



**Table C1. Compilation of ages, locations and isotopic and major and trace element data**

Sample Name	Location	Eruption/Unit	Minimum Age	Maximum Age	Depth (for Litv. Sequence)	Longitude (°W)	Latitude (°N)	Decimal Longitude	Decimal Latitude	143Nd/144Nd	Epsilon Nd	87Sr/86Sr
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	GAES 84151	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 53' 53"	65° 46' 08"	-16.898	65.769	0.513006	7.18	0.703247
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	GAES 9491	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 56' 00"	65° 45' 42"	-16.933	65.762	0.513041	7.86	0.703233
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	GAES 9364	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 51' 00"	65° 46' 24"	-16.850	65.773	0.513032	7.69	0.703234
Peate et al., 2010 (ST); Kresten spreadsheet from Peate (ME + TE)	408718	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 55' 19"	65° 45' 11"	-16.922	65.753	No Data	No Data	No Data
Peate et al., 2010 (ST); Kresten spreadsheet from Peate (ME + TE)	408719	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 55' 19"	65° 45' 11"	-16.922	65.753	No Data	No Data	No Data
Peate et al., 2010 (ST); Kresten spreadsheet from Peate (ME + TE)	408722	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 55' 16"	65° 45' 22"	-16.921	65.756	No Data	No Data	No Data
Peate et al., 2010 (ST); Kresten spreadsheet from Peate (ME + TE)	408723	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 55' 16"	65° 45' 22"	-16.921	65.756	No Data	No Data	No Data
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	THRI 9421	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 50' 00"	65° 50' 18"	-16.833	65.838	No Data	No Data	No Data
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	THRI 9420A	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 50' 00"	65° 50' 18"	-16.833	65.838	0.513019	7.43	0.703257
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	THRI 94100	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 50' 00"	65° 50' 18"	-16.833	65.838	0.513016	7.37	0.703288
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	THOR 9424A	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 55' 00"	65° 52' 42"	-16.917	65.878	0.513024	7.52	0.703243
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	THOR 9454	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 51' 23"	65° 50' 31"	-16.857	65.842	0.513028	7.61	0.703260
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	THOR 9455	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 51' 23"	65° 50' 31"	-16.857	65.842	0.513019	7.43	0.703273
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	BAEJ 9320	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 56' 00"	65° 51' 18"	-16.933	65.855	0.513014	7.33	0.703277
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	BAEJ 9319	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 55' 00"	65° 51' 30"	-16.917	65.858	0.513020	7.44	0.703317
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	ENB 9303	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 52' 00"	65° 49' 30"	-16.867	65.825	0.512999	7.04	0.703144
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	ENB 9302	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 52' 00"	65° 49' 30"	-16.867	65.825	0.512990	6.87	0.703155
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	ENB 9301	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 52' 00"	65° 49' 30"	-16.867	65.825	0.513040	7.84	0.703177
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	ELU 9343	Krafla Rift Zone	-12120 BP	-100000 BP		16° 37' 19"	65° 48' 08"	-16.622	65.802	No Data	No Data	0.703166
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	KETI 9350	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 55' 34"	65° 52' 44"	-16.926	65.879	0.513036	7.76	0.703131
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	KETI 94110	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 54' 23"	65° 54' 14"	-16.907	65.902	0.513016	7.37	0.703130
Kokfelt et al., 2006 (ST, ME, TE)	H125	Theistareykir Rift Zone	-12120 BP	-100000 BP		16° 56' 02"	65° 53' 20"	-16.934	65.889	0.513038	7.80	0.703130
Peate et al., 2010 (ST); Kresten spreadsheet from Peate (ME + TE)	408729	Krafla Rift Zone?	-12120 BP	-100000 BP		16° 50' 35"	65° 29' 17"	-16.843	65.488	No Data	No Data	No Data
Peate et al., 2010 (ST); Kresten spreadsheet from Peate (ME + TE)	408730	Krafla Rift Zone?	-12120 BP	-100000 BP		16° 51' 04"	65° 29' 17"	-16.851	65.488	No Data	No Data	No Data
Peate et al., 2010 (ST); Kresten spreadsheet from Peate (ME + TE)	408732	Krafla Rift Zone?	-12120 BP	-100000 BP		16° 50' 24"	65° 31' 05"	-16.840	65.518	No Data	No Data	No Data

**NOTES**

\*Gasafjöll surface exposure age of 14400 BP from Liccardi et al., (2007) Gasafjöll located between Krafla and Theistareykir fissure swarms.

