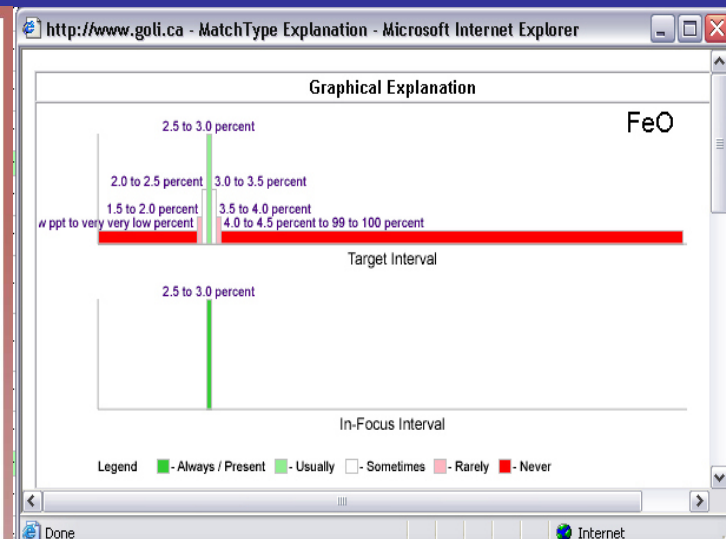
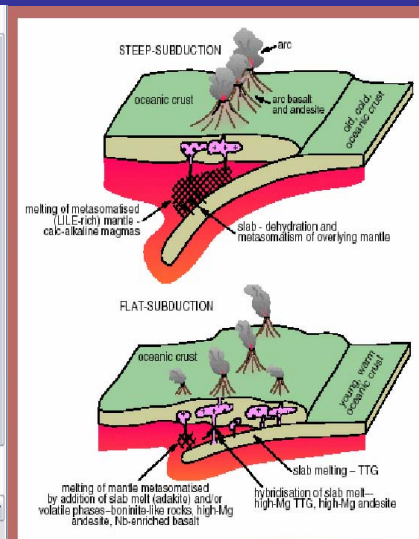


Researching Continental Evolution with Computer-Assisted Descriptions, Comparisons and Similarity-Rankings of Plutons

Clinton Smyth
 Georeference Online Ltd
 Vancouver, Canada

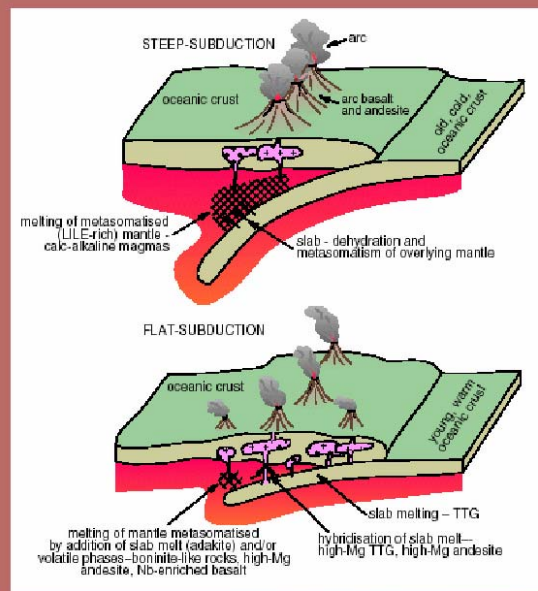
Krishna Sinha
 Virginia Tech
 Blacksburg, VA

Adamellite: Attribute, Value, Present or Absent	Grandiorite: Attribute, Value, Expected Frequency	Match Type	Adamellite's Comment	Grandiorite's Comment
Conc_ Al2 O3 14 to 15 percent present	Conc_ Al2 O3 14 to 15 percent sometimes	matched	-	15.73%
Conc_ Ca O 2.5 to 3.0 percent present	Conc_ Ca O 2.5 to 3.0 percent rarely	conflicted	2.68%	3.83%
Conc_ C O2 very high ppm present	Conc_ C O2 very high ppm usually	matched	-	0.18%
Conc_ Fe2 O3 1.0 to 1.5 percent present	Conc_ Fe2 O3 1.0 to 1.5 percent usually	matched	-	1.38%
Conc_ Fe O 2.5 to 3.0 percent present	Conc_ Fe O 2.5 to 3.0 percent usually	matched	-	2.73%
Conc_ H2 Ominus 0.1 to 0.2 percent present	Conc_ H2 Ominus 0.1 to 0.2 percent usually	matched	0.14%	0.19%
Conc_ H2 Oplus 0.5 to 1.0 percent present	Conc_ H2 Oplus 0.5 to 1.0 percent usually	matched	-	0.85%
Conc_ K2 O 4.0 to 4.5 percent present	Conc_ K2 O 4.0 to 4.5 percent - 99 to 100 percent	never	-	-
Conc_ Mg O 1.0 to 1.5 percent present	Conc_ Mg O 1.0 to 1.5 percent sometimes	matched	-	1.74%
Conc_ Mn O very high ppm present	Conc_ Mn O very high ppm usually	matched	-	0.08%
Conc_ Na2 O 3.0 to 3.5 percent present	Conc_ Na2 O 3.0 to 3.5 percent sometimes	matched	-	3.75%
Conc_ P2 O5 0.1 to 0.2 percent present	Conc_ P2 O5 0.1 to 0.2 percent usually	matched	0.19%	0.18%
Conc_ Si O2 68 to 69 percent present	Conc_ Si O2 68 to 69 percent rarely	conflicted	-	66.09%
Conc_ Ti O2 0.5 to 1.0 percent present	Conc_ Ti O2 0.5 to 1.0 percent usually	matched	-	0.54%

