GSA Data Repository item 2002066 - Table DR1: Tephra database

ODP Hole	Core interval	Top depth (mbsf)	Bott. depth (mbsf)	Layer thick. (cm)	Mean depth (mbsf)	Depth offset (mcd-mbsf)	Mean depth (mcd)	Sample ID	Strati. age (Ma)	Ar/Ar age (Ma)	Maximum diameter Mean	St dev	Nb	Glass (EMP) composition	Volcanic source
985A	1H-1, 29-31	0.29	0.31	2	0.30	0.22	0.52	985-CL72	0.012		1061	123	15	Rhyolite	Katla (I.O.R.Z)
919A	2H-3, 17-21	11.17	11.21	4	11.19			152-52 (C)	0.055					Alk. rhyolite	Tindfjallajökull (I.O.R.Z)
907A	1H-2, 47-51	1.97	2.01	4	1.99	0.00	1.99	151-33 (B)	0.125					Rhyolite	I.R.Z
985A	1H-3, 138-141	4.38	4.41	3	4.40	0.22	4.62	985-CL73	0.133		807	111	15	Alk. rhyolite	I.O.R.Z
985A	1H-4, 70-71	5.20	5.21	1	5.21	0.22	5.43	985-CL74	0.157					Rhyolite	I.R.Z
985B	2H-1, 111-113	4.51	4.53	2	4.52	1.84	6.36	985-CL113	0.184					Alk. rhyolite	I.O.R.Z
907A	1H-3, 50-55	3.50	3.55	5	3.53	0.00	3.53	151-1 (C)	0.201		609	56	9	Rhyolite	Krafla (I.R.Z)
907A	1H-3, 57-73	3.57	3.73	16	3.65	0.00	3.65	151-3 (D)	0.207		524	74	8	Comendite	I.O.R.Z
	SU9029	5.56	5.68	12	5.62			SU9029-549	0.305					Rhyolite	I.R.Z
985A	2H-3, 60-62	11.30	11.32	2	11.31	1.17	12.48	985-CL1	0.360					Rhyolite	I.R.Z
984B	6H-6, 13-15	54.13	54.15	2	54.14	4.56	58.70	984-CL146	0.378					Alk. rhyolite	I.O.R.Z
907A	2H-3, 121-125	11.51	11.55	4	11.53	0.03	11.56	907-CL2	0.617	0.618 ± 0.007				Qz. trachyte	Sør Jan (J.M.V.S)
985A	3H-4, 30-40	22.00	22.10	10	22.05	1.17	23.22	985-CL3	0.681		605	108	15	Rhyolite	I.R.Z
919B	6H-6, 22-25	126.22	126.25	3	126.24			152-66 (K)	0.798					Comendite	I.O.R.Z
907A	2H-6, 127-143	16.07	16.23	16	16.15	0.03	16.18	151-6 (G)	0.908		670	56	8	Rhyolite	I.R.Z
907A	3H-4, 46-55	21.76	21.85	9	21.81	1.50	23.31	151-8 (H)	1.189		750	108	10	Rhyolite	I.O.R.Z
985B	5H-3, 0-9	34.90	34.99	9	34.95	2.68	37.63	985-CL30	1.318		612	69	15	Rhyolite	I.R.Z
983A	17H-4, 73-75	155.13	155.15	2	155.14	14.72	169.86	983-CL1	1.337					Alk. Rhyolite	I.O.R.Z
907A	3H-6, 117-122	25.47	25.52	5	25.50	1.50	27.00	151-9 (I)	1.351		561	79	9	Comendite	I.O.R.Z
907A	4H-1, 11-18	26.41	26.48	7	26.45	2.73	29.18	151-38 (J)	1.447					Alk. Rhyolite	I.O.R.Z
985B	5H-7, 47-50	41.37	41.40	3	41.39	2.68	44.07	985-CL31	1.560		741	93	15	Rhyolite	I.R.Z
907B	5H-1, 3-10	31.23	31.30	7	31.27	1.98	33.25	907-CL24	1.632		515	50	15	Rhyolite	I.R.Z
983C	22H-7, 32-34	203.22	203.23	2	203.23	20.16	223.39	983-CL9	1.637					Rhyolite	I.R.Z
985A	6H-2, 120-124	48.40	48.44	4	48.42	2.47	50.89	985-CL10	1.806		909	119	15	Rhyolite	I.O.R.Z
907A	5H-4, 31-39	40.61	40.69	8	40.65	5.95	46.60	151-10 (K)	2.244		820	128	10	Rhyolite	I.R.Z