\*\*Bláfjall surface exposure age of 14400 BP from Liccardi et al., (2007). Bláfjall located on southwards extension of Krafla swarm, whereas a separate system.

Compiled Database of Isotope Data for Krafla and Theistareykir, Northern Volcanic Zone

Compiled by Evelyn Mervine, Summer-Fall 2010. Updated by John MacLennan, Spring 2013

Age brackets derived from tephrochronology for many postglacial lavas, extracted from Saemundsson (1991,2013). Crucial tephra layers are Hekla-5 (7050 BP), The S-layer (11000 BP) and the Vedde Ash (12120 BP).

Evolved rocks (andesites, rhyolites) shaded yellow.

ME = Major Elements, TE = Trace Elements, IST = Isotopes



**Table C1. Compilation of ages, locations and isotopic and major and trace element data**

	<b>Data Source(s)</b>	<b>176Hf/177Hf</b>	<b>Epsilon Hf</b>	<b>206Pb/204Pb</b>	<b>207Pb/204Pb</b>	<b>208Pb/204Pb</b>	<b>SiO2</b>	<b>Al2O3</b>	<b>FeO*</b>	<b>MgO</b>	<b>CaO</b>	<b>Na2O</b>	<b>K2O</b>
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283171	14.11	18.510	15.500	38.289	47.66	15.08	12.02	8.58	12.25	1.90	0.17	
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283175	14.25	18.406	15.479	38.155	48.07	15.23	11.60	8.90	11.68	2.00	0.17	
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283168	14.01	18.430	15.473	38.160	48.21	14.94	11.81	7.57	12.55	2.14	0.19	
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	No Data	No Data	18.510	15.484	38.265	48.34	15.05	11.39	8.43	12.06	2.07	0.21	
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	No Data	No Data	18.504	15.484	38.260	48.32	15.23	11.31	8.27	12.15	2.06	0.20	
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	No Data	No Data	18.498	15.479	38.220	48.43	15.20	11.31	8.25	12.11	2.03	0.20	
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	No Data	No Data	18.508	15.484	38.261	48.24	15.20	11.30	8.47	12.10	2.04	0.20	
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283160	13.71	18.340	15.475	38.061	50.80	14.44	11.95	7.53	10.65	2.03	0.30	
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283169	14.03	18.371	15.464	38.078	50.04	14.15	12.11	7.34	11.39	2.28	0.33	
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283163	13.81	18.348	15.467	38.060	50.08	13.69	12.93	6.84	10.95	2.38	0.38	
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283177	14.33	18.424	15.474	38.156	48.49	14.45	13.00	8.08	10.81	2.37	0.27	
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283173	14.18	18.434	15.475	38.165	48.85	14.44	12.77	8.07	10.68	2.46	0.34	
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283176	14.28	18.433	15.482	38.176	48.60	14.52	12.92	7.63	10.17	2.36	0.35	
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283187	14.68	18.363	15.475	38.095	48.78	15.76	10.89	8.79	11.71	2.03	0.22	
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283187	14.68	18.378	15.475	38.109	48.97	14.93	11.78	8.01	11.77	2.19	0.26	
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283186	14.63	18.421	15.442	37.836	50.07	15.76	9.85	8.96	12.30	1.87	0.14	
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283182	14.51	18.130	15.451	37.866	49.63	16.23	9.37	9.60	12.19	1.92	0.12	
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283189	14.74	18.105	15.447	37.829	49.91	15.99	9.74	9.34	11.95	1.92	0.14	
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283166	13.94	18.317	15.461	38.036	49.22	16.20	10.22	7.43	12.75	2.07	0.27	
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283190	14.77	18.348	15.436	37.838	49.97	15.81	12.25	5.95	11.56	2.27	0.14	
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.283193	14.90	18.160	15.441	37.860	49.77	16.20	11.92	5.96	11.72	2.24	0.22	
Kokfelt et al., 2006 (IST, ME, TE)	No Data	No Data	18.087	15.443	37.787	50.11	15.35	11.01	8.49	12.01	1.67	0.13	
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	No Data	No Data	18.206	15.448	37.880	49.02	15.12	10.00	10.85	12.32	1.69	0.05	
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	No Data	No Data	18.210	15.451	37.891	48.95	15.02	10.01	11.09	12.24	1.68	0.07	
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	No Data	No Data	18.458	15.472	38.215	47.32	14.31	13.22	9.05	10.97	2.11	0.20	