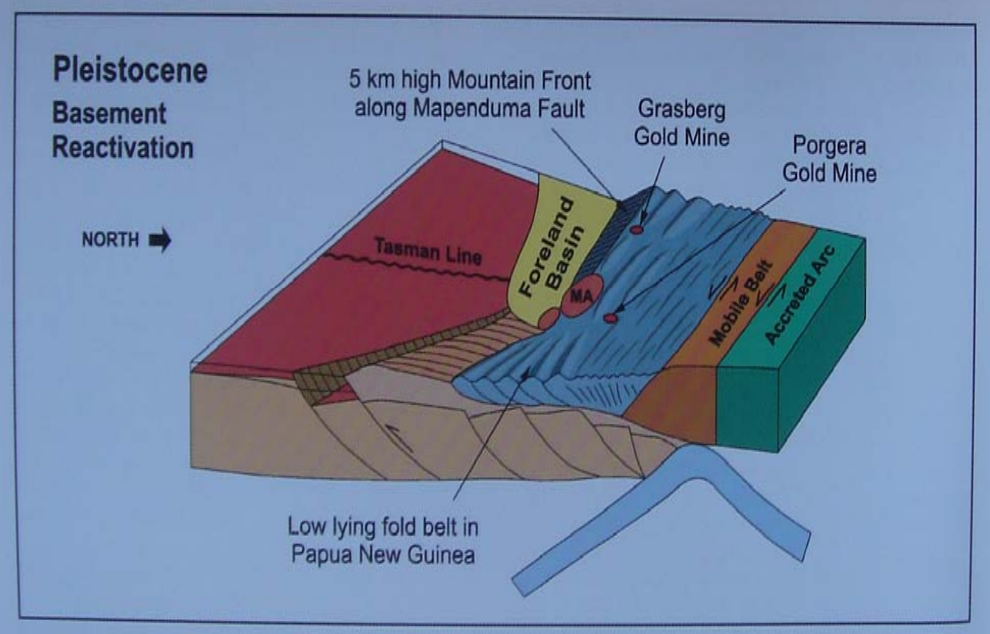


Plutons are important constituents of the continents, from which information may be gleaned about materials beneath the continents, the processes which formed the continents, and prospective regions for minerals exploration.

Late Archaean



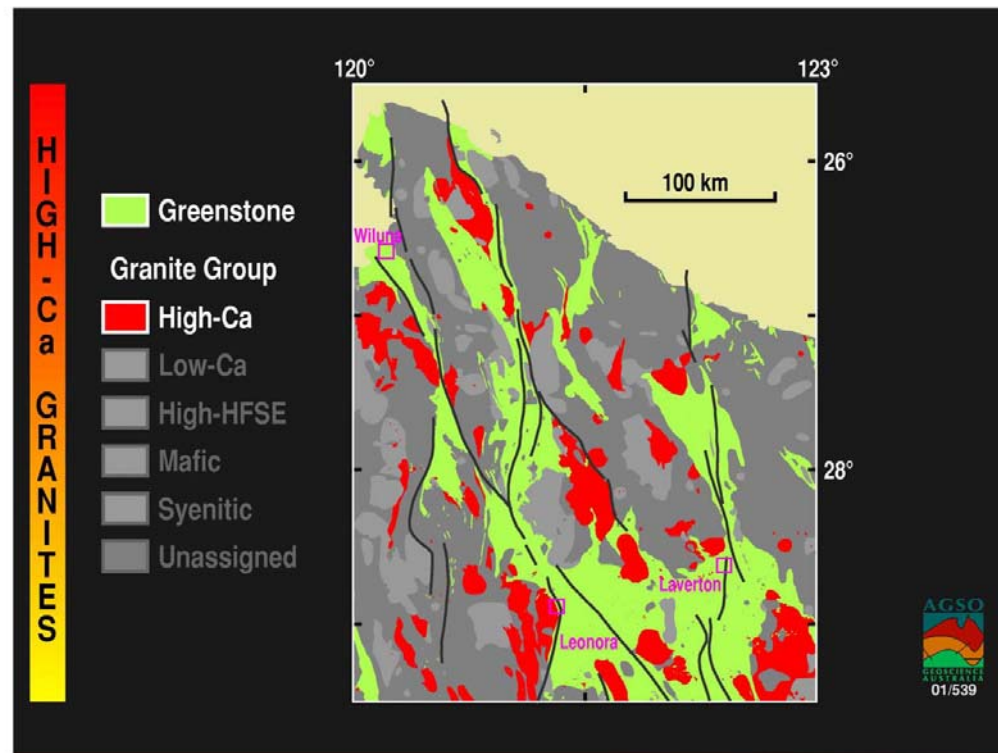
284 K. C. Hill and R. Hall



The classifying of plutons into different classes plays an important role in researching these aspects of plutons, and in making useful generalizations about different kinds of plutons.

Champion, D.C., & Smithies, R.H., Archaean Granites

Ishihara Symposium

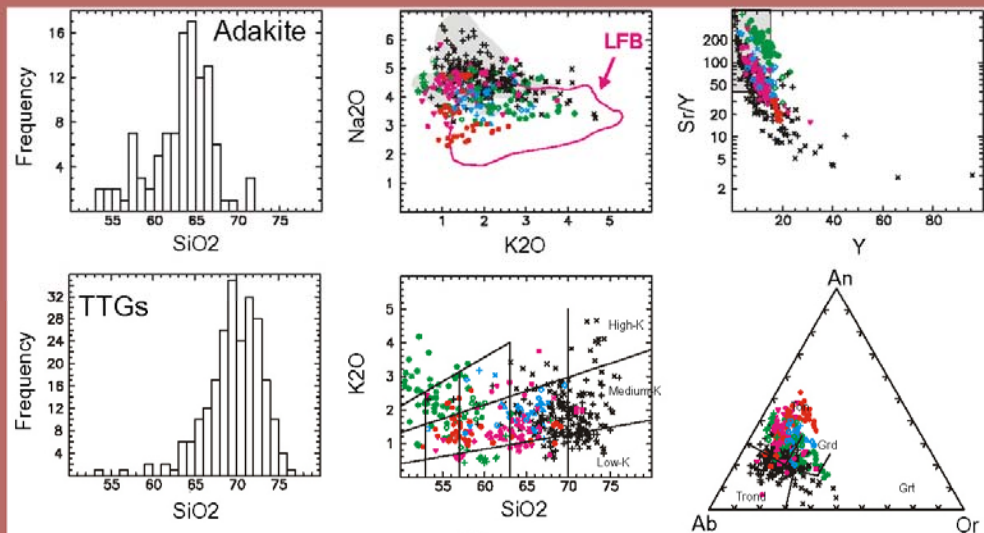


The classifying of plutons into different classes plays an important role in researching these aspects of plutons, and in making useful generalizations about different kinds of plutons.

Champion, D.C., & Smithies, R.H., Archaean Granites

Ishihara Symposium

Adakites & TTGs



TTGs
High-Mg andesite
High-Mg andesite?
Adakite
Adakite?

Data sources: Defant et al. (1992); Schiano et al. (1995); Kepezhinskis et al. (1996, 1997); Kay et al (1993); Futa & Stern (1988); Ruiz et al. (1984); Yagodinski et al. (1994, 1995); Morris (1995); Sajona et al. (1993); Beate et al. (2001); Smith & Leeman (1987); Tatsumi & Ishizaka (1982); GA_GSWA unpublished data; Bickle et al. (1983, 1989, 1993); Feng & Kerrich (1992); Luais & Hawkesworth (1994); Nutman & Bridgewater (1986); Davis et al. (1994).