907B	6H-4, 85-86	46.05	46.06	1	46.06	3.25	49.31	907-CL27	2.340		354	47	15	Qz. trachyte	J.M.V.S
907A	6H-1, 95-98	46.25	46.28	3	46.27	5.79	52.06	907-CL5	2.468		887	178	15	Rhyolite	I.R.Z
907B	6H-7, 50-51	50.20	50.21	1	50.21	6.94	57.15	907-CL28	2.693	2.64 ± 0.03				Alk. Rhyolite	J.M.V.S
907A	6H-6, 110-111	53.90	53.91	1	53.91	5.79	59.70	151-11 (L)	2.809		806	71	10	Rhyolite	I.R.Z
985B	9H-6, 66-85	78.06	78.25	19	78.16	5.26	83.42	985-CL40	3.007		907	117	15	Rhyolite	I.R.Z
907A	7H-3, 96-97	58.76	58.77	1	58.77	6.73	65.50	151-49 (M)	3.083					Rhyolite	I.R.Z
985B	10H-2, 71-74	81.61	81.64	3	81.63	6.65	88.28	985-CL42	3.151		889	84	15	Rhyolite	I.R.Z
907A	7H-4, 85-88	60.15	60.18	3	60.17	6.73	66.90	151-12 (N)	3.160		772	115	10	Rhyolite	I.R.Z
907A	7H-5, 15-23	60.95	61.03	8	60.99	6.73	67.72	151-13 (O)	3.208	3.01 ± 0.05	627	65	10	Alk. Rhyolite	J.M.V.S
985B	10H-4, 141-146	85.31	85.36	5	85.34	6.65	91.99	985-CL46	3.254		796	63	15	Rhyolite	I.R.Z
907A	7H-6, 130-140	63.60	63.70	10	63.65	6.73	70.38	151-17 (R)	3.350		917	58	15	Trachyte	J.M.V.S
985B	11H-1, 22-26	89.12	89.16	4	89.14	7.11	96.25	985-CL48	3.439		840	123	15	Rhyolite	I.R.Z
907A	8H-1, 0-8	64.30	64.38	8	64.34	7.74	72.08	151-18 (S)	3.446		542	111	10	Alk. Rhyolite	J.M.V.S
985B	11H-1, 87-95	89.77	89.85	8	89.81	7.11	96.92	985-CL49	3.475		955	160	15	Rhyolite	I.R.Z
985A	10H-7, 5-12	92.75	92.82	7	92.79	5.54	98.33	985-CL104	3.519		415	49	15	Alk. Rhyolite	I.O.R.Z
985B	11H-2, 63-67	91.03	91.07	4	91.05	7.11	98.16	985-CL51	3.541					Rhyolite	I.O.R.Z
907B	8H-6, 9-17	67.29	67.37	8	67.33	8.73	76.06	907-CL33	3.898	3.65 ± 0.04				Qz. trachyte	J.M.V.S
985B	11H-5, 89-111	95.79	96.01	22	95.90	7.11	103.01	985-CL57	3.954		492	80	15	Rhyolite	I.R.Z
907A	9H-2, 38-40	75.68	75.70	2	75.69	7.66	83.35	151-22 (W)	4.630		456	85	12	Rhyolite	I.O.R.Z
907B	9H-4, 135-144	75.05	75.14	9	75.10	9.16	84.26	907-CL38	4.753	4.90 ± 0.05				Qz. trachyte	J.M.V.S
985B	13H-1, 27-29	108.17	108.19	2	108.18	8.64	116.82	985-CL141	4.844					Alk. Rhyolite	I.O.R.Z
985B	13H-2, 122-131	110.62	110.71	9	110.67	8.64	119.31	985-CL65	4.906		550	96	15	Alk. Rhyolite	I.O.R.Z
907A	9H-4, 52-54	78.82	78.84	2	78.83	7.66	86.49	151-24 (Y)	4.907		552	102	10	Rhyolite	I.R.Z
985B	13H-3, 50-52	111.40	111.42	2	111.41	8.64	120.05	985-CL67	4.948		477	36	15	Alk. Rhyolite	I.O.R.Z
907A	9H-6, 63-68	81.93	81.98	5	81.96	7.66	89.62	151-25 (Z)	5.183					Rhyolite	I.R.Z
907A	9H-6, 100-104	82.30	82.34	4	82.32	7.66	89.98	151-26 (AA)	5.215		696	98	10	Alk. Rhyolite	I.O.R.Z
907A	9H-6, 114-120	82.44	82.50	6	82.47	7.66	90.13	151-27 (AB)	5.228		598	69	10	Rhyolite	I.R.Z
907A	10H-2, 0-14	84.80	84.94	18	84.85	8.14	92.99	151-29 (AC)	5.480		609	53	10	Rhyolite	I.R.Z