**NOTES**

\*Gasafjall surface exposure age of 14400 BP from Licciardi et al., (2007) Gasafjall located between

\*\*Blifjall surface exposure age of 14400 BP from Licciardi et al., (2007), Blifjall located on southw

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	TiO2	MnO	P2O5	Ti	U	Nb	Zr	Y	Sr	Rb	Zn	Cu
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	2.11	0.20	0.21	No Data	No Data	12	115.3	28.1	207.7	1.6	101.2	142.6
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	1.97	0.20	0.16	No Data	No Data	13	109.4	28.1	204.1	1.8	108.1	144.1
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	2.16	0.20	0.22	No Data	No Data	14	122	30.5	215.1	3.2	103	133.3
Peate et al., 2010 (ST); Kresten spreadsheet from Peate (ME + TE)	2.04	0.19	0.23	No Data	No Data	11,585	116,483	27,105	210.1	2,941	No Data	No Data
Peate et al., 2010 (ST); Kresten spreadsheet from Peate (ME + TE)	2.04	0.19	0.23	No Data	No Data	11,786	118,42	28,072	217.8	3,171	No Data	No Data
Peate et al., 2010 (ST); Kresten spreadsheet from Peate (ME + TE)	2.04	0.19	0.23	No Data	No Data	11,591	116,62	27,077	216.4	2,909	No Data	No Data
Peate et al., 2010 (ST); Kresten spreadsheet from Peate (ME + TE)	2.03	0.19	0.23	No Data	No Data	11,393	115,149	27,89	216.5	2,896	No Data	No Data
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	1.86	0.22	0.22	No Data	No Data	14.4	117.1	28.5	160.3	5.7	102.4	135.6
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	1.92	0.22	0.22	No Data	No Data	16.2	120.7	31.7	176.1	6	108.2	136.9
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	2.23	0.22	0.29	No Data	No Data	19.9	160.8	36.8	179	8.2	112.9	166.2
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	2.10	0.22	0.20	No Data	No Data	15.8	128.3	30.7	212.2	5.2	119	128.2
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	1.99	0.22	0.18	No Data	No Data	15.5	123.4	29.6	217.6	5.7	112.7	116.9
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	2.06	0.22	0.17	No Data	No Data	15.6	124.8	30.1	205.3	7.5	110.9	124.8
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	1.47	0.19	0.16	No Data	No Data	10.1	85.5	23.9	176.6	4.8	89	93.1
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	1.71	0.20	0.18	No Data	No Data	11.8	99.2	27.7	174.8	5.2	99	119.7
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.80	0.18	0.07	No Data	No Data	4.6	38.3	15.9	135.3	3.5	72.5	102.5
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.71	0.17	0.07	No Data	No Data	4	33.8	14.5	133.2	2.9	66.7	119.2
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	0.76	0.18	0.07	No Data	No Data	4.3	37.7	15.9	134.1	3.1	72.5	122.2
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	1.50	0.18	0.16	No Data	No Data	10.9	85.3	22.7	194	5.8	81.1	113
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	1.65	0.21	0.18	No Data	No Data	10	101.4	33	145.3	1.5	105.8	116.5
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	1.61	0.19	0.14	No Data	No Data	9.6	100.7	32.4	141.1	4.5	108.9	119.7
Kokfelt et al., 2006 (ST, ME, TE)	0.94	0.20	0.09	No Data	No Data	3.4	36.4	14.1	127	2.3	80	No Data
Peate et al., 2010 (ST); Kresten spreadsheet from Peate (ME + TE)	0.71	0.18	0.07	No Data	No Data	1,829	31,783	18,043	70.4	0.539	No Data	No Data
Peate et al., 2010 (ST); Kresten spreadsheet from Peate (ME + TE)	0.71	0.17	0.06	No Data	No Data	1,763	31,063	16,589	69.5	0.469	No Data	No Data
Peate et al., 2010 (ST); Kresten spreadsheet from Peate (ME + TE)	2.34	0.21	0.27	No Data	No Data	13,842	132,297	31,271	209.4	2,801	No Data	No Data

**NOTES**

\*Gasafjall surface exposure age of 14400 BP from Licciardi et al., (2007) Gasafjall located between

\*\*Blifjall surface exposure age of 14400 BP from Licciardi et al., (2007), Blifjall located on southw

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Evolved rocks (andesites, rhyolites) shaded yellow.

