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## Supplemental Material

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**Figure S2.** Back-scattered electron (BSE) images and geochemical profiles of plagioclase phenocrysts in the Nakoulai mafic dikes.

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# Supplemental Material for

## First identification of the Early Cretaceous mafic dykes in the Baingoin area, Central Tibet: Implications for crust–mantle interactions and magmatic flare-up

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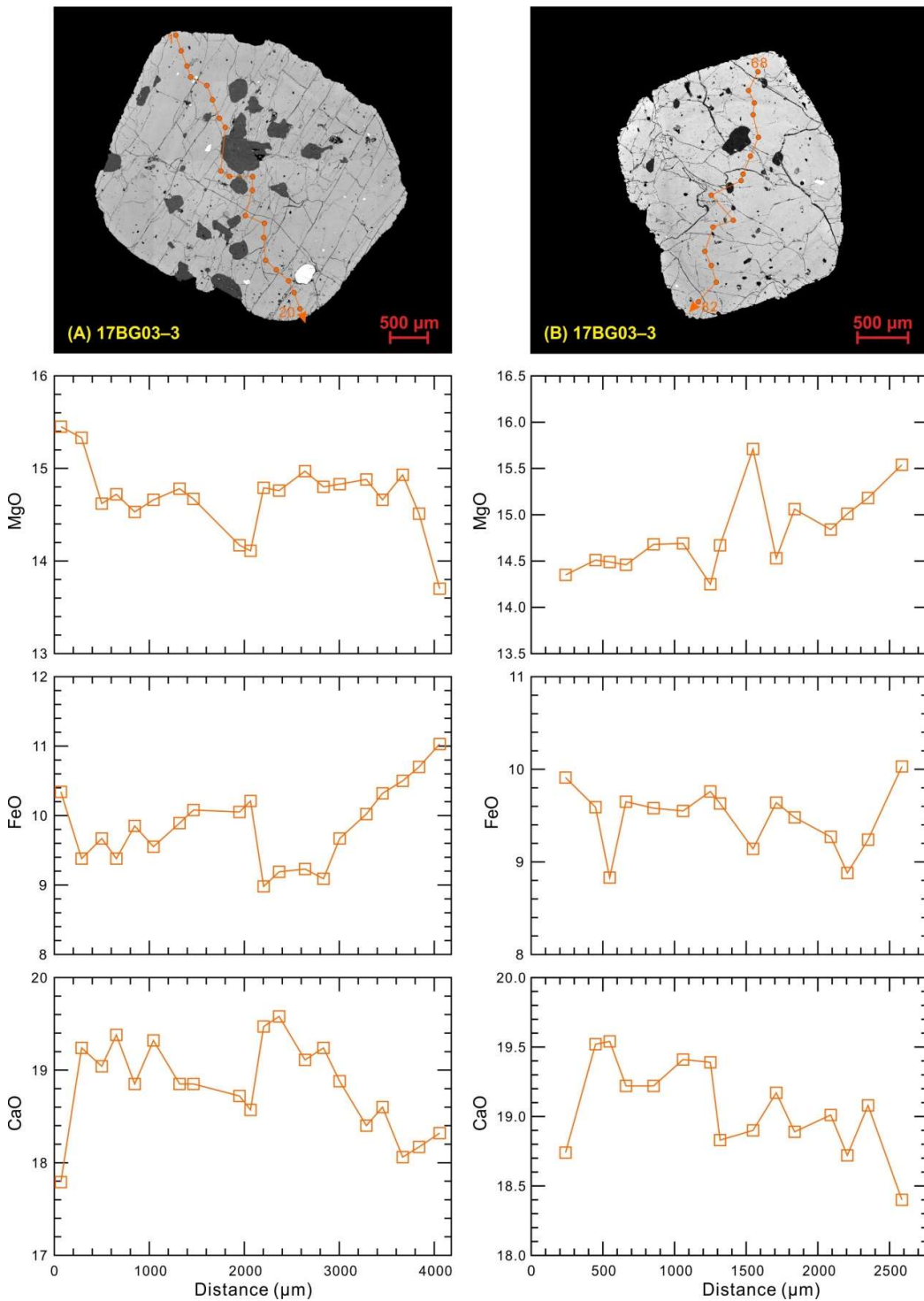
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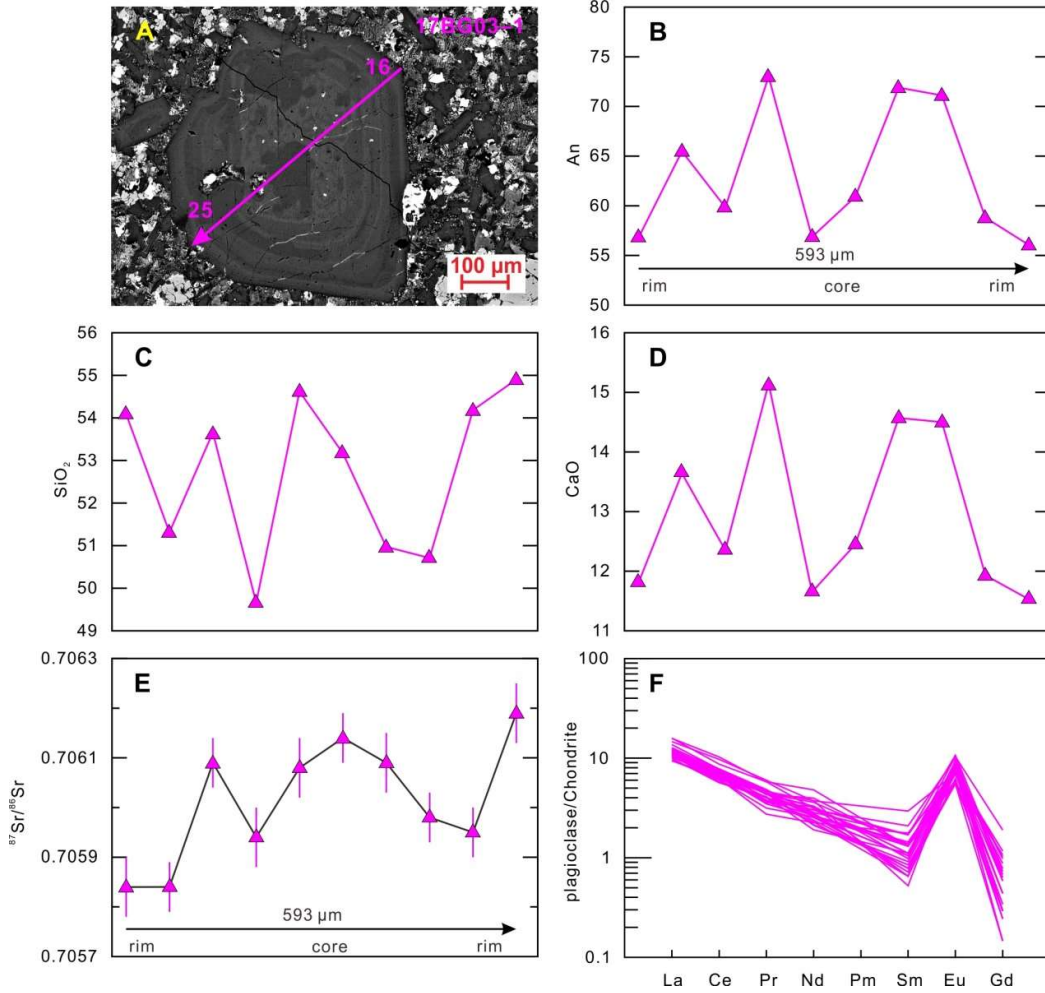
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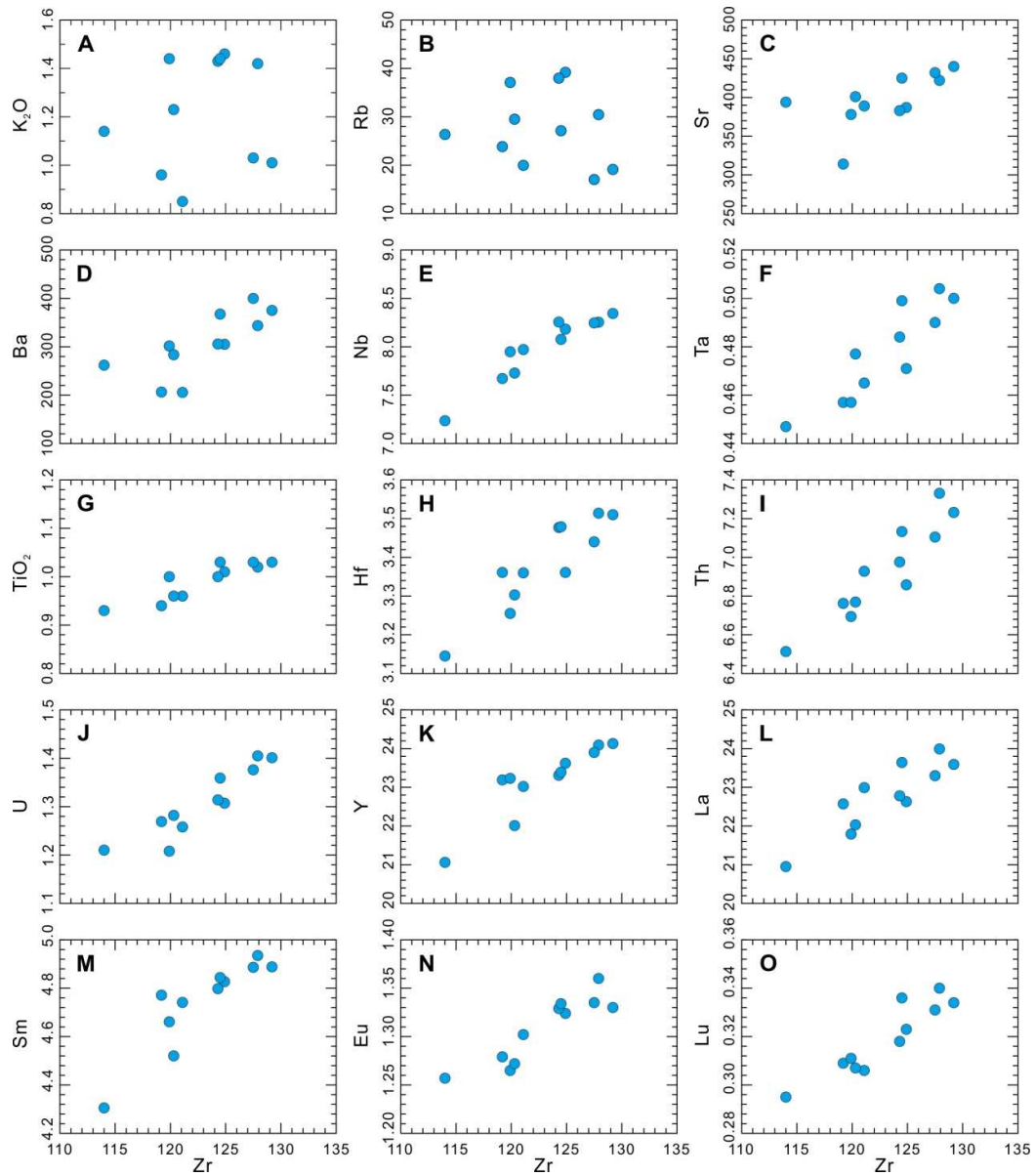
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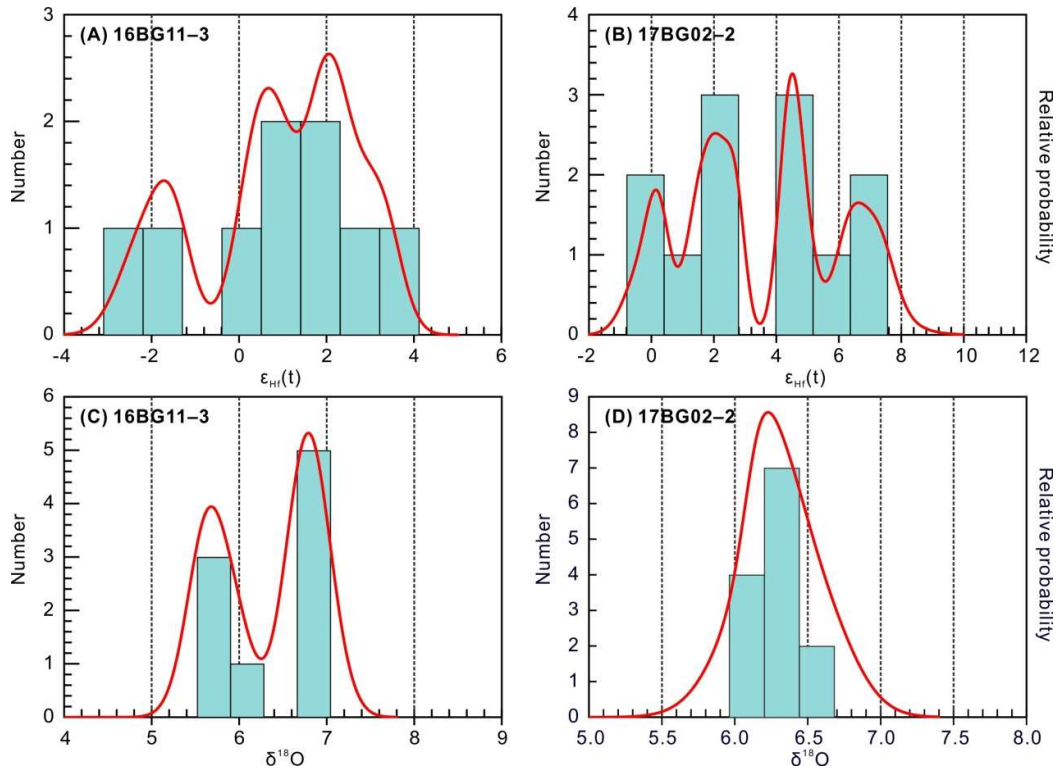


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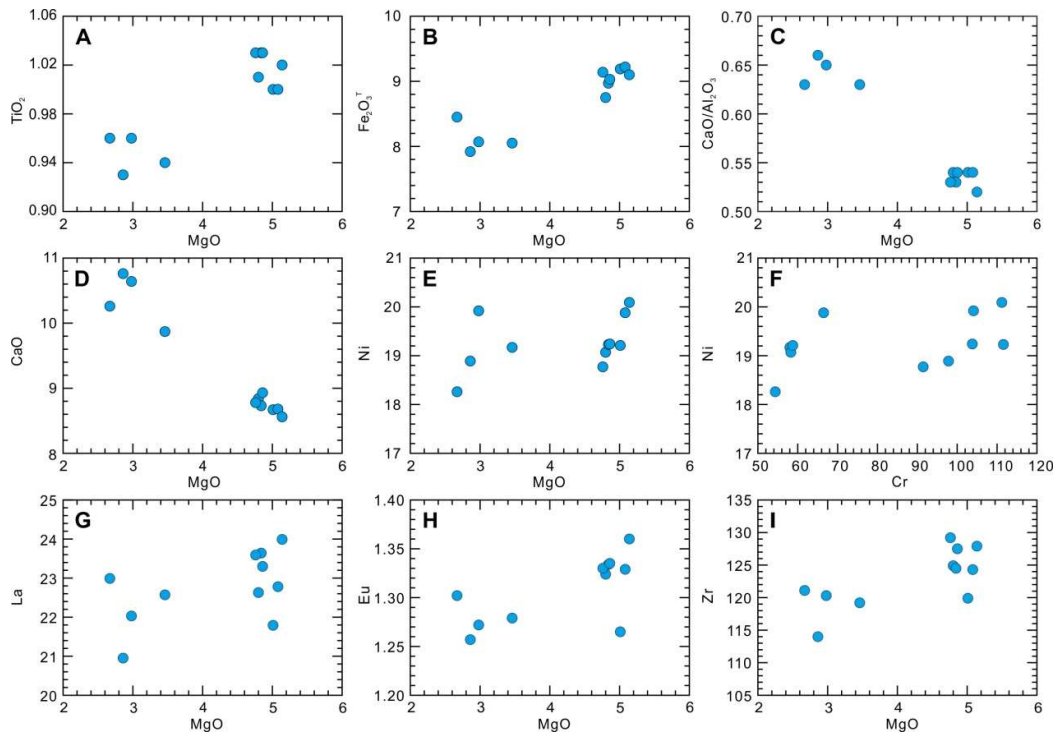


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## 2. Supplemental Text S1. Analytical methods

### 2.1. Zircon U–Pb dating and Hf–O isotopic analyses

Cathodoluminescence (CL) images were obtained for zircons prior to analysis, using a JEOL JXA–8100 Superprobe at the State Key Laboratory of Isotope Geochemistry, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences (SKLaBIG GIG CAS), in order to characterize internal structures and choose potential target sites for U–Pb dating and Hf–O isotopic analyses.

Zircon U–Pb dating was conducted using the Cameca IMS-1280 HR SIMS (Secondary Ion Mass Spectroscopy) at the SKLaBIG, GIG CAS, and analytical procedures followed those described by [Li et al. \(2009\)](#). The  $O_2^-$  primary ion beam with an intensity of  $\sim 10$  nA was accelerated at  $-13$  kV, and the ellipsoidal spot is about  $20 \times 30$   $\mu\text{m}$  in size. U–Th–Pb ratios were determined relative to the  $\sim 337$  Ma standard zircon Plešovice ([Sláma et al., 2008](#)). In order to monitor the external uncertainties of SIMS U–Pb zircon dating calibrated against the Plešovice standard, and the secondary standard zircon Qinghu was analyzed as unknown samples to monitor the reliability of the whole procedure. Nine measurements on Qinghu zircon yielded a concordia age of  $159.8 \pm 2.1$  Ma, which is within the error of the recommended value of  $159.5 \pm 0.2$  Ma ([Li et al., 2013](#)).

Subsequently, zircon O isotopes were measured by the same Cameca IMS-1280 HR at the SKLaBIG GIG CAS. The detailed analytical procedures were similar to those described by [Li et al. \(2010\)](#). The  $Cs^+$  primary ion beam with an intensity of  $\sim 2$  nA was accelerated at 10 kV

and the analytical spots were about 20  $\mu\text{m}$  in diameter. Oxygen isotopes were measured in multi-collector mode using two off-axis Faraday cups. Total analytical time per spot was ca. 3.5 min, including 30 s of pre-sputtering, 120 s of automatic tuning of the secondary beam, and 64 s of analysis. The internal precision of a single analysis generally was better than 0.15‰ (SE) for the  $^{18}\text{O}/^{16}\text{O}$  ratio. The external precision, measured by the reproducibility of repeated analyses of the Penglai standard, is 0.18‰ (2SD,  $n = 18$ ). Ten measurements of the Qinghu zircon standard yielded a weighted mean of  $\delta^{18}\text{O} = 5.59 \pm 0.19\%$  (2SD), which is consistent with the reported value of  $5.4 \pm 0.2\%$  within analytical errors (Li et al., 2013).

*In situ* zircon Lu–Hf isotopic analyses were carried out on a Neptune Plus multi-collector ICP-MS equipped with a RESolution M-50 193 nm laser-ablation system at the SKLaBIG GIG CAS. Lu–Hf isotopic analyses were conducted on the same zircon grains that were previously analyzed for U–Pb isotopes, with ablation pits of 45  $\mu\text{m}$  in diameter, ablation time of 30 s, repetition rate of 6 Hz, and laser beam energy density of 4  $\text{J}/\text{cm}^2$ . The detailed analytical procedures were similar to those described by Zhang et al. (2015). Measured  $^{176}\text{Hf}/^{177}\text{Hf}$  ratios were normalized to  $^{179}\text{Hf}/^{177}\text{Hf} = 0.7325$ . The measurements of the Plešovice zircon standard during the course of this study yielded a weighted mean of  $^{176}\text{Hf}/^{177}\text{Hf} = 0.282480 \pm 0.000016$  ( $n = 10$ , 2SD), which is consistent within errors with the reported value in Sláma et al. (2008).

## 2.2. Mineral element and Sr isotopic analyses

Major element compositions of minerals were determined using a JXA-8100 electron

microprobe at the SKLaBIG GIG CAS. An accelerating voltage of 15 kV, a specimen current of 20 nA, and a beam size of 1–2  $\mu\text{m}$  were employed. The analytical errors are generally < 2%. The analytical procedures were described in detail by [Huang et al. \(2007\)](#).

