Table DR1. Sm-Nd isotopic composition of mafic rocks used in this study

Source	$^{143}Nd/^{144}Nd$	$^{147}Sm/^{144}Nd$	Age (Ma)	$^{143}Nd/^{144}Nd(i)$
		Cambro-Ordovician basalts		
Sanchez-Garcia et al. (2010)	0,512577	0,1313	520	0,512147
	0,512566	0,1368	520	0,512100
	0,512922	0,1958	520	0,512255
	0,512642	0,1364	520	0,512177
ORV-1*	0,512440	0,1200	480	0,512047
ORV-2*	0,512437	0,1177	480	0,512051
		Late-Carboniferous-Early Permian mafic r		
Bea et al. (2006)	0,512363	0,1269	310	0,512108
	0,512325	0,0939	310	0,512136
	0,512496	0,1430	310	0,512209
	0,512198	0,1065	310	0,511984
PV-1*	0,512313	0,1130	300	0,512095
PV-2*	0,512188	0,1250	300	0,511947
PORC-9*	0.512213	0.1209	300	0,511980
Orejana et al. (2009)	0,512471	0,1540	310	0,512164
	0,512449	0,1420	310	0,512165
	0,512392	0,1330	310	0,512126
	0,512525	0,1320	310	0,512261
	0,512435	0,1380	310	0,512159
	0,512574	0,1480	310	0,512278
	0,512376	0,1330	310	0,512110
	0,512618	0,1520	310	0,512315
	0,512633	0,1490	310	0,512335
	0,512265	0,1220	310	0,512021
	0,512685	0,1580	310	0,512370
	0,512667	0,1490	310	0,512369
	0,512317	0,1040	310	0,512109
	0,512470	0,1460	310	0,512178
Moreno-Ventas (1995)	0,512435	0,1397	300	0,512161
	0,512430	0,1397	300	0,512156
	0,512430	0,1209	300	0,512193
	0,512402	0,1151	300	0,512176
	0,512407	0,1276	300	0,512156
Lago et al. (2004a)	0,512267	0,1296	290	0,512021
	0,512231	0,1336	290	0,511977
	0,512116	0,1257	290	0,511877
	0,512268	0,1333	290	0,512015
	0,512170	0,1255	290	0,511932
	0,512118	0,1260	290	0,511879

		Middle-Late Permian mafic rocks		
Lago et al. (2004b)	0,512579	0,1307	270	0,512348
	0,512638	0,1444	270	0,512383
	0,512797	0,1532	270	0,512526
	0,512611	0,1424	270	0,512359
	0,512852	0,1505	270	0,512586
Orejana et al. (2006)	0,512832	0,1095	260	0,512646
	0,512860	0,1158	260	0,512663
	0,512500	0,1032	260	0,512324
	0,512943	0,1887	260	0,512622
	0,512901	0,1718	260	0,512609
	0,512881	0,1623	260	0,512605
	0,512919	0,1830	260	0,512608
Villaseca et al. (2004)	0,512841	0,1220	260	0,512633
	0,512465	0,1210	260	0,512259
	0,512551	0,1050	260	0,512372
	0,512728	0,1320	260	0,512503
Orejana et al. (2008)	0,512523	0,1290	260	0,512303462
	0,512444	0,1130	260	0,512251691
		Early Jurassic mafic rocks		
Cebriá et al. (2003)	0,512637	0,16340	200	0,512823
	0,512644	0,15990	200	0,512823
	0,512678	0,16530	200	0,512823
	0,512581	0,15400	200	0,512823
	0,512501	0,15140	200	0,512823
	0,512607	0,15520	200	0,512823
	0,512511	0,15370	200	0,512823
	0,512584	0,15620	200	0,512823
	0,512550	0,14940	200	0,512823
	0,512612	0,15980	200	0,512823
	0,512638	0,15800	200	0,512823
	0,512505	0,15620	200	0,512823
	0,512583	0,16020	200	0,512823
	0,512586	0,14870	200	0,512823
	0,512599	0,16950	200	0,512823
	0,512475	0,15580	200	0,512823
	0,512537	0,14980	200	0,512823
	0,512481	0,16280	200	0,512823
	0,512472	0,14980	200	0,512823
	0,512511	0,16710	200	0,512823
	0,512504	0,15540	200	0,512823
	0,512526	0,15580	200	0,512823
		Cretaceous and Miocene mafic rocks		
Scharer et al. (1995)	0,512879	0,1379	120	0,512769
Chazot et al. (2005)	0,513067	0,1970	120	0,512912