ME = Major Elements, TE = Trace Elements, IST = Isotopes



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	Ni	Cr	V	Ba	Sc	Co	Ga	Ta	Hf	Cu	Pb	Th	U
<b>Data Sources</b>													
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	129.4	336.1	291.6	51.4	35.5	No Data	No Data	No Data	No Data	No Data	1.9	No Data	No Data
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	155.9	378.2	286.7	41.1	43.9	No Data	No Data	No Data	No Data	No Data	1.2	No Data	No Data
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	94.4	327.3	319.6	34.2	38.8	46.5	19.12	1.28	No Data	No Data	1.3	0.48	0.26
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	128	276.6	286	53.442	No Data	No Data	No Data	-2.81	0.369	No Data	No Data	No Data	No Data
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	122	274.1	289	53.121	No Data	No Data	No Data	2.897	0.358	No Data	No Data	No Data	No Data
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	130	274.3	286	53.11	No Data	No Data	No Data	2.842	0.346	No Data	No Data	No Data	No Data
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	138	279.4	288	52.095	No Data	No Data	No Data	2.867	0.355	No Data	No Data	No Data	No Data
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	85	224.6	325.8	81.6	46.7	No Data	No Data	No Data	No Data	No Data	1.8	0.9	No Data
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	76.8	196.6	345.2	83.6	45.1	No Data	No Data	No Data	No Data	No Data	1.7	1.2	No Data
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	63.8	162	362.3	106.3	46	No Data	No Data	No Data	No Data	No Data	3.5	0.5	No Data
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	118.3	272.3	383	81.7	43.8	No Data	No Data	No Data	No Data	No Data	1.7	0.6	No Data
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	114.8	253.1	351.9	82.5	40.7	No Data	No Data	No Data	No Data	No Data	2.2	0.5	No Data
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	113.2	265.5	365.1	83	46.1	No Data	No Data	No Data	No Data	No Data	1.9	0.7	No Data
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	149.5	311.3	293	48	42.9	51.83	20.62	1.36	No Data	No Data	1.13	0.76	0.47
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	114	322.9	320.9	55.9	45	53.49	20.39	1.44	No Data	No Data	1.54	0.72	0.44
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	102	110.1	266.1	29	49.8	49.77	16.98	0.83	No Data	No Data	1.07	0.32	0.43
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	124.5	99	242.9	34.1	39.1	53.11	16.26	0.68	No Data	No Data	0.42	0.28	0.33
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	121.2	99.9	253.1	35.2	43	57.97	18.21	1.1	No Data	No Data	1.48	0.43	0.51
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	86.7	228.7	298.4	59.3	41.7	41.4	18.59	0.71	No Data	No Data	2.66	0.62	0.19
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	51.4	76.5	366.8	59.3	50.3	39.83	17.8	1.17	No Data	No Data	1.21	0.82	0.29
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	51.8	78.5	357.1	70.9	44	No Data	No Data	No Data	No Data	No Data	0.7	0.9	No Data
Kokfelt et al., 2006 (IST, ME, TE)	79	85	286	40.0	No Data	55	No Data	0.300	1.21	0.030	0.354	0.242	0.081
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	233	437.7	242	14.963	No Data	No Data	No Data	0.911	0.286	No Data	No Data	No Data	No Data
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	243	470.8	238	14.942	No Data	No Data	No Data	0.88	0.258	No Data	No Data	No Data	No Data
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	173	341.1	317	55.223	No Data	No Data	No Data	3.194	0.437	No Data	No Data	No Data	No Data