*In situ* trace element compositions of minerals were measured with an ELEMENT XR (Thermo Fisher Scientific) ICP–MS coupled with a 193-nm (ArF) Resonetics RESolution M-50 laser ablation system at the SKLaIG GIG CAS. Laser spots on minerals were  $\sim 33 \mu\text{m}$  in diameter. The calibration line for each element was constructed by analyzing three USGS (United States Geological Survey) reference glasses (BCR–2G, BHVO–2G, and GSD–1G) with Si as an internal standard element. The secondary reference glasses TB–1G were analyzed as unknown samples to monitor the reliability of the whole procedure. Twenty-six analyses of TB–1G indicate most elements are within 8% of the reference values and the analytical precision (2RSD) was better than 10% for most elements (Table S12). Detailed experiment procedures and data reduction strategies are described by [Zhang et al. \(2018a\)](#).

The analysis of *in-situ* Sr isotope compositions of plagioclase was performed on a Neptune Plus MC–ICP–MS (Thermo Scientific), coupled with a RESolution M-50 193 nm laser ablation system (Resonetics) at the SKLaIG GIG CAS. The analyses were produced in static ablation mode using a beam diameter of 155  $\mu\text{m}$ , a pulse frequency of 6 Hz, and a beam intensity of  $\sim 4 \text{ J}/\text{cm}^2$ . Each analysis consisted of 30 s of gas blank collection with the laser off, followed by 30 s of laser ablation for signal collection. Six Faraday cups were used to detect  $^{83}\text{Kr}$ ,  $^{84}\text{Sr}$ ,  $^{85}\text{Rb}$ ,  $^{86}\text{Sr}$ ,  $^{87}\text{Sr}$ , and  $^{88}\text{Sr}$ . Interferences of  $^{84}\text{Kr}$  and  $^{86}\text{Kr}$  on  $^{84}\text{Sr}$  and  $^{86}\text{Sr}$  were

corrected by subtracting a gas blank from the raw time-resolved signal intensities. The mass bias of  $^{87}\text{Sr}/^{86}\text{Sr}$  was normalized to  $^{86}\text{Sr}/^{88}\text{Sr} = 0.1194$  with an exponential law. The detailed data reduction procedure is reported in [Zhang et al. \(2018b\)](#). Twenty-one analyses of basaltic glass standards NKT-1G during the course of this study yielded a weighted mean of  $0.70351 \pm 0.00010$  (2SD), which is consistent within error with the result reported value in [Elburg et al. \(2005\)](#). Analytical accuracy was evaluated with repeated analysis of a plagioclase in-house standard from the Panzhihua large layered mafic intrusion ([Zhou et al., 2008](#)). The average  $^{87}\text{Sr}/^{86}\text{Sr}$  ratio of plagioclase in-house standard was  $0.70436 \pm 0.00006$  ( $n = 21$ , 2SD), which agrees within the results measured in solution mode by MC-ICP-MS ( $0.704367 \pm 0.000015$ ; [Zhang et al., 2019](#)).

### 2.3. Whole-rock element analyses

Rock samples were crushed by a jaw crusher and then powdered to ~200-mesh size in an agate mill, and the resulting powder was used for analyses of major and trace elements, and Sr-Nd-Hf isotopes at the SKLaBIG GIG CAS. Major element oxides were analyzed on fused glass beads using a Rigaku RIX 2000 X-ray fluorescence spectrometer. The analytical procedures were the same as those described by [Li et al. \(2000\)](#). Glass discs were made by melting dehydrated sample powders. Calibration lines used in quantification were produced by bivariate regression of data from 36 reference materials encompassing a wide range of silicate compositions ([Li et al., 2005](#)), and analytical uncertainties are between 1% and 5% (2SE). Trace elements were analyzed by inductively coupled plasma mass spectrometry (ICP-MS), using a Perkin-Elmer Sciex ELAN 6000 instrument. Analytical procedures were

the same as those described by Li et al. (2000). Trace element data of reference materials (AGV-2, BHVO-2, GSR-1, GSR-2, GSR-3, and W-2a) and replicate sample 17BG03-3R are given in Table S13. The relative standard deviations are < 3% for most element abundances in the reference materials.

#### 2.4. Whole-rock Sr–Nd–Hf isotopic analyses

Sr–Nd–Hf isotopic compositions were measured on a Neptune multi-collector ICP–MS at the SKLaBIG GIG CAS. Analytical procedures are similar to those described in Li et al. (2006). All measured Sr, Nd, and Hf isotope ratios were normalized to  $^{86}\text{Sr}/^{88}\text{Sr} = 0.1194$ ,  $^{146}\text{Nd}/^{144}\text{Nd} = 0.7219$  and  $^{179}\text{Hf}/^{177}\text{Hf} = 0.7325$ , respectively. The measured  $^{87}\text{Sr}/^{86}\text{Sr}$  ratio of the NBS987 standard,  $^{143}\text{Nd}/^{144}\text{Nd}$  ratio of the Shin Etsu JNdi-1 standard and  $^{176}\text{Hf}/^{177}\text{Hf}$  ratio of the JMC 14374 standard were  $0.710259 \pm 0.000028$  ( $n = 15$ , 2SD),  $0.512099 \pm 0.000018$  ( $n = 16$ , 2SD) and  $0.282188 \pm 0.000014$  ( $n = 6$ , 2SD), respectively. The measured Sr, Nd, and Hf isotopic compositions of the USGS (United States Geological Survey) reference material BHVO-2 gave  $0.703494 \pm 0.000009$  (SE),  $0.512987 \pm 0.000006$  (SE) and  $0.283096 \pm 0.000005$  (SE), respectively, which are within the analytical uncertainty of the recommended values (GeoREM, <http://georem.mpch-mainz.gwdg.de/>).

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### 3. Analytical data

3.1. Table S1: SIMS zircon U–Pb dating results for the Nakoulai mafic dikes.

Spot	Concentrations (ppm)			Th/U	f <sub>206</sub> %	Isotopic ratios						ρ	Isotopic ages (Ma)					
	Pb*	Th	U			<sup>207</sup> Pb/ <sup>206</sup> Pb	±1σ	<sup>207</sup> Pb/ <sup>235</sup> U	±1σ	<sup>206</sup> Pb/ <sup>238</sup> U	±1σ		<sup>207</sup> Pb/ <sup>206</sup> Pb	±1σ	<sup>207</sup> Pb/ <sup>235</sup> U	±1σ	<sup>206</sup> Pb/ <sup>238</sup> U	±1σ
16BG11-3@																		
1	163	4535	12195	2.689	0.160	0.04905	0.69	0.12837	1.65	0.0190	1.50	0.90781	150.2	16.2	122.6	1.9	121.2	1.8
2	141	3083	13275	4.306	0.460	0.05028	0.87	0.13302	1.73	0.0192	1.50	0.86609	207.8	20.0	126.8	2.1	122.5	1.8
3	93	2609	7340	2.813	0.520	0.04952	0.74	0.12724	1.67	0.0186	1.50	0.89702	172.4	17.2	121.6	1.9	119.0	1.8
4	160	4164	14760	3.545	1.420	0.04652	9.70	0.11900	9.81	0.0186	1.50	0.15297	24.8	217.6	114.2	10.7	118.5	1.8
5	74	2127	5490	2.582	0.710	0.05119	1.26	0.13116	1.97	0.0186	1.51	0.76602	249.4	28.8	125.1	2.3	118.7	1.8
6	101	2709	8355	3.085	2.490	0.04770	6.38	0.12453	6.55	0.0189	1.50	0.22926	84.2	144.8	119.2	7.4	120.9	1.8
7	67	1997	4912	2.460	0.570	0.04729	2.11	0.12004	2.59	0.0184	1.50	0.57948	63.8	49.6	115.1	2.8	117.6	1.8
8	165	4097	16377	3.997	0.310	0.04865	1.29	0.12528	1.98	0.0187	1.50	0.75875	131.2	30.0	119.8	2.2	119.3	1.8
9	57	1574	4536	2.882	0.660	0.04966	1.00	0.12728	1.84	0.0186	1.54	0.83893	179.1	23.1	121.6	2.1	118.7	1.8

Spot	Concentrations (ppm)			Th/U	Isotopic ratios				Isotopic ages (Ma)	
	Pb*	Th	U		<sup>206</sup> Pb/ <sup>238</sup> U	±1σ	<sup>207</sup> Pb/ <sup>206</sup> Pb	±1σ	<sup>207</sup> Pb-corrected	±1σ

17BG02-2@

1	8	305	313	0.972	54.385	1.58	0.05564	1.64	116.3	1.8
2	22	799	902	0.885	53.885	1.78	0.04829	1.02	118.6	2.1
3	13	419	578	0.725	55.706	1.60	0.05001	1.55	114.4	1.8
4	15	827	574	1.440	54.179	1.58	0.04978	1.31	117.7	1.8
5	43	1914	1636	1.170	45.515	1.70	0.18590	1.64	114.2	3.5
6	7	323	271	1.188	50.583	1.61	0.12179	5.42	113.7	2.5

7	5	234	208	1.122	44.512	1.79	0.19109	3.50	115.7	3.9
8	8	431	332	1.299	57.132	1.54	0.05548	2.07	110.8	1.7
9	11	529	401	1.318	54.046	1.63	0.06597	1.37	115.4	1.9
10	12	477	452	1.055	45.370	1.60	0.16199	7.58	119.1	3.7
11	10	383	300	1.277	49.421	1.66	0.13549	3.37	114.0	2.6
12	7	239	225	1.060	51.522	1.54	0.09952	5.26	115.4	2.2
13	30	2600	766	3.394	54.988	1.55	0.08151	3.41	111.0	1.9

3.2. Table S2: Representative clinopyroxene major element compositions (wt%) from the Nakoulai mafic dikes.

Spot	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	FeO	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	Cr <sub>2</sub> O <sub>3</sub>	NiO	Cl	F	Total	Mg/(Mg+Fe <sup>2+</sup> )	En	Fs	Wo	P	T
16BG11-2@																					
1	51.22	0.74	4.00	9.90	0.265	14.32	19.57	0.442	-	-	0.054	0.001	0.002	-	100.5	0.74	0.43	0.15	0.42		
2	49.84	0.689	4.61	10.62	0.247	14.67	18.67	0.561	-	-	0.034	-	-	-	99.9	0.78	0.46	0.13	0.42		
3	50.86	0.713	3.62	9.44	0.289	14.82	19.30	0.416	0.015	0.048	0.06	-	0.002	-	99.6	0.77	0.45	0.14	0.42	5.6	1185
4	50.87	0.653	3.16	9.99	0.241	15.00	19.07	0.381	0.009	0.028	0.025	0.017	-	-	99.4	0.77	0.45	0.14	0.41	5.0	1178
5	50.95	0.747	3.34	9.05	0.24	14.82	19.83	0.344	0.004	0.062	0.089	-	0.016	-	99.5	0.77	0.44	0.13	0.43	4.4	1173
6	51.42	0.669	3.00	9.54	0.218	15.41	19.06	0.393	-	0.048	-	0.016	0.016	-	99.8	0.77	0.46	0.14	0.41	5.2	1184
7	51.36	0.519	2.97	9.78	0.281	15.32	18.95	0.381	-	0.031	0.063	0.017	0.004	-	99.7	0.77	0.46	0.14	0.41	5.2	1184
8	51.54	0.572	2.81	9.62	0.242	15.14	18.87	0.418	-	0.027	0.033	0.031	0.006	-	99.3	0.75	0.45	0.15	0.40		
9	52.21	0.494	2.29	9.55	0.291	15.91	18.38	0.314	-	0.013	0.033	-	0.006	-	99.5	0.75	0.46	0.15	0.39		
10	51.86	0.536	2.78	9.12	0.275	15.32	19.29	0.341	-	0.016	0.044	-	-	-	99.6	0.76	0.45	0.14	0.41	4.8	1181
11	50.45	0.722	3.89	9.89	0.278	14.43	19.33	0.369	-	-	0.057	0.011	-	-	99.4	0.75	0.44	0.14	0.42		
12	50.23	0.814	4.18	9.50	0.235	14.47	19.59	0.427	-	0.017	0.065	-	-	-	99.5	0.77	0.44	0.13	0.43	5.9	1182
13	50.46	0.747	3.45	9.80	0.315	14.78	19.62	0.38	0.003	0.035	0.078	-	-	-	99.7	0.78	0.45	0.13	0.43	4.5	1174
14	51.31	0.633	3.38	9.89	0.293	14.92	19.09	0.33	0.005	0.025	0.02	0.013	0.005	-	99.9	0.75	0.44	0.15	0.41		

15	51.29	0.615	3.03	9.50	0.297	15.23	19.02	0.338	-	0.02	0.084	0.032	0.015	-	99.5	0.76	0.45	0.14	0.41	4.7	1177
16	51.71	0.514	2.80	9.37	0.266	15.26	18.94	0.397	-	0.027	0.093	0.013	0.002	-	99.4	0.76	0.45	0.14	0.40	5.7	1190
17	51.33	0.438	2.89	9.51	0.194	15.07	19.12	0.382	-	-	0.078	0.006	-	-	99.0	0.76	0.45	0.14	0.41	5.5	1186
18	51.70	0.526	2.79	9.33	0.241	15.34	19.05	0.32	-	0.047	0.085	0.042	-	-	99.5	0.76	0.45	0.15	0.40	4.6	1177
19	51.61	0.529	2.47	9.81	0.296	15.75	18.13	0.326	-	0.03	0.041	-	-	-	99.0	0.76	0.47	0.15	0.38	4.7	1179
20	49.89	0.793	4.59	10.60	0.234	13.85	18.54	0.565	-	-	0.013	-	-	-	99.1	0.73	0.43	0.16	0.41		
50	50.09	0.61	3.80	10.59	0.268	14.33	18.72	0.485	-	0.041	0.033	0.045	-	-	99.0	0.75	0.44	0.14	0.41		
51	50.62	0.561	3.60	9.32	0.235	14.71	19.41	0.417	-	0.049	0.091	0.016	-	-	99.0	0.77	0.45	0.13	0.42	5.9	1188
52	51.34	0.532	2.81	8.86	0.198	15.21	19.68	0.276	-	0.035	0.094	-	0.006	-	99.0	0.77	0.45	0.13	0.42	3.5	1167
53	50.32	0.565	4.61	7.74	0.201	14.86	19.98	0.428	-	0.038	0.539	0.028	-	-	99.3	0.81	0.45	0.11	0.44	5.9	1199
54	49.25	0.795	5.06	8.96	0.248	14.05	19.96	0.394	-	0.02	0.041	-	0.01	-	98.8	0.78	0.44	0.12	0.44	5.8	1178
55	50.10	0.734	4.18	9.39	0.235	14.73	19.51	0.428	-	0.036	0.009	0.029	-	-	99.4	0.79	0.45	0.12	0.43	5.8	1185
56	49.77	0.659	3.92	8.76	0.233	14.53	19.31	0.393	0.013	0.023	0.254	-	0.007	-	97.9	0.78	0.45	0.13	0.43	5.4	1186
57	50.79	0.595	4.06	9.02	0.177	14.75	19.51	0.467	-	0.038	0.166	0.057	0.003	-	99.6	0.78	0.45	0.13	0.42	6.7	1197
58	50.51	0.645	3.84	9.37	0.221	14.32	19.79	0.451	0.003	0.036	0.196	0.027	-	-	99.4	0.77	0.44	0.13	0.43	6.1	1188
59	50.10	0.75	4.03	10.14	0.207	14.03	18.92	0.545	-	0.044	0.022	-	0.005	-	98.8	0.74	0.43	0.15	0.42		
60	50.63	0.753	3.44	9.35	0.236	14.77	19.34	0.318	0.002	0.058	0.057	-	-	-	98.9	0.76	0.44	0.14	0.42	4.5	1169
61	50.18	0.777	4.04	10.68	0.208	14.12	18.76	0.504	-	0.051	0.02	0.011	0.012	-	99.4	0.74	0.43	0.15	0.41		
84	51.54	0.506	2.50	10.16	0.312	15.33	18.75	0.387	0.009	0.007	0.015	-	-	-	99.5	0.76	0.46	0.14	0.40	5.0	1183

16BG11-4@

1	50.95	0.752	3.88	9.89	0.283	14.53	18.96	0.436	-	0.013	0.044	-	0.005	-	99.7	0.74	0.44	0.15	0.41		
2	51.31	0.622	3.05	10.08	0.256	14.97	18.94	0.386	-	0.034	0.043	0.004	0.003	-	99.7	0.75	0.45	0.15	0.41		
3	52.29	0.659	2.50	9.39	0.277	15.29	19.23	0.319	0.005	-	-	0.001	-	-	100.0	0.74	0.44	0.15	0.40		
4	51.74	0.617	2.86	10.26	0.31	15.08	18.70	0.344	-	0.034	-	0.01	-	-	100.0	0.74	0.44	0.16	0.40	5.4	1177
5	51.43	0.735	3.20	10.19	0.288	14.82	18.78	0.457	-	0.006	0.011	0.002	0.004	-	99.9	0.74	0.44	0.16	0.40		
6	52.11	0.655	2.63	9.57	0.282	15.33	18.77	0.388	-	0.004	0.017	-	-	-	99.8	0.74	0.45	0.16	0.40		

7	51.68	0.551	2.75	9.46	0.305	15.44	18.80	0.338	0.007	0.038	0.026	0.001	-	-	99.4	0.76	0.46	0.15	0.40	5.0	1182
8	51.68	0.707	3.10	9.52	0.204	14.95	19.31	0.365	0.003	0.035	0.106	0.001	0.017	-	100.0	0.74	0.44	0.15	0.41		
9	52.17	0.574	3.03	10.17	0.353	14.80	18.37	0.436	-	0.026	-	0.01	-	-	99.9	0.71	0.44	0.18	0.39		
10	51.86	0.65	2.73	9.65	0.275	15.31	18.58	0.276	-	0.009	0.026	-	-	-	99.4	0.73	0.45	0.16	0.39		
22	51.20	0.626	3.74	10.37	0.266	14.45	18.75	0.499	-	0.003	-	0.001	-	-	99.9	0.73	0.43	0.16	0.41		
23	51.69	0.63	3.19	9.72	0.282	14.74	18.95	0.474	-	0.036	0.026	0.013	0.027	-	99.8	0.74	0.44	0.16	0.41		
24	51.69	0.514	2.69	9.17	0.263	15.28	19.34	0.32	-	0.026	0.02	-	-	-	99.3	0.76	0.45	0.14	0.41	4.6	1179
25	51.91	0.588	2.94	9.30	0.295	15.32	18.91	0.343	0.001	0.021	0.083	0.046	0.015	-	99.8	0.75	0.45	0.15	0.40		
26	51.93	0.584	3.16	9.54	0.271	14.74	19.22	0.324	0.005	0.021	0.002	-	-	-	99.8	0.73	0.43	0.16	0.40		
27	50.97	0.568	3.48	9.74	0.26	14.12	19.60	0.434	0.003	0.001	0.015	0.007	-	-	99.2	0.74	0.43	0.15	0.42		
28	50.87	0.768	3.44	9.47	0.284	14.81	19.16	0.402	-	0.024	0.013	0.004	-	-	99.2	0.76	0.44	0.14	0.41	5.9	1185
29	51.56	0.66	3.20	9.62	0.227	14.72	19.33	0.413	0.006	0.038	0.072	0.016	-	-	99.9	0.74	0.44	0.15	0.41		
30	51.75	0.765	3.11	9.59	0.338	14.62	19.22	0.356	0.015	0.028	0.063	-	-	-	99.9	0.73	0.43	0.16	0.41		
31	51.94	0.607	3.07	9.77	0.277	15.10	18.81	0.411	-	0.011	0.031	-	-	-	100.0	0.74	0.45	0.16	0.40		

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17BG03-1@

1	52.54	0.579	2.58	8.69	0.249	15.26	19.47	0.452	0.015	0.045	0.013	0.022	-	0.005	99.9	0.76	0.45	0.14	0.41	6.2	1201
2	52.29	0.617	2.94	8.49	0.249	15.44	19.43	0.457	-	0.026	0.05	0.026	-	-	100.0	0.77	0.45	0.14	0.41	6.4	1203
3	52.57	0.289	3.20	5.96	0.149	15.75	21.20	0.339	-	0.002	0.331	0.045	-	-	99.8	0.82	0.46	0.10	0.44	4.5	1199
4	50.68	0.644	4.42	9.56	0.325	13.91	19.50	0.599	-	0.014	0.15	0.01	-	0.005	99.8	0.75	0.43	0.14	0.43	8.6	1208
5	50.90	0.621	4.42	9.88	0.235	14.07	19.20	0.49	-	0.024	0.126	0.021	-	0.002	100.0	0.73	0.43	0.16	0.42	8.0	1198
6	51.02	0.608	3.45	9.77	0.231	14.41	19.32	0.437	-	0.041	0.058	0.009	-	-	99.4	0.74	0.43	0.15	0.42		
7	51.28	0.7	3.73	9.35	0.235	14.49	19.50	0.49	-	0.021	0.009	0.046	-	0.007	99.9	0.75	0.43	0.14	0.42	7.3	1197
8	53.10	0.267	2.56	6.82	0.218	16.32	20.04	0.305	0.023	0.044	0.167	0.037	-	0.004	99.9	0.80	0.47	0.12	0.41	4.0	1197
9	53.53	0.268	2.61	6.55	0.183	16.55	20.15	0.387	0.001	0.024	0.239	0.007	-	-	100.5	0.81	0.47	0.11	0.41	5.2	1213
10	53.04	0.328	2.77	6.14	0.193	16.12	20.66	0.296	0.011	0.035	0.221	0.002	-	-	99.8	0.81	0.46	0.11	0.43	3.9	1194
11	52.29	0.66	3.15	7.31	0.208	15.74	20.16	0.397	-	0.054	0.128	0.001	-	-	100.1	0.80	0.46	0.12	0.42	5.2	1198