	0,513074	0,1770	120	0,512935
	0,512983	0,1720	120	0,512848
	0,513039	0,1740	120	0,512902
	0,512954	0,1600	120	0,512828
	0,513044	0,1980	120	0,512889
	0,512977	0,1420	120	0,512866
	0,513029	0,1860	120	0,512883
	0,512940	0,1630	120	0,512812
	0,513024	0,1730	120	0,512888
	0,512982	0,1640	120	0,512853
	0,512920	0,1590	120	0,512795
	0,512982	0,1640	120	0,512853
	0,512964	0,1720	120	0,512829
	0,512947	0,1640	120	0,512818
	0,512907	0,1580	120	0,512783
MV-1*	0,512791	0,1120	100	0,512721
MV-2*	0,512791	0,1109	100	0,512722
Pin et al. (2001)	0,512658	0,0403	100	0,512632
	0,512711	0,0432	100	0,512683
	0,512696	0,0834	100	0,512641
Bernard-Grifiths et al. (1997)	0,512799	0,0713	70	0,512766
	0,512832	0,1124	70	0,512781
	0,512825	0,1046	70	0,512777
	0,512853	0,0797	70	0,512817
	0,512831	0,1100	70	0,512781
	0,512840	0,0951	70	0,512796
	0,512865	0,0671	70	0,512834
	0,512917	0,0999	70	0,512871
	0,512921	0,0802	70	0,512884
	0,512925	0,0826	70	0,512887
	0,512922	0,0779	70	0,512886
	0,512900	0,0948	70	0,512857
	0,512956	0,1397	70	0,512892
	0,512943	0,0931	70	0,512900
	0,512948	0,0982	70	0,512903
	0,512949	0,1049	70	0,512901
	0,512941	0,1036	70	0,512894
CVF-2*	0,512892	0,1120	10	0,512885
CVF-3*	0,512873	0,1290	10	0,512865
CVF-4*	0,512892	0,1093	10	0,512885

(*) Samples analysed for this study (see also Table DR-2)
TDM calculated according to De Paolo (1981, 1988)

$\varepsilon_{Nd(t)}$	T_{DM} (Ma)
3,03	903
2,62	980
5,65	1116
4,13	841
1,08	1007
1,17	989
ocks	
-2,59	1203
-2,04	939
-0,63	1191
-5,01	1208
-3,15	1120
-6,04	1453
-5,40	1357
-1,56	1439
-1,52	1266
-2,28	1235
0,36	997
-1,64	1231
0,69	1112
-2,59	1263
1,39	1080
1,80	1004
-4,33	1293
2,47	1022
2,46	933
-2,61	1029
-1,26	1290
-1,74	1256
-1,84	1266
-1,12	1031
-1,44	1015
-1,82	1141
-4,72	1395
-5,57	1520
-7,52	1576
-4,83	1451
-6,46	1489
-7,49	1578

1,16	893
1,84	935
4,64	703
1,39	963
5,81	559
6,72	383
7,06	365
0,45	788
6,26	783
6,00	647
5,93	596
5,98	763
6,48	417
-0,82	979
1,39	734
3,95	654
0,04	969
-0,97	937
0,87	1240
1,10	1153
1,62	1171
0,02	1194
-1,48	1322
0,49	1156
-1,34	1344
0,02	1227
-0,47	1183
0,47	1229
1,03	1133
-1,52	1409
-0,10	1308
0,25	1097
-0,03	1493
-2,10	1469
-0,73	1217
-2,16	1626
-2,00	1354
-1,68	1670
-1,52	1394
-1,10	1352
5,66	427
8,41	287

8,85	136
7,15	400
8,21	239
6,77	394
7,94	445
7,49	262
7,83	361
6,45	450
7,93	281
7,25	348
6,12	470
7,25	348
6,78	458
6,57	440
5,88	494
4,05	448
4,06	444
2,43	383
3,42	344
2,62	460
4,30	319
4,58	393
4,51	376
5,28	280
4,58	386
4,89	330
5,63	246
6,35	247
6,60	208
6,66	207
6,64	204
6,06	257
6,75	293
6,92	203
6,97	205
6,93	215
6,78	223
5,10	308
4,71	396
5,11	301

Data repository

Samples from the literature:

(1) Cambrian volcanic rocks from the Ossa Morena Zone of SW Spain (Sanchez-Garcia et al., 2010).

