U-Pb geochronological results (Corrigan – unpublished, see digital database; Schärer et al., 1986), Nd-Sm isotopic data (R.A. Creaser, unpublished - see digital database; Emslie et al., 1997; Schärer, 1991), Rb-Sr isotopic data (Emslie et al., 1997; Schärer, 1991), K-Ar isotopic data (Wanless et al., 1972), and paleomagnetic sites from Fahrig and Larochelle (1972) and Murthy et al. (1992) are shown. Localities designated as mineral occurrences are based on observations during the 1983 field season (see Mineral Occurrence Table; current to 2009). The present map differs little from that published by Gower (1986), although additional thrusts are indicated. It accommodates the implications of a metamorphic study by Gower and Erdmer (1988), and an evaluation of the Lake Melville Rift system by Gower et al. (1986). Unit modification is partly related to a compilation approach applied to the whole of eastern Labrador, but border regions of the map have been revised as a result of data integration with adjacent map areas. Geological boundaries are poorly controlled from outcrop data, and have been extrapolated using structural observations, regional aeromagnetic data and topographic trends. Pre-1994 data station sites have been digitized from where originally located on aerial photographs or (rarely) on topographic maps, so reliability of location is likely mostly dependent on initial plotting accuracy. Subsequent locations are based on GPS-supported readings. As is characteristic of metamorphic and plutonic terranes, individual outcrops are typically very complex, and commonly embody several different rock types. Generally, the unit polygon depicted is based on what was judged to be the dominant rock type present, but this approach was not universally followed, due to the exigencies of specific situations, such as the need to emphasize minor rock types deemed to have high significance. All rock types recorded from any individual outcrop may be determined by consulting the 'Unit designator' string for that locality given in the digital database. The user is alerted to the fact that, in the digital database, no attempt has been made to reconcile rock names applied to field outcrops, versus those applied to stained slabs, or petrographic thin sections. Differences may be due to subsequent, more refined identifications but other reasons may apply, such the sample (or thin section) not being representative of its source. Unit designator and polygon labels applied are based on an awareness of such factors.

Recommended citation Gower, C.F., 2010: Geology of the Double Mer area (NTS sheets 13J/03, 04, 05 and 06), eastern Labrador. Geological Survey, Mines Branch, Department of Natural Resources, Government of Newfoundland and Labrador, Map 2010-06, Open File 013J/0292. Geological cartography by T. Paltanavage, Cartographic Unit, Geological Survey, Department of Natural Resources.

Digital NTS base maps (NTS 13J/03, 04, 05 and 06) used for this map are available from Surveys and Mapping Branch, Natural Resources Canada. Magnetic declination at the centre of the map at the start of 2010 was 22° 16' W. Elevations are in metres above sea level for NTS sheets 13J/04, 05 and 06, and in feet for NTS sheet 13J/03. Contour interval is 20 metres or 50 feet. UTM (Universal Transverse Mercator) Grid Zone 21, NAD (North American Datum) 27.

Correspondence Dr. C.F. Gower, Geological Survey, Mines Branch, Department of Natural Resources, Government of Newfoundland and Labrador, P.O. Box 8700, St. John's, NL, A1B 4J6, Canada. Email: cgower@gov.nl.ca. Copies of this map may be obtained from the Geoscience Publications and Information Section, Geological Survey, Mines Branch, Department of Natural Resources, Government of Newfoundland and Labrador, P.O. Box 8700, St. John's, NL, A1B 4J6, Canada. Email: pub@gov.nl.ca. NOTE: Map 2010-06 is one of twenty-five maps on the geology of the Grenville Province in eastern Labrador and adjacent eastern Makkovik Province produced by the Geological Survey, Mines Branch, Department of Natural Resources, Government of Newfoundland and Labrador. Mines Branch website: http://www.nr.gov.nl.ca/nr/mines/index.html.

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pages.

Emslie, R.F., Hamilton, M.A. and Gower, C.F.



Mapping references

Erdmer (1983, 1984)

Stevenson (1

Gower (1984, 1986); additional data

GEOLOGICAL DATA SOURCES 481 1983, -84, -86 Double Mer & other visits F. Gower (project geologist) M. Stevenson (project geologist) Rigolet - Groswater Bay Erdmer (project geologist) Lake Melville Rigolet - Groswater Bay Rigolet - Groswater Bay W. Nesbitt (assistant geologist) H. Bourne (assistant geologist)

Stevenson (1970) Stevenson (dmer (1983, 198 Vilson (assistant geologist) ISOTOPIC DATA U/Pb Geochronology Nd/Sm Geochronology Rb/Sr Geochronology K/Ar Geochronology Mineral abbreviations: Sample number Sample number Sample number Sample number