12	53.16	0.291	2.98	6.04	0.128	15.81	21.38	0.337	0.006	-	0.235	-	-	-	100.4	0.81	0.45	0.11	0.44	4.4	1197
13	51.08	0.717	4.59	8.35	0.197	14.51	19.74	0.51	0.008	0.022	0.123	0.004	-	0.003	99.9	0.76	0.44	0.14	0.43	7.8	1206
14	50.79	0.718	4.04	10.03	0.256	14.43	19.31	0.439	-	0.001	0.009	-	-	0.012	100.0	0.75	0.44	0.15	0.42	6.7	1187
15	51.53	0.65	3.56	10.00	0.264	14.39	19.37	0.411	-	0.012	0.072	0.02	-	-	100.3	0.73	0.43	0.16	0.41		
26	51.47	0.728	3.32	9.54	0.225	14.71	19.17	0.416	0.015	0.035	0.059	-	-	0.013	99.7	0.74	0.44	0.15	0.41		
27	51.56	0.72	3.14	9.90	0.249	15.00	19.02	0.338	-	0.021	0.028	-	-	-	100.0	0.74	0.44	0.16	0.40		
28	51.37	0.669	2.97	10.24	0.273	14.83	18.82	0.382	-	0.062	-	-	-	-	99.6	0.74	0.44	0.16	0.40		
29	52.15	0.566	2.63	9.57	0.3	15.27	18.94	0.328	-	0.005	0.041	0.035	-	-	99.8	0.74	0.45	0.16	0.40		
30	51.30	0.787	2.87	9.72	0.355	15.10	18.66	0.367	-	0.049	0.067	-	-	-	99.3	0.75	0.45	0.15	0.40	5.3	1180
31	52.01	0.654	2.87	10.18	0.271	15.06	18.62	0.366	-	0.002	0.084	-	-	0.01	100.1	0.73	0.44	0.17	0.39		
32	52.42	0.679	2.51	10.42	0.306	15.05	18.38	0.355	0.01	-	0.028	0.007	-	0.009	100.2	0.71	0.44	0.18	0.38		
33	50.58	0.682	4.02	10.93	0.261	14.13	18.70	0.605	-	0.012	0.03	-	-	-	99.9	0.74	0.43	0.15	0.41		
34	51.96	0.583	2.68	10.47	0.304	15.06	18.30	0.379	-	0.022	0.015	0.031	-	0.001	99.8	0.72	0.44	0.17	0.39		
35	52.34	0.58	2.46	10.15	0.271	15.38	18.37	0.339	0.002	0.019	0.004	-	-	0.007	99.9	0.73	0.45	0.17	0.38		
36	52.33	0.634	2.33	9.98	0.3	15.58	18.52	0.333	0.005	0.004	0.041	0.048	-	-	100.1	0.74	0.45	0.16	0.39		
37	52.37	0.465	2.33	10.35	0.324	15.51	18.44	0.375	0.011	0.031	0.039	-	-	0.011	100.3	0.74	0.45	0.16	0.39		
38	50.54	0.637	4.11	10.13	0.278	14.14	18.69	0.492	-	0.025	0.009	-	-	-	99.0	0.73	0.43	0.16	0.41		
39	51.62	0.502	3.15	10.04	0.198	14.59	18.69	0.35	0.02	0.035	0.034	0.003	-	-	99.2	0.72	0.43	0.17	0.40		
40	50.72	0.832	4.12	11.49	0.251	13.77	18.27	0.613	0.016	-	0.013	0.002	-	0.004	100.1	0.70	0.42	0.18	0.40		
71	52.58	0.398	3.23	6.11	0.134	15.77	21.00	0.344	-	-	0.343	0.026	-	-	99.9	0.81	0.46	0.11	0.44	4.6	1198
75	50.82	0.694	3.52	9.85	0.259	14.41	19.46	0.344	-	0.039	0.061	0.028	-	-	99.5	0.74	0.43	0.15	0.42		
76	50.03	0.692	4.67	10.81	0.274	13.75	18.67	0.48	-	0.028	0.059	0.024	-	-	99.5	0.72	0.42	0.16	0.41		
77	49.70	0.754	5.32	8.86	0.169	13.85	20.32	0.337	0.002	0.016	0.116	-	-	-	99.4	0.76	0.42	0.13	0.45	5.7	1172
78	50.02	0.704	4.85	8.93	0.215	14.08	20.02	0.443	-	0.029	0.055	0.025	-	0.004	99.4	0.77	0.43	0.13	0.44	6.8	1190
79	50.32	0.86	4.34	10.18	0.251	14.04	19.11	0.426	-	0.022	0.067	0.022	-	0.001	99.6	0.73	0.43	0.16	0.42		
80	49.48	0.765	5.17	10.14	0.223	13.40	19.39	0.47	0.002	0.037	0.12	-	-	-	99.2	0.73	0.42	0.15	0.43		

81	52.38	0.437	2.38	9.75	0.275	15.40	19.02	0.346	0.006	0.023	0.078	-	-	-	100.1	0.75	0.45	0.15	0.40	5.0	1183
17BG03-2@																					
1	52.54	0.496	2.13	8.61	0.278	15.44	20.02	0.295	-	0.031	-	-	-	0.004	99.8	0.77	0.45	0.14	0.42	3.9	1178
2	51.34	0.642	3.04	10.47	0.334	14.85	18.66	0.392	-	0.012	0.065	0.03	-	-	99.8	0.74	0.44	0.16	0.40		
3	51.63	0.626	2.70	9.69	0.297	15.32	18.51	0.359	0.008	0.039	0.046	-	-	0.003	99.2	0.75	0.45	0.15	0.39		
4	51.76	0.602	2.82	9.51	0.313	15.22	18.95	0.379	-	0.022	0.048	-	-	-	99.6	0.75	0.45	0.15	0.40	5.9	1190
5	52.01	0.536	2.72	9.09	0.248	15.00	19.54	0.308	-	0.005	0.02	0.013	-	-	99.5	0.74	0.44	0.15	0.41		
6	51.75	0.646	2.73	9.76	0.314	14.69	18.88	0.412	-	0.02	0.002	-	-	-	99.2	0.73	0.43	0.16	0.40		
7	50.87	0.719	3.60	9.95	0.303	14.37	19.16	0.394	-	0.017	-	-	-	-	99.4	0.74	0.43	0.15	0.41		
8	51.63	0.749	3.08	10.10	0.274	14.79	18.90	0.339	0.002	0.019	0.011	-	-	-	99.9	0.73	0.44	0.16	0.40		
9	51.20	0.592	3.08	9.94	0.243	14.70	19.27	0.361	0.003	0.031	0.022	-	-	-	99.4	0.75	0.44	0.15	0.41		
10	51.08	0.691	3.39	9.40	0.22	14.32	20.10	0.409	-	0.026	0.048	0.006	-	0.014	99.7	0.75	0.43	0.14	0.43		
14	50.98	0.696	4.17	10.38	0.229	13.89	18.72	0.477	0.001	0.01	0.047	0.027	-	-	99.6	0.70	0.42	0.18	0.41		
15	52.54	0.634	2.32	9.70	0.259	15.37	19.10	0.406	0.014	0.005	0.034	-	-	-	100.4	0.75	0.45	0.15	0.40		
16	52.67	0.653	2.43	9.57	0.286	15.58	18.68	0.42	0.022	0.039	0.047	-	-	0.011	100.4	0.74	0.45	0.16	0.39		
17	52.50	0.468	2.35	9.39	0.363	15.71	18.49	0.392	-	0.037	0.019	-	-	-	99.7	0.75	0.46	0.15	0.39		
18	51.33	0.813	3.79	9.63	0.271	14.46	19.21	0.355	0.009	0.049	0.08	-	-	-	100.0	0.72	0.43	0.16	0.41		
19	50.47	0.79	4.73	10.33	0.25	13.96	18.66	0.526	0.004	0.048	0.122	0.01	-	-	99.9	0.72	0.43	0.16	0.41		
39	51.68	0.705	2.91	10.02	0.299	15.05	18.61	0.37	-	0.018	0.007	0.032	-	0.01	99.7	0.73	0.44	0.16	0.39		
40	51.56	0.652	3.17	9.31	0.25	14.89	19.56	0.308	-	0.042	0.037	0.009	-	-	99.8	0.75	0.44	0.15	0.41		
41	51.86	0.576	3.06	9.96	0.266	15.21	18.56	0.32	0.008	0.006	0.065	0.003	-	0.002	99.9	0.73	0.45	0.16	0.39		
42	51.25	0.727	3.61	9.03	0.232	14.68	19.59	0.422	0.002	0.019	0.035	-	-	0.008	99.6	0.76	0.44	0.14	0.42	6.6	1193
43	51.50	0.536	3.75	9.81	0.208	14.58	18.68	0.411	0.015	0.024	0.039	-	-	-	99.5	0.72	0.43	0.17	0.40		
44	51.12	0.674	3.93	9.97	0.27	14.56	19.07	0.336	-	0.021	0.087	0.007	-	-	100.0	0.73	0.43	0.16	0.41	6.2	1179
45	50.79	0.709	3.87	10.98	0.302	14.49	18.30	0.529	-	0.008	0.026	0.042	-	0.001	100.0	0.73	0.44	0.16	0.40		
46	51.69	0.578	3.39	9.70	0.25	14.98	18.66	0.414	-	0.034	0.028	0.033	-	-	99.7	0.74	0.44	0.16	0.40		

47	51.27	0.712	3.60	9.39	0.288	14.54	19.77	0.376	0.004	0.012	0.035	-	-	-	100.0	0.75	0.43	0.14	0.42
48	51.25	0.74	3.19	9.90	0.241	14.72	19.19	0.383	-	0.003	0.004	0.018	-	-	99.6	0.74	0.44	0.15	0.41

17BG03-3@

1	52.53	0.659	2.49	10.34	0.338	15.45	17.79	0.33	-	0.03	0.043	0.004	-	0.006	100.0	0.71	0.45	0.18	0.37		
2	52.62	0.603	2.30	9.38	0.285	15.33	19.24	0.372	-	0.031	0.009	-	-	-	100.2	0.74	0.44	0.15	0.40		
3	50.90	0.928	3.76	9.67	0.28	14.62	19.04	0.471	0.008	-	0.087	-	-	0.006	99.8	0.75	0.44	0.15	0.41	6.5	1190
4	51.73	0.65	3.26	9.38	0.269	14.72	19.38	0.383	-	0.008	0.052	-	-	0.002	99.8	0.74	0.43	0.15	0.41	6.0	1184
5	51.11	0.736	4.04	9.85	0.224	14.53	18.85	0.494	-	-	0.033	0.003	-	0.001	99.9	0.74	0.44	0.16	0.41		
6	51.30	0.724	3.42	9.55	0.256	14.66	19.32	0.403	-	0.006	0.028	-	-	0.007	99.7	0.74	0.44	0.15	0.41		
7	51.42	0.632	3.27	9.89	0.25	14.78	18.85	0.383	-	0.005	0.048	0.023	-	-	99.5	0.73	0.44	0.16	0.40		
8	51.11	0.768	3.46	10.08	0.296	14.67	18.85	0.334	-	0.027	0.004	-	-	0.01	99.6	0.73	0.44	0.16	0.40		
9	50.62	0.857	4.27	10.05	0.222	14.17	18.72	0.47	-	0.019	0.054	0.001	-	0.002	99.5	0.72	0.43	0.16	0.41		
10	50.68	0.696	4.25	10.21	0.266	14.11	18.57	0.5	0.009	0.016	0.05	-	-	0.011	99.4	0.72	0.43	0.16	0.41		
11	52.15	0.493	2.91	8.98	0.258	14.79	19.47	0.351	0.003	-	0.026	-	-	0.007	99.4	0.73	0.43	0.16	0.41		
12	51.69	0.751	3.40	9.19	0.326	14.76	19.58	0.306	0.011	0.034	0.09	0.019	-	-	100.2	0.74	0.43	0.15	0.41		
13	51.70	0.7	3.61	9.23	0.241	14.97	19.11	0.424	-	-	0.051	0.023	-	-	100.1	0.75	0.44	0.15	0.41	6.6	1193
14	51.81	0.741	3.34	9.09	0.259	14.80	19.24	0.398	-	0.031	0.105	0.019	-	-	99.8	0.74	0.44	0.16	0.41	6.2	1188
15	51.07	0.801	3.61	9.67	0.31	14.83	18.88	0.377	0.002	0.008	0.041	0.042	-	-	99.6	0.74	0.44	0.15	0.40		
16	51.45	0.718	3.39	10.02	0.266	14.88	18.40	0.364	-	0.021	0.046	0.023	-	-	99.6	0.72	0.44	0.17	0.39		
17	51.16	0.75	3.24	10.32	0.282	14.66	18.60	0.358	-	-	-	-	-	-	99.4	0.72	0.44	0.17	0.40		
18	51.43	0.744	3.19	10.50	0.306	14.93	18.06	0.418	0.011	-	0.006	0.016	-	0.007	99.6	0.72	0.44	0.17	0.39		
19	51.43	0.546	3.26	10.70	0.295	14.51	18.17	0.514	-	0.054	-	-	-	-	99.5	0.72	0.44	0.17	0.39		
20	50.70	0.716	4.22	11.03	0.282	13.70	18.32	0.654	-	-	0.039	0.024	-	-	99.7	0.71	0.42	0.17	0.40		
34	52.04	0.44	2.38	9.30	0.313	15.27	19.17	0.38	0.002	0.022	0.065	0.026	-	-	99.4	0.76	0.45	0.14	0.41	5.2	1189
35	50.45	0.807	4.38	9.92	0.254	14.03	18.89	0.62	0.002	0.029	0.046	-	-	-	99.4	0.74	0.43	0.15	0.42		
36	51.64	0.647	3.35	8.80	0.193	14.72	19.75	0.332	0.019	0.012	0.072	0.027	-	-	99.6	0.74	0.43	0.15	0.42		

68	51.16	0.752	3.77	9.91	0.275	14.35	18.74	0.49	0.001	-	0.101	0.021	-	-	99.6	0.72	0.43	0.16	0.40		
69	51.34	0.798	3.62	9.59	0.282	14.51	19.52	0.329	0.01	0.026	0.054	0.035	-	0.002	100.1	0.73	0.43	0.16	0.41		
70	50.32	0.755	4.71	8.83	0.215	14.49	19.54	0.416	0.024	0.023	0.308	0.027	-	0.002	99.7	0.77	0.44	0.13	0.43	6.0	1190
71	50.71	0.721	3.74	9.65	0.266	14.46	19.22	0.396	0.003	-	0.054	0.014	-	-	99.2	0.75	0.44	0.15	0.42	6.0	1183
72	51.37	0.739	3.43	9.58	0.265	14.68	19.22	0.441	0.008	0.037	0.032	-	-	-	99.8	0.74	0.44	0.15	0.41		
73	51.38	0.853	3.48	9.55	0.242	14.69	19.41	0.361	-	0.03	0.06	-	-	0.015	100.1	0.74	0.43	0.15	0.41		
74	50.36	0.725	3.15	9.76	0.277	14.25	19.39	0.351	-	0.031	0.039	0.008	-	-	98.3	0.74	0.43	0.15	0.42		
75	51.42	0.738	3.39	9.63	0.239	14.67	18.83	0.522	0.003	0.019	0.028	0.008	-	0.002	99.5	0.74	0.44	0.15	0.41		
76	52.40	0.583	1.95	9.14	0.315	15.71	18.90	0.308	-	-	0.009	-	-	-	99.3	0.75	0.46	0.15	0.39	4.0	1177
77	51.46	0.844	3.14	9.64	0.244	14.53	19.17	0.4	-	0.024	0.011	-	-	-	99.5	0.73	0.43	0.16	0.41		
78	51.76	0.523	2.73	9.48	0.278	15.06	18.89	0.315	-	0.009	0.03	0.004	-	0.011	99.1	0.74	0.44	0.16	0.40		
79	51.74	0.589	3.06	9.27	0.29	14.84	19.01	0.436	-	0.016	0.047	0.026	-	0.009	99.3	0.74	0.44	0.15	0.41		
80	51.75	0.668	2.98	8.88	0.263	15.01	18.72	0.366	-	0.018	0.017	0.004	-	-	98.7	0.73	0.44	0.16	0.40		
81	51.80	0.709	2.87	9.24	0.253	15.18	19.08	0.337	-	0.006	0.058	-	-	-	99.5	0.75	0.45	0.15	0.40	5.0	1178
82	52.11	0.674	2.62	10.03	0.304	15.54	18.40	0.321	-	-	0.043	0.002	-	0.008	100.1	0.74	0.45	0.16	0.39		
109	51.02	0.709	3.56	9.51	0.299	14.67	19.07	0.4	-	0.003	0.054	-	-	-	99.3	0.75	0.44	0.15	0.41	6.1	1186
110	50.72	0.879	3.82	9.82	0.245	14.37	18.84	0.468	0.005	0.002	0.035	0.007	-	0.005	99.2	0.73	0.43	0.16	0.41		
111	51.70	0.576	3.17	10.41	0.312	14.73	18.51	0.565	0.015	0.034	0.067	0.04	-	-	100.1	0.74	0.44	0.16	0.40		
112	50.65	0.722	3.89	10.48	0.278	13.96	18.93	0.548	-	0.023	0.013	0.014	-	-	99.5	0.73	0.43	0.16	0.42		
113	50.73	0.868	3.86	10.05	0.237	14.33	18.81	0.539	-	0.019	0.044	0.007	-	-	99.5	0.74	0.44	0.15	0.41		



3.3. Table S3: Representative orthopyroxene major element compositions (wt%) from the Nakoulai mafic dikes.

Spot	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	FeO	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	Cr <sub>2</sub> O <sub>3</sub>	NiO	Cl	F	Total	Mg/(Mg+Fe <sup>2+</sup> )	En	Fs	Wo
16BG11-2@																			
47	53.31	0.342	0.71	19.50	0.541	22.71	2.04	0.077	0.015	0.018	-	0.01	-	-	99.278	0.67	0.64	0.32	0.04
48	53.38	0.362	0.84	18.60	0.519	23.65	2.15	0.022	-	-	0.029	-	0.002	-	99.559	0.69	0.66	0.29	0.04
62	53.88	0.263	1.33	17.21	0.435	24.72	1.80	0.03	0.007	0.004	0.036	0.001	0.011	-	99.723	0.71	0.69	0.28	0.04
63	52.98	0.25	2.29	17.82	0.377	24.34	1.75	0.037	-	0.008	0.017	-	0.003	-	99.864	0.71	0.69	0.28	0.04
64	52.90	0.375	2.66	17.50	0.37	24.12	1.73	0.061	-	0.012	0.027	-	0.001	-	99.752	0.71	0.68	0.28	0.04
65	52.13	0.351	2.71	17.58	0.407	23.90	1.76	0.052	0.004	0.023	-	0.016	-	-	98.929	0.71	0.69	0.28	0.04
66	52.12	0.291	3.03	17.63	0.377	24.16	1.64	0.023	-	0.024	0.008	-	-	-	99.29	0.72	0.69	0.27	0.03
67	52.31	0.327	2.78	18.25	0.438	23.96	1.69	0.042	-	-	0.01	0.028	-	-	99.84	0.71	0.69	0.28	0.03
68	52.22	0.399	2.94	18.09	0.409	23.99	1.68	0.021	-	0.003	0.004	0.042	0.007	-	99.795	0.71	0.69	0.28	0.03
69	52.23	0.339	2.93	18.68	0.393	23.64	1.70	0.056	0.019	0.008	0.044	0.006	0.001	-	100.048	0.70	0.68	0.29	0.04
70	53.52	0.257	1.72	17.90	0.432	24.35	1.74	0.068	0.018	0.012	0.027	-	0.003	-	100.037	0.71	0.68	0.28	0.04
71	52.79	0.339	3.31	17.30	0.421	22.44	1.98	0.241	0.108	0.057	0.023	0.054	-	-	99.06	0.68	0.65	0.31	0.04
72	52.94	0.391	2.24	17.75	0.511	24.05	1.98	0.062	-	0.003	0.017	0.019	0.017	-	99.969	0.71	0.68	0.28	0.04
73	53.32	0.363	1.58	18.07	0.385	24.20	2.01	0.048	0.009	0.056	-	0.003	0.004	-	100.041	0.71	0.68	0.28	0.04
16BG11-4@																			
38	53.14	0.405	2.37	17.76	0.359	24.41	1.87	0.039	-	0.033	-	0.029	-	-	100.421	0.71	0.69	0.28	0.04
17BG03-1@																			
51	52.60	0.306	2.83	18.28	0.398	23.72	1.67	0.025	0.003	0.02	0.025	0.007	-	-	99.864	0.70	0.67	0.29	0.03
52	54.29	0.247	1.75	16.54	0.427	25.05	1.73	0.04	-	0.033	0.048	0.018	-	-	100.169	0.72	0.69	0.27	0.03
53	53.25	0.31	2.69	17.24	0.398	23.92	1.69	0.094	-	0.013	0.033	-	-	-	99.622	0.70	0.68	0.29	0.03
72	54.59	0.267	1.10	16.74	0.434	25.05	1.73	0.038	-	-	0.032	0.01	-	-	99.999	0.71	0.69	0.28	0.03
73	53.45	0.198	2.21	17.17	0.385	24.59	1.62	0.026	0.004	0.03	0.059	-	-	-	99.737	0.71	0.69	0.28	0.03