(2) Latest Carboniferous to Early Permian mafic plutonic and volcanic rocks (Bea et al., 2006; Lago et al., 2004a; Morenoventas et al., 1995; Orejana et al., 2009).

(3) Middle-Late Permian volcanics and dykes and enclaves (Lago et al., 2004b; Orejana et al., 2008; Orejana et al., 2006; Villaseca et al., 2004).

(4) Central Atlantic Magmatic Province (CAMP) related rocks (The Messejana Plasencia Dyke) (Orejana et al., 2003)

(5) Cretaceous volcanics (Chazot et al., 2005; Henry et al., 1998; Pin et al., 2001; Scharer et al., 1995; Bernard-Griffiths et al., 1997).

(6) Miocene to present day basalts (Cebria et al., 2000; Cebria and Lopez Ruiz, 1995; Cebria and Lopez Ruiz, 1996; Lopez Ruiz et al., 1993).

Analytical techniques

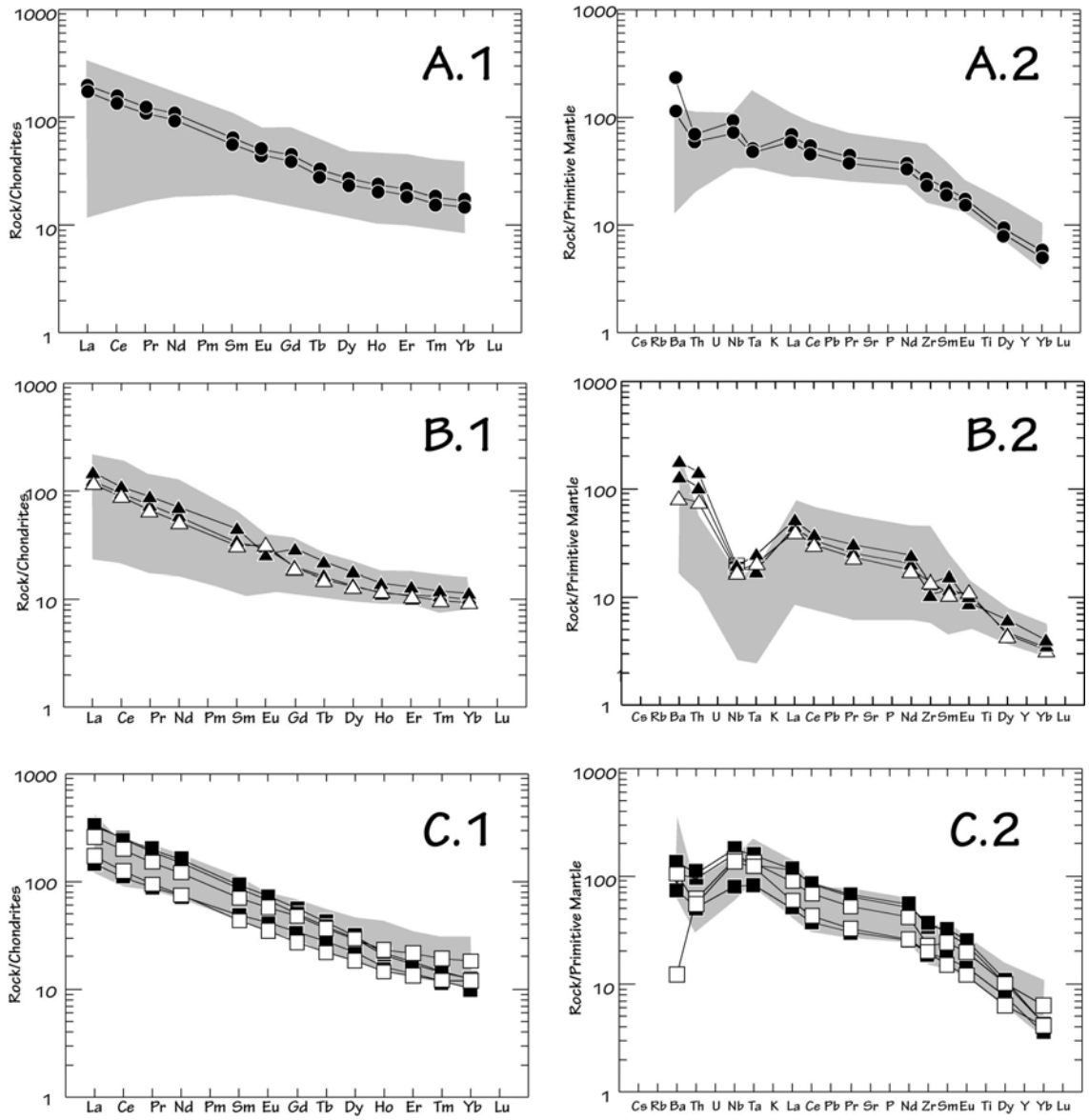
Major and trace element composition (Rb, Sr, Ba, Ga, Zr, Y, Nb, Co, Cu, Pb, Zn, V, Cr and Ni) for the new samples was determined by X-ray fluorescence spectrometry in the Nova Scotia Regional Geochemical Centre at Saint Mary's University, Halifax. Rare earth element and Sm-Nd isotopic analyses were determined by ICP-MS at Memorial University, Newfoundland. Analytical procedures, precision and accuracy are as described by (Dostal et al., 1986)for the X-ray data, by (Jenner et al., 1990) for the REE data and by (Kerr et al., 1995) for the Sm-Nd isotopic data. The analyses are shown in Table DR-2 of the Data repository.