Pb lo	blacement age amorphism/closure/ ing/undefined bss age	m - monazite r - rutile t - titanite x - xenotime z - zircon Concordia abbi c - concordant nc - near-concor l.i lower interco u.i upper interco	dant ept	Epsilon value Depleted mantle age Age of rock (? age inferred)	Initial Sr ratio calculated from time t Age of rock (? age inferred) (* one of two or more analyses)	Age Mineral; Method (* average of two or more analyses) Biot - biotite Hbl - hornblende Musc - muscovite WR - whole rock plat - plateau age tot. gas - total gas age
	Reference(s)	Sá	amples			
	Corrigan (unpublished) CG83-178					
U-Pb	Comgan (unpublishe	a) [C	G83-178			
J-Pb J-Pb	Schärer et al. (1986)	- /	G83-178 ib-12 (CG84-47′	1)		
J-Pb	•	La		1)		
J-Pb <mark>Nd-Sm</mark>	Schärer et al. (1986)	La (d)	ib-12 (CG84-47 ² <mark>G83-181</mark>	1) -246; CG83-462		
J-Pb Nd-Sm Nd-Sm	Schärer et al. (1986) Creaser (unpublished	La d) C(C(ib-12 (CG84-47 ² <mark>G83-181</mark>	,		
J-Pb Nd-Sm Nd-Sm	Schärer et al. (1986) Creaser (unpublished Emslie et al. (1997)	له (۱) Cu Cu La	b-12 (CG84-47 G83-181 G83-234; CG83- b-12	,		
J-Pb Nd-Sm Nd-Sm Nd-Sm	Schärer et al. (1986) Creaser (unpublished Emslie et al. (1997) Schärer (1991)	La La (1) Cr Cr La Cr La	b-12 (CG84-47 G83-181 G83-234; CG83- b-12	-246; CG83-462		

013J/04/Pyr002 Indication 312314 6008962 GSNL (1986); GSNL (field notes; CG83-307))13J/05/Pyr001 Indication 318454 6025055 GSNL (1986); GSNL (field notes; CG83-267) 013J/05/Pyr002 Py Indication 318395 6025124 GSNL (1986); GSNL (field notes; CG83-432)
 Indication
 338150
 6023200
 GSNL (1986);
 GSNL (field notes;
 CG83-025)

 Indication
 352895
 6013844
 GSNL (1986);
 GSNL (field notes;
 CG83-086)
 013J/06/Pyr001 Pyr 013J/06/Pyr002 Pyr GSNL (Geological Survey of Newfoundland and Labrador)

Scale 1:100 000





All mineral occurrence and structural symbols do not appear on each map. Vertical structures use 90° dip value. * Generation of structure only applicable at observation site.

> PALEOMAGNETIC DATA Paleomagnetic site number Reference source

Geological contact	
Normal fault	
Strike-slip fault	\sim \sim \sim \sim \sim \sim
Thrust fault	
Normal fault reactivating thrust	_\ _
Fold axial plane (1st, 2nd, 3rd generation)*	F+- F++ F+++
S-fold axis (1st generation)	5+->
Z-fold axis (1st generation)	2+ >
Dyke (affinity unspecified)	
Fault (sense of movement unknown, dextral, sinistral, normal)	
Joint	
Linear fabric (1st, 2nd, 3rd generation)*	-+ > - +> - + + >
Fold axis (1st, 2nd, 3rd generation)*	-+> -+> -++>
Slickenside	
Geological data station	×
Geological data station (no fabric measured)	*
Bedding (tops known, unknown)	<u> </u>
Enclave	
Foliation (1st, 2nd, 3rd generation)*	
Gneissosity (1st, 2nd generation)*	┭ ╷▶ ┭ ╷ा▶
Igneous layering (tops known, unknown)	- <u>-</u> - -
Vein	
Shear zone (sense of movement unknown, dextral, sinistral, reverse)	
Mineral occurrence	×
Geochronology location	•