74	53.99	0.222	1.64	16.04	0.351	25.00	1.45	0.054	0.002	-	0.048	0.004	-	-	98.791	0.72	0.69	0.28	0.03
82	53.76	0.137	1.99	17.96	0.415	24.19	1.45	0.041	-	0.007	0.04	0.006	-	0.012	100.003	0.70	0.68	0.29	0.03
89	53.93	0.372	1.74	17.17	0.404	24.24	1.79	0.039	-	-	0.006	0.021	-	0.003	99.706	0.70	0.67	0.29	0.04
90	53.47	0.299	2.23	17.39	0.362	24.25	1.80	0.072	-	0.003	0.002	0.007	-	0.009	99.888	0.71	0.68	0.28	0.04
91	53.43	0.262	2.57	17.10	0.452	24.23	1.68	0.08	-	0.015	0.023	0.02	-	-	99.858	0.71	0.68	0.28	0.03
92	53.87	0.355	2.05	16.93	0.378	24.62	1.85	0.041	0.002	-	0.029	0.002	-	-	100.132	0.71	0.68	0.28	0.04
93	52.82	0.321	2.61	18.04	0.378	23.82	1.65	0.07	0.022	0.022	0.085	0.043	-	0.015	99.89	0.70	0.68	0.29	0.03
94	54.23	0.253	1.60	17.42	0.378	24.53	1.72	0.032	0.005	-	0.029	0.005	-	-	100.211	0.70	0.68	0.29	0.03
95	53.06	0.313	2.65	17.59	0.414	24.02	1.71	0.069	-	-	0.002	-	-	-	99.83	0.70	0.68	0.29	0.03
96	54.33	0.236	1.42	16.98	0.406	24.41	1.74	0.027	-	-	0.048	0.002	-	0.003	99.589	0.70	0.67	0.29	0.03
97	53.71	0.206	2.09	16.75	0.423	24.50	1.88	0.033	-	0.013	0.006	0.025	-	0.007	99.642	0.71	0.68	0.28	0.04
98	53.00	0.388	2.64	17.45	0.415	24.05	1.74	0.054	0.002	-	0.042	0.007	-	0.009	99.805	0.71	0.68	0.28	0.04
99	53.48	0.413	2.20	16.83	0.412	24.30	1.81	0.062	0.001	-	0.023	0.01	-	0.006	99.542	0.71	0.68	0.28	0.04
100	53.74	0.165	1.78	17.55	0.383	24.37	1.76	0.024	-	-	-	0.028	-	-	99.802	0.70	0.68	0.28	0.04
101	52.76	0.274	2.89	18.04	0.404	23.92	1.72	0.032	0.007	-	0.006	0.03	-	-	100.09	0.70	0.68	0.29	0.04
102	53.40	0.355	2.18	16.90	0.42	24.47	1.73	0.034	-	0.012	0.078	0.018	-	-	99.588	0.71	0.69	0.28	0.03
103	52.91	0.375	2.66	17.02	0.381	24.28	1.79	0.046	0.007	0.006	0.046	0.003	-	-	99.532	0.71	0.69	0.28	0.04

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17BG03-2@

27	54.40	0.19	1.49	17.19	0.396	24.39	1.72	0.073	-	0.022	-	0.004	-	0.003	99.879	0.70	0.67	0.29	0.03
28	53.61	0.325	2.26	16.61	0.402	24.34	1.66	0.049	0.001	-	0.035	0.024	-	0.004	99.317	0.70	0.68	0.29	0.03
29	53.57	0.317	2.32	16.96	0.375	24.65	1.67	0.061	0.009	-	0.023	0.018	-	-	99.959	0.71	0.69	0.28	0.03
30	54.52	0.163	1.41	17.00	0.402	24.98	1.76	0.057	0.014	0.037	0.017	0.029	-	0.001	100.391	0.71	0.69	0.28	0.03
31	54.72	0.254	1.73	16.74	0.364	25.06	1.74	0.083	0.006	-	-	0.059	-	0.002	100.755	0.71	0.69	0.28	0.03
32	53.92	0.218	1.94	16.86	0.422	24.12	1.71	0.038	-	0.002	0.045	0.014	-	-	99.281	0.69	0.67	0.29	0.03
33	54.48	0.412	1.45	17.78	0.409	24.24	1.91	0.075	0.004	0.025	0.015	0.005	-	0.003	100.808	0.69	0.67	0.29	0.04
34	54.77	0.294	0.97	16.84	0.479	24.43	1.98	0.061	0.007	-	-	-	-	-	99.822	0.70	0.67	0.29	0.04

35	54.15	0.323	2.16	15.99	0.425	24.99	1.84	0.055	-	0.004	0.034	0.009	-	0.013	99.981	0.72	0.69	0.27	0.04
36	54.51	0.343	1.46	17.21	0.416	24.63	1.92	0.09	-	-	-	0.036	-	0.009	100.617	0.71	0.68	0.28	0.04
37	53.95	0.327	1.91	17.21	0.38	24.19	1.75	0.05	-	0.027	0.052	-	-	-	99.842	0.70	0.67	0.29	0.04
55	54.13	0.302	1.90	17.06	0.389	24.59	1.76	0.042	0.006	-	0.021	-	-	0.009	100.204	0.71	0.68	0.28	0.04
56	54.42	0.19	1.50	16.95	0.407	24.69	1.74	0.046	0.007	-	0.038	0.001	-	-	99.979	0.71	0.68	0.28	0.03
57	53.48	0.282	2.32	17.20	0.42	24.11	1.78	0.057	-	-	0.021	0.04	-	-	99.701	0.70	0.68	0.29	0.04
58	55.26	0.097	0.89	17.44	0.497	25.15	1.17	0.055	-	0.004	0.017	0.038	-	-	100.613	0.70	0.69	0.29	0.02
59	53.98	0.347	1.74	17.04	0.371	24.33	1.81	0.05	-	0.017	0.096	0.013	-	-	99.793	0.70	0.68	0.29	0.04
60	54.69	0.145	0.78	18.04	0.593	24.88	0.81	0.054	-	-	0.031	0.02	-	0.005	100.048	0.70	0.69	0.30	0.02
61	53.34	0.423	2.66	17.82	0.413	24.23	1.74	0.114	0.012	0.024	-	0.025	-	0.011	100.808	0.71	0.68	0.28	0.04

17BG03-3@

91	53.76	0.395	2.29	17.22	0.412	24.75	1.79	0.04	-	-	0.069	0.02	-	0.002	100.752	0.71	0.69	0.28	0.04
92	54.04	0.282	1.98	17.14	0.352	25.00	1.64	0.006	-	0.015	0.031	0.012	-	-	100.498	0.71	0.69	0.28	0.03
93	53.40	0.341	2.17	17.38	0.427	24.32	1.76	0.026	-	-	0.008	-	-	0.005	99.832	0.71	0.68	0.28	0.04
94	54.15	0.313	1.68	17.08	0.373	24.74	1.75	0.062	-	-	0.044	0.004	-	-	100.201	0.71	0.69	0.28	0.03
95	53.42	0.394	2.33	17.59	0.385	24.20	1.86	0.029	-	0.013	0.023	0.019	-	0.007	100.259	0.70	0.68	0.29	0.04
96	54.08	0.265	1.65	17.27	0.428	24.52	1.74	0.035	-	0.011	0.029	-	-	0.003	100.033	0.70	0.68	0.29	0.03
97	53.87	0.298	2.28	16.45	0.389	24.11	1.84	0.065	0.013	-	-	0.01	-	0.013	99.332	0.70	0.67	0.29	0.04
98	53.50	0.233	1.95	18.62	0.461	23.21	1.85	0.039	-	0.015	0.044	0.018	-	0.011	99.955	0.68	0.65	0.31	0.04
99	53.68	0.329	1.63	17.54	0.398	24.26	2.00	0.052	0.024	-	0.006	-	-	-	99.925	0.71	0.68	0.28	0.04
100	53.86	0.322	1.93	17.28	0.423	24.31	1.68	0.085	-	0.019	-	0.048	-	0.013	99.967	0.70	0.68	0.29	0.03
101	53.75	0.395	1.89	17.24	0.429	24.28	1.76	0.065	0.011	0.001	-	0.013	-	0.006	99.837	0.70	0.68	0.29	0.04
102	53.89	0.298	1.79	17.32	0.399	24.27	1.78	0.043	-	-	0.031	0.029	-	-	99.847	0.70	0.67	0.29	0.04
103	53.63	0.238	1.91	17.12	0.396	24.10	1.78	0.074	0.002	0.011	0.025	0.018	-	0.009	99.308	0.70	0.68	0.29	0.04
104	53.78	0.238	2.24	16.07	0.351	25.03	1.65	0.069	-	0.032	-	0.027	-	-	99.489	0.72	0.70	0.27	0.03
105	53.22	0.29	3.13	16.91	0.376	24.62	1.59	0.056	0.005	-	0.023	0.009	-	-	100.22	0.72	0.69	0.27	0.03

106	53.24	0.282	3.33	16.71	0.36	24.60	1.60	0.053	-	-	0.031	-	-	-	100.199	0.72	0.69	0.27	0.03
107	52.72	0.402	3.10	17.30	0.36	24.15	1.78	0.042	0.006	-	-	0.01	-	-	99.874	0.71	0.69	0.28	0.04
108	54.73	0.262	1.81	15.85	0.38	25.19	1.64	0.071	-	0.004	-	-	-	-	99.938	0.71	0.69	0.28	0.03

3.4. Table S4: Representative plagioclase phenocryst and inclusion major element compositions (wt%) and Sr isotope data from the Nakoulai mafic dikes.

Spot	Type	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	FeO	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	Cr <sub>2</sub> O <sub>3</sub>	NiO	Cl	F	Total
16BG11-2@																
21	Inclusion	50.88	0.029	30.43	0.708	-	0.084	14.11	3.41	0.216	0.027	0.033	-	0.004	-	99.9
22	Inclusion	50.16	-	30.91	0.67	-	0.074	14.52	3.04	0.187	-	-	0.004	0.003	-	99.6
23	Inclusion	52.63	0.059	28.86	0.676	0.015	0.091	12.72	4.09	0.288	-	-	0.002	0.005	-	99.4
24	Inclusion	49.92	-	30.61	0.654	-	0.078	14.79	3.16	0.206	0.04	0.051	0.019	-	-	99.5
25	Inclusion	53.72	0.054	28.52	0.661	-	0.065	11.78	4.53	0.396	0.015	0.013	0.038	0.002	-	99.8
26	Inclusion	52.43	-	28.87	0.543	0.008	0.072	12.49	4.24	0.32	-	-	-	-	-	99.0
27	Inclusion	53.42	0.004	28.36	0.548	-	0.089	11.82	4.38	0.383	-	0.009	-	0.009	-	99.0
28	Inclusion	51.15	0.029	29.97	0.691	0.026	0.072	13.59	3.48	0.225	-	0.011	0.007	-	-	99.3
29	Inclusion	51.70	0.025	29.80	0.641	0.03	0.076	13.04	3.81	0.269	0.022	0.02	-	0.001	-	99.4
30	Inclusion	52.43	0.017	29.17	0.685	-	0.096	12.91	4.06	0.275	-	0.016	0.019	0.004	-	99.7
31	Inclusion	51.15	0.109	30.06	0.658	-	0.085	13.79	3.53	0.233	0.009	-	0.005	0.003	-	99.6
32	Inclusion	50.13	0.109	30.65	0.667	-	0.038	14.47	3.15	0.215	-	-	-	0.151	-	99.5
41	Phenocryst	54.25	0.063	28.50	0.572	0.007	0.05	11.38	4.81	0.38	0.043	0.007	-	-	-	100.1
42	Phenocryst	54.47	-	28.31	0.588	-	0.08	11.43	4.79	0.378	0.058	-	-	0.002	-	100.1
43	Phenocryst	54.66	0.071	27.67	0.518	0.013	0.075	11.01	5.10	0.439	0.04	-	0.019	-	-	99.6
44	Phenocryst	54.19	0.075	27.91	0.574	-	0.067	11.22	4.96	0.412	0.008	0.029	-	0.003	-	99.4

45	Phenocryst	53.77	0.092	28.20	0.571	0.015	0.066	11.60	4.52	0.396	0.006	-	0.031	-	-	99.3
46	Phenocryst	53.89	0.088	28.11	0.649	0.018	0.054	11.40	4.76	0.428	-	0.024	-	0.014	-	99.4
77	Phenocryst	54.03	0.117	27.86	0.95	0.023	0.07	11.42	4.73	0.399	0.002	-	-	0.003	-	99.6
78	Phenocryst	51.74	0.063	30.07	0.565	-	0.062	13.36	3.89	0.263	0.005	-	-	-	-	100.0
79	Phenocryst	52.22	-	29.65	0.602	-	0.079	13.05	3.99	0.282	0.036	-	0.012	-	-	99.9
80	Phenocryst	52.15	0.121	29.46	0.709	-	0.073	12.96	3.85	0.323	0.001	0.011	0.007	-	-	99.7
81	Phenocryst	53.16	0.13	29.24	0.58	0.025	0.055	12.22	4.21	0.334	-	0.027	0.006	0.008	-	100.0
82	Phenocryst	52.76	0.122	28.89	0.635	-	0.064	12.92	4.02	0.291	0.04	0.018	-	0.008	-	99.8

16BG11-4@

11	Phenocryst	54.21	-	28.11	0.604	-	0.073	11.24	4.81	0.396	0.002	-	-	-	-	99.4
12	Phenocryst	52.73	0.096	29.54	0.575	0.015	0.049	12.71	4.20	0.353	-	-	0.023	-	-	100.3
13	Phenocryst	54.45	0.038	28.04	0.58	-	0.064	11.28	4.81	0.399	-	0.002	0.006	-	-	99.7
14	Phenocryst	52.80	0.046	29.15	0.592	0.002	0.067	12.48	4.41	0.309	-	-	-	-	-	99.9
15	Phenocryst	51.14	0.034	30.45	0.616	0.028	0.067	13.79	3.47	0.247	-	-	0.025	0.001	-	99.9
16	Phenocryst	53.26	-	28.84	0.585	-	0.081	12.05	4.54	0.343	-	0.007	-	-	-	99.7
17	Phenocryst	49.88	0.067	31.30	0.626	0.033	0.063	14.73	3.04	0.171	0.009	0.018	-	-	-	99.9
18	Phenocryst	54.51	-	28.02	0.605	0.025	0.076	11.19	4.82	0.396	0.027	0.04	0.01	0.001	-	99.7
32	Phenocryst	53.42	0.042	28.96	0.588	0.021	0.06	12.20	4.42	0.347	0.034	0.009	-	-	-	100.1
33	Phenocryst	52.43	0.08	29.81	0.612	-	0.055	13.09	3.94	0.298	0.026	-	-	-	-	100.3
34	Phenocryst	52.78	0.017	29.48	0.6	-	0.063	12.72	4.37	0.298	0.016	0.029	-	0.003	-	100.4
35	Phenocryst	51.26	0.042	30.57	0.574	-	0.069	13.81	3.70	0.221	0.038	0.018	0.011	0.015	-	100.3
36	Phenocryst	52.76	-	29.13	0.555	0.008	0.057	13.21	3.89	0.269	0.014	0.016	-	-	-	99.9
37	Phenocryst	54.15	-	28.36	0.591	0.01	0.071	11.86	4.75	0.383	0.022	-	-	-	-	100.2

17BG02-2@

4	Phenocryst	53.47	0.084	28.39	0.851	-	0.078	12.12	4.42	0.342	0.017	-	0.007	-	-	99.8
5	Phenocryst	54.63	0.054	27.52	0.519	0.008	0.073	11.50	4.96	0.388	0.064	0.04	0.023	-	0.006	99.8

6	Phenocryst	53.96	0.063	27.81	0.53	0.02	0.053	11.69	4.79	0.437	0.044	0.004	-	-	0.005	99.4
7	Phenocryst	53.69	0.025	28.61	0.503	-	0.064	11.95	4.59	0.394	0.021	0.007	-	-	-	99.9
8	Phenocryst	53.98	0.033	28.43	0.537	0.031	0.074	12.06	4.39	0.377	0.015	0.011	0.001	-	-	99.9
9	Phenocryst	53.69	0.042	28.14	0.45	0.033	0.078	12.18	4.41	0.413	0.007	0.004	0.02	-	0.001	99.5
10	Phenocryst	53.31	0.1	28.94	0.535	0.018	0.07	12.35	4.27	0.367	0.02	-	-	-	0.005	100.0
11	Phenocryst	54.47	0.058	27.60	0.493	-	0.062	11.58	4.78	0.483	0.021	0.002	0.016	-	0.001	99.6
12	Phenocryst	53.88	0.1	28.32	0.501	-	0.05	11.62	4.58	0.441	0.015	0.009	0.015	-	0.004	99.5
13	Phenocryst	52.94	0.083	28.46	0.767	0.002	0.086	12.58	4.28	0.325	0.016	-	0.011	-	0.02	99.6
14	Phenocryst	52.75	-	28.59	0.644	-	0.071	12.99	4.00	0.287	0.065	0.029	0.008	-	0.002	99.4
15	Phenocryst	56.09	0.075	26.53	0.554	0.031	0.086	10.53	5.21	0.527	0.018	0.027	-	-	0.001	99.7
16	Phenocryst	53.96	0.075	28.21	0.584	-	0.076	11.95	4.58	0.399	0.031	0.02	0.027	-	0.007	99.9
17	Phenocryst	52.82	0.112	29.14	0.513	0.008	0.062	12.75	4.15	0.347	0.031	0.004	0.006	-	0.012	100.0
18	Phenocryst	54.33	0.05	28.02	0.564	-	0.07	11.63	4.69	0.524	0.051	0.013	-	-	-	99.9
19	Phenocryst	53.63	0.066	28.47	0.581	0.01	0.068	12.08	4.40	0.383	0.058	-	-	-	0.009	99.8
20	Phenocryst	53.89	-	28.45	0.548	0.013	0.065	11.83	4.47	0.411	0.033	-	0.024	-	-	99.7
21	Phenocryst	56.07	0.075	26.87	0.549	-	0.073	10.38	5.21	0.531	0.047	0.02	-	-	-	99.8
22	Phenocryst	55.79	0.083	26.67	0.583	-	0.067	10.56	5.27	0.482	-	0.015	0.006	-	-	99.5
23	Phenocryst	53.99	0.017	28.23	0.809	0.003	0.083	11.94	4.44	0.364	0.022	0.002	0.006	-	-	99.9
24	Phenocryst	51.52	0.063	29.41	0.884	0.003	0.096	13.15	3.73	0.262	0.025	-	0.01	-	0.005	99.2
25	Phenocryst	55.97	0.088	26.84	0.543	0.015	0.083	10.57	5.19	0.498	0.006	0.002	0.013	-	0.001	99.8
26	Phenocryst	54.56	0.054	27.41	0.685	-	0.085	11.54	4.87	0.427	0.007	-	-	-	0.002	99.6
27	Phenocryst	53.12	0.017	28.48	0.457	0.008	0.071	12.67	4.28	0.32	0.017	0.009	0.003	-	-	99.5
28	Phenocryst	54.35	0.025	28.23	0.573	0.02	0.049	11.58	4.72	0.389	0.03	-	-	-	-	100.0
29	Phenocryst	55.55	0.075	26.85	0.547	0.007	0.08	10.90	5.04	0.496	0.029	0.009	0.035	-	0.004	99.6
30	Phenocryst	54.97	0.054	27.55	0.638	0.041	0.061	11.17	4.92	0.512	0.003	0.035	0.002	-	0.005	100.0
31	Phenocryst	53.46	0.058	28.43	0.591	-	0.073	11.72	4.37	0.43	0.025	-	-	-	0.015	99.2