**NOTES**

\*Gasafjall surface exposure age of 14400 BP from Licciardi et al., (2007) Gasafjall located between  
 \*\*Blifjall surface exposure age of 14400 BP from Licciardi et al., (2007), Blifjall located on southw  
 Compiled Database of Isotope Data for Krafla and Theistareykir, Northern Volcanic Zone  
 Compiled by Evelyn Merivine, Summer-Fall 2010, Updated by John MacLennan, Spring 2013  
 Age brackets derived from tephrochronology for many postglacial lavas, extracted from Saemund  
 Evolved rocks (andesites, rhyolites) shaded yellow.  
 ME = Major Elements, TE = Trace Elements, IST = Isotopes



Table C1. Compilation of ages, locations and isotopic and major and trace element data

Data Source(s)	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Er	Tm
<b>LATE POSTGLACIAL (RECENT) LAVAS</b>											
This study (ME, TE, IST)	9.67	22.11	3.02	14.82	4.74	1.70	5.82	1.06	6.95	1.47	4.01
This study (ME, TE, IST)	9.41	21.57	2.96	14.48	4.64	1.65	5.69	1.04	6.80	1.43	3.92
This study (ME, TE, IST)	9.81	22.31	3.06	14.95	4.76	1.72	5.91	1.07	7.03	1.49	4.10
This study (ME, TE, IST)	9.18	20.92	2.85	14.12	4.52	1.60	5.56	1.00	6.64	1.40	3.81
Thirlwall et al., 2004 (IST); ME and TE not published?											
Nicholson et al., 1991 (IST, ME, TE); MacLennan et al., 2002 (TE)	7.27	18.54	2.7	13.4	3.56	1.31	4.6	No Data	5.12	1.0	2.98
Nicholson et al., 1991 (IST, ME, TE); MacLennan et al., 2002 (TE)	5.99	15.17	2.21	9.87	2.92	1.12	3.55	0.65	4.08	0.86	2.41
Nicholson et al., 1991 (IST, ME, TE); MacLennan et al., 2002 (TE)	9.41	21.57	2.96	14.48	4.64	1.65	5.69	1.04	6.80	1.43	3.92
Nicholson et al., 1991 (IST, ME, TE); MacLennan et al., 2002 (TE)	7.98	19.37	2.89	14.3	4.12	1.44	4.91	0.89	5.54	1.2	3.55
Nicholson et al., 1991 (IST, ME, TE); MacLennan et al., 2002 (TE)	6.78	18.8	2.83	13.3	3.86	1.43	4.7	0.87	5.12	1.13	3.33
Nicholson et al., 1991 (IST, ME, TE); MacLennan et al., 2002 (TE)	6.18	15.08	2.23	10.8	3.16	1.09	3.91	No Data	4.31	0.84	2.45
Hemond et al., 1993 (Sr IST); Condomines et al., 1983 (Nd IST, ME)	7.68	24.2	3.05	11.6	4.0	1.3	4.93	No Data	0.882	0.967	2.84
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	2.89	1.18	0.97	5.96	1.77	0.81	2.80	0.48	3.12	0.67	1.94
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	3.21	8.53	1.30	6.70	2.19	0.90	3.11	0.54	3.53	0.77	2.23
Peate et al., 2010 (Pb IST); Skogvaard et al., 2001 (Nd IST, ME, TE)	0.47	1.54	0.29	1.87	0.80	0.35	1.40	0.26	1.72	0.39	0.17
Peate et al., 2010 (Pb IST); Skogvaard et al., 2001 (ME, TE)	0.36	1.25	0.26	1.65	0.71	0.33	1.17	0.23	1.55	0.35	0.16
<b>EARLY POSTGLACIAL LAVAS</b>											
Nicholson et al., 1991 (IST, ME, TE); MacLennan et al., 2002 (TE)	33.95	82.67	10.3	43.8	10.07	2.52	13.22	No Data	13.34	2.54	7.49
Nicholson et al., 1991 (IST, ME, TE); MacLennan et al., 2002 (TE)	22.67	51.43	6.33	27.5	6.26	1.91	7.26	No Data	8.09	1.56	4.68
Nicholson et al., 1991 (IST, ME, TE); MacLennan et al., 2002 (TE)	11.67	28.89	3.96	18.8	4.69	1.68	6.29	No Data	7.33	1.41	4.27
Nicholson et al., 1991 (IST, ME, TE); MacLennan et al., 2002 (TE)	2.44	6.29	0.98	5.5	1.58	0.65	2.49	No Data	3.36	0.67	2.09
Nicholson et al., 1991 (IST, ME, TE); MacLennan et al., 2002 (TE)	12.29	29.89	4.12	19.2	4.89	1.65	6.17	No Data	6.79	1.31	3.84