SYMBOLS

EARLY	CAMBRIAN
-CFo	Forteau Formation
	Bradore Formation (subdivided into L'Anse-au-Clair, Crow Head and Blanc-Sablon members)
NCLc NCBa	OTEROZOIC – EARLY CAMBRIAN Lighthouse Cove Formation Bateau Formation
NDm	Double Mer Formation
NGi NSb	Gilbert arkose Sandwich Bay conglomerate
Nc ,	Nd Nq Clastic dykes
Nd	Long Range dykes
	Quartz veins ESOPROTEROZOIC (M₃ 1200 – 900 Ma) DST-GRENVILLIAN INTRUSIONS (M₃p ca. 975 – 955 Ma)
	iteau Pond granite
M _{3D} gp M _{3D} gr	Massive to weakly foliated megacrystic/porphyritic granite to quartz monzonite Massive to weakly foliated granite to alkali-feldspar granite
M _{3D} In	Massive to weakly foliated leucogabbro to leuconorite
M _{3D} mn M _{3D} mq	Massive to weakly foliated monzogabbro and monzonorite Massive to weakly foliated quartz monzonite; mantled feldspar textures
M _{3D} mz	Massive to weakly foliated monzonite to monzodiorite
M _{3D} yq M _{3D} d	Massive to weakly foliated syenite, quartz syenite and alkali-feldspar quartz syenite Unnamed mafic dykes
EARLY F	POST-GRENVILLIAN INTRUSIONS (M₃c ca. 985 – 975 Ma) Iver Brook and Picton Pond plutons
M _{3C} gr	$\frac{M_{3c}ln}{M_{3c}mn} \frac{M_{3c}mq}{M_{3c}rg} \frac{M_{3c}yq}{M_{3c}yq} \frac{M_{3c}d}{2}$
M _{3C} gr M _{3C} In	Weakly to moderately foliated granite to alkali-feldspar granite Weakly to moderately foliated leucogabbro to leuconorite
M _{3C} mn M _{3C} mq	Weakly to moderately foliated monzogabbro to monzonorite Weakly to moderately foliated monzonite to guartz monzonite
M _{3C} rg	Weakly to moderately foliated gabbro, norite and troctolite
M₃cyq	Weakly to moderately foliated syenite, quartz syenite and alkali-feldspar syenite
M _{3C} d SYN-GR	L'Anse-au-Diable, York Point, Gilbert Bay mafic dykes ENVILLIAN INTRUSIONS (M _{3B} ca. 1085 – 985 Ma)
M _{3B} gd M _{3B} gd	M3B905 M3B9r M3Byn M3Bd
M _{3B} gp	Moderately to strongly foliated megacrystic/porphyritic granodiorite to quartz diorite
M _{3B} gr M _{3B} yn	Moderately to strongly foliated granite to alkali-feldspar granite Moderately to strongly foliated aegerine- or nepheline-bearing syenite
M _{3B} d	Unnamed mafic dykes (Makkovik Province and adjacent Grenville Province)
	RENVILLIAN INTRUSIONS (M _{3A} ca. 1200 – 1085 Ma) bert Bay pluton
	M _{3A} mn
M _{3A} gr M _{3A} mn	Weakly to strongly foliated granite Weakly to strongly foliated monzonite to monzonorite
	E MESOPROTEROZOIC (M ₂ 1350 – 1200 Ma) per North River intrusion
M ₂ gr M ₂ gr	M ₂ rg M ₂ yq M ₂ d Weakly to strongly foliated granite and alkali-feldspar granite
M₂rg	Weakly to strongly foliated gabbronorite (in database only - Lourdes-de-Blanc-Sablon intro Quebec)
M₂yq	Weakly to strongly foliated syenite, quartz syenite and alkali-feldspar syenite
M ₂ d	Mealy dykes
EARLY	MESOPROTEROZOIC (M₁ 1600 – 1350 Ma)
e.g., Up M₁an M₁an	per Paradise River, Kyfanan Lake and 13B/12 intrusions, and Michael GabbM1amM1drM1gpM1grM1lnM1mqM1mqM1mzM1rgM1unM1yqMassive or weakly foliated anorthosite to leucogabbronorite, indistinctly layered in places
e.g., Up M₁an	per Paradise River, Kyfanan Lake and 13B/12 intrusions, and Michael Gabbana Mithael M
e.g., Up M₁an M₁an M₁am M₁am	per Paradise River, Kyfanan Lake and 13B/12 intrusions, and Michael Gabbana Mithael M