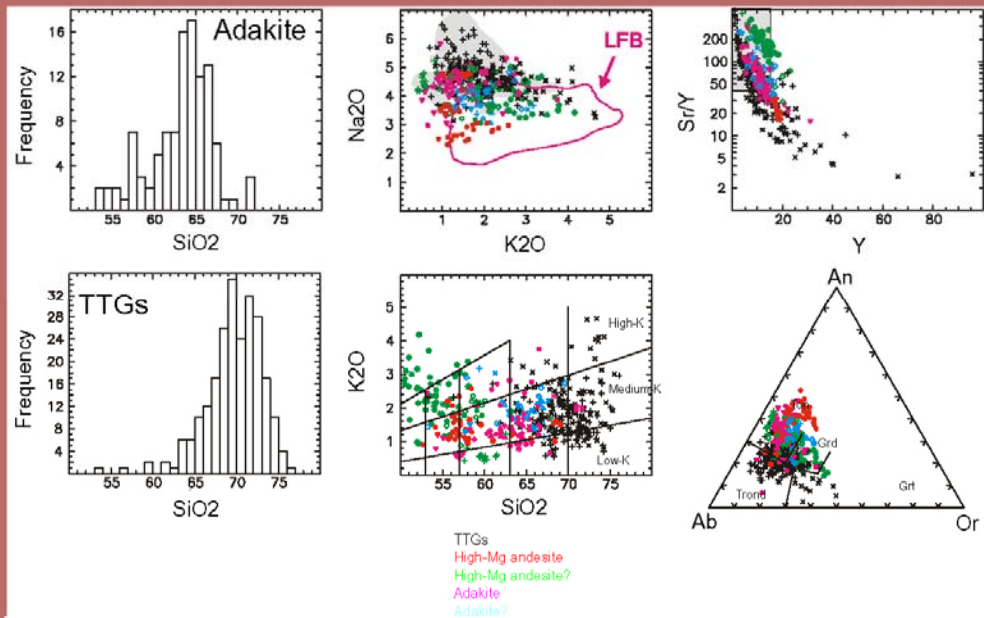


Since there are many plutons on earth (approximately 190 identified in Nevada alone), and many different ways to classify them, a computer system which can be used to describe and rapidly compare or classify plutons is a useful research tool.

Champion, D.C., & Smithies, R.H., Archaean Granites

Ishihara Symposium

Adakites & TTGs



Data sources: Defant et al. (1992); Schiano et al. (1995); Kepezshinkas et al. (1996, 1997); Kay et al. (1993); Futa & Stern (1988); Ruiz et al. (1984); Yagodinski et al. (1994, 1995); Morris (1995); Sajona et al. (1993); Beate et al. (2001); Smith & Leeman (1987); Tatsumi & Ishizaka (1982); GA_GSWA unpublished data; Bickle et al. (1983, 1989, 1993); Feng & Kerrich (1992); Luais & Hawkesworth (1994); Nutman & Bridgewater (1986); Davis et al. (1994).

Developing such a system, however, presents challenges
in the standardization of geological vocabulary

PlutonMatch Online Beta

[Administration Panel] You are currently logged in as Clinton Smyth ([cpsmyth](#))
[My Homepage] :: [Logout] :: [HELP]

Add New Attributes

TectonicSetting-back-arc basin-Present has been added to GSA Demo

Target Entity: Show Primary Attributes
Entity Class: Show Inherited Attributes
Attribute: Show Primary & Inherited Attributes
Value:
Frequency:
Comment:
Reference:
Entered By: Contact:
Entity:
Attribute:
Link:

- rock and sediment
 - artificial and natural superficial dep
 - igneous rock
 - crystalline-igneous-rock
 - crystalline-igneous-rock [ex
 - crystalline-igneous-rock [no
 - coarse-grained-normal-c
 - anorthositic-rock
 - dioritic-rock
 - diorite**
 - foid-bearing-diorit
 - foid-bearing-monz
 - monzodiorite

Developing such a system, however, presents challenges
in the standardization of geological vocabulary

PlutonMatch Online Beta [Administration Panel] You are currently logged in as Clinton Smyth ([cpsmyth](#))

[\[My Homepage\]](#) :: [\[Logout\]](#) :: [\[HELP\]](#)

Add New Attributes

Target Entity:	<input type="text" value="RockTypePrimary - diorite"/>	<input checked="" type="radio"/> Show Primary Attributes
Entity Class:	<input type="text" value="RockTypePrimary"/>	<input type="radio"/> Show Inherited Attributes
Attribute:	<input type="text" value="ReferencePetrochemSig"/>	<input type="radio"/> Show Primary & Inherited Attributes
Value:	<input type="text" value="NMORB"/>	<input type="button" value="Close Tree"/>
Frequency:	<input type="text" value="Present"/>	
Comment:	<input type="text"/>	
Reference:	<input type="text" value="Condie, K.C. (1993), Chemical composition and evolution of th"/>	<input type="button" value="Ref"/>
Entered By:	<input type="text" value="cps"/>	Contact: <input type="text"/>
Entity:	<input type="text" value="The predominant rock present in the pluton"/>	
Attribute:	<input type="text" value="x"/>	
Link:	<input type="text"/>	

- [-] root
 - [-] Experimental melts
 - [+] Granitic
 - [-] Large Igneous Provinces
 - [-] Continental
 - [-] Oceanic
 - [-] Mantle
 - [-] EM1
 - [-] EM2
 - [-] HiMU
 - NMORB**
 - [+] Subduction Setting

Developing such a system, however, presents challenges
in the standardization of geological vocabulary

PlutonMatch Online Beta

[Administration Panel] You are currently logged in as Clinton Smyth ([cpsmyth](#))

[My Homepage] :: [Logout] :: [HELP]

Add New Attributes

Target Entity: Show Primary Attributes

Entity Class: Show Inherited Attributes

Attribute: Show Primary & Inherited Attributes

Value: to

Frequency:

Comment:

Reference:

Entered By: Contact:

Entity:

Attribute:

Link:

- [-] root
 - [+] ppt level
 - [+] ppb level
 - [-] ppm level
 - very low ppm
 - low ppm
 - mid ppm
 - high ppm
 - very high ppm
 - [-] percent level
 - extremely low percent
 - very very low percent
 - very low percentage

6.4 percent to 20 percent

Once these vocabulary standards are in place, the computer has to be programmed to reason with the standardized vocabulary as closely to human reasoning as possible.