Notes: The tephra layers are sorted according to their stratigraphic age in the composite marine record. Only discrete tephra fall layers, located downwind from their volcanic source, were considered for grain size analysis Maximum diameter in micron. The volcanic sources of the silicic tephras were inferred from their major and trace element glass compositions (after Lacasse and Garbe-Schönberg, 2001): I.R.Z: Iceland rift zones; I.O.R.Z: Iceland off-rift zones; J.M.V.S: Jan Mayen volcanic system.

C. LACASSE, and P. v. d. BOGAARD, Enhanced airborne dispersal of silicic tephras during the onset of Northern Hemisphere glaciations, from 6-0 Ma reco
explosive volcanism and climate change in the subpolar North Atlantic.

GSA Data Repository - Table DR2: Ar/Ar database

Sample	**Mass [mg]**	**40*/39K**		**1σ**	**%40Aratm**	**Ca/K**	**Age [Ma]**		**1σ**	**MSWD**
J-value										
IS31 K-Feldspar	0.415	0.0797	±	0.0023	14.9	0.0565	0.611	±	0.018	
J = 0.00424951 ± 0.0000056	1.063	0.0811	±	0.0009	24.3	0.0565	0.622	±	0.007	
	0.924	0.0803	±	0.0013	13.2	0.0646	0.615	±	0.010	
	0.659	0.0786	±	0.0015	14.7	0.0587	0.603	±	0.011	
	0.566	0.0825	±	0.0016	12.1	0.0618	0.632	±	0.012	
	0.960	0.0794	±	0.0010	10.5	0.0606	0.608	±	0.008	
	0.560	0.0792	±	0.0018	15.6	0.0784	0.607	±	0.014	
	1.026	0.0808	±	0.0014	15.6	0.0699	0.620	±	0.010	
	0.637	0.0825	±	0.0014	9.9	0.0557	0.633	±	0.011	
	0.516	0.0837	±	0.0024	10.7	0.0595	0.642	±	0.018	
	0.590	0.0808	±	0.0021	11.6	0.0624	0.619	±	0.016	
	0.415	0.0802	±	0.0024	13.4	0.0759	0.615	±	0.019	
						Weighted mean (internal error)	0.618	±	0.003	0.85
						Full external error		±	0.007	
IS4 K-Feldspar	0.298	0.3430	±	0.0055	3.7	0.0246	2.628	±	0.042	
J = 0.00424951 ± 0.0000056	0.440	0.3441	±	0.0048	4.1	0.0288	2.636	±	0.037	
	0.536	0.3423	±	0.0032	3.6	0.0261	2.622	±	0.025	
	0.340	0.3486	±	0.0046	5.6	0.0247	2.671	±	0.036	
	0.444	0.3434	±	0.0030	4.9	0.0224	2.631	±	0.024	
	0.648	0.3457	±	0.0024	3.0	0.0243	2.648	±	0.019	
						Weighted mean (internal error)	2.639	±	0.011	0.34
						Full external error		±	0.030	
IS10 Biotite	0.052	0.3922	±	0.0283	73.6	0.0003	3.004	±	0.217	
J = 0.00424951 ± 0.0000056	0.171	0.3815	±	0.0110	76.2	0.0014	2.922	±	0.084	
	0.368	0.4009	±	0.0060	72.9	0.0015	3.071	±	0.046	
	nd	0.3849	±	0.0071	80.6	0.0022	2.948	±	0.054	
	nd	0.3944	±	0.0089	75.2	0.0017	3.021	±	0.068	
	(nd)	0.4119	±	0.0051	76.5	0.0014	3.155	±	0.039	
						Weighted mean (internal error)	3.008	±	0.030	1.03
						Full external error		±	0.050	
IS21 K-Feldspar	0.379	0.4759	±	0.0024	2.6	0.0611	3.645	±	0.019	
J = 0.00424951 ± 0.0000056	0.280	0.4798	±	0.0043	0.4	0.0605	3.675	±	0.033	
	0.173	0.4787	±	0.0070	1.4	0.0760	3.667	±	0.054	
	0.237	0.4661	±	0.0055	5.4	0.0759	3.570	±	0.042	
	0.448	0.4767	±	0.0027	1.8	0.0656	3.651	±	0.021	
	0.416	0.4754	±	0.0032	1.7	0.0691	3.641	±	0.025	
						Weighted mean (internal error)	3.645	±	0.011	0.86
						Full external error		±	0.040	
IS46 K-Feldspar	0.206	0.6098	±	0.0056	8.0	0.0442	4.864	±	0.045	
J = 0.0044271 ± 0.0000045	0.186	0.6089	±	0.0066	2.8	0.1231	4.857	±	0.053	
	0.778	0.6158	±	0.0024	6.6	0.0436	4.912	±	0.020	
	0.334	0.6173	±	0.0058	1.4	0.0620	4.924	±	0.047	
	0.431	0.6164	±	0.0037	4.5	0.0588	4.917	±	0.030	
	0.208	0.6096	±	0.0087	3.2	0.0736	4.862	±	0.069	
						Weighted mean (internal error)	4.903	±	0.014	0.49
						Full external error		±	0.050	

nd= multiple grain fusion
(nd)= not included in weighted average