32	Phenocryst	53.85	0.075	27.92	0.538	0.016	0.046	12.10	4.43	0.393	0.012	-	-	-	-	99.4
33	Phenocryst	55.52	-	26.93	0.542	0.023	0.066	10.81	5.16	0.463	0.018	0.031	-	-	-	99.6

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16	Phenocryst	54.09	0.109	27.84	1.003	-	0.13	11.81	4.72	0.372	0.036	0.038	-	-	-	100.1
17	Phenocryst	51.31	0.08	29.50	0.735	0.01	0.147	13.64	3.67	0.469	0.039	0.016	0.002	-	0.008	99.6
18	Phenocryst	53.66	0.046	28.49	0.71	0.008	0.082	12.35	4.33	0.381	0.019	-	0.04	-	-	100.1
19	Phenocryst	49.66	-	31.20	0.593	0.01	0.065	15.15	2.98	0.183	0.059	0.016	-	-	0.006	99.9
20	Phenocryst	54.62	0.046	27.64	0.553	0.002	0.069	11.65	4.63	0.383	0.031	-	0.033	-	-	99.7
21	Phenocryst	53.17	0.004	28.60	0.647	0.003	0.077	12.45	4.22	0.301	0.009	0.046	0.01	-	-	99.5
22	Phenocryst	50.97	0.029	30.36	0.593	0.011	0.077	14.57	3.03	0.176	0.016	-	0.013	-	0.006	99.9
23	Phenocryst	50.71	0.062	30.59	0.681	0.002	0.068	14.50	3.15	0.17	0.023	0.018	0.012	-	-	100.0
24	Phenocryst	54.18	0.046	28.05	0.546	-	0.063	11.93	4.39	0.353	-	0.022	-	-	-	99.6
25	Phenocryst	54.90	0.108	27.40	0.981	-	0.104	11.53	4.74	0.382	0.028	-	-	-	0.003	100.2
41	Phenocryst	52.00	-	29.91	0.616	-	0.096	13.51	3.55	0.243	0.022	0.011	0.009	-	-	100.0
42	Phenocryst	54.61	0.078	27.90	0.554	-	0.061	11.51	4.86	0.391	0.004	-	-	-	-	100.0
43	Phenocryst	52.66	0.045	28.68	0.667	0.021	0.095	12.91	4.04	0.255	0.004	0.026	0.007	-	0.006	99.4
44	Phenocryst	50.28	0.004	30.48	0.569	0.032	0.057	14.91	2.87	0.179	0.043	-	-	-	0.01	99.4
45	Phenocryst	54.36	0.079	27.62	0.59	-	0.089	11.61	4.69	0.376	0.031	0.015	0.013	-	0.006	99.5
46	Phenocryst	51.57	0.041	29.65	0.679	-	0.073	13.77	3.42	0.234	0.001	0.024	0.013	-	-	99.5
47	Phenocryst	55.05	0.087	27.59	0.615	0.002	0.08	11.24	5.00	0.366	-	-	-	-	-	100.0
48	Phenocryst	52.36	0.012	29.12	0.558	0.01	0.062	13.19	3.79	0.289	0.026	0.004	0.013	-	0.001	99.4
49	Phenocryst	53.41	0.054	28.07	1.244	0.015	0.606	11.86	4.06	0.478	0.033	-	0.044	-	0.013	99.9
50	Phenocryst	51.42	0.095	29.69	0.605	-	0.064	13.91	3.54	0.216	0.014	0.029	-	-	0.009	99.6
54	Phenocryst	53.72	0.049	28.23	0.539	0.016	0.087	12.29	4.27	0.329	0.026	-	-	-	0.003	99.6
55	Phenocryst	53.74	0.099	28.15	0.638	0.023	0.096	12.04	4.22	0.326	0.012	0.007	0.005	-	0.009	99.4
56	Phenocryst	54.44	0.066	28.30	0.601	0.008	0.074	11.46	4.64	0.367	0.023	0.002	-	-	0.004	100.0

57	Phenocryst	53.29	0.079	28.60	0.564	0.04	0.073	12.42	3.96	0.316	0.029	-	-	-	-	99.4
58	Phenocryst	53.56	-	28.47	0.552	0.016	0.085	12.26	4.21	0.306	-	0.002	0.027	-	-	99.5
59	Phenocryst	53.15	0.058	28.47	0.6	0.002	0.067	12.39	4.32	0.319	-	-	-	-	0.006	99.4
60	Phenocryst	52.85	0.025	29.28	0.671	0.021	0.079	12.50	3.98	0.303	0.012	-	0.001	-	-	99.7
61	Phenocryst	53.06	0.062	29.18	0.602	-	0.093	12.57	4.04	0.282	0.001	-	-	-	-	99.9
62	Phenocryst	52.99	0.083	29.18	0.572	0.008	0.087	12.53	4.09	0.296	0.013	-	0.026	-	-	99.9
63	Phenocryst	52.86	-	28.97	0.62	0.039	0.07	12.80	4.10	0.291	0.027	-	-	-	0.01	99.8
64	Phenocryst	53.34	-	28.49	0.58	0.016	0.09	12.66	4.10	0.454	-	-	-	-	0.003	99.7
65	Phenocryst	54.03	0.025	28.45	0.589	0.044	0.073	11.86	4.47	0.34	0.033	0.011	-	-	0.004	99.9
66	Phenocryst	53.65	0.008	28.15	0.517	-	0.069	12.07	4.52	0.308	0.025	0.039	0.005	-	-	99.4
67	Phenocryst	53.75	0.041	28.42	0.636	0.042	0.099	12.10	4.47	0.364	0.011	0.002	-	-	-	99.9
68	Phenocryst	53.79	0.033	28.60	0.624	0.011	0.057	11.90	4.62	0.327	-	-	-	-	-	100.0
85	Inclusion	53.72	0.071	28.34	0.726	-	0.077	11.86	4.59	0.252	0.018	-	-	-	0.005	99.7
86	Inclusion	53.18	0.008	28.40	0.701	0.054	0.057	11.79	4.63	0.328	0.04	0.009	-	-	0.018	99.2
105	Inclusion	52.99	0.071	28.84	0.861	0.031	0.071	12.24	4.42	0.292	0.019	-	-	-	-	99.8

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23	Phenocryst	51.76	-	29.83	0.743	-	0.061	13.34	3.86	0.251	0.034	-	-	-	0.009	99.9
24	Phenocryst	52.46	0.033	29.51	0.621	-	0.077	12.95	3.94	0.31	0.035	-	-	-	-	99.9
25	Phenocryst	52.84	-	29.36	0.616	-	0.055	12.65	4.07	0.283	0.039	0.007	0.001	-	-	99.9
26	Phenocryst	53.79	0.033	28.64	0.637	0.027	0.068	12.19	4.21	0.333	-	-	0.005	-	-	99.9
49	Phenocryst	54.28	0.025	28.53	0.594	-	0.066	11.96	4.43	0.347	0.041	0.018	-	-	0.004	100.3
50	Phenocryst	53.96	0.058	28.55	0.624	0.044	0.047	12.02	4.58	0.328	0.012	0.035	-	-	0.003	100.3
51	Phenocryst	53.33	0.025	29.15	0.521	-	0.077	12.41	4.24	0.274	0.029	0.011	0.032	-	0.006	100.1
52	Phenocryst	54.07	-	28.33	0.553	-	0.065	11.80	4.33	0.324	0.043	-	0.027	-	-	99.5
53	Phenocryst	54.44	0.033	28.46	0.58	0.02	0.087	11.87	4.67	0.329	0.009	-	0.019	-	0.021	100.5
54	Phenocryst	53.74	0.1	28.76	0.554	0.021	0.072	12.19	4.28	0.301	0.015	0.02	0.031	-	-	100.1



## 17BG03-3@

24	Inclusion	53.68	0.054	28.52	0.728	-	0.079	12.39	4.29	0.323	-	0.016	-	-	0.007	100.1
25	Inclusion	53.28	0.059	28.63	0.678	0.008	0.087	12.78	3.91	0.269	0.035	-	0.007	-	-	99.7
26	Inclusion	52.73	0.038	28.90	0.682	0.011	0.078	12.92	4.10	0.266	0.006	0.049	-	-	-	99.8
27	Inclusion	53.32	0.104	28.38	0.609	0.002	0.06	12.53	4.48	0.307	-	-	-	-	-	99.8
28	Inclusion	52.92	0.033	28.32	0.712	0.015	0.063	12.86	4.05	0.315	-	0.02	-	-	0.003	99.3
29	Inclusion	52.22	0.088	29.16	0.622	0.002	0.06	13.50	3.58	0.225	-	-	-	-	0.015	99.5
30	Inclusion	50.78	0.013	30.16	0.696	0.016	0.064	14.51	3.13	0.186	0.008	0.009	0.001	-	0.011	99.6
31	Inclusion	52.67	-	28.83	0.639	0.021	0.052	12.87	4.04	0.314	0.047	0.002	-	-	-	99.5
32	Inclusion	52.79	0.058	28.84	0.576	-	0.076	12.73	4.14	0.303	0.038	0.018	-	-	-	99.6
33	Inclusion	53.33	0.067	28.61	0.801	-	0.174	12.55	3.93	0.318	-	0.024	-	-	0.007	99.8
37	Phenocryst	54.18	0.108	27.66	0.627	-	0.09	11.74	4.46	0.353	-	-	0.028	-	0.006	99.3
38	Phenocryst	53.09	0.079	28.67	0.647	0.01	0.062	12.83	4.11	0.254	0.021	-	-	-	0.008	99.8
39	Phenocryst	53.13	-	28.34	0.601	-	0.077	12.56	4.19	0.295	0.028	0.011	-	-	-	99.2
40	Phenocryst	54.11	0.05	28.10	0.64	0.019	0.082	12.11	4.49	0.327	0.039	-	-	-	0.003	100.0
41	Phenocryst	53.27	0.025	28.55	0.665	-	0.095	12.55	4.25	0.308	-	0.018	0.027	-	-	99.7
42	Phenocryst	51.21	0.067	30.27	0.647	0.039	0.069	13.63	3.52	0.233	0.058	0.002	-	-	-	99.7
43	Phenocryst	52.32	-	29.51	0.589	-	0.066	13.52	3.88	0.225	0.009	-	0.019	-	0.009	100.1
44	Phenocryst	53.59	0.046	28.60	0.672	-	0.086	12.57	4.17	0.328	0.022	0.026	0.015	-	-	100.1
45	Phenocryst	51.73	0.054	29.41	0.625	-	0.066	13.47	3.68	0.237	0.02	-	0.031	-	-	99.3
46	Phenocryst	54.22	0.108	27.65	0.639	0.034	0.076	11.64	4.59	0.335	0.03	0.007	-	-	-	99.3
47	Phenocryst	54.27	0.099	27.63	0.58	0.013	0.073	11.54	4.72	0.367	-	0.044	0.008	-	0.011	99.3
48	Phenocryst	52.56	0.037	29.06	0.62	-	0.078	12.91	3.90	0.285	0.018	-	0.004	-	0.011	99.5
49	Phenocryst	54.04	0.05	28.02	0.627	-	0.071	11.99	4.48	0.35	0.017	0.002	0.005	-	-	99.7
50	Phenocryst	51.22	0.066	29.77	0.656	0.042	0.077	14.15	3.27	0.203	0.046	-	-	-	-	99.5
51	Phenocryst	51.72	0.046	29.36	0.635	-	0.087	13.62	3.62	0.243	-	0.011	0.015	-	0.017	99.4

52	Phenocryst	52.14	0.021	29.93	0.586	0.026	0.073	13.36	3.38	0.244	0.026	-	0.005	-	0.008	99.8
53	Phenocryst	52.48	0.042	28.88	0.662	0.005	0.059	13.09	3.77	0.267	0.022	0.011	0.016	-	0.006	99.3
54	Phenocryst	54.00	0.037	28.44	0.657	0.028	0.07	11.81	4.42	0.347	0.024	0.04	0.001	-	0.003	99.9
55	Phenocryst	53.70	0.041	27.99	0.75	-	0.064	12.12	4.35	0.34	-	0.011	0.017	-	-	99.4
56	Phenocryst	53.10	0.075	28.46	0.574	0.036	0.07	12.47	4.38	0.314	0.028	0.026	0.01	-	0.011	99.5
57	Phenocryst	54.33	0.07	27.65	0.68	0.024	0.081	11.58	4.54	0.372	0.015	-	-	-	-	99.4
58	Phenocryst	51.45	0.058	29.68	0.605	-	0.077	13.46	3.56	0.253	0.014	-	-	-	0.004	99.2
59	Phenocryst	51.71	0.008	29.09	0.63	0.024	0.073	13.53	3.65	0.26	0.042	-	-	-	0.002	99.0
60	Phenocryst	54.36	0.099	27.54	0.608	0.018	0.065	11.46	4.78	0.36	0.021	0.02	-	-	-	99.3
61	Phenocryst	54.25	0.141	27.74	0.685	-	0.069	11.45	4.61	0.411	0.032	0.02	-	-	0.007	99.4
62	Phenocryst	54.19	0.12	27.91	0.589	0.011	0.068	11.83	4.62	0.33	0.051	-	0.021	-	0.01	99.7
63	Phenocryst	53.20	0.083	28.85	0.607	-	0.087	12.37	4.32	0.317	0.004	-	-	-	-	99.8
64	Phenocryst	53.41	0.066	28.30	0.63	0.026	0.062	12.20	4.28	0.318	0.004	0.029	0.008	-	0.006	99.3
65	Phenocryst	54.53	0.07	27.54	0.627	-	0.057	11.56	4.80	0.393	0.048	-	0.027	-	0.003	99.6
66	Phenocryst	54.19	0.029	28.21	0.614	-	0.064	11.68	4.56	0.354	0.018	-	0.014	-	0.003	99.7
67	Phenocryst	53.49	0.021	28.20	0.704	-	0.092	12.48	4.51	0.393	-	-	0.016	-	0.016	99.9
86	Inclusion	52.89	0.062	28.39	0.573	0.031	0.103	12.87	4.15	0.305	0.023	-	-	-	0.011	99.4
87	Inclusion	52.37	0.09	29.08	0.725	-	0.08	13.19	3.97	0.273	-	0.011	0.043	-	0.006	99.8
88	Phenocryst	52.70	0.053	28.69	0.679	0.014	0.085	12.92	3.89	0.36	0.023	0.039	0.005	-	-	99.5
89	Phenocryst	52.08	0.062	29.27	0.689	0.008	0.073	13.29	3.64	0.297	-	0.002	0.019	-	0.005	99.4
90	Phenocryst	51.67	-	29.54	0.77	-	0.075	13.86	3.25	0.278	0.026	-	-	-	0.003	99.5

Table S4. (continued)

Spot	Type	Or	Ab	An	$^{87}\text{Sr}/^{86}\text{Sr}$	$\pm 1\sigma$	P	T
16BG11-2@								
21	Inclusion	1.25	30.05	68.69	0.70603	0.00010	8.5	1265
22	Inclusion	1.10	27.19	71.71	0.70599	0.00005	8.0	1268
23	Inclusion	1.68	36.15	62.17	0.70605	0.00005		
24	Inclusion	1.18	27.53	71.29	0.70601	0.00006	7.5	1244
25	Inclusion	2.30	40.09	57.61	0.70599	0.00006		
26	Inclusion	1.85	37.34	60.80	0.70580	0.00006		
27	Inclusion	2.26	39.26	58.49	0.70588	0.00006		
28	Inclusion	1.33	31.26	67.41	0.70593	0.00005	7.7	1225
29	Inclusion	1.58	34.06	64.36	0.70595	0.00005	7.2	1186
30	Inclusion	1.59	35.70	62.71	0.70606	0.00005		
31	Inclusion	1.36	31.23	67.41	0.70600	0.00006	6.7	1189
32	Inclusion	1.25	27.89	70.85	0.70599	0.00005	6.2	1192
41	Phenocryst	2.20	42.39	55.41	0.70600	0.00006		
42	Phenocryst	2.19	42.16	55.65	0.70603	0.00006		
43	Phenocryst	2.52	44.44	53.04	0.70621	0.00006		
44	Phenocryst	2.37	43.38	54.25	0.70583	0.00006		
45	Phenocryst	2.33	40.37	57.30	0.70587	0.00005		
46	Phenocryst	2.48	42.00	55.52	0.70598	0.00006		
77	Phenocryst	2.32	41.82	55.85	0.70596	0.00006		
78	Phenocryst	1.51	33.98	64.51	0.70589	0.00006	7.1	1201
79	Phenocryst	1.63	35.06	63.31	0.70591	0.00005	6.3	1165
80	Phenocryst	1.89	34.32	63.79	0.70594	0.00006	6.3	1166

81	Phenocryst	1.96	37.63	60.40	0.70592	0.00005	6.9	1162
82	Phenocryst	1.69	35.40	62.91	0.70593	0.00006	6.4	1164
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16BG11-4@								
11	Phenocryst	2.31	42.63	55.06	0.70589	0.00006		
12	Phenocryst	2.03	36.63	61.34	0.70586	0.00006	7.0	1190
13	Phenocryst	2.32	42.51	55.16	0.70581	0.00007		
14	Phenocryst	1.77	38.32	59.92	0.70601	0.00006	7.2	1188
15	Phenocryst	1.44	30.84	67.72	0.70588	0.00008	5.9	1196
16	Phenocryst	1.98	39.74	58.28	0.70584	0.00006	7.5	1186
17	Phenocryst	1.00	26.92	72.08	0.70579	0.00007	5.0	1189
18	Phenocryst	2.31	42.80	54.89	0.70584	0.00006		
32	Phenocryst	2.00	38.83	59.17	0.70580	0.00005	7.1	1177
33	Phenocryst	1.72	34.66	63.61	0.70595	0.00007	6.3	1182
34	Phenocryst	1.69	37.72	60.59	0.70590	0.00006	6.8	1178
35	Phenocryst	1.27	32.21	66.52	0.70589	0.00006	5.7	1180
36	Phenocryst	1.56	34.21	64.23	0.70595	0.00005	6.0	1175
37	Phenocryst	2.18	41.12	56.70	0.70593	0.00006		
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17BG02-2@								
4	Phenocryst	1.98	38.96	59.05				
5	Phenocryst	2.21	42.86	54.93				
6	Phenocryst	2.49	41.49	56.02				
7	Phenocryst	2.26	40.08	57.66				
8	Phenocryst	2.20	38.81	58.99				
9	Phenocryst	2.38	38.61	59.01				
10	Phenocryst	2.13	37.65	60.22				
11	Phenocryst	2.76	41.60	55.63				

12	Phenocryst	2.57	40.54	56.89
13	Phenocryst	1.87	37.39	60.74
14	Phenocryst	1.66	35.17	63.17
15	Phenocryst	3.05	45.79	51.16
16	Phenocryst	2.29	40.01	57.70
17	Phenocryst	2.00	36.31	61.69
18	Phenocryst	3.01	40.92	56.07
19	Phenocryst	2.22	38.84	58.93
20	Phenocryst	2.40	39.63	57.97
21	Phenocryst	3.09	46.12	50.79
22	Phenocryst	2.78	46.16	51.07
23	Phenocryst	2.12	39.37	58.51
24	Phenocryst	1.54	33.42	65.03
25	Phenocryst	2.88	45.70	51.42
26	Phenocryst	2.44	42.23	55.33
27	Phenocryst	1.83	37.22	60.94
28	Phenocryst	2.25	41.51	56.24
29	Phenocryst	2.86	44.26	52.87
30	Phenocryst	2.95	43.02	54.03
31	Phenocryst	2.54	39.27	58.19
32	Phenocryst	2.27	38.95	58.78
33	Phenocryst	2.66	45.13	52.21