Nicholson et al., 1991 (IST, ME, TE); MacLennan et al., 2002 (TE)	2.18	5.66	0.85	4.06	1.33	0.61	2.37	0.37	2.56	0.57	1.65
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME); MacLennan et al., 2002 (TE)	0.56	1.95	0.38	2.31	1.08	0.44	1.64	0.31	2.17	0.49	1.46
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME); MacLennan et al., 2002 (TE)	0.52	1.63	0.36	2.12	0.91	0.41	1.54	0.31	2.02	0.46	1.41
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME); MacLennan et al., 2002 (TE)	0.45	1.6	0.32	1.99	0.9	0.4	1.45	0.28	1.97	0.44	1.36
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME); MacLennan et al., 2002 (TE)	0.49	1.74	0.34	2.1	0.94	0.4	1.53	0.29	2.02	0.45	1.34
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME); MacLennan et al., 2002 (TE)	0.43	1.45	0.27	1.71	0.74	0.32	1.26	0.240	No Data	0.428	1.16
Hemond et al., 1993 (IST, TE); Hemond et al., 1988 (ME, Th, U)											
Baker et al., 2004 (Pb IST)											
Peate et al., 2010 (Pb IST); Skogvaard et al., 2001 (ME, TE); Elliot, PhD Thesis, 1991 (Nd IST)	0.54	0.36	0.23	2.31	1.00	0.45	1.82	0.32	2.20	0.48	1.41
Peate et al., 2010 (Pb IST); ME and TE not published?											
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.93	5.14	0.79	4.04	1.41	0.60	2.13	0.38	2.56	0.56	1.64
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.81	5.20	0.86	4.67	1.71	0.71	2.55	0.46	3.05	0.67	1.96
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.55	4.35	0.71	3.84	1.41	0.60	2.11	0.38	2.56	0.56	1.65
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.47	4.13	0.68	3.66	1.34	0.57	2.01	0.37	2.45	0.54	1.58
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.63	4.54	0.76	4.18	1.56	0.63	2.25	0.43	2.86	0.63	1.87
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.48	4.08	0.68	3.55	1.31	0.56	1.98	0.36	2.41	0.53	1.57
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.39	3.97	0.66	3.63	1.37	0.57	2.07	0.38	2.57	0.57	1.65
Kokfelt et al., 2006 (IST, ME, TE)	1.66	4.54	0.746	3.91	1.45	0.598	2.06	0.392	2.70	0.586	1.69
Peate et al., 2010 (Pb IST); Skogvaard et al., 2001 (ME, TE); Elliot, PhD Thesis, 1991 (Nd IST)	1.50	4.17	0.73	3.52	1.31	0.53	1.93	0.41	2.32	0.61	1.77
Hemond et al., 1993 (IST, ME, TE)	1.61	4.47	0.72	3.86	1.31	0.55	2.00	0.379	No Data	0.574	1.74
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	2.17	6.69	1.51	5.69	2.18	0.89	3.39	0.56	4.25	1.04	2.52
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	2.10	5.50	1.46	4.29	1.66	0.62	2.15	0.38	2.49	0.54	1.59
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	2.10	5.50	1.46	4.29	1.66	0.62	2.15	0.38	2.49	0.54	1.59
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	2.15	5.84	1.47	4.29	1.66	0.62	2.15	0.370	2.52	0.54	1.58
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	3.92	9.51	2.37	6.61	2.40	0.79	2.93	0.50	3.20	0.69	1.99
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.42	4.13	0.68	3.76	1.41	0.60	2.15	0.39	2.59	0.56	1.65
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	0.88	2.52	0.43	0.88	0.43	0.24	1.55	0.29	1.99	0.44	1.20
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	3.72	9.41	2.37	6.72	2.15	0.85	3.00	0.51	3.31	0.72	2.11