PlutonMatch Online Beta

[\[Administration Panel\]](#) You are currently logged in as
Clinton Smyth ([cpsmyth](#))
[\[My Homepage\]](#) :: [\[Logout\]](#) :: [\[HELP\]](#)

Adamellite Matching Against 28 Models

Comparison Type:	Ins vs. Mdls
Query Object:	Adamellite
# of Match Objects:	28
Status:	Completed

Submit Time:	2005-10-18 09:04:09
Payment Time:	2005-10-18 09:04:09
Comparison Time:	2005-10-18 09:04:10
Completion Time:	2005-10-18 09:06:22

[◀ Previous](#) :: [Next ▶](#)

Rank	Match Object	Rewards	Penalties	Raw Score	Normalized Score	Details...
1	Adamellite	126000	0	-126000	90.0	View...
2	Granodiorite	75000	12000	-63000	45.0	View...
3	Granite	74000	13000	-61000	44.0	View...
4	Monzonite	51000	21000	-30000	21.0	View...
5	Dacite	50000	31000	-19000	14.0	View...
6	Lujavrite	41000	32000	-9000	6.0	View...

For purposes of credibility, it needs to be able to provide to its user explanations which detail how it derived the rankings and classifications it generates.

Adamellite: Attribute, Value, Present or Absent			Granodiorite: Attribute, Value, Expected Frequency			Match Type	Adamellite's Comment	Granodiorite's Comment
Conc_ Al2 O3	14 to 15 percent	present	Conc_ Al2 O3	14 to 15 percent	sometimes	matched	-	15.73%
Conc_ Ca O	2.5 to 3.0 percent	present	Conc_ Ca O	2.5 to 3.0 percent	rarely	conflicted	2.68%	3.83%
Conc_ C O2	very high ppm	present	Conc_ C O2	very high ppm	usually	matched	-	0.18%
Conc_ Fe2 O3	1.0 to 1.5 percent	present	Conc_ Fe2 O3	1.0 to 1.5 percent	usually	matched	-	1.38%
Conc_ Fe O	2.5 to 3.0 percent	present	Conc_ Fe O	2.5 to 3.0 percent	usually	matched	-	2.73%
Conc_ H2 Ominus	0.1 to 0.2 percent	present	Conc_ H2 Ominus	0.1 to 0.2 percent	usually	matched	0.14%	0.19%
Conc_ H2 Oplus	0.5 to 1.0 percent	present	Conc_ H2 Oplus	0.5 to 1.0 percent	usually	matched	-	0.85%
Conc_ K2 O	4.0 to 4.5 percent	present	Conc_ K2 O	4.0 to 4.5 percent - 99 to 100 percent	never	Conflicted	-	-
Conc_ Mg O	1.0 to 1.5 percent	present	Conc_ Mg O	1.0 to 1.5 percent	sometimes	matched	-	1.74%
Conc_ Mn O	very high ppm	present	Conc_ Mn O	very high ppm	usually	matched	-	0.08%
Conc_ Na2 O	3.0 to 3.5 percent	present	Conc_ Na2 O	3.0 to 3.5 percent	sometimes	matched	-	3.75%
Conc_ P2 O5	0.1 to 0.2 percent	present	Conc_ P2 O5	0.1 to 0.2 percent	usually	matched	0.19%	0.18%
Conc_ Si O2	68 to 69 percent	present	Conc_ Si O2	68 to 69 percent	rarely	conflicted	-	66.09%
Conc_ Ti O2	0.5 to 1.0 percent	present	Conc_ Ti O2	0.5 to 1.0 percent	usually	matched	-	0.54%

Mostly matching attributes (green)

For purposes of credibility,
 it needs to be able to provide to its user explanations
 which detail how it derived the rankings and classifications it generates.

Address http://www.goli.ca/pmo/results_detail.php?res_id=136&display_type=dhtml&filter_empty=0&filter_unmatched=1&word_wrap=0&show_inherited= Go

Adamellite: Attribute, Value, Present or Absent			Tonalite: Attribute, Value, Expected Frequency			Match Type	Adamellite's Comment	Tonalite's Comment
Conc_ Al2 O3	14 to 15 percent	present	Conc_ Al2 O3	14 to 15 percent	rarely	conflicted	14.55%	16.48%
Conc_ Ca O	2.5 to 3.0 percent	present	Conc_ Ca O	very low ppt - 3.5 to 4.0 percent	never	Conflicted	-	-
Conc_ C O2	very high ppm	present	Conc_ C O2	very high ppm	sometimes	matched	-	0.14%
Conc_ Fe2 O3	1.0 to 1.5 percent	present	Conc_ Fe2 O3	1.0 to 1.5 percent	usually	matched	-	1.83%
Conc_ Fe O	2.5 to 3.0 percent	present	Conc_ Fe O	2.5 to 3.0 percent	rarely	conflicted	2.70%	3.82%
Conc_ H2 Ominus	0.1 to 0.2 percent	present	Conc_ H2 Ominus	0.1 to 0.2 percent	sometimes	matched	0.14%	0.20%
Conc_ H2 Oplus	0.5 to 1.0 percent	present	Conc_ H2 Oplus	0.5 to 1.0 percent	sometimes	matched	-	1.04%
Conc_ K2 O	4.0 to 4.5 percent	present	Conc_ K2 O	3.5 to 4.0 percent - 99 to 100 percent	never	Conflicted	-	-
Conc_ Mg O	1.0 to 1.5 percent	present	Conc_ Mg O	very low ppt - very very low percent	never	Conflicted	-	-
Conc_ Mn O	very high ppm	present	Conc_ Mn O	very high ppm	usually	matched	-	0.08%
Conc_ Na2 O	3.0 to 3.5 percent	present	Conc_ Na2 O	3.0 to 3.5 percent	sometimes	matched	-	3.63%
Conc_ P2 O5	0.1 to 0.2 percent	present	Conc_ P2 O5	0.1 to 0.2 percent	sometimes	matched	0.19%	0.25%
Conc_ Si O2	68 to 69 percent	present	Conc_ Si O2	64 to 65 percent - 99 to 100 percent	never	Conflicted	-	-
Conc_ Ti O2	0.5 to 1.0 percent	present	Conc_ Ti O2	0.5 to 1.0 percent	usually	matched	-	0.73%

Many conflicting attributes (red)

For purposes of credibility, it needs to be able to provide to its user explanations which detail how it derived the rankings and classifications it generates.