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16	Phenocryst	2.13	41.07	56.80	0.70584	0.00006		
17	Phenocryst	2.68	31.84	65.48	0.70584	0.00005	6.2	1169
18	Phenocryst	2.20	37.97	59.84	0.70609	0.00005		

19	Phenocryst	1.05	25.95	73.00	0.70594	0.00006	5.0	1173
20	Phenocryst	2.23	40.92	56.85	0.70608	0.00006		
21	Phenocryst	1.75	37.34	60.91	0.70614	0.00005	6.8	1162
22	Phenocryst	1.03	27.08	71.89	0.70609	0.00006	5.2	1172
23	Phenocryst	0.99	27.90	71.10	0.70598	0.00005	5.2	1171
24	Phenocryst	2.07	39.13	58.80	0.70595	0.00005		
25	Phenocryst	2.21	41.73	56.06	0.70619	0.00006		
41	Phenocryst	1.43	31.78	66.79	0.70593	0.00004	5.9	1168
42	Phenocryst	2.24	42.35	55.41	0.70603	0.00006		
43	Phenocryst	1.48	35.60	62.92	0.70620	0.00005	6.4	1163
44	Phenocryst	1.05	25.55	73.40	0.70606	0.00005	5.0	1173
45	Phenocryst	2.18	41.29	56.53	0.70609	0.00006		
46	Phenocryst	1.38	30.59	68.03	0.70604	0.00006	5.7	1169
47	Phenocryst	2.10	43.67	54.23	0.70611	0.00005		
48	Phenocryst	1.69	33.62	64.69	0.70605	0.00006	6.2	1166
49	Phenocryst	2.88	37.15	59.97	0.70603	0.00006	7.1	1163
50	Phenocryst	1.25	31.13	67.62	0.70583	0.00006	5.7	1168
54	Phenocryst	1.92	37.89	60.19	0.70604	0.00006		
55	Phenocryst	1.93	38.07	60.00	0.70600	0.00006		
56	Phenocryst	2.15	41.38	56.46	0.70636	0.00006		
57	Phenocryst	1.88	35.87	62.24	0.70595	0.00006	6.6	1164
58	Phenocryst	1.80	37.65	60.55	0.70615	0.00006		
59	Phenocryst	1.84	37.98	60.17	0.70627	0.00006		
60	Phenocryst	1.80	35.87	62.33	0.70593	0.00006	6.6	1163
61	Phenocryst	1.66	36.16	62.18	0.70586	0.00006	6.6	1163
62	Phenocryst	1.74	36.50	61.76	0.70621	0.00005	6.7	1163

63	Phenocryst	1.69	36.06	62.26	0.70623	0.00006	6.6	1163
64	Phenocryst	2.62	35.95	61.43	0.70634	0.00006	6.8	1164
65	Phenocryst	1.99	39.73	58.28	0.70634	0.00005		
66	Phenocryst	1.78	39.65	58.57	0.70637	0.00005		
67	Phenocryst	2.10	39.23	58.67	0.70627	0.00005		
68	Phenocryst	1.89	40.47	57.64	0.70594	0.00006		
85	Inclusion	1.47	40.60	57.93	0.70618	0.00009		
86	Inclusion	1.90	40.74	57.36	0.70623	0.00008		
105	Inclusion	1.69	38.83	59.48				
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17BG03-2@								
23	Phenocryst	1.45	33.90	64.66			6.2	1176
24	Phenocryst	1.80	34.84	63.36			6.5	1175
25	Phenocryst	1.66	36.18	62.16			6.7	1173
26	Phenocryst	1.96	37.71	60.33				
49	Phenocryst	2.03	39.30	58.67				
50	Phenocryst	1.89	40.03	58.08				
51	Phenocryst	1.60	37.62	60.78				
52	Phenocryst	1.93	39.15	58.92				
53	Phenocryst	1.89	40.81	57.30				
54	Phenocryst	1.77	38.16	60.08				
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17BG03-3@								
24	Inclusion	1.87	37.77	60.36	0.70572	0.00006		
25	Inclusion	1.59	35.05	63.36	0.70594	0.00007	7.3	1205
26	Inclusion	1.53	35.94	62.52	0.70600	0.00006	7.1	1193
27	Inclusion	1.74	38.60	59.66	0.70602	0.00007		
28	Inclusion	1.82	35.62	62.56	0.70607	0.00007	7.2	1194

29	Inclusion	1.32	32.00	66.67	0.70592	0.00007	6.5	1198
30	Inclusion	1.09	27.79	71.12	0.70593	0.00006	5.8	1202
31	Inclusion	1.82	35.58	62.60	0.70597	0.00005	7.1	1190
32	Inclusion	1.75	36.43	61.82	0.70592	0.00005		
33	Inclusion	1.89	35.48	62.63	0.70603	0.00006	6.9	1183
37	Phenocryst	2.08	39.86	58.06	0.70591	0.00005		
38	Phenocryst	1.47	36.14	62.39			6.6	1173
39	Phenocryst	1.71	36.99	61.30	0.70593	0.00006		
40	Phenocryst	1.89	39.38	58.74	0.70595	0.00006		
41	Phenocryst	1.78	37.32	60.90				
42	Phenocryst	1.37	31.39	67.24	0.70591	0.00006	5.9	1178
43	Phenocryst	1.29	33.76	64.95			6.2	1176
44	Phenocryst	1.90	36.79	61.31	0.70590	0.00006		
45	Phenocryst	1.38	32.61	66.00			6.0	1177
46	Phenocryst	1.96	40.80	57.23	0.70590	0.00006		
47	Phenocryst	2.13	41.62	56.25	0.70616	0.00006		
48	Phenocryst	1.67	34.77	63.56	0.70587	0.00006	6.5	1175
49	Phenocryst	2.03	39.53	58.44	0.70603	0.00006		
50	Phenocryst	1.19	29.12	69.69	0.70587	0.00006	5.5	1180
51	Phenocryst	1.41	32.00	66.59	0.70620	0.00007	6.0	1178
52	Phenocryst	1.47	30.95	67.58	0.70596	0.00006	5.8	1179
53	Phenocryst	1.57	33.72	64.71	0.70606	0.00006	6.3	1176
54	Phenocryst	2.04	39.54	58.42	0.70587	0.00006		
55	Phenocryst	1.98	38.59	59.42				
56	Phenocryst	1.80	38.15	60.05	0.70615	0.00006		
57	Phenocryst	2.19	40.62	57.20				



58	Phenocryst	1.49	31.87	66.64	0.70617	0.00006	6.0	1178
59	Phenocryst	1.51	32.31	66.18			6.0	1177
60	Phenocryst	2.09	42.10	55.81	0.70618	0.00005		
61	Phenocryst	2.41	41.12	56.47				
62	Phenocryst	1.91	40.62	57.47				
63	Phenocryst	1.84	37.98	60.18	0.70605	0.00006		
64	Phenocryst	1.86	38.12	60.02				
65	Phenocryst	2.26	41.90	55.84	0.70587	0.00006		
66	Phenocryst	2.07	40.56	57.37	0.70596	0.00006		
67	Phenocryst	2.22	38.69	59.10	0.70593	0.00006		
86	Inclusion	1.75	36.20	62.05	0.70588	0.00006	7.0	1185
87	Inclusion	1.57	34.72	63.71	0.70604	0.00005	6.4	1175
88	Phenocryst	2.10	34.52	63.38			6.5	1175
89	Phenocryst	1.75	32.56	65.70			6.1	1177
90	Phenocryst	1.65	29.31	69.04			5.6	1181

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3.5. Table S5: Representative titanomagnetite major element compositions (wt%) from the Nakoulai mafic dikes.

Spot	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	FeO	MnO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	Cr <sub>2</sub> O <sub>3</sub>	NiO	Cl	F	Total
16BG11-2@															
33	0.196	8.276	5.811	78.407	0.398	1.243	-	0.015	-	0.009	2.159	0.033	-	0.1	96.605
34	0.058	8.062	5.881	76.529	0.314	2.717	-	0.062	-	-	1.07	0.019	0.009	0.169	94.817
35	0.052	17.285	1.116	77.245	1.029	0.004	-	0.013	-	0.025	0.367	0.03	-	0.194	97.278
36	0.224	11.362	1.031	83.191	0.086	0.024	0.034	-	0.009	0.009	0.065	0.033	-	0.2	96.184
37	0.106	10.187	0.992	83.884	0.369	0.17	0.021	-	0.021	-	0.046	0.011	-	0.243	95.948
38	0.175	10.551	1.144	83.849	0.214	0.052	-	-	-	-	0.05	-	0.005	0.146	96.124
39	0.582	13.602	1.44	79.53	0.113	0.032	0.074	-	-	0.011	0.204	0.001	-	0.254	95.736
40	4.792	16.823	1.214	72.031	0.106	0.058	0.262	0.215	0.135	-	0.335	-	-	0.045	95.997
74	6.532	6.082	1.287	79.557	0.092	0.671	0.12	0.157	0.253	0.022	0.484	-	-	0.137	95.336
75	4.946	15.877	2.499	70.141	0.073	0.057	0.318	0.292	0.178	-	0.438	-	0.002	0.122	94.892
76	3.35	17.298	1.392	72.892	0.117	0.028	0.219	0.214	0.104	0.023	0.351	-	-	0.129	96.063
83	2.436	3.395	0.491	89.362	0.047	0.087	0.124	0.078	0.044	-	0.949	0.018	-	0.232	97.165
16BG11-4@															
19	0.054	8.505	5.52	78.85	0.305	3.692	0.106	0.009	-	0.001	0.554	0.013	-	0.214	97.733
20	0.368	14.866	2.557	77.279	0.137	0.044	0.024	0.041	0.03	0.008	0.509	0.033	-	0.159	95.988
21	1.494	16.205	2.741	75.249	0.209	0.034	0.084	0.061	0.06	0.017	0.557	0.025	-	0.21	96.858
39	0.17	12.178	1.062	83.865	0.101	0.021	0.049	-	-	0.008	0.073	0.008	-	0.232	97.669
40	0.15	11.265	1.234	82.94	0.033	-	0.111	0.08	0.015	0.005	0.051	-	-	0.309	96.063
17BG02-2@															
1	0.068	14.556	1.194	79.034	0.507	0.715	-	-	-	-	0.112	0.013	0.096	-	96.255
2	0.215	15.487	0.885	75.319	0.324	0.612	-	0.005	0.01	0.008	0.044	0.005	0.134	-	92.992
3	0.112	16.828	0.323	75.224	0.333	0.725	0.032	0.038	0.025	0.045	0.032	-	0.117	0.009	93.792

## 17BG03-1@

69	0.091	8.216	8.159	74.411	0.389	3.535	0.119	-	-	0.023	0.872	0.058	0.066	-	95.911
83	2.97	11.943	2.441	77.863	0.696	0.175	-	0.031	-	0.002	0.517	0.004	0.118	-	96.71
84	11.256	11.968	2.293	70.028	0.668	0.104	-	0.059	0.003	-	0.483	0.029	0.13	-	96.966
87	0.121	11.597	4.146	80.33	0.515	0.329	-	-	-	-	0.452	-	0.12	0.019	97.574
88	0.087	10.497	4.804	79.569	0.477	0.468	0.083	0.085	0.007	-	0.787	0.021	0.066	-	96.923
104	1.083	8.334	7.063	75.76	0.451	2.332	-	0.01	-	-	0.91	0.003	0.043	0.007	95.976

## 17BG03-2@

11	0.148	12.31	4.551	74.137	0.438	2.193	0.247	0.002	-	-	0.405	0.002	0.118	-	94.501
12	0.106	8.896	5.681	76.726	0.31	4.095	0.139	-	-	0.016	0.795	0.027	0.097	0.001	96.848
13	0.135	14.156	3.122	77.193	0.663	0.292	-	0.027	-	0.031	0.647	0.004	0.166	-	96.366
20	0.109	8.331	6.2	74.123	0.295	4.344	-	-	-	-	1.492	0.017	0.11	-	94.975
21	0.066	8.579	6.566	75.785	0.326	4.031	0.01	0.061	0.006	0.022	1.426	0.048	0.052	-	96.956
22	0.113	8.229	5.074	76.56	0.288	4.525	0.074	0.088	0.001	0.016	0.935	0.003	0.16	-	95.999
38	0.153	10.501	4.438	75.555	0.351	3.555	-	0.05	-	0.001	0.877	0.007	0.202	0.007	95.61

## 17BG03-3@

21	0.157	9.758	4.908	79.198	0.61	1.334	-	0.051	-	-	0.762	0.03	0.205	-	96.927
22	0.093	9.363	6.265	76.208	0.32	2.745	-	-	-	0.014	0.574	0.044	0.155	0.004	95.719
23	0.098	8.68	5.865	76.445	0.256	3.974	-	0.026	0.001	-	1.071	0.011	0.126	-	96.5
83	0.094	9.617	4.774	76.184	0.313	4.032	0.167	0.025	-	0.017	0.732	0.045	0.085	-	96.049
84	0.086	8.641	6.739	73.203	0.325	4.329	0.073	-	-	0.006	1.926	0.037	0.109	-	95.428
85	0.086	8.385	6.849	74.455	0.334	4.212	0.046	-	-	-	1.871	0.059	0.165	-	96.393

3.6. Table S6: Representative clinopyroxene trace element compositions (ppm) from the Nakoulai mafic dikes.

Spot	Li	Sc	V	Cr	Co	Ni	Cu	Zn	Ga	Sr	Y	Zr	Nb	La	Ce
16BG11-2@															
6	23.5	115	325	323	47.9	47.7	9.63	57.3	6.76	27.7	22.9	20.9	0.046	1.92	8.33
7	16.4	117	294	95	76.7	73.1	2.50	97.2	5.68	23.0	26.0	20.3	0.069	2.12	9.05
8	12.5	110	331	343	48.8	52.3	2.95	58.2	7.22	28.3	23.7	22.7	0.055	2.07	8.89
9	12.3	108	299	220	48.5	47.3	3.06	59.8	5.82	25.6	20.8	17.1	0.022	1.68	7.29
10	5.87	132	328	504	44.7	46.1	3.34	51.3	7.39	32.1	21.3	23.3	0.030	2.03	8.74
11	5.39	130	414	313	45.0	45.3	2.99	53.0	9.39	31.8	28.3	31.6	0.045	2.83	11.4
12	6.59	131	402	369	45.3	44.7	7.10	54.4	8.91	33.1	27.3	30.1	0.049	2.89	11.8
13	5.14	131	344	325	43.8	37.7	3.08	56.2	8.14	30.0	24.6	25.4	0.030	2.45	10.1
14	4.63	137	359	180	45.7	36.8	3.13	62.5	8.57	31.2	29.4	28.7	0.039	2.79	11.5
15	5.70	118	301	484	46.6	38.3	2.67	60.1	6.17	26.9	21.0	19.8	0.034	1.82	7.80
16	7.85	118	316	299	46.6	45.5	3.21	57.6	6.80	26.8	22.2	19.6	0.019	1.91	7.83
17	10.6	115	325	250	49.4	50.7	3.32	61.4	6.84	35.0	24.3	21.6	0.034	2.35	9.14
18	19.7	117	329	297	48.5	47.1	2.29	60.1	7.11	26.5	25.4	22.2	0.060	2.28	9.08
19	26.3	128	324	258	47.5	39.2	3.55	63.9	6.53	26.5	24.4	22.4	0.027	2.24	9.08
20	34.3	105	432	259	50.5	55.1	7.06	64.2	9.73	31.7	28.5	30.8	0.029	2.59	11.7
17BG03-1@															
1	7.42	113	344	944	45.2	69.0	3.33	47.6	5.83	31.2	20.2	19.1	0.041	1.89	7.57
2	6.70	99.2	357	1569	41.4	78.1	3.32	40.9	8.31	63.7	17.8	28.1	0.659	3.44	10.3
3	3.99	141	446	184	49.0	57.3	2.84	56.4	9.07	34.3	29.8	33.8	0.066	3.12	12.7
4	4.60	85.3	252	2284	37.0	85.6	2.13	31.0	5.03	30.9	9.69	7.98	0.029	0.850	3.67
5	5.30	94.7	395	1072	49.1	75.6	3.10	53.5	8.43	33.7	22.5	25.0	0.058	2.25	9.53
6	6.59	112	408	243	52.5	73.3	3.35	60.9	8.84	32.0	26.2	28.8	0.051	2.53	10.6
7	2.98	83.4	229	1517	39.8	89.3	2.16	27.6	4.18	25.8	9.55	6.33	0.012	0.68	2.97

8	3.65	96.2	291	1023	43.5	68.3	2.70	44.2	5.84	54.2	16.6	21.2	0.724	3.30	9.20
9	3.24	84.8	239	1564	42.1	91.4	2.22	31.4	4.23	24.4	10.3	6.28	0.007	0.693	2.87
10	2.14	84.4	232	1479	41.8	91.3	2.68	29.2	4.21	24.6	9.99	6.09	0.021	0.706	3.01
11	2.14	91.2	337	1003	45.4	84.5	2.08	42.8	6.65	30.7	17.9	18.1	0.051	1.68	7.25
12	6.27	106	488	351	55.5	83.6	3.73	61.5	11.0	35.8	29.3	34.3	0.060	2.77	11.6
13	3.55	103	453	1247	48.6	89.9	2.34	47.2	8.65	34.7	21.6	25.2	0.046	2.05	8.66
14	5.18	103	389	426	48.0	81.1	2.31	51.0	8.85	32.4	22.1	25.5	0.031	2.23	9.26
15	12.6	105	385	167	52.1	74.2	5.53	60.1	8.63	34.8	26.7	30.3	0.174	2.89	11.5
26	5.60	154	392	417	47.0	42.9	2.32	60.4	8.21	28.2	28.4	27.7	0.050	2.53	10.3
27	8.51	165	410	277	46.1	32.5	5.19	66.5	8.24	25.4	32.1	30.2	0.052	2.67	10.9
28	6.14	166	412	307	45.9	35.1	3.46	62.2	7.76	25.8	31.9	30.8	0.050	2.89	11.2
29	7.23	155	376	328	49.0	35.3	4.35	71.0	7.92	25.5	30.9	27.4	0.029	2.60	10.7
30	6.32	119	419	53.5	50.0	33.9	2.70	82.9	9.92	31.8	52.9	53.2	0.086	5.99	25.3
31	4.52	116	388	20.1	46.7	22.4	2.99	101	11.0	35.3	61.0	64.7	0.125	7.79	32.5
32	4.77	118	388	16.9	47.0	23.3	2.75	89.4	11.6	36.1	63.5	69.2	0.113	8.20	33.6
33	4.59	134	375	167	46.5	36.7	2.68	72.7	7.73	26.4	30.9	26.7	0.044	2.68	11.6
34	5.04	141	321	263	48.0	30.4	2.61	69.7	6.31	23.8	25.8	20.7	0.037	2.05	8.88
35	5.82	145	324	226	47.1	34.3	2.76	69.6	6.44	29.1	27.1	25.8	0.231	2.69	10.1
36	4.56	141	324	278	46.2	28.5	2.64	63.9	6.55	24.1	25.8	21.1	0.051	2.12	8.46
37	5.76	128	326	160	52.9	38.2	2.92	78.8	5.95	23.9	26.6	19.8	0.029	2.48	9.55
38	5.06	144	333	287	44.3	30.8	3.22	65.3	6.43	27.7	25.9	25.9	0.198	2.55	9.10
39	6.16	114	425	120	53.9	48.7	3.07	69.2	8.25	29.8	32.3	30.6	0.043	3.02	12.6
40	11.7	110	489	152	56.2	49.2	6.05	74.1	10.6	31.8	32.1	36.1	0.054	3.00	12.5

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17BG03-2@

1	9.60	130	264	34.7	42.1	26.9	3.65	56.8	6.22	31.2	27.3	24.8	0.056	2.68	11.7
2	10.1	111	406	99.2	54.4	53.8	4.34	71.0	7.88	28.1	28.2	27.2	0.036	2.54	10.5