e.g., Up M ₁ an M ₁ an M ₁ am M ₁ dr M ₁ gp M ₁ gr	per Paradise River, Kyfanan Lake and 13B/12 intrusions, and Michael Gabb M1am M1dr M1gp M1gr M1ln M1mn M1mq M1mz M1rg M1um M1yq Massive or weakly foliated anorthosite to leucogabbronorite, indistinctly layered in places Weakly to markedly foliated amphibolite, plus leucocratic and melanocratic variants; granulite facies equivalents Massive, weakly or strongly foliated diorite to amphibolite, may be metamorphic derivative of monzodiorite or leucogabbronorite Moderately to strongly foliated megacrystic/porphyritic granitoid rocks Massive, weakly or strongly foliated granite to quartz monzonite
e.g., Up M ₁ an M ₁ an M ₁ am M ₁ dr M ₁ gp M ₁ gr M ₁ ln	per Paradise River, Kyfanan Lake and 13B/12 intrusions, and Michael Gabb M1am M1dr M1gp M1gr M1n M1mn M1mq M1mz M1rg M1un M1yq Massive or weakly foliated anorthosite to leucogabbronorite, indistinctly layered in places Weakly to markedly foliated amphibolite, plus leucocratic and melanocratic variants; granulite facies equivalents Massive, weakly or strongly foliated diorite to amphibolite, may be metamorphic derivative of monzodiorite or leucogabbronorite Moderately to strongly foliated megacrystic/porphyritic granitoid rocks Massive, weakly or strongly foliated granite to quartz monzonite Massive, weakly or strongly foliated leucogabbronorite and anorthositic gabbro, locally grading into gabbronorite, locally coronitic
e.g., Up M₁an M₁an M₁am M₁dr M₁dr M₁dr M₁gp M₁gr M₁gr M₁ln	per Paradise River, Kyfanan Lake and 13B/12 intrusions, and Michael Gabb M1am M1dr M1gp M1gr M1n M1mn M1mq M1mz M1rg M1un M1yq Massive or weakly foliated anorthosite to leucogabbronorite, indistinctly layered in places Weakly to markedly foliated amphibolite, plus leucocratic and melanocratic variants; granulite facies equivalents Massive, weakly or strongly foliated diorite to amphibolite, may be metamorphic derivative of monzodiorite or leucogabbronorite Moderately to strongly foliated megacrystic/porphyritic granitoid rocks Massive, weakly or strongly foliated granite to quartz monzonite Massive, weakly or strongly foliated leucogabbronorite and anorthositic gabbro, locally
e.g., Up M ₁ an M ₁ an M ₁ am M ₁ dr M ₁ dr M ₁ gp M ₁ gr M ₁ In M ₁ mn M ₁ mq M ₁ mz	per Paradise River, Kyfanan Lake and 13B/12 intrusions, and Michael Gabt M1am M1dr M1gp M1gr M1n M1mn M1mq M1mz M1rg M1mg M1yq Massive or weakly foliated anorthosite to leucogabbronorite, indistinctly layered in places Weakly to markedly foliated amphibolite, plus leucocratic and melanocratic variants; granulite facies equivalents Massive, weakly or strongly foliated diorite to amphibolite, may be metamorphic derivative of monzodiorite or leucogabbronorite Moderately to strongly foliated megacrystic/porphyritic granitoid rocks Massive, weakly or strongly foliated granite to quartz monzonite Massive, weakly or strongly foliated leucogabbronorite and anorthositic gabbro, locally grading into gabbronorite, locally coronitic Moderately to strongly foliated monzonorite Moderately to strongly foliated monzonorite Moderately to strongly foliated monzonite to quartz monzonite Moderately to strongly foliated monzonorite Moderately to strongly foliated monzonite to quartz monzonite Moderately to strongly foliated monzonite to monzonite