Adamellite: Attribute, Value, Present or Absent			Granodiorite: Attribute, Value, Expected Frequency			Match Type	Adamellite's Comment	Granodiorite's Comment
Conc_ Al2 O3	14 to 15 percent	present	Conc_ Al2 O3	14 to 15 percent	sometimes	<u>matched</u>	-	15.73%
Conc_ Ca O	2.5 to 3.0 percent	present	Conc_ Ca O	2.5 to 3.0 percent	rarely	<u>conflicted</u>	2.68%	3.83%
Conc_ C O2	very high ppm	present	Conc_ C O2	very high ppm	usually	<u>matched</u>	-	0.18%
Conc_ Fe2 O3	1.0 to 1.5 percent	present	Conc_ Fe2 O3	1.0 to 1.5 percent	usually	<u>matched</u>	-	1.38%
Conc_ Fe O	2.5 to 3.0 percent	present	Conc_ Fe O	2.5 to 3.0 percent	usually	<u>matched</u>	-	2.73%
Conc_ H2 Ominus	0.1 to 0.2 percent	present	Conc_ H2 Ominus	0.1 to 0.2 percent	usually	<u>matched</u>	0.14%	0.19%
Conc_ H2 Oplus	0.5 to 1.0 percent	present	Conc_ H2 Oplus	0.5 to 1.0 percent	usually	<u>matched</u>	-	0.85%
Conc_ K2 O	4.0 to 4.5 percent	present	Conc_ K2 O	4.0 to 4.5 percent - 99 to 100 percent	never	Conflicted	-	-
Conc_ Mg O	1.0 to 1.5 percent	present	Conc_ Mg O	1.0 to 1.5 percent	sometimes	<u>matched</u>	-	1.74%
Conc_ Mn O	very high ppm	present	Conc_ Mn O	very high ppm	usually	<u>matched</u>	-	0.08%
Conc_ Na2 O	3.0 to 3.5 percent	present	Conc_ Na2 O	3.0 to 3.5 percent	sometimes	<u>matched</u>	-	3.75%
Conc_ P2 O5	0.1 to 0.2 percent	present	Conc_ P2 O5	0.1 to 0.2 percent	usually	<u>matched</u>	0.19%	0.18%
Conc_ Si O2	68 to 69 percent	present	Conc_ Si O2	68 to 69 percent	rarely	<u>conflicted</u>	-	66.09%
Conc_ Ti O2	0.5 to 1.0 percent	present	Conc_ Ti O2	0.5 to 1.0 percent	usually	<u>matched</u>	-	0.54%

Mostly matching attributes (green)

For purposes of credibility, it needs to be able to provide to its user explanations which detail how it derived the rankings and classifications it generates.

Adamellite: Attribute, Value, Present or Absent	Granodiorite: Attribute, Value, Expected Frequency	Match Type	Adamellite's Comment	Granodiorite's Comment
Conc_ Al2 O3				
Conc_ Ca O				
Conc_ C O2				
Conc_ Fe2 O3				
Conc_ Fe O				
Conc_ H2 Ominus				
Conc_ H2 O				
Conc_ K2 O				
Conc_ Mg O				
Conc_ Mn O				
Conc_ Na2 O				
Conc_ P2 O5				
Conc_ Si O2				
Conc_ Ti O2				

http://www.goli.ca - MatchType Explanation - Microsoft Internet Explorer

Graphical Explanation

K2O

2.5 to 3.0 percent

2.0 to 2.5 percent

3.0 to 3.5 percent

1.5 to 2.0 percent

3.5 to 4.0 percent

4.0 to 4.5 percent to 99 to 100 percent

Target Interval

In-Focus Interval

Legen ■ - Always / Present ■ - Usually - Sometimes ■ - Rarely ■ - Never

For purposes of credibility, it needs to be able to provide to its user explanations which detail how it derived the rankings and classifications it generates.

Adamellite: Attribute, Value, Present or Absent			Granodiorite: Attribute, Value, Expected Frequency			Match Type	Adamellite's Comment	Granodiorite's Comment
Conc_ Al2 O3	14 to 15 percent	present	Conc_ Al2 O3	14 to 15 percent	sometimes	matched	-	15.73%
Conc_ Ca O	2.5 to 3.0 percent	present	Conc_ Ca O	2.5 to 3.0 percent	rarely	conflicted	2.68%	3.83%
Conc_ C O2	very high ppm	present	Conc_ C O2	very high ppm	usually	matched	-	0.18%
Conc_ Fe2 O3	1.0 to 1.5 percent	present	Conc_ Fe2 O3	1.0 to 1.5 percent	usually	matched	-	1.38%
Conc_ Fe O	2.5 to 3.0 percent	present	Conc_ Fe O	2.5 to 3.0 percent	usually	matched	-	2.73%
Conc_ H2 Ominus	0.1 to 0.2 percent	present	Conc_ H2 Ominus	0.1 to 0.2 percent	usually	matched	0.14%	0.19%
Conc_ H2 Oplus	0.5 to 1.0 percent	present	Conc_ H2 Oplus	0.5 to 1.0 percent	usually	matched	-	0.85%
Conc_ K2 O	4.0 to 4.5 percent	present	Conc_ K2 O	4.0 to 4.5 percent - 99 to 100 percent	never	Conflicted	-	-
Conc_ Mg O	1.0 to 1.5 percent	present	Conc_ Mg O	1.0 to 1.5 percent	sometimes	matched	-	1.74%
Conc_ Mn O	very high ppm	present	Conc_ Mn O	very high ppm	usually	matched	-	0.08%
Conc_ Na2 O	3.0 to 3.5 percent	present	Conc_ Na2 O	3.0 to 3.5 percent	sometimes	matched	-	3.75%
Conc_ P2 O5	0.1 to 0.2 percent	present	Conc_ P2 O5	0.1 to 0.2 percent	usually	matched	0.19%	0.18%
Conc_ Si O2	68 to 69 percent	present	Conc_ Si O2	68 to 69 percent	rarely	conflicted	-	66.09%
Conc_ Ti O2	0.5 to 1.0 percent	present	Conc_ Ti O2	0.5 to 1.0 percent	usually	matched	-	0.54%

Clicking on the word “present” hyperlinks to the source of the stated fact (that K2O is in the range 4 to 4.5% for the Adamellite). The source of the Granodiorite data is also accessible.

For purposes of credibility, it needs to be able to provide to its user explanations which detail how it derived the rankings and classifications it generates.

Adamellite:		Granodiorite:		Match Type	Adamellite's Comment	Granodiorite's Comment
Attribute, Value, Present or Absent	Attribute, Value, Expected Frequency	Attribute, Value, Present or Absent	Attribute, Value, Expected Frequency			
Conc_ Al2 O3	14 to 15 percent					
Conc_ Ca O	2.5 to 3.0 percent					
Conc_ C O2	very high ppm					
Conc_ Fe2 O3	1.0 to 1.5 percent					
Conc_ Fe O	2.5 to 3.0 percent					
Conc_ H2 Ominus	0.1 to 0.2 percent					
Conc_ H2 Oplus	0.5 to 1.0 percent					
Conc_ K2 O	4.0 to 4.5 percent					
Conc_ Mg O	1.0 to 1.5 percent					
Conc_ Mn O	very high ppm					
Conc_ Na2 O	3.0 to 3.5 percent					
Conc_ P2 O5	0.1 to 0.2 percent					
Conc_ Si O2	68 to 69 percent					
Conc_ Ti O2	0.5 to 1.0 percent					

Address: <http://earthref.org/GERM/index.html>

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Geochemical Earth Reference Model

Databases Events Tools Publications Links

GERM Reservoir Database

Database development and maintenance by the PACER Team

Home | Search | Register

Detailed File Information

[Le Maitre 1976](#) [EDIT](#)

Le Maitre, R.W. (1976). The chemical variability of some common igneous rocks. *Journal of Petrology* 17: 589-637.