3	8.50	127	346	100	48.0	36.8	2.84	64.2	6.76	25.9	28.2	25.7	0.040	2.46	10.1
4	6.38	129	330	216	45.5	37.6	2.60	57.1	7.03	27.8	23.6	21.5	0.040	2.14	9.29
5	6.15	138	333	268	44.2	34.5	2.19	57.6	7.30	28.6	24.3	23.5	0.034	2.22	9.57
6	6.81	153	392	156	45.9	34.0	3.10	61.3	8.29	29.7	30.6	30.3	0.041	3.07	12.9
7	6.92	140	354	293	43.0	36.1	2.74	54.3	7.40	30.4	26.6	25.1	0.028	2.54	10.8
8	9.05	139	366	124	47.6	39.9	3.85	68.5	7.01	28.3	29.8	26.9	0.068	2.60	11.8
9	8.91	127	446	126	49.6	48.5	4.41	69.0	9.19	33.4	32.2	34.6	0.034	3.32	13.7
10	8.68	127	345	921	41.2	48.6	3.92	44.9	7.97	31.0	23.1	26.8	0.025	2.17	8.95
14	10.7	109	355	263	48.6	62.4	5.65	59.1	7.36	29.5	23.3	23.1	0.037	2.22	9.54
15	8.95	115	296	320	47.8	44.7	4.26	57.6	6.36	26.9	19.5	16.0	0.042	1.80	7.42
16	6.88	124	314	195	47.2	43.0	3.07	60.7	6.52	27.8	22.7	19.6	0.022	2.03	8.10
17	7.96	124	319	220	45.7	39.5	4.42	60.7	6.23	30.4	22.5	20.3	0.084	2.04	8.92
18	7.73	148	419	289	45.3	39.2	4.24	55.3	8.85	34.5	30.3	32.5	0.056	2.93	12.1
19	9.74	114	436	298	51.3	60.1	6.07	63.4	9.49	34.0	27.9	31.6	0.053	2.90	12.2
39	10.9	142	361	233	46.2	39.9	6.62	60.3	7.55	28.2	27.8	27.8	0.042	2.61	10.6
40	8.29	135	337	429	44.7	40.3	3.82	56.5	7.18	29.0	23.8	22.6	0.027	2.16	9.18
41	6.42	123	338	342	48.2	48.2	3.20	59.5	7.51	27.5	24.0	22.3	0.022	2.06	9.03
42	5.41	130	348	594	45.6	48.7	2.55	53.8	7.68	31.5	23.2	24.4	0.048	2.29	9.42
43	9.26	111	473	269	53.6	58.6	4.40	64.8	10.1	32.7	30.6	33.3	0.048	2.70	11.3
44	9.04	139	407	375	47.1	44.7	5.39	57.0	9.49	30.4	28.9	30.7	0.045	2.70	11.6
45	12.0	108	462	234	54.5	62.0	8.17	66.0	9.64	32.1	29.1	31.3	0.052	2.85	11.8
46	8.40	134	342	532	45.6	41.3	4.20	54.5	7.54	29.9	23.7	24.2	0.033	2.26	9.39
47	7.19	140	407	319	46.1	43.4	3.39	56.1	8.56	32.1	29.1	33.3	0.071	2.95	11.5
48	10.5	139	385	178	48.2	42.5	5.44	60.7	8.41	31.9	31.3	30.3	0.046	3.01	12.2

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17BG03-3@

1	13.5	134	370	63.0	53.9	42.9	6.01	74.2	7.58	26.9	31.2	26.2	0.028	2.72	11.2
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2	5.54	156	360	122	47.3	34.7	3.10	63.9	7.73	31.3	29.1	28.0	0.044	2.77	11.1
3	3.33	146	420	183	47.7	39.7	2.93	58.5	9.31	31.3	31.1	34.2	0.049	2.97	12.1
4	3.68	147	380	473	45.7	36.9	2.18	54.9	7.70	30.7	26.8	28.4	0.030	2.54	10.6
5	3.97	134	418	113	49.0	46.5	2.61	59.3	9.45	33.0	30.4	31.4	0.052	3.00	11.5
6	4.78	159	402	131	46.0	36.8	2.86	60.1	7.85	31.8	29.8	32.0	0.052	2.85	11.7
7	3.94	155	395	137	46.0	36.6	3.41	61.1	8.57	28.6	30.4	31.0	0.052	2.63	10.7
8	4.81	150	387	122	45.8	37.9	3.15	59.8	7.97	29.6	28.6	29.7	0.062	2.64	10.9
9	7.00	129	402	82.9	50.9	52.5	3.43	64.4	8.72	28.9	28.9	31.4	0.033	2.54	10.2
10	7.04	121	409	256	49.2	54.1	4.27	60.4	9.25	31.7	28.3	29.4	0.077	2.70	10.8
11	4.64	154	360	246	46.4	39.7	2.87	55.7	7.68	29.4	27.5	26.8	0.041	2.61	10.8
12	5.41	143	364	490	45.3	38.7	2.70	53.3	7.88	29.0	25.8	26.7	0.050	2.37	9.88
13	9.70	143	365	510	44.8	40.7	4.61	54.5	7.79	29.5	25.2	26.5	0.032	2.25	9.30
14	8.50	148	375	489	47.0	41.6	4.24	53.2	8.37	28.9	26.0	28.2	0.046	2.23	9.74
15	5.03	143	381	392	48.0	42.2	2.42	58.8	9.02	40.3	27.1	30.1	0.033	2.28	9.91
16	7.00	151	360	130	44.5	38.9	4.27	61.6	7.53	29.9	29.2	28.8	0.072	2.96	11.4
17	4.47	159	361	140	46.9	29.8	2.33	63.8	7.47	27.7	29.7	30.0	0.057	2.75	11.3
18	7.65	151	372	102	47.9	32.5	3.44	67.0	8.41	24.8	32.4	32.1	0.052	2.73	11.3
19	9.92	126	443	110	55.1	51.1	4.67	70.8	9.40	30.7	33.1	35.3	0.075	2.95	12.5
20	9.11	118	496	95.1	57.2	57.9	4.84	72.8	10.9	29.7	34.4	39.3	0.071	3.06	12.6
68	5.39	123	375	178	47.6	49.1	3.09	57.7	8.80	29.3	25.6	26.8	0.056	2.51	9.64
69	1.98	133	354	369	45.1	42.6	2.66	55.0	7.48	31.1	24.7	24.7	0.061	2.54	9.89
70	4.35	111	465	400	48.7	78.4	5.46	51.9	10.40	33.5	28.3	32.4	0.071	2.69	11.1
71	3.72	128	431	282	48.8	56.3	2.33	55.1	8.92	30.8	31.3	35.7	0.041	2.86	12.1
72	1.88	140	394	336	45.6	46.8	2.58	57.6	8.51	31.7	29.4	29.9	0.044	2.78	11.6
73	3.60	126	346	354	46.0	46.6	2.09	56.1	7.21	28.7	24.4	23.1	0.042	2.33	9.44
74	2.70	121	405	260	48.1	49.4	2.23	60.0	8.81	32.4	27.9	30.7	0.053	2.83	11.5

75	2.74	156	386	178	46.6	33.5	2.63	60.3	8.35	32.5	32.7	33.5	0.063	3.01	12.3
76	3.60	128	339	353	47.6	48.8	2.05	59.2	7.44	29.2	24.5	22.2	0.030	2.21	9.26
77	4.94	167	368	139	46.0	33.4	2.91	58.2	8.39	32.2	31.6	33.4	0.072	3.02	12.8
78	3.92	119	332	340	48.5	51.7	2.02	58.5	6.74	27.6	23.0	21.4	0.027	2.09	8.64
79	4.10	118	359	212	50.8	53.5	2.28	61.7	7.71	33.6	26.1	26.9	0.218	2.80	11.0
80	4.13	138	372	229	48.9	51.2	2.43	59.9	7.72	28.1	27.7	28.0	0.025	2.57	10.3
81	2.93	145	365	540	46.2	46.0	2.32	53.6	7.33	30.1	25.1	26.6	0.061	2.50	9.86
82	5.66	136	355	360	45.4	41.8	2.75	59.5	7.84	28.4	25.0	25.7	0.041	2.13	9.20
109	10.8	136	380	383	48.8	52.5	5.93	60.8	7.85	31.9	27.4	28.8	0.048	2.57	10.3
110	17.1	113	354	283	47.5	56.4	3.82	56.8	7.95	30.3	26.2	33.9	0.384	2.84	10.4
111	15.4	113	304	297	53.4	65.6	5.78	67.0	7.47	31.4	23.7	25.3	0.077	2.49	9.82
112	19.3	107	400	212	51.9	62.1	7.93	62.8	8.31	30.7	26.4	28.1	0.088	2.46	9.88
113	10.7	107	382	56.9	50.3	64.1	5.58	63.2	8.47	31.6	30.1	33.6	0.073	2.94	11.4

Table S6. (continued)

Spot	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Pb	Th
16BG11-2@															
6	1.71	10.5	3.70	0.983	4.15	0.632	4.13	0.767	2.38	0.325	2.28	0.250	1.090	0.101	0.046
7	1.73	10.7	3.57	0.927	4.46	0.736	4.41	1.01	2.89	0.338	2.56	0.373	0.697	0.117	0.047
8	1.75	10.1	3.23	0.957	4.38	0.656	4.73	0.883	2.57	0.332	1.96	0.302	0.967	0.114	0.042
9	1.46	8.68	2.87	0.817	3.46	0.624	3.79	0.737	2.25	0.302	1.95	0.248	0.694	0.088	0.029
10	1.68	10.8	3.14	0.969	4.26	0.628	4.43	0.785	2.47	0.295	1.74	0.234	0.973	0.063	0.025
11	2.19	13.1	4.12	1.20	4.93	0.722	4.90	1.10	3.33	0.418	2.58	0.353	1.56	0.112	0.052
12	2.17	12.7	4.49	1.33	5.58	0.834	5.00	1.03	3.31	0.422	2.27	0.331	1.37	1.65	0.060
13	1.84	11.2	3.92	0.958	4.42	0.689	4.69	0.960	2.75	0.360	2.11	0.283	0.973	0.102	0.052



14	2.20	12.8	4.28	1.28	5.53	0.918	4.78	1.12	3.32	0.412	2.53	0.379	1.21	0.104	0.061
15	1.47	8.04	2.73	0.803	3.84	0.640	3.99	0.928	2.19	0.254	1.67	0.306	0.794	0.052	0.031
16	1.49	8.81	2.98	0.924	4.02	0.576	4.24	0.689	2.43	0.279	1.86	0.309	1.05	0.106	0.056
17	1.82	11.2	3.64	0.897	4.38	0.685	4.25	0.986	2.84	0.389	2.15	0.292	0.891	0.105	0.045
18	1.64	10.4	3.02	1.01	4.56	0.613	4.52	0.939	2.70	0.341	2.34	0.286	0.959	0.113	0.059
19	1.78	10.7	3.42	0.936	4.10	0.706	4.09	0.840	2.37	0.308	1.86	0.316	1.02	0.097	0.044
20	2.05	11.8	3.91	1.23	5.47	0.837	5.45	1.04	2.83	0.460	2.82	0.385	1.39	0.129	0.067

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17BG03-1@

1	1.38	8.65	2.88	0.840	3.56	0.589	3.69	0.722	2.20	0.238	2.02	0.224	0.831	0.105	0.051
2	1.62	8.30	2.61	0.922	3.32	0.522	3.45	0.721	2.18	0.254	1.35	0.236	1.03	0.915	0.827
3	2.28	15.3	4.90	1.37	5.68	0.908	5.78	1.10	3.34	0.441	2.54	0.322	1.58	0.099	0.080
4	0.700	4.04	1.67	0.505	1.69	0.264	1.71	0.353	0.977	0.142	0.901	0.110	0.324	0.047	0.018
5	1.83	10.3	3.49	0.964	4.69	0.647	3.88	0.872	2.43	0.334	2.16	0.290	1.08	0.107	0.075
6	2.15	12.1	4.14	1.14	5.36	0.799	5.20	0.941	2.81	0.350	2.42	0.363	1.33	0.101	0.050
7	0.554	4.07	1.40	0.425	1.71	0.297	1.73	0.314	0.958	0.128	0.811	0.124	0.320	0.066	0.015
8	1.52	7.64	2.18	0.764	2.99	0.446	3.30	0.616	1.67	0.234	1.58	0.206	0.813	0.882	0.771
9	0.570	3.50	1.30	0.409	1.92	0.239	1.88	0.368	0.938	0.128	0.930	0.097	0.279	0.038	0.010
10	0.568	3.91	1.26	0.469	1.77	0.309	2.05	0.340	1.07	0.112	0.961	0.117	0.240	0.074	0.013
11	1.42	8.05	2.72	0.892	3.22	0.566	3.39	0.701	2.04	0.277	1.48	0.207	0.939	0.093	0.070
12	2.12	13.4	4.88	1.11	5.36	0.862	5.91	1.08	3.00	0.465	2.70	0.369	1.55	0.145	0.070
13	1.68	10.8	3.31	1.08	4.31	0.628	4.30	0.844	2.50	0.305	2.03	0.268	1.23	0.089	0.090
14	1.88	11.2	3.60	0.971	4.16	0.668	4.01	0.877	2.15	0.336	1.74	0.270	1.07	0.101	0.041
15	2.14	11.7	4.73	1.12	4.73	0.786	5.36	0.970	3.37	0.405	2.36	0.331	1.39	0.250	0.177
26	2.03	12.9	3.57	1.16	5.40	0.851	5.04	1.13	3.13	0.319	2.59	0.375	1.17	0.114	0.078
27	2.12	13.0	4.28	1.21	5.76	0.913	5.52	1.26	3.30	0.478	3.00	0.423	1.41	0.106	0.079
28	2.07	12.8	4.48	1.20	6.03	0.881	5.88	1.23	3.40	0.415	3.06	0.438	1.33	0.143	0.073

29	2.09	12.7	4.71	1.26	5.30	0.834	5.50	1.16	2.82	0.402	2.98	0.415	1.17	0.114	0.081
30	4.73	28.2	8.99	1.81	9.82	1.53	9.82	2.00	5.98	0.690	5.02	0.696	2.15	0.217	0.091
31	5.82	37.6	11.0	2.68	13.0	1.88	12.3	2.46	6.61	0.904	5.52	0.775	2.64	0.284	0.154
32	6.33	36.5	11.3	2.71	12.9	2.04	12.9	2.44	6.72	0.936	5.92	0.781	2.86	0.221	0.156
33	2.14	13.3	4.82	1.17	5.47	0.878	5.93	1.11	3.61	0.431	2.62	0.396	1.13	0.154	0.051
34	1.64	10.4	3.51	0.908	4.67	0.692	4.94	0.980	2.86	0.352	2.83	0.358	0.766	0.149	0.048
35	1.78	10.9	3.76	0.955	4.59	0.717	4.94	0.981	3.11	0.301	2.39	0.318	1.02	0.397	0.316
36	1.62	10.7	3.29	0.878	4.33	0.677	4.92	0.930	2.91	0.304	2.61	0.359	0.976	0.113	0.061
37	1.78	10.5	3.42	0.879	4.25	0.725	5.12	0.986	2.97	0.343	2.26	0.341	0.764	0.122	0.052
38	1.67	10.7	3.34	1.03	4.81	0.687	4.73	0.924	2.82	0.394	2.51	0.380	1.06	0.267	0.200
39	2.31	16.1	5.26	1.26	6.25	0.872	5.85	1.29	3.37	0.468	2.92	0.436	1.26	0.142	0.061
40	2.28	15.7	4.62	1.31	5.90	0.853	5.92	1.13	3.25	0.480	2.40	0.429	1.51	0.113	0.068

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17BG03-2@

1	2.15	13.1	4.34	1.11	5.40	0.738	5.02	1.07	3.12	0.363	2.65	0.341	1.24	0.088	0.037
2	1.98	11.2	3.96	1.10	5.34	0.807	5.11	0.980	2.98	0.339	2.57	0.306	1.01	0.121	0.047
3	1.94	11.6	4.14	1.09	4.78	0.817	5.25	1.03	3.05	0.373	2.49	0.336	1.00	0.073	0.047
4	1.83	11.0	3.70	1.10	4.44	0.682	4.21	0.858	2.53	0.328	1.77	0.290	0.95	0.074	0.040
5	1.86	11.4	3.58	1.13	4.06	0.697	4.36	0.856	2.34	0.357	2.04	0.259	1.13	0.071	0.038
6	2.34	14.4	4.56	1.32	5.92	0.869	5.36	1.12	2.90	0.315	2.63	0.378	1.38	0.078	0.071
7	2.06	12.3	4.12	1.20	4.98	0.802	4.87	0.895	2.43	0.352	2.54	0.335	1.08	0.051	0.055
8	2.13	12.8	4.22	1.12	5.40	0.800	5.41	1.09	3.15	0.385	2.85	0.397	1.12	0.101	0.042
9	2.62	14.7	4.51	1.54	6.19	0.990	5.95	1.27	3.59	0.449	2.90	0.417	1.49	0.101	0.068
10	1.82	11.2	4.09	1.02	3.98	0.704	4.31	0.885	2.60	0.305	2.03	0.280	1.25	0.068	0.061
14	1.71	10.9	4.24	1.04	4.62	0.618	4.19	0.900	2.36	0.324	2.03	0.290	1.06	0.079	0.043
15	1.38	8.6	2.69	0.81	3.62	0.498	3.71	0.789	1.97	0.240	1.56	0.268	0.70	0.070	0.042
16	1.63	9.5	3.60	0.94	3.95	0.616	3.82	0.856	2.34	0.355	1.76	0.264	0.64	0.095	0.032

17	1.61	9.5	3.66	0.93	3.95	0.646	4.83	0.860	2.55	0.312	2.04	0.281	0.93	0.157	0.090
18	2.35	14.0	4.49	1.42	5.48	0.903	5.51	1.09	2.86	0.373	2.53	0.387	1.40	0.094	0.053
19	2.17	12.4	4.36	1.27	5.13	0.790	4.56	0.949	2.73	0.306	2.11	0.308	1.35	0.090	0.072
39	2.11	12.3	4.11	1.22	4.78	0.813	5.13	1.01	3.20	0.360	2.75	0.335	1.21	0.088	0.059
40	1.73	10.4	3.39	1.02	4.10	0.665	4.44	0.907	2.48	0.296	2.15	0.316	0.98	0.101	0.039
41	1.70	10.1	3.52	1.02	4.32	0.697	3.94	0.830	2.53	0.338	2.02	0.282	1.00	0.106	0.048
42	1.81	11.1	3.69	1.04	4.60	0.643	4.37	0.834	2.31	0.288	2.08	0.310	1.02	0.135	0.070
43	2.21	13.5	4.65	1.19	5.38	0.799	5.47	1.14	3.54	0.475	2.60	0.401	1.37	0.130	0.052
44	2.24	12.9	4.08	1.28	5.20	0.920	5.04	0.985	3.28	0.399	2.62	0.374	1.27	0.098	0.059
45	2.33	13.2	4.73	1.17	5.07	0.778	5.45	1.01	2.78	0.442	2.65	0.338	1.30	0.101	0.079
46	1.79	10.1	3.79	1.13	4.29	0.685	4.23	0.799	2.44	0.345	2.17	0.375	1.10	0.083	0.032
47	2.27	13.2	4.24	1.28	5.65	0.883	4.92	1.07	2.95	0.361	2.59	0.315	1.40	0.065	0.077
48	2.33	13.6	4.57	1.28	5.84	0.908	5.95	1.17	3.28	0.436	2.67	0.409	1.42	0.088	0.065

17BG03-3@

1	2.01	12.6	4.49	1.37	6.04	0.820	5.61	1.11	2.97	0.400	2.58	0.386	1.11	0.094	0.048
2	2.18	13.4	4.32	1.16	5.43	0.826	5.12	1.15	2.81	0.399	2.53	0.357	1.28	0.087	0.055
3	2.24	12.9	4.86	1.52	5.77	0.877	5.73	1.08	3.80	0.419	2.74	0.365	1.58	0.102	0.083
4	2.09	13.5	3.92	1.18	5.07	0.774	4.80	0.956	2.94	0.321	2.18	0.354	1.12	0.059	0.044
5	2.19	14.3	4.49	1.22	5.74	0.934	5.63	1.09	3.24	0.499	2.61	0.361	1.65	0.093	0.067
6	2.24	14.4	4.44	1.17	5.60	0.934	5.87	1.16	3.19	0.407	2.54	0.386	1.68	0.132	0.072
7	1.97	13.5	4.22	1.14	5.66	0.811	5.27	1.09	3.19	0.384	2.91	0.348	1.33	0.061	0.055
8	2.02	12.8	4.27	1.11	5.34	0.743	5.48	1.02	3.23	0.373	2.53	0.357	1.34	0.087	0.074
9	2.13	11.6	4.64	1.20	5.12	0.823	5.37	1.15	3.18	0.438	2.69	0.363	1.42	0.106	0.061
10	1.95	12.3	4.41	1.10	4.95	0.827	5.49	1.03	3.14	0.391	2.31	0.320	1.28	0.125	0.059
11	2.02	12.3	4.29	1.17	5.36	0.840	5.11	1.01	2.95	0.355	2.06	0.354	1.10	0.121	0.051
12	1.82	11.0	3.59	1.11	4.59	0.667	4.77	0.938	2.86	0.349	2.56	0.316	1.31	0.080	0.053