e.g., Up M₁an M₁an M₁am	Per Paradise River, Kyfanan Lake and 13B/12 intrusions, and Michael Gabt M1am M1gp M1gr M1n M1mn M1mq M1m2; M1rg M1um M1yq Massive or weakly foliated anorthosite to leucogabbronorite, indistinctly layered in places Weakly to markedly foliated amphibolite, plus leucocratic and melanocratic variants; granulite facies equivalents Massive, weakly or strongly foliated diorite to amphibolite, may be metamorphic derivative of monzodiorite or leucogabbronorite Moderately to strongly foliated megacrystic/porphyritic granitoid rocks Massive, weakly or strongly foliated granite to quartz monzonite Moderately to strongly foliated monzonorite Moderately to strongly foliated monzonite to quartz monzonite Moderately to strongly foliated monzonite to monzodiorite Moderately to strongly foliated monzonite to monzodiorite Massive to strongly foliated gabbro, norite and troctolite, commonly layered; subophitic and locally coronitic; includes recrystallized derivatives retaining igneous textures
e.g., Up M_1an M_1an M_1am M_1dr M_1dr M_1dr M_1gp M_1gr M_1gr M_1mn M_1mn M_1mq M_1mz M_1rg	Per Paradise River, Kyfanan Lake and 13B/12 intrusions, and Michael Gabt M1am M1gp M1gr M1n M1mn M1mq M1m2; M1rg M1um M1yq Massive or weakly foliated anorthosite to leucogabbronorite, indistinctly layered in places Weakly to markedly foliated amphibolite, plus leucocratic and melanocratic variants; granulite facies equivalents Massive, weakly or strongly foliated diorite to amphibolite, may be metamorphic derivative of monzodiorite or leucogabbronorite Moderately to strongly foliated megacrystic/porphyritic granitoid rocks Massive, weakly or strongly foliated granite to quartz monzonite Moderately to strongly foliated monzonorite Moderately to strongly foliated monzonite to quartz monzonite Moderately to strongly foliated monzonite to monzodiorite Moderately to strongly foliated monzonite to monzodiorite Massive to strongly foliated gabbro, norite and troctolite, commonly layered; subophitic and locally coronitic; includes recrystallized derivatives retaining igneous textures
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e.g., Up M ₁ an M ₁ an M ₁ an M ₁ ar M ₁ dr M ₁ dr M ₁ dr M ₁ m M ₁ d PM M ₁ m PM M ₁ m PM M_1 M N M_1 M N M_1 M N M_1 M N M_1 M	per Paradise River, Kyłanan Lake and 13É/12 intrusions, and Michael Gabt Miam Midr Migr Miln Mimn Mimq Mimg Mirgr Mirg
e.g., Up M ₁ an M ₁ an M ₁ an M ₁ am M ₁ dr M ₁ dr M ₁ gp M ₁ gr M ₁ gr M ₁ gr M ₁ m M ₁ d PMdr PMdr PMgr PMgr PMln PMln	per Paradise River, Kyřanan Lake and 13/12 intrusions, and Michael Gabt Miam Midr Migr Miln Mirm Mirm Mirg Midr Midr Midr Midr Mirg Midr
e.g., Up M ₁ an M ₁ an M ₁ an M ₁ am M ₁ dr M ₁ dr M ₁ gp M ₁ gr M ₁ gr M ₁ gr M ₁ m M ₁ d PMdr PMdr PMdr PMgr PMln PMln PMln PMmd PMmd	per Paradise River, Kyřanan Lake and 13/12 intrusions, and Michael Gabt Miam Midr Migr Miln Mirm Mirm Mirg Midr Midr Midr Midr Mirg Midr
e.g., Up M ₁ an M ₁ an M ₁ an M ₁ am M ₁ dr M ₁ dr M ₁ gp M ₁ gr M ₁ gr M ₁ gr M ₁ gr M ₁ m M	per Paradise River, Kyranan Lake and 13B/12 intrusions, and Michael Gabt Main M.dr. M.gr. M.gr. <t< td=""></t<>
e.g., Up M ₁ an M ₁ an M ₁ an M ₁ am M ₁ dr M ₁ dr M ₁ gp M ₁ gr M ₁ gr M ₁ gr M ₁ gr M ₁ m M	per Paradise River, Kyfanan Lake and 13B/12 intrusions, and Michael Gabt Mam M.dr M.gr M.lr M.mr M.mr M.mr M.mr M.mr M.gr M.ur M.gr