TABLE DR2

Sample	ORV-1	ORV-2	PV-1	PV-2	PORC-9	MV-1A	MV-2	CVF-2	CVF-3	CVF-4
Location										
UTM										
Northing	4836327	4836327	4810883	4810347	4825502	4804877	4797819	4286660	4290992	4298156
Easting	271254	271254	304100	307352	671449	500958	517031	421329	433897	435181
SiO2	46,42	46,63	49,61	58,91	72,57	38,47	42,24	38,4	48,89	42,28
TiO2	2,960	3,290	0,93	0,72	0,27	3,42	1,94	2,88	2,58	3,51
AI2O3	15,22	15,71	15,25	17,46	15,41	13,28	13,61	0,97	14,64	12,97
Fe2O3	12,73	13,76	8,74	7,33	1,66	13,7	10,38	12,23	11,58	12,59
MnO	0,181	0,241	0,05	0,07	0,04	0,1	0,17	0,19	0,16	0,2
MgO	5,59	4,74	9,98	3,79	0,76	3,9	12,14	11,46	8,39	9,31
CaO	7,08	6,03	2,1	1,38	1,66	10,31	7,12	15,27	9,82	12,28
Na2O	3,20	3,25	2,23	1,99	4,55	1,99	2,02	4,19	3,55	5,15
K2O	2,34	3,17	3,93	4,86	2,96	1,52	2,08	1,8	1,42	2,18
P2O5	0,526	0,598	0,26	0,26	0,12	1,1	0,34	1,44	0,53	1
Rb	40	52	100,73	206,49	42,7	37,36	56,42	38,46	31,43	71,78
Sr	657	834	209,79	208,67	546,6	312,44	528,98	299,77	633,12	1323,56
Ti			5580	4320	581	20520	11640	7280	15480	21060
K	19422	26311	32619	40338		12616	17264	4940	11786	18094
Pb	7	7	8,23	25,34	7,41	<LD	4,64	8,28	<LD	9,59
Sc			30	21		30	27	27	19	33
V	335	361	154	140	3	41	268	222	189	273
Cr	113	48	370	77	<LD		231	440	385	182
Ni	56	38	98,99	27,79	12	,08	87,65	254,41	234,19	106,36
Cu	<4	<4	58,49	33,55	1	3,61	28,22	58,39	55,87	55,51
Zn	129	144	33,02	26,6	1	16,17	33,25	50,92	47,79	63,11
Ga	23	25	18,23	21,18	2	1,65	16,78	15,91	18,79	17,36
Y	24,224	27,119	15,769	20,161	17,000	33,509	20,203	29,753	22,239	27,428
Zr	258,785	301,603	119,065	150,446	156,600	254,386	223,666	378,552	215,866	418,541
Nb	50,668	64,913	12,766	13,727	12,300	102,569	97,624	113,939	58,371	129,203
Ba	778,893	1601,535	936,463	1246,645	85	,757	739,121	752,348	521,67	957,215
La	40,470	46,620	29,928	35,507	27,8	61,758	40,704	77,582	34,372	80,68
Ce	82,683	95,146	58,727	66,449	54.2	121,546	76,343	153,6	66,902	151,975
Pr	10,399	11,951	6,978	8,464	6,33	14,379	8,969	18,604	8,361	17,825
