Table 5
Calculated water–rock ratios for representative samples of the southern wall and central dome

Sample number	Types of rock	Depth	$^{87}Sr/^{86}Sr$	ε_{Nd}[a]	Sr (ppm)	Nd (ppm)	W/R ratios (Sr)	W/R ratios (Nd)	W/R ratios (Sr)	Sr isotope exchange (%)[b]
							Closed system		Open system	
Central dome										
304-1309B-11R-1 23–31 cm	Harzburgite	58.55	0.708862	n.d.	2	n.d.	16	n.d.	4.1	95
304-1309D-31R-2 19–30 cm	Harzburgite	173.15	0.709036	12.1	32	n.d.	39	n.d.	5.2	98
304-1309D-42R-1 0–8 cm	Talc-rich harzburgite	224.30	0.708571	14.5	4	n.d.	8	n.d.	3.3	91
304-1309D-60R-3 35–45 cm	Troctolite	313.18	0.703354	9.1	n.d.	n.d.	0.1	n.d.	n.d.	10
304-1309D-65R-2 22–30 cm	Cr-rich harzburgite	335.72	0.706870	8.2	n.d.	0.08	1.4	n.d.	n.d.	65
304-1309D-83R-1 53–64 cm	Olivine gabbro	415.53	0.703202	10.9	n.d.	n.d.	0.1	n.d.	n.d.	8
305-1309D-84R-2 8–17 cm	Oxide-/leucogabbro	420.96	0.703698	11.1	n.d.	n.d.	0.1	n.d.	n.d.	16
305-1309D-116R-1 58–68 cm	Oxide-/leucogabbro	573.98	0.703604	10.8	n.d.	n.d.	0.1	n.d.	n.d.	14
Southern wall and LCHF massif										
3651-1252	Serpentinite	795	0.708902	7.4	3.4	0.14	18	**3.1×10^4**	4.3	96
3863-1301	Serpentinite	834	0.709068	11.3	3.8	0.43	**53**	n.d.	5.6	99
3863-1526	Serpentinite	778	0.709089	−1.6	30.0	0.33	69	**2.3×10^5**	5.9	99
3867-1623	Serpentinite	759	0.708994	11.0	3.5	0.43	**29**	n.d.	4.8	97
3872-1136	Serpentinite	798	0.709002	4.9	3.7	0.56	30	**6.5×10^4**	4.9	97
3873-1245	Serpentinite	956	0.709126	8.3	22.0	0.08	144	**2.1×10^4**	6.9	99
3873-1300	Serpentinite	950	0.709051	2.0	3.9	0.06	44	**1.2×10^5**	5.4	98
3876-1310	Serpentinite	774	0.709180	−4.7	5.2	0.07	n.d.	**4.2×10^5**	n.d.	100
3877-1158	Serpentinite	1115	0.709075	5.0	3.2	0.55	57	**6.3×10^4**	5.7	99
3877-1307	Serpentinite	1017	0.709139	5.6	50.9	0.59	234	**5.4×10^4**	7.5	100
3877-1344	Serpentinite	913	0.709024	7.0	2.5	0.08	36	**3.6×10^4**	5.1	98
3877-1406	Serpentinite	908	0.709098	−1.2	4.1	0.26	79	**2.1×10^5**	6.1	99
3879-1253	Serpentinite	847	0.709012	5.7	39.0	0.57	33	**5.2×10^4**	5.0	98
3881-1119	Serpentinite	860	0.709119	5.2	n.d.	0.21	120	**6.1×10^4**	6.6	99
3881-1132a	Serpentinite	822	0.708932	10.1	5.5	0.11	21	**4.4×10^3**	4.4	96
H03-2243	Serpentinite	834	0.708855	−4.0	90.0	0.06	15	**3.6×10^5**	4.1	n.d.
H03-2301	Serpentinite	820	0.709027	9.8	7.0	2.36	36	**7.3×10^3**	5.1	n.d.
3645-1145	Basalt		0.703456	10.9	108.0	11.00	0.1	n.d.	n.d.	n.d.
3863-1236	Chlorite blackwall	837	0.705951	9.9	4.0	0.39	0.8	n.d.	n.d.	50
3863-1419	Talc-rich rock	794	0.705648	9.6	6.0	1.43	0.6	n.d.	n.d.	46
3863-1425	Talc-rich rock	794	0.707431	10.9	5.0	0.79	2.1	n.d.	2.0	73
3873-1124	Talc-rich rock	959	0.707677	8.8	7.0	0.46	2.6	n.d.	2.2	77
3873-1344	Talc-rich rock	923	0.705337	5.1	11.0	4.40	0.5	n.d.	n.d.	41
3877-1313	Amphibole schist	1009	0.704837	14.0	6.9	2.12	0.4	n.d.	n.d.	33
3865-1245	Amphibole schist	795	0.704405	10.6	8.1	6.98	0.3	n.d.	n.d.	27
3867-1254	Gabbro	843	0.704294	10.7	137.0	3.08	0.3	n.d.	n.d.	25
3867-1603	Gabbro	748	0.703422	10.5	139.0	1.84	0.1	n.d.	n.d.	11
3873-1250	Gabbro	956	0.704439	10.2	6.5	2.22	0.3	n.d.	n.d.	27
3876-1117	Gabbro	869	0.703208	10.8	119.0	3.08	0.1	n.d.	n.d.	8
3876-1215	Gabbro	798	0.704619	10.8	10.0	5.85	0.3	n.d.	n.d.	30
3880-1349	Gabbro	819	0.703630	11.1	49.6	54.40	0.1	n.d.	n.d.	15

The water–rock ratios in bold are in agreement with the modeling curve in Fig. 7.

[a] Epsilon values were calculated from the initial $^{143}Nd/^{144}Nd$ relative to CHUR (Nd) = 0.512638 (Jacobsen and Wasserburg, 1980).

[b] Sr isotope exchange = 100 * $(\varepsilon Sr_{altered\ rock} - \varepsilon Sr_{initial\ rock})/(\varepsilon Sr_{seawater} - \varepsilon Sr_{initial\ rock})$ (Davis et al., 2003).