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.39	3.98	0.68	3.64	1.36	0.59	2.03	0.36	2.53	0.53	1.55
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.99	5.28	1.82	4.23	1.48	0.62	2.18	0.39	2.59	0.57	1.66
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.82	5.34	1.82	4.28	1.49	0.62	2.20	0.39	2.59	0.57	1.66
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.63	4.71	0.79	4.27	1.62	0.62	2.40	0.48	2.94	0.64	1.88
Peate et al., 2010 (Pb IST); Skogvaard et al., 2001 (Nd IST, ME, TE)	1.08	3.05	0.53	3.13	1.19	0.53	1.83	0.34	2.33	0.48	1.48
This study (ME, TE, IST)	3.78	8.64	1.22	6.17	2.12	0.86	2.80	0.53	3.52	0.76	2.14
This study (ME, TE, IST)	3.45	8.69	1.22	6.78	2.16	0.88	2.89	0.54	3.60	0.76	2.16
This study (ME, TE, IST)	3.96	9.15	1.29	6.56	2.29	0.91	2.99	0.57	3.78	0.82	2.28
This study (ME, TE, IST)	3.90	8.94	1.27	6.38	2.24	0.91	2.93	0.56	3.72	0.82	2.26
This study (ME, TE, IST)	3.72	8.61	1.21	6.14	2.15	0.86	2.82	0.54	3.58	0.78	2.17
This study (ME, TE, IST)	4.07	9.45	1.32	6.78	2.05	0.83	2.78	0.51	3.65	0.79	2.08
This study (ME, TE, IST)	4.07	9.32	1.31	6.72	2.07	0.83	2.80	0.51	3.67	0.86	2.38
This study (ME, TE, IST)	3.78	8.70	1.20	6.16	2.15	0.88	2.84	0.54	3.61	0.77	2.19
This study (ME, TE, IST)	3.70	8.55	1.21	6.18	2.18	0.88	2.82	0.54	3.63	0.79	2.16
This study (ME, TE, IST)	4.49	11.0	1.49	8.08	2.85	1.04	3.29	0.62	4.14	0.92	2.51
This study (ME, TE, IST)	3.32	8.10	1.09	5.60	2.06	0.80	2.59	0.49	3.08	0.71	1.97
This study (ME, TE, IST)	3.43	7.92	1.11	5.72	1.97	0.82	2.59	0.49	3.29	0.72	2.00
This study (ME, TE, IST)	3.73	8.64	1.22	6.29	2.24	0.91	2.98	0.57	3.85	0.83	2.32
This study (ME, TE, IST)	4.72	10.88	1.53	7.94	2.83	1.10	3.73	0.71	4.74	1.01	2.82
This study (ME, TE, IST)	3.91	8.90	1.24	6.35	2.22	0.87	2.89	0.55	3.67	0.79	2.15
This study (ME, TE, IST)	3.50	8.12	1.15	5.95	2.13	0.85	2.83	0.54	3.60	0.78	2.15
This study (ME, TE, IST)	3.47	8.01	1.14	5.82	2.04	0.83	2.73	0.52	3.47	0.75	2.10
This study (ME, TE, IST)	3.56	8.20	1.16	5.93	2.09	0.87	2.80	0.54	3.58	0.78	2.15
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	2.75	7.10	1.06	5.33	1.77	0.73	2.59	0.46	2.96	0.67	1.89
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.77	5.09	0.83	4.44	1.57	0.67	2.26	0.41	2.65	0.57	1.67
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.98	5.72	0.93	4.97	1.76	0.73	2.54	0.46	2.97	0.64	1.87
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.80	5.20	0.85	4.53	1.61	0.68	2.32	0.41	2.71	0.59	1.72
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.92	5.00	0.78	4.38	1.50	0.67	2.22	0.41	2.53	0.56	1.67
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.76	4.71	0.72	3.71	1.33	0.58	2.03	0.37	2.47	0.55	1.63
Hemond et al., 1993 (Sr IST); Condomines et al., 1983 (Nd IST); Oskanson, 1982 (ME)	1.37	4.64	0.90	4.87	1.68	0.62	2.25	0.399	2.63	0.51	1.68
Peate et al., 2010 (Pb IST); Skogvaard et al., 2001 (Nd IST, ME, TE)	1.37	4.06	0.73	4.32	1.66	0.68	2.54	0.46	3.04	0.66	1.90
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.60	4.61	0.77	4.63	1.61	0.62	2.42	0.44	2.95	0.65	1.89
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)	1.36	4.10	0.72	4.03	1.57	0.66	2.35	0.43	2.86	0.62	1.84
Stracke et al., 2003 (IST, TE by ICP-MS, Pb by ID); Slater et al., 1996 (ME)</											