DATABASE QUICK LINKS

- GERM Reservoir Database [SEARCH](#)

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- Table 1 [VIEW](#) [DOWNLOAD](#)
- Table 2 [VIEW](#) [DOWNLOAD](#)

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Geochemical Earth Reference Model

<http://erda.sdsc.edu/bgfiles/aabs/aabs0000892tab11.jpg> - Microsoft Internet Explorer

	*WT. %	C.I.P.W. NORM		NIGGLI VALUES		DATA RECALCULATED TO 100 % #												
						WT. %	S.D.	MOL %	EIGEN VECTORS									
			1st	2nd	3rd													
SiO ₂	68.65	Q	25.17	si	307.67													
TiO ₂	0.54	C	0.28	al	38.42													
Al ₂ O ₃	14.55	Or	23.66	fm	22.20	SiO ₂	69.51	3.89	75.79	-0.876	0.202	-0.125						
Fe ₂ O ₃	1.23	Ab	29.36	c	12.87	TiO ₂	0.51	0.34	0.42	0.059	0.075	-0.051						
FeO	2.70	An	11.55	alk	26.51	Al ₂ O ₃	14.76	1.46	9.49	0.075	-0.768	-0.332						
MnO	0.08	Lc	-	k	0.43	Fe ₂ O ₃	1.26	1.02	0.52	0.098	0.171	0.617						
MgO	1.14	Ne	-	mg	0.34	FeO	2.65	2.03	2.42	0.368	0.538	-0.619						
CaO	2.68	Ac	-	qz	101.64	MgO	1.11	0.69	1.80	0.116	0.005	0.202						
Na ₂ O	3.47	Ns	-	c/fm	0.58	CaO	2.55	1.29	2.98	0.248	0.024	0.258						
K ₂ O	4.00	Di	-			Na ₂ O	3.51	0.74	3.71	-0.033	-0.208	0.025						
H ₂ O+	0.59	Wo	-			K ₂ O	4.14	0.90	2.88	-0.054	-0.038	0.025						
H ₂ O-	0.14	Hy	5.66															
P ₂ O ₅	0.19	Ol	-															
CO ₂	0.09	Mt	1.79			Diff.index:-	78.18	Eigen values as %			74.7	11.6	6.1					
Total	100.05	Hm	-			Cryst.index:-	13.54	Eigen values accumulative %			74.7	86.3	92.5					
		Il	1.03			GEOGRAPHICAL DISTRIBUTION AS PERCENTAGE TOTAL +												
		Ap	0.44			Atlantic Ocean	-	North America	7.4	Africa	14.8	Antarctica	-					
		Cc	0.20			Indian Ocean	1.5	South America	-	Asia	13.3	Unspecified	-					
		Fe/Fe+Mg	0.43			Pacific Ocean	-	Europe	11.1	Australasia	51.9							
NUMBER OF REFERENCES	27	10. ADAMELLITE					+ TOTAL NUMBER OF ANALYSES		135		# TOTAL WITH SEP. FE		132		* TOTAL WITH SEP. FE & H ₂ O		113	

Address http://earthref.org/GERM/index.html

EarthRef.org **GERM** **MagIC** **ERESE** log-in | register |

Geochemical Earth Reference Model

http://erda.sdsc.edu/bgfiles/aabs/aabs0000892tab11.jpg - Microsoft Internet Explorer

	*WT. %	C.I.P.W.
SiO ₂	68.65	Q
TiO ₂	0.54	C
Al ₂ O ₃	14.55	Or
Fe ₂ O ₃	1.23	Ab
FeO	2.70	An
MnO	0.08	Lc
MgO	1.14	Ne
CaO	2.68	Ac
Na ₂ O	3.47	Ns
K ₂ O	4.00	Di
H ₂ O+	0.59	Wo
H ₂ O-	0.14	Hy
P ₂ O ₅	0.19	Ol
CO ₂	0.09	Mt
Total	100.05	Hm
		Il
		Ap
		Cc

File Download

Do you want to open or save this file?

Name: le-maitre1976.gz


Type: PowerArchiver GZIP File, 245 KB

From: earthref.org

While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not open or save this file. [What's the risk?](#)

Fe/Fe+Mg 0.43	Pacific Ocean - Europe 11.1	Australasia 51.9
NUMBER OF REFERENCES 27	10. ADAMELLITE	* TOTAL NUMBER OF ANALYSES 135 # TOTAL WITH SEP. FE 132 * TOTAL WITH SEP. FE & H ₂ O 113

Matches and Explanations use the Controlled Vocabularies

Address  http://www.goli.ca/pmo/results_ranking.php?req_id=23 Go

PlutonMatch Online Beta


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Clinton Smyth ([cpsmyth](#))

[\[My Homepage\]](#) :: [\[Logout\]](#) :: [\[HELP\]](#)

Baltimore Mafic Complex Matching Against 3 Instances

Comparison Type:	Ins vs. Inss	Submit Time:	2005-10-18 10:24:26
Query Object:	Baltimore Mafic Complex	Payment Time:	2005-10-18 10:24:26
# of Match Objects:	3	Comparison Time:	2005-10-18 10:24:27
Status:	Completed	Completion Time:	2005-10-18 10:24:30

Rank	Match Object	Rewards	Penalties	Raw Score	Normalized Score	Details...
1	Baltimore Mafic Complex	160000	0	-160000	100.0	View...
2	Tete complex	70000	906	-69094	43.0	View...
3	Ellicott City Granodiorite	20000	503	-19497	12.0	View...