e.g., Up M ₁ an M ₁ an M ₁ an M ₁ am M ₁ dr M ₁ dr M ₁ gp M ₁ gr M ₁ gr M ₁ gr M ₁ m M ₁	per Paradise River, Kyfanan Lake and 13B/12 intrusions, and Michael Gabt Main M.dr M.gr M.ln M.mn M.mn M.mn M.mn M.gr M.gr Massive or weakly foliated anorthosite to leucogabbronorite, indistinctly layered in places. Weakly to markedly foliated amphibolite, plus leucocratic and melanocratic variants; granulite facies equivalents Massive, weakly or strongly foliated diorite to amphibolite, may be metamorphic derivative of monzodiorite or leucogabbronorite Moderately to strongly foliated megacrystic/porphyritic granitoid rocks Massive, weakly or strongly foliated granite to quartz monzonite Moderately to strongly foliated monzonorite Moderately to strongly foliated monzonorite Moderately to strongly foliated monzonite to monzodiorite Moderately to strongly foliated gabbro, norite and troctolite, commonly layered; subophitic and locally coronitic; includes recrystallized derivatives retaining igneous textures Massive, weakly or strongly foliated syenite and quartz syenite Massive, includes Michael Gabbro ActoperoterROZOIC AND EARLY MESOPROTEROZOIC (PM 1800 – 1350 Menerally unknown, but ca. 1650 Ma and 1500 – 1470 Ma rocks identified) TLLED IGNEOUS ROCKS PMgd PMgr PMmd PMmg PMmg Medur- to coarse-grained, recrystallized weakly to strongly foliated granite and alkali-fed granite in granoite to granodiorite Medium- to coarse-grained, recrysta
e.g., Up M1an M1an M1an M1an M1an M1an M1an M1an M1ar M1ar M1dr M1mq M1mq M1mq M1mq M1mq M1mq M1mq M1mq M1mq M1qq M1qq M1qq M1qq M1qq M1qq M1qq M1qq M1qq PMdr PMdr PMgq PMgr PMmq PMmq PMmq PMam PMam	per Paradise River, Kyfanan Lake and 13Ê/12 intrusions, and Michael Gabt Mam M.dr Migp Miln Mimn Mim2
e.g., Up M1an M1an M1an M1an M1an M1an M1an M1an M1ar M1ar M1ar M1ar M1ar M1ar M1ar M1ar M1ar M1ra M1mq M1mq M1ra M1ra M1ra M1ra M1ar M1ar M1ar M1ar M1ar M1ar PMdr PMdr PMga PMgr PMra PMra PMar PMam PMar PMar PMar PMar	per Paradise River, Kyřanar Lake and 13B/12 intrusions, and Michael Gabt Mam M.dr M.gr M.mr
e.g., Up M1an M1an M1an M1ar M1ar M1gp M1gr M1gr M1r M1rq	per Paradise River, Kyfanan Lake and 13B/12 intrusions, and Michael Gabt Miam Midt Migp Migp Mign
e.g., Up M1an M1dr M1dr M1gp M1ma M1ma M1ma M1ma M1ma M1ma M1ma M1ma M1ma M1d LATE P/ (Ages g RECRYS PMdr PMgp PMgr PMgg PMgg PMmq PMmq PMmq PMsq PMsp PMsq	per Paradise River, Kyłanan Lake and 13Ê/12 intrusions, and Michael Gabt Mam Madr Magr Mar Marrie Marr
e.g., Up M1an M1an M1an M1ar M1ar M1dr M1gr M1gr M1gr M1r M1r	per Paradise River, Kyłanan Lake and 13B/12 intrusions, and Michael Gabb Mam Midr Migr
e.g., Up M1an M1an M1an M1ar M1dr M1dr M1dr M1rr M1	per Paradise River, Kyłanan Lake and 13Ê/12 intrusions, and Michael Gabt Mam Madr Madr Madr Marg
e.g., Up M1an M1an M1an M1ar M1dr M1dr M1gr M1gr M1r M1r M1r M1r M1r M1r M1r M1	per Paradise River, Kyfanian Lake and 13b/12 Intrusions, and Michael Gabt Maim Mide Marg Mide
e.g., Up M1an M1an M1an M1ar M1dr M1dr M1gr M1gr M1r M1r M1r M1r M1r M1r M1r M1	per Paradise River, Kyfanian Lake and 13b/12 Intrusions, and Michael Gabt Maim Mide Marg Mide
e.g., Up M1an M1an M1an M1ar M1dr M1dr M1gr M1gr M1gr M1r M1mq M1m	per Paradise River, Kyfanian Lake and 13b/12 Intrusions, and Michael Gabt Main Marie <
e.g., Up M1an M1an M1an M1ar M1dr M1dr M1gr M1gr M1gr M1r M1mq M1m	per Paradise River, Kyfanian Lake and 13Ê/12 intrusions, and Michael Gabt Maim Mure