Nd	44,217	50,753	27,076	33,077	24.1	56,124	35,024	74,953	34,58	69,684
Sm	8,518	9,799	5,148	6,948	4,75	10,71	6,641	14,319	7,603	13,226
Eu	2,619	2,934	1,734	1,499	1,86	3,333	2,024	4,27	2,421	3,907
Gd	8,106	9,165	4,085	5,953	3,97	9,772	5,58	11,474	7,015	10,276
Tb	1,066	1,224	0,598	0,823	0.57	1,36	0,821	1,568	1,049	1,427
Dy	6,058	6,885	3,437	4,516	3,34	7,444	4,675	7,974	5,676	7,48
Ho	1,191	1,347	0,642	0,795	0,66	1,308	0,825	1,227	0,918	1,177
Er	3,101	3,558	1,801	2,163	1,77	3,561	2,225	3,002	2,323	2,88
Tm	0,397	0,457	0,269	0,306	0,25	0,493	0,308	0,373	0,303	0,369
Yb	2,483	2,852	1,691	1,956	1.60	3,11	2,028	2,112	1,727	2,129
Lu	0,337	0,390	0,273	0,296	0.24	0,493	0,309	0,301	0,253	0,317
Hf	6,524	8,054	2,455	3,689	1,480	4,934	4,863	7,16	5,207	8,366

Ta	1,932 2,	050	0,715	0,997	0,830	5,503	5,03 5,	248	3,387	6,359
Th	5,014 5,	879	8,785	12,177	6,47	5,246	4,662 8,	046	4,365	9,042
Age 50	0	500	300	300	295	95	95	10	10	10
Nd (ppm)	39,65	46,4 2	7,79	33,26	24,1	56,22	34,57	76,93 3	4,68	77,28
Sm (ppm)	7,873 9,	036	5,196	6,879	4,75	10,41	6,34 14	,25	7,401	13,07
147Sm/144Nd	0,12	0,1177 0	,113	0,125	0,1316	0,112	0,1109	0,112 0	,129	0,1093
143Nd/144Nd	0,51244	0,512437	0,512313	0,512188	0,512213	0,512791	0,512791	0,512892	0,512873	0,512892
2s	5 4		4	4	5	4	5 6		5	5
εNd(0)	-3,86 -	3,92	-6,34	-8,78	-8,3	2,98	2,98	4 95 4,	58	4,95
εNd(285)	-1,1 -1	,0	-3,3	-6,2	-5,9	6,1	6,1	8,0	7,1	8,1
εNd(Age)	1,0 1,	1	-3,1	-6,0	-5,8	4,0	4,0 5,	1	,7	5,1
T_{DM}	985 9	67	1106	1465	1516	402	398 2	58	339	251

Figure DR2



Chondrite-normalized REE diagram for the studied samples (A) Pre-Variscan samples; (B) Late-Carboniferous Early Permian samples; (C) Middle Permian to recent samples. Gray shades represent data fields from the literature. (1) Normalizing values from (Sun and McDonough, 1989). (2) Primitive mantle-normalized trace element patterns for the studied samples. Normalizing values from (Sun and McDonough, 1989).

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