Internet

Matches and Explanations use the Controlled Vocabularies

PlutonMatch Online Beta

[\[Administration Panel\]](#) You are currently logged in as Clinton Smyth ([cpsmyth](#))
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Report Options:

Show All Inherited Attributes

Show All Matched Inherited Attributes

Show Inherited Attributes Matching Primary Attributes

Don't Show Inherited Attributes

Word Wrap

Filter Empty

Filter Unmatched

[Update...](#)

Report Type:

DHTML

JAVA

PDF

Baltimore Mafic Complex Matching Against Tete complex

Rank:	#2
Rewards / Penalties:	70000 / 906
(Raw / Normalized) Score:	-69094 / 43

Baltimore Mafic Complex: Attribute, Value, Present or Absent			Tete complex: Attribute, Value, Present or Absent			Match Type	Baltimore Mafic Complex's Comment	Tete complex's Comment
-	-	-	Age Geologic	Precambrian	present	-	-	-
Age Geologic	Palaeozoic	present	-	-	-	unmatched	-	-
-	-	-	Name	tete Complex	present	-	-	-
Pluton Source	mantle	present	Pluton Source	mantle	present	exact, exact	-	-
-	-	-	Rock Type Other	anorthosite	present	-	-	-
-	-	-	Rock Type Other	olivine-gabbro	present	-	-	-
-	-	-	Rock Type Other	troctolite	present	-	-	-
Rock Type Other	gabbronorite	present	-	-	-	unmatched	-	-
Rock Type Other	granite	present	-	-	-	unmatched	Plagio-granite; derivative of gabbroic liquids	-
Rock Type Other	ultramafic-rock (xdogr)	present	Rock Type Other	pyroxenite	present	exact, AKO	-	-
Rock Type Primary	gabbro	present	Rock Type Primary	gabbro	present	exact, exact	-	-
Tectonic Setting	arc	present	-	-	-	unmatched	-	-

Matches and Explanations use the Controlled Vocabularies

http://www.goli.ca - MatchType Explanation - Microsoft Internet Explorer

Attribute **RockTypeOther** is the same as the attribute **RockTypeOther**.
Value **pyroxenite** is "a kind of" the value **ultramafic-rock (xdcgr)**.

Score = 10000

	Attributes	Values	Frequencies
In Focus	RockTypeOther	ultramafic-rock (xdcgr)	present
Target	RockTypeOther	pyroxenite	present
MatchType	exact	ako	
Attribute Taxonomic Trace	na		
Value Taxonomic Trace	< pyroxenite > is ako < pyroxene-rock > is ako < ultramafic-rock (xdcgr) >		
Score Trace	Base score for frequency present and present is 10000 .		

Close

Rock Type Other	ultramafic-rock (xdcgr)	present	Rock Type Other	pyroxenite	present	exact, AKO	-	-
Rock Type Primary	gabbro	present	Rock Type Primary	gabbro	present	exact, exact	-	-
Tectonic Setting	arc	present	-	-	-	unmatched	-	-

Internet

The pluton classification system is implemented
as a free web service named PlutonMatch

PlutonMatch™ Online - Comparison Selection - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites Links ClickTime Go

Address http://www.goli.ca/pmo/selection.php

PlutonMatch Online Beta

[Administration Panel] You are currently logged in as Clinton Smyth (cpsmyth)

[My Homepage] :: [Logout] :: [HELP]

Silence Implies Absence

Run PLUTONMATCH Online

Models Show or Hide Navigation Models Show or Hide Navigation

Model Name	Category	Source
<input type="radio"/> Adamellite		
<input type="radio"/> Andesite		
<input type="radio"/> Basalt		
<input type="radio"/> Basanite		
<input type="radio"/> Dacite		
<input type="radio"/> Diabase		
<input type="radio"/> Diorite		
<input type="radio"/> Dolerite		
<input type="radio"/> Gabbr		

Available Description Lists (Models)

- [My Models](#)
- [Recently Shared Models](#)
- System Models
 - [2003 Models](#)

javascript:void(0) Internet

Plutons are described through an Internet Interface


The screenshot shows a web browser window with the address `http://www.goli.ca/pmo/kc.php`. The page title is "PlutonMatch Online Beta". In the top right corner, it indicates the user is logged in as "Clinton Smyth (cpsmyth)" and provides links for "[Administration Panel]", "[My Homepage]", "[Logout]", and "[HELP]".

Below the header, there are several buttons: "Add", "Edit", "Delete", and a link "View PDF". To the right of these buttons is a form with four checkboxes: "Reference", "User", "Contact", "Display Inherited Attributes", and "Word Wrap", along with a "Submit" button.

The main content area features a table with the following structure:

Description	Presence	Comment
— GSA Demo	instance	

Plutons are described through an Internet Interface

Address  http://www.goli.ca/pmo/kc.php Go

PlutonMatch Online Beta [Administration Panel] You are currently logged in as Clinton Smyth ([cpsmyth](#))
[\[My Homepage\]](#) :: [\[Logout\]](#) :: [\[HELP\]](#)

Add New Attributes

Target Entity: Show Primary Attributes
Entity Class: Show Inherited Attributes
Attribute: Show Primary & Inherited Attributes
Value:
Frequency:
Comment:
Reference:
Entered By: Contact:
Entity:
Attribute:
Link:

Plutons are described through an Internet Interface

PlutonMatch Online Beta

[Administration Panel] You are currently logged in as Clinton Smyth (cpsmyth)

[My Homepage] :: [Logout] :: [HELP]

Add New Attributes

Target Entity: Show Primary Attributes

Entity Class: Show Inherited Attributes

Attribute: Show Primary & Inherited Attributes

Value:

Frequency:

Comment:

Reference:

Entered By:

Entity:

Attribute:

Link:

Plutons are described through an Internet Interface

PlutonMatch Online Beta

[Administration Panel] You are currently logged in as Clinton Smyth ([cpsmyth](#))
[My Homepage] :: [Logout] :: [HELP]

Add New Attributes

Target Entity: Show Primary Attributes
Entity Class: Show Inherited Attributes
Attribute: Show Primary & Inherited Attributes
Value:
Frequency:
Comment:
Reference:
Entered By: Contact:
Entity:
Attribute:
Link:

- [-] root
 - [+] complex
 - [-] compressional
 - [-] arc systems
 - accretionary prism
 - arc
 - back-arc basin**
 - forearc basin
 - remnant arc
 - retroarc foreland basin
 - trench
 - [+] orogens
 - [+] extensional

Behind arc over descending oceanic slabs, if active have high heat flow

Plutons are described through an Internet Interface

PlutonMatch Online Beta

[Administration Panel] You are currently logged in as Clinton Smyth ([cpsmyth](#))

[My Homepage] :: [Logout] :: [HELP]

Add New Attributes

TectonicSetting-back-arc basin-Present has been added to GSA Demo

Target Entity: Show Primary Attributes
Entity Class: Show Inherited Attributes
Attribute: Show Primary & Inherited Attributes
Value:
Frequency:

Comment:

Reference:
Entered By: Contact:

Entity:

Attribute:

Link:

- rock and sediment
 - artificial and natural superficial dep
 - igneous rock
 - crystalline-igneous-rock
 - crystalline-igneous-rock [ex
 - crystalline-igneous-rock [no
 - coarse-grained-normal-c
 - anorthositic-rock
 - dioritic-rock
 - diorite**
 - foid-bearing-diorit
 - foid-bearing-monz
 - monzodiorite

Plutons are described through an Internet Interface

PlutonMatch Online Beta

[Administration Pane] You are currently logged in as Clinton Smyth ([cpsmyth](#))

[My Homepage] :: [Logout] :: [HELP]

Add New Attributes

TectonicSetting-back-arc basin-Present has been added to GSA Demo

Target Entity: Show Primary Attributes

Entity Class: Show Inherited Attributes

Attribute: Show Primary & Inherited Attributes

Value:

Frequency:

Comment:

Reference:

Entered By: Contact:

Entity:

Attribute:

Link:

- All_Times
 - Phanerozoic
 - Cainozoic
 - Mesozoic
 - Cretaceous
 - Jurassic
 - Dogger
 - Early Jurassic**
 - Late Jurassic
 - Lias
 - Malm
 - Middle Jurassic
 - Triassic
 - Palaeozoic

From 205.000 to 184.000 Ma

Plutons are described through an Internet Interface

The screenshot displays the 'PlutonMatch Online Beta' web interface. At the top left, the site title is 'PlutonMatch Online Beta'. On the top right, a dark navigation bar contains the text: '[Administration Panel] You are currently logged in as Clinton Smyth (cpsmyth) [My Homepage] :: [Logout] :: [HELP]'. Below the title, there are four buttons: 'Add', 'Edit', 'Delete', and 'View PDF'. To the right of these buttons is a form with five checkboxes: 'Reference', 'User', 'Contact', 'Display Inherited Attributes', and 'Word Wrap', followed by a 'Submit' button. The main content area features a table with three columns: 'Description', 'Presence', and 'Comment'. The table contains a tree view under 'GSA Demo' with three sub-entries: 'AgeGeologic - Early Jurassic', 'RockTypePrimary - diorite', and 'TectonicSetting - back-arc basin'. The 'Presence' column for the last two entries is highlighted in green and contains the word 'present'. The 'Comment' column for the last two entries contains the text 'Any comment may be entered here. Not used d'.

Description	Presence	Comment
☐ GSA Demo	instance	
├── AgeGeologic - Early Jurassic	present	Any comment may be entered here. Not used d
├── RockTypePrimary - diorite	present	
└── TectonicSetting - back-arc basin	present	Any comment may be entered here. Not used d

Plutons are described through an Internet Interface

PlutonMatch Online Beta

[Administration Panel] You are currently logged in as Clinton Smyth ([cpsmyth](#))

[My Homepage] :: [Logout] :: [HELP]

Add New Attributes

Target Entity: RockTypePrimary - diorite

Entity Class: RockTypePrimary

Attribute:

Value:

Frequency:

Comment:

Reference:

Entered By:

Entity:

Attribute:

Link:

Show Primary Attributes

Show Inherited Attributes

Show Primary & Inherited Attributes

Plutons are described through an Internet Interface

PlutonMatch Online Beta

[Administration Panel] You are currently logged in as Clinton Smyth ([cpsmyth](#))

[My Homepage] :: [Logout] :: [HELP]

Add New Attributes

Target Entity: Show Primary Attributes
Entity Class: Show Inherited Attributes
Attribute: Show Primary & Inherited Attributes
Value: to
Frequency:
Comment:
Reference:
Entered By: Contact:
Entity:
Attribute:
Link:

- [-] root
 - [+] ppt level
 - [+] ppb level
 - [-] ppm level
 - very low ppm
 - low ppm
 - mid ppm
 - high ppm
 - very high ppm
 - [-] percent level
 - extremely low percent
 - very very low percent
 - very low percentage

Plutons are described through an Internet Interface

PlutonMatch Online Beta

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[My Homepage] :: [Logout] :: [HELP]

Add New Attributes

Target Entity: Show Primary Attributes
Entity Class: Show Inherited Attributes
Attribute: Show Primary & Inherited Attributes
Value:
Frequency:
Comment:
Reference:
Entered By: Contact:
Entity:
Attribute:
Link:

- root
 - Experimental melts
 - Granitic
 - Large Igneous Provinces
 - Continental
 - Oceanic
 - Mantle
 - EM1
 - EM2
 - HiMU
 - NMORB**
 - Subduction Setting

Plutons are described through an Internet Interface

PlutonMatch Online Beta

[\[Administration Panel\]](#) You are currently logged in as
 Clinton Smyth ([cpsmyth](#))

[\[My Homepage\]](#) :: [\[Logout\]](#) :: [\[HELP\]](#)

Add Edit Delete [View PDF](#)

Reference
 Display Inherited Attributes
 User
 Word Wrap
 Contact
 Submit

Description	Presence	Comment
[-] GSA Demo	instance	
[-] AgeGeologic - Early Jurassic	present	Any comment may be entered here. Not used du
[-] RockTypePrimary - diorite	present	
[-] ReferencePetrochemSig - NMORB	present	
[-] Concentration_Ca - low percentage	present	
[-] TectonicSetting - back-arc basin	present	Any comment may be entered here. Not used du

We have encountered a system design issue
with respect to “derived knowledge”

PlutonMatch Online Beta

[Administration Panel] You are currently logged in as Clinton Smyth (cpsmyth)

[My Homepage] :: [Logout] :: [HELP]

Add Edit Delete [View PDF](#)

Reference Display Inherited Attributes
 User Word Wrap
 Contact

Description	Presence	Comment
[-] GSA Demo	instance	
[-] AgeGeologic - Early Jurassic	present	Any comment may be entered here. Not used de
[-] RockTypePrimary - diorite	present	
[-] ReferencePetrochemSig - NMORB	present	
[-] Concentration_Ca - low percentage	present	
[-] TectonicSetting - back-arc basin	present	Any comment may be entered here. Not used de

Feel free to experiment with how ontologies can speed up
scientific enquiry: www.plutonmatch.com

PlutonMatch™ Online - Comparison Selection - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Links ClickTime

Address <http://www.goli.ca/pmo/selection.php> Go

PlutonMatch Online Beta

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<input type="radio"/> Basalt		
<input type="radio"/> Basanite		
<input type="radio"/> Dacite		
<input type="radio"/> Diabase		
<input type="radio"/> Diorite		
<input type="radio"/> Dolerite		
<input type="radio"/> Gabbro		

Available Description Lists (Models)

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- [Recently Shared Models](#)
- [System Models](#)
- [2003 Models](#)

javascript:void(0) Internet

Thank You