MAP 2010-06 OPEN FILE 013J/0292 **GEOLOGY OF THE DOUBLE MER AREA** (NTS SHEETS 13J/03, 04, 05 & 06) EASTERN LABRADOR

LEGEND

	LATE LA e.g., Pa	PALEOPROTEROZOIC (P ₃ 1800 – 1600 Ma) ABRADORIAN GRANITOID INTRUSIONS (P _{3C} 1660 – 1600 Ma) radise Arm intrusion and Hawke Bay intrusive suite
	P _{3C} dr P _{3C} dr	P _{3c} ga P _{3c} gd P _{3c} gg P _{3c} gr P _{3c} m P _{3c} mq P _{3c} mz P _{3c} yq P _{3c} d Diorite, quartz diorite and tonalite; locally grading into leucogabbronorite
-au-Clair,	P _{3C} ga	Alkali-feldspar granite, granite and quartz syenite forming discrete plutons
	P _{3C} gd	Granite to granodiorite forming discrete unmigmatized plutons
	P _{3C} gp	Megacrystic/porphyritic granite to granodiorite
	P _{3C} gr P _{3C} mn	Granite and minor alkali-feldspar granite Monzonorite and monzogabbro
	P _{3C} mq	Quartz monzonite, including rare quartz syenite
	P _{3C} mz	Monzonite, including minor syenite
	P _{3C} yq	Syenite to quartz syenite forming discrete plutons
	P _{3C} d	Unnamed mafic dykes
		ABRADORIAN ANORTHOSITIC AND MAFIC INTRUSIONS (P _{3C} 1660 – 1600 Ma)
		ite Bear Arm complex and Sand Hill Big Pond intrusion P _{3C} am P _{3C} rg P _{3C} ln P _{3C} lt P _{3C} um
	P _{3C} ag	Weakly to markedly foliated mafic granulite, plus leucocratic and melanocratic variants
Ma)	P _{3C} am	Weakly to markedly foliated amphibolite, plus leucocratic and melanocratic variants
975 – 955 Ma)	P _{3C} an	Massive to strongly foliated anorthosite and leucogabbronorite
_D yq M _{3D} d	P _{3C} rg	Massive to strongly foliated gabbro and norite, commonly layered; subophitic and locally coronitic
phyritic granite to quartz monzonite	$P_{\mathrm{3C}}ln$	Primary textured to recrystallized leucogabbronorite and leucogabbro; coronitic locally
feldspar granite	P _{3C} lt	Primary textured to recrystallized leucotroctolite
nd monzonorite	P _{3C} um	Massive, weakly or strongly foliated ultramafic rocks, commonly layered and locally showing cumulate textures
e; mantled feldspar textures		LABRADORIAN MAFIC AND ASSOCIATED ROCKS (P _{3B} 1710 – 1660 Ma) exis River anorthosite (assigned here although age is uncertain)
onzodiorite	P _{3B} ag	P _{3B} an P _{3B} In P _{3B} mn P _{3B} rg P _{3B} um
syenite and alkali-feldspar quartz syenite	P _{3B} ag	Weakly foliated to gneissic amphibolite and mafic granulite, plus leucocratic and melanocratic variants
	P _{3B} an	Weakly foliated to gneissic anorthosite and leucogabbronorite
a. 985 – 975 Ma)	$P_{3B}ln$	Weakly foliated to gneissic leucogabbronorite and leucogabbro; coronitic locally
A _{3C} d	Р _{зв} mn Р _{зв} rg	Weakly foliated to gneissic monzonorite and monzogabbro
kali-feldspar granite	P _{3B} um	Weakly foliated to gneissic gabbro and norite Massive, weakly or strongly foliated ultramafic rocks, commonly layered and locally
to leuconorite o to monzonorite		showing cumulate textures
o quartz monzonite	e.g., Ne	veisik Island and Red Island events
te and troctolite	P _{3B} dr P _{3B} dr	P _{3B} gd P _{3B} gp P _{3B} gr P _{3B} mq P _{3B} mz P _{3B} ya P _{3B} am
rtz syenite and alkali-feldspar syenite		in part derived from leucogabbronorite
nafic dykes	P _{3B} gd	Foliated to gneissic granodiorite and compositionally equivalent well-banded gneiss Foliated to gneissic megacrystic/porphyritic granitoid rocks, augen gneiss
985 Ma)	Р _{зв} др Р _{зв} дг	Foliated to gneissic granite and alkali-feldspar granite, and compositionally equivalent well-
to quartz diorite		banded gneiss
/porphyritic granodiorite to quartz diorite	P _{3B} mq	Foliated to gneissic quartz monzonite, grading into diorite or syenite, and compositionally equivalent well-banded gneiss
kali-feldspar granite	P _{3B} mz	Foliated to gneissic monzonite and monzodiorite, and compositionally equivalent well-banded gneiss
nepheline-bearing syenite	P _{3B} ya	Foliated to gneissic syenite, alkali-feldspar syenite and alkali-feldspar granite, and compositionally equivalent well-banded gneiss
and adjacent Grenville Province)	_	
200 – 1085 Ma)	P _{3B} am	Amphibolite skialiths, lenses and layers (mainly remnants of former dykes)
	PRE-LA P₃₄äg	BRADORIAN GRANITOID ROCKS (P _{3A} 1800 – 1710 Ma) P _{3A} dr P _{3A} gg P _{3A} gr P _{3A} ln P _{3A} am
	P _{3A} ag	Mafic granulite skialiths, lenses and layers
onzonorite	P _{3A} dr	Foliated to gneissic diorite to quartz diorite, and compositionally equivalent well-banded gneiss
200 Ma)	P _{3A} gd	Foliated to gneissic granodiorite and compositionally equivalent well-banded gneiss
	P _{3A} gp P _{3A} gr	Foliated to gneissic megacrystic/porphyritic granitoid rocks, augen gneiss Foliated to gneissic granite and alkali-feldspar granite, and compositionally equivalent well-
ıli-feldspar granite		banded gneiss
database only - Lourdes-de-Blanc-Sablon intrusion,	P _{3A} In	Foliated to gneissic leucogabbronorite, and compositionally equivalent well-banded gneiss