**Table C1. Compilation of ages, locations and isotopic and major and trace element data**

	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	7.37	19.53	3.02	13.9	4.07	1.48	4.48	0.85	4.95	1	2.63	0.39
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	7.2	19.53	2.96	14.33	4.09	1.54	4.88	0.8	4.69	0.96	2.65	0.37
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	8.14	20.55	2.86	15.14	4.29	1.3	5.47	0.79	5.12	1.05	2.8	0.38
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	8.222	21.208	3.223	15.016	4.314	1.473	4.725	0.79	4.654	0.95	2.512	0.411
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	8.148	21.168	3.158	15.43	4.292	1.565	4.744	0.783	4.662	1.012	2.569	0.414
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	8.143	20.936	3.207	15.313	4.369	1.54	4.573	0.81	4.651	0.985	2.606	0.406
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	8.053	20.718	3.139	15.058	4.068	1.482	4.601	0.797	4.773	0.993	2.537	0.42
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	9.61	23.7	3.35	15.55	4.07	1.46	4.7	0.79	4.78	1	2.83	0.4
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	10.47	25.83	3.63	16.55	4.41	1.54	5.29	0.85	5.14	1.04	2.98	0.43
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	12.9	31.47	4.47	20.25	5.39	1.82	6	1.02	6.13	1.26	3.55	0.51
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	10.07	24.5	3.44	15.82	4.15	1.5	5.14	0.8	4.97	1	2.9	0.39
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	9.99	24.3	3.45	15.7	4.19	1.5	5.14	0.8	4.89	1.01	2.87	0.4
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	10.13	24.43	3.48	15.88	4.2	1.54	5.13	0.8	4.97	1.01	2.88	0.4
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	6.95	17.49	2.54	12.28	3.66	1.08	3.58	0.84	4.25	0.94	2.45	0.34
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	8.3	20.37	2.96	12.55	3.77	1.41	4.59	0.8	4.63	1.04	2.93	0.4
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	3.48	7.57	1.07	5.69	1.56	0.55	2.19	0.39	2.7	0.54	1.63	0.25
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	3.4	7.53	1.12	5.35	1.6	0.67	2.05	0.3	2.42	0.48	1.49	0.23
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	4.06	9.09	1.25	5.9	1.71	0.71	2.13	0.4	2.59	0.56	1.67	0.25
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	7.55	16.73	2.49	10.94	3.48	1.13	3.82	0.66	3.88	0.83	2.09	0.33
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	6.36	16.79	2.36	11.16	3.64	1.29	4.38	0.85	5.05	1.1	2.98	0.54
This Study (IST); Nicholson et al., 1991 (ME, TE); MacLennan et al., 2002 (TE)	7.37	18.07	2.63	12.62	3.72	1.66	4.86	0.82	5.18	1.13	3.24	0.47
Kokfelt et al., 2006 (IST, ME, TE)	3.39	8.82	1.30	6.35	2.02	0.786	2.44	0.440	2.97	0.642	1.86	0.264
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	1.789	4.956	0.759	3.865	1.301	0.575	1.927	0.386	2.652	0.655	1.823	0.299
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	1.641	4.729	0.754	3.543	1.242	0.536	1.921	0.373	2.425	0.577	1.796	0.282
Peate et al., 2010 (IST); Kresten spreadsheet from Peate (ME + TE)	8.957	23.303	3.534	17.103	4.887	1.687	5.446	0.912	5.429	1.15	3.017	0.456

**NOTES**

\*Gasafjall surface exposure age of 14400 BP from Licciardi et al., (2007) Gasafjall located between

\*\*Blifjall surface exposure age of 14400 BP from Licciardi et al., (2007), Blifjall located on southw

Compiled Database of Isotope Data for Krafla and Theistareykir, Northern Volcanic Zone

Compiled by Evelyn Mervino, Summer-Fall 2010, Updated by John MacLennan, Spring 2013

Age brackets derived from tephrochronology for many postglacial lavas, extracted from Saemund

Evolved rocks (andesites, rhyolites) shaded yellow.

ME = Major Elements, TE = Trace Elements, IST = Isotopes