syenite and alkali-feldspar syenite	P _{3A} am	Amphibolite skialiths, lenses and layers (mainly remnants of former dykes)
		BRADORIAN SUPRACRUSTAL ROCKS (P _{3A} 1800 – 1710 Ma) certain; certainly pre-1670 Ma, probably 1800 – 1770 Ma)
i0 Ma) Id 13B/12 intrusions, and Michael Gabbro		
mn M_1 mq M_1 mz; M_1 rg M_1 um M_1 yq M_1 d \swarrow	Sedime P _{3A} sc	ntary protolith Calc-silicate rocks, compositionally layered, medium grained
eucogabbronorite, indistinctly layered in places	P _{3A} sp	Fine- to medium-grained pelitic schist and gneiss
us leucocratic and melanocratic variants;	P _{3A} sq	Quartzite, meta-arkose, thin to thick bedded
to amphibolite, may be metamorphic derivative	P _{3A} ss	Quartz-feldspar psammitic schist and gneiss; medium grained and commonly rusty-weathering
/porphyritic granitoid rocks	P _{3A} sx Volcanic	Metasedimentary diatexite; coarse grained to pegmatitic and characteristically white-weathering
e to quartz monzonite	P _{3A} vf	Fine- to medium-grained, banded quartzofeldspathic rocks; locally have lensoid shapes, possibly
abbronorite and anorthositic gabbro, locally	P _{3A} vm	indicating felsic volcanoclastic protolith Fine- to medium-grained, banded amphibolite containing guartz-feldspar layers and calc-silicate
		pods; interpreted as mafic volcanic rocks
o quartz monzonite		LEOPROTEROZOIC (P ₂ 2100 – 1800 Ma) ID PALEOPROTEROZOIC (P _{2C} 1900 – 1800 Ma)
o monzodiorite	Granitoi P _{2C} dr	id and related intrusive rocks P _{2c} ga P _{2c} gd P _{2c} gg P _{2c} gr P _{2c} mq P _{2c} mz P _{2c} ya P _{2c} yq
and troctolite, commonly layered; subophitic I derivatives retaining igneous textures	P _{2C} dr	Foliated to gneissic diorite to quartz diorite, and compositionally equivalent well-banded gneiss
afic rocks, commonly layered and locally showing	P _{2C} ga	Alkali-feldspar granite, granite and quartz syenite
quartz syenite	P _{2C} gd	Foliated to gneissic granodiorite and compositionally equivalent well-banded gneiss
	P _{2C} gp	Foliated to gneissic megacrystic/porphyritic granitoid rocks, augen gneiss
	P _{2C} gr	Foliated to gneissic granite and alkali-feldspar granite, and compositionally equivalent well-banded gneiss
ESOPROTEROZOIC (PM 1800 – 1350 Ma) and 1500 – 1470 Ma rocks identified)	$P_{2C}mq$	Foliated to gneissic quartz monzonite, grading into diorite or syenite, and compositionally equivalent well-banded gneiss
Imq PMrg PMtn PMyq PMam	P _{2C} mz	Foliated to gneissic monzonite to monzodiorite, and compositionally equivalent well-banded gneiss
ed weakly to strongly foliated diorite, quartz diorite	P _{2C} ya	Foliated to gneissic syenite to alkali-feldspar syenite, and compositionally equivalent well-banded gneiss
diorito	P _{2C} yq	Syenite to quartz syenite
diorite te to quartz monzonite	Mafic ar	nd associated intrusive rocks
veakly to strongly foliated granite and alkali-feldspar	$P_{2C}am$	
euconorite, leucogabbro	P _{2C} am	Amphibolite skialiths, lenses and layers (mainly remnants of former dykes) Massive to strongly foliated gabbro and norite, commonly layered; subophitic and locally
weakly to strongly foliated, monzodiorite to monzonite	P _{2C} rg	coronitic
weakly to strongly foliated quartz monzonite	$P_{2C}d$	Unnamed mafic dykes
and troctolite		ntary protolith
weakly to strongly foliated tonalite to granodiorite		P _{2C} so P _{2C} sp P _{2C} sq P _{2C} ss
weakly to strongly foliated syenite, alkali-feldspar	P _{2C} sc P _{2C} so	Calc-silicate rocks, compositionally layered, medium grained Conglomerate and agglomerate, partially of volcanic origin
d from mafic dykes	P _{2C} so P _{2C} sp	Fine- to medium-grained pelitic schist and gneiss
GNED AS PITTS HARBOUR GROUP	P _{2C} sq	Quartzite, meta-arkose, thin to thick bedded
Mvm	P _{2C} ss	Quartz-feldspar psammitic schist and gneiss; medium grained and commonly rusty-weathering
, medium grained		protolith
,	P _{2C} vb	P2cvf P2cvm P2cvp Volcanic breccia, angular clasts, grading into agglomerate
d	P _{2C} vf	Fine- to medium-grained, banded quartzofeldspathic rocks; locally have lensoid shapes, possibly
s; medium grained	P _{2C} vi	indicating felsic volcanoclastic protolith
rial (diatexite), characteristically associated with	P _{2C} vm	Fine- to medium-grained, banded amphibolite containing quartz-feldspar layers and calc-silicate
aldenathic rocker locally bouries located to the	P _{2C} vp	pods; interpreted as mafic volcanic rocks Felsic volcanic porphyry interpreted to be hypabyssal
eldspathic rocks; locally having lensoid shapes,	20 · P	

te containing quartz-feldspar layers and calc-silicate

k Carbonate vein

p Pegmatite

q Quartz vein

f Aplite, microgranite (felsite)

NOTES

- 1. Legend is common to all maps (Map 2010-01 to Map 2010-25), but all units do not appear on every map.
- 2. Uncoloured units do not appear as polygons on maps, but are in unit-designator strings in database.
- 3. Some mafic dykes also shown as polygons (especially
- where orientation is unknown).