13	1.76	11.1	3.80	0.94	4.99	0.777	4.77	0.954	2.93	0.345	2.29	0.256	1.17	0.098	0.052
14	1.81	12.0	4.32	1.35	4.69	0.742	4.87	1.01	2.58	0.348	2.28	0.289	1.27	0.069	0.060
15	1.92	12.3	3.79	1.07	4.98	0.799	5.41	1.01	2.80	0.353	2.46	0.309	1.44	0.143	0.063
16	2.14	13.2	3.98	1.15	5.38	0.852	5.32	1.14	3.13	0.410	2.58	0.370	1.19	0.216	0.072
17	2.21	13.5	4.54	1.39	5.93	0.820	5.33	1.10	3.39	0.312	2.56	0.383	1.35	0.098	0.084
18	2.21	14.0	4.61	1.36	6.16	0.872	5.47	1.28	3.35	0.431	2.80	0.420	1.55	0.098	0.041
19	2.37	13.8	4.96	1.36	6.17	0.881	5.86	1.22	3.47	0.482	3.09	0.423	1.67	0.116	0.061
20	2.37	14.9	5.36	1.50	6.19	0.945	5.96	1.31	3.67	0.509	2.85	0.452	1.83	0.148	0.097
68	1.83	11.2	3.97	1.15	5.10	0.774	4.97	0.987	2.81	0.355	2.19	0.311	1.12	0.092	0.042
69	1.87	11.5	3.50	1.20	4.79	0.708	4.80	1.01	2.20	0.334	2.09	0.296	1.30	0.095	0.068
70	1.97	12.7	4.31	1.27	5.42	0.837	5.08	1.01	3.13	0.359	2.67	0.347	1.64	0.103	0.072
71	2.30	14.4	4.59	1.42	5.88	0.941	6.20	1.08	3.18	0.510	2.59	0.391	1.68	0.085	0.075
72	2.18	12.6	4.59	1.23	5.36	0.828	5.53	1.04	2.88	0.359	2.90	0.360	1.29	0.074	0.072
73	1.79	11.1	3.86	1.19	4.61	0.743	5.15	0.874	2.75	0.370	2.29	0.343	1.04	0.078	0.050
74	2.21	14.8	4.56	1.29	5.39	0.816	5.62	1.19	2.57	0.405	2.92	0.323	1.28	0.117	0.068
75	2.35	14.2	4.79	1.43	6.28	0.962	6.17	1.21	3.70	0.487	3.01	0.401	1.37	0.133	0.075
76	1.90	11.2	3.92	1.08	4.36	0.727	4.23	0.878	2.21	0.316	2.02	0.282	1.03	0.099	0.048
77	2.28	14.8	4.66	1.33	6.35	1.00	6.00	1.34	3.49	0.392	2.90	0.402	1.45	0.117	0.064
78	1.74	11.4	3.33	1.04	4.67	0.626	4.54	0.822	2.54	0.257	2.00	0.327	0.84	0.061	0.048
79	2.02	11.6	3.54	1.18	4.99	0.667	4.71	0.988	2.32	0.336	2.42	0.312	1.19	0.277	0.195
80	1.89	11.4	4.23	1.14	5.00	0.801	5.23	1.07	2.85	0.400	3.05	0.336	1.21	0.115	0.061
81	1.90	12.0	3.44	1.12	4.95	0.706	4.90	0.956	2.89	0.348	2.30	0.321	1.21	0.086	0.052
82	1.69	10.5	3.48	1.03	4.37	0.748	5.15	0.935	2.69	0.325	2.73	0.328	1.23	0.078	0.051
109	1.93	12.3	3.58	1.16	4.75	0.863	5.23	1.05	2.99	0.318	2.10	0.293	1.33	0.117	0.063
110	1.96	11.9	3.98	0.98	4.64	0.684	4.99	0.974	2.72	0.339	2.46	0.334	1.44	0.612	0.217
111	1.72	10.7	3.71	1.11	4.17	0.718	4.31	0.861	2.55	0.318	2.09	0.299	0.94	0.187	0.069

112	1.80	11.3	3.98	1.07	4.65	0.689	5.06	0.969	2.88	0.342	2.00	0.329	1.04	0.238	0.099
113	2.20	12.5	4.62	1.17	5.29	0.852	5.95	1.20	3.45	0.390	2.74	0.418	1.54	0.081	0.061

3.7. Table S7: Representative orthopyroxene trace element compositions (ppm) from the Nakoulai mafic dikes.

Spot	Li	Sc	V	Cr	Co	Ni	Cu	Zn	Ga	Sr	Y	Zr	La	Ce
16BG11-2@														
62	5.04	42.0	132	83.6	102	92.0	1.98	181	4.20	0.309	3.76	2.37	0.022	0.098
64	5.23	47.3	218	153	108	103	1.82	182	8.04	0.240	4.66	4.31	0.019	0.163
65	4.61	47.1	223	162	107	103	2.09	180	7.96	0.256	4.76	4.49	0.032	0.165
66	5.22	47.7	223	155	107	105	1.69	177	6.84	0.378	4.55	4.74	0.021	0.177
67	5.49	46.2	212	148	104	104	1.59	165	6.72	0.311	4.53	4.24	0.028	0.166
68	5.33	48.8	219	119	106	103	1.96	178	7.10	0.442	4.98	4.37	0.023	0.176
69	5.72	47.5	198	106	105	91.3	1.69	189	6.72	0.309	4.66	3.85	0.026	0.166
70	5.68	37.1	133	80	108	95.7	1.60	190	4.37	0.275	3.47	2.26	0.032	0.130
71	5.86	49.1	209	121	107	92.0	1.52	193	7.42	0.260	5.07	4.29	0.037	0.207
17BG03-1@														
51	7.27	34.5	109	96.8	103	97.2	3.52	169	3.35	0.387	3.01	1.97	0.020	0.083
53	5.14	50.2	211	155	106	110	3.04	172	6.34	0.235	4.78	4.26	0.026	0.145
89	5.33	49.5	177	102	104	82.5	2.75	185	5.34	0.434	5.15	3.74	0.033	0.155
90	6.39	49.4	200	134	106	100	3.36	177	6.65	0.325	4.59	3.77	0.012	0.137
91	6.70	49.0	207	136	107	99.0	2.89	173	6.90	0.358	4.58	4.28	0.016	0.181
92	8.15	53.8	174	113	101	84.1	3.80	173	5.72	0.343	4.66	3.44	0.018	0.164
93	5.78	57.7	153	150	91.6	68.1	3.63	160	5.00	0.284	4.37	3.24	0.028	0.134
94	7.04	51.9	221	173	110	100	3.49	184	7.48	0.286	4.86	4.82	0.026	0.177
95	6.80	49.4	159	127	100	81.8	3.32	173	5.36	0.310	4.38	3.59	0.026	0.103

96	6.52	50.3	179	153	107	85.3	5.14	183	6.33	1.212	4.77	3.86	0.044	0.228
97	7.20	58.3	177	132	97.2	79.9	3.45	167	5.64	0.267	4.74	3.69	0.018	0.163
101	6.81	48.5	201	150	106	104	3.28	175	6.43	0.324	4.63	4.42	0.026	0.145
102	6.90	49.3	167	168	102	102	3.60	168	5.47	0.239	4.25	3.21	0.016	0.152
103	7.03	52.5	202	117	107	107	3.02	168	6.82	0.299	5.16	5.19	0.023	0.154
17BG03-2@														
31	5.24	44.5	158	154	108	118	3.50	176	4.66	0.361	3.56	3.13	0.029	0.161
32	6.03	47.7	174	148	107	114	3.51	178	5.16	0.378	4.30	3.62	0.030	0.137
56	5.41	59.1	176	102	101	78	3.15	171	5.60	0.187	5.45	4.69	0.032	0.172
57	7.15	60.1	189	81	103	83	3.88	177	6.44	0.321	5.50	4.72	0.030	0.156
58	6.14	39.9	112	150	114	109	1.80	200	4.78	0.208	4.31	2.40	0.031	0.219
61	7.29	50.9	216	159	108	98	3.49	186	6.98	0.318	4.96	5.02	0.037	0.196
17BG03-3@														
105	6.55	49.5	166	112	105	108	3.07	158	6.59	0.236	4.62	4.74	0.018	0.140
106	6.28	49.5	168	130	103	104	3.23	162	6.85	0.408	4.51	4.99	0.014	0.147
107	6.56	53.5	202	31.9	102	97.5	3.00	165	8.34	3.774	4.72	6.50	0.044	0.177
108	10.6	37.4	109	28.2	107	109	4.72	173	4.03	0.340	3.55	2.37	0.014	0.114

Table S7. (continued)

Spot	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Pb
16BG11-2@														
62	0.024	0.199	0.089	0.052	0.195	0.092	0.637	0.133	0.591	0.111	0.711	0.114	0.125	0.014
64	0.040	0.335	0.190	0.070	0.368	0.075	0.534	0.167	0.527	0.102	0.928	0.153	0.189	0.008
65	0.041	0.311	0.300	0.100	0.395	0.091	0.649	0.178	0.557	0.126	0.672	0.123	0.217	0.006
66	0.041	0.284	0.169	0.069	0.337	0.079	0.512	0.161	0.577	0.096	0.618	0.116	0.134	0.010

67	0.043	0.318	0.089	0.055	0.432	0.075	0.663	0.179	0.579	0.075	0.860	0.123	0.153	0.000
68	0.039	0.324	0.294	0.061	0.398	0.077	0.493	0.127	0.520	0.087	0.733	0.122	0.171	0.002
69	0.032	0.327	0.287	0.051	0.395	0.062	0.541	0.158	0.584	0.109	0.707	0.105	0.150	0.025
70	0.031	0.412	0.137	0.041	0.216	0.053	0.487	0.133	0.426	0.071	0.554	0.110	0.087	0.009
71	0.062	0.315	0.260	0.052	0.358	0.087	0.756	0.198	0.725	0.099	0.838	0.135	0.135	0.014
17BG03-1@														
51	0.041	0.202	0.125	0.054	0.166	0.042	0.475	0.108	0.350	0.049	0.482	0.090	0.117	0.002
53	0.050	0.412	0.124	0.072	0.395	0.082	0.634	0.145	0.537	0.105	0.700	0.128	0.198	0.000
89	0.046	0.296	0.176	0.081	0.351	0.095	0.716	0.160	0.581	0.113	0.779	0.114	0.282	0.003
90	0.028	0.434	0.179	0.041	0.258	0.064	0.539	0.168	0.599	0.067	0.762	0.146	0.167	0.005
91	0.035	0.312	0.176	0.062	0.280	0.068	0.616	0.169	0.740	0.107	0.983	0.147	0.206	0.000
92	0.058	0.305	0.255	0.059	0.356	0.064	0.615	0.188	0.685	0.093	0.685	0.117	0.186	0.011
93	0.046	0.458	0.146	0.074	0.223	0.063	0.688	0.162	0.477	0.073	0.752	0.125	0.123	0.035
94	0.053	0.234	0.174	0.062	0.333	0.074	0.610	0.178	0.622	0.097	0.787	0.146	0.156	0.015
95	0.036	0.281	0.183	0.067	0.258	0.049	0.566	0.194	0.657	0.089	0.507	0.137	0.166	0.010
96	0.041	0.375	0.151	0.047	0.328	0.071	0.535	0.158	0.757	0.095	0.773	0.134	0.105	0.046
97	0.052	0.351	0.274	0.085	0.175	0.079	0.743	0.192	0.624	0.097	0.870	0.149	0.098	0.058
101	0.041	0.368	0.202	0.070	0.330	0.072	0.623	0.193	0.662	0.110	0.862	0.105	0.154	0.004
102	0.029	0.188	0.156	0.036	0.333	0.081	0.613	0.157	0.646	0.081	0.740	0.119	0.176	0.010
103	0.039	0.489	0.230	0.041	0.404	0.087	0.828	0.192	0.445	0.099	0.781	0.124	0.206	0.004
17BG03-2@														
31	0.035	0.215	0.142	0.035	0.271	0.054	0.582	0.126	0.553	0.067	0.626	0.135	0.124	0.000
32	0.027	0.292	0.200	0.049	0.333	0.087	0.489	0.205	0.376	0.083	0.594	0.103	0.151	0.000
56	0.050	0.516	0.119	0.045	0.315	0.079	0.639	0.187	0.694	0.096	0.979	0.142	0.210	0.000
57	0.030	0.303	0.257	0.087	0.364	0.078	0.640	0.231	0.732	0.081	1.07	0.161	0.244	0.009
58	0.052	0.485	0.265	0.048	0.310	0.105	0.601	0.203	0.635	0.084	0.715	0.153	0.112	0.016

61	0.051	0.188	0.186	0.093	0.363	0.072	0.659	0.214	0.596	0.084	0.861	0.150	0.190	0.011
17BG03-3@														
105	0.021	0.275	0.169	0.058	0.265	0.071	0.746	0.142	0.488	0.094	0.712	0.155	0.245	0.005
106	0.036	0.317	0.130	0.036	0.343	0.093	0.631	0.147	0.525	0.078	0.773	0.119	0.288	0.018
107	0.038	0.405	0.184	0.071	0.385	0.091	0.607	0.163	0.643	0.089	0.713	0.142	0.307	0.067
108	0.026	0.231	0.182	0.042	0.232	0.039	0.492	0.134	0.446	0.094	0.733	0.113	0.135	0.007

3.8. Table S8: Representative plagioclase trace element compositions (ppm) from the Nakoulai mafic dikes.

Spot	Sc	V	Co	Zn	Ga	Rb	Sr	Y	Ba	La	Ce	Pr	Nd	Sm	Eu	Gd	Pb
17BG03-2 @																	
49	3.36	2.01	0.34	5.09	19.99	1.11	877	0.28	121	2.70	4.48	0.45	1.33	0.26	0.46	0.06	1.93
50	1.45	2.00	0.28	3.44	21.85	0.61	875	0.27	137	3.24	4.74	0.44	1.75	0.08	0.55	0.06	2.03
51	3.00	2.48	0.47	4.29	24.37	0.87	840	0.25	144	2.42	3.99	0.36	1.41	0.32	0.58	0.12	1.97
52	2.94	1.62	0.43	4.60	20.27	0.86	878	0.18	126	2.75	4.59	0.43	1.24	0.21	0.47	0.09	1.98
53	2.43	2.41	0.94	5.28	21.83	1.12	885	0.27	118	2.97	4.78	0.46	1.27	0.11	0.45	0.05	1.93
54	1.98	2.18	0.99	4.85	21.06	1.53	843	0.11	119	2.57	4.04	0.42	1.68	0.21	0.47	0.06	2.03
17BG03-3 @																	
37	3.97	14.82	1.85	5.25	18.74	1.42	821	0.36	114	2.60	4.36	0.34	1.52	0.17	0.54	0.13	1.66
39	3.18	2.34	0.56	3.93	23.37	0.66	807	0.21	95	2.48	3.80	0.26	1.05	0.27	0.42	0.07	1.54
40	3.31	2.65	0.64	4.70	22.74	1.24	832	0.27	111	2.23	4.04	0.36	1.23	0.22	0.40	0.09	1.51
41	2.98	2.21	0.91	5.74	23.90	1.15	819	0.30	111	2.52	3.99	0.34	1.52	0.10	0.42	0.09	1.43
42	1.79	1.82	0.45	4.46	21.76	0.35	819	0.30	93	2.35	3.47	0.38	1.41	0.20	0.35	0.00	1.36
43	2.31	6.22	0.77	4.36	23.45	0.59	831	0.23	96	2.23	3.85	0.35	1.07	0.10	0.36	0.05	1.39



44	2.88	3.11	0.81	5.30	23.41	1.16	834	0.30	114	2.75	3.85	0.43	1.00	0.14	0.41	0.00	1.47
45	2.27	1.98	0.06	4.96	22.51	0.73	811	0.26	94	2.26	3.73	0.30	1.19	0.12	0.45	0.03	1.50
46	1.89	2.41	0.41	4.30	21.82	1.08	859	0.24	96	2.53	3.56	0.39	0.89	0.17	0.50	0.06	1.73
55	2.69	3.30	0.40	4.24	22.77	3.80	825	0.24	127	2.53	4.22	0.38	1.11	0.12	0.32	0.03	1.97
57	2.90	3.07	0.65	5.00	21.66	1.72	862	0.20	125	2.81	4.47	0.42	1.20	0.16	0.53	0.16	1.72
58	2.86	4.90	0.51	4.92	22.48	0.99	879	0.46	103	3.47	5.94	0.57	1.74	0.45	0.41	0.18	1.66
59	2.21	1.96	0.26	3.88	22.56	0.91	862	0.31	116	3.02	4.68	0.41	1.85	0.20	0.46	0.21	1.69
60	2.76	1.75	0.58	4.40	21.06	0.81	874	0.23	122	2.86	4.56	0.41	1.54	0.15	0.46	0.20	1.82
61	2.29	2.85	0.55	4.54	21.10	2.97	830	0.24	128	2.80	4.23	0.42	1.50	0.17	0.45	0.12	1.73
62	2.37	1.86	0.48	4.42	20.98	0.75	861	0.23	110	2.74	4.09	0.33	1.18	0.16	0.40	0.24	1.98
63	3.03	3.05	0.61	3.69	19.55	1.69	832	0.25	115	2.67	3.96	0.43	1.21	0.20	0.33	0.22	1.76
64	3.39	3.31	0.86	4.16	22.17	2.36	824	0.26	129	2.63	4.29	0.42	0.99	0.13	0.33	0.06	1.75
65	2.59	2.76	0.61	4.59	21.52	1.89	803	0.28	156	2.92	4.34	0.38	1.31	0.10	0.52	0.14	2.17
66	4.22	11.95	1.40	6.15	21.88	9.36	785	1.09	171	3.74	6.28	0.55	2.24	0.20	0.60	0.39	2.83
67	2.80	7.07	1.82	5.28	19.38	2.30	779	0.51	158	3.76	5.32	0.55	1.46	0.26	0.62	0.15	2.48

3.9. Table S9: Major (wt%) and trace (ppm) element data for the Nakoulai mafic dikes.

Sample	16BG11-1	16BG11-2	16BG11-3	16BG11-4	16BG11-5	17BG02-1	17BG02-2	17BG03-1	17BG03-2	17BG03-3	17BG03-4
SiO <sub>2</sub>	50.04	53.32	52.47	52.91	51.98	49.93	50.24	52.50	52.77	52.31	52.32
TiO <sub>2</sub>	0.94	1.01	1.00	1.00	0.96	0.96	0.93	1.03	1.02	1.03	1.03
Al <sub>2</sub> O <sub>3</sub>	15.71	16.41	16.12	16.10	16.39	16.29	16.28	16.54	16.39	16.57	16.52
Fe <sub>2</sub> O <sub>3</sub> <sup>T</sup>	8.05	8.75	9.19	9.22	8.45	8.07	7.92	8.97	9.10	9.14	9.03
MnO	0.17	0.15	0.17	0.15	0.14	0.18	0.19	0.14	0.15	0.14	0.13

MgO	3.46	4.80	5.01	5.08	2.67	2.98	2.86	4.84	5.14	4.76	4.86
CaO	9.87	8.84	8.67	8.68	10.26	10.64	10.76	8.73	8.56	8.78	8.93
Na <sub>2</sub> O	2.96	3.15	3.13	3.12	2.75	2.78	2.71	2.87	2.79	2.75	2.79
K <sub>2</sub> O	0.96	1.46	1.44	1.43	0.85	1.23	1.14	1.44	1.42	1.01	1.03
P <sub>2</sub> O <sub>5</sub>	0.20	0.21	0.21	0.21	0.21	0.20	0.20	0.23	0.23	0.23	0.23
LOI	7.17	1.83	2.19	2.10	5.44	6.42	6.45	2.21	1.66	2.63	2.44
Total	99.53	99.93	99.60	100.01	100.09	99.68	99.67	99.49	99.22	99.36	99.31
Mg <sup>#</sup>	46.0	52.0	51.9	52.2	38.5	42.3	41.7	51.7	52.8	50.8	51.6
Sc	26.0	27.0	26.4	27.4	25.4	25.8	25.6	26.8	27.5	27.0	27.0
Ti	5917	6224	5943	6183	5996	5751	5675	6005	6190	6155	6064
V	246	255	241	249	244	239	236	244	253	247	248
Cr	58.0	58.3	58.8	66.5	54.4	104	97.8	112	111	91.5	104
Mn	1350	1211	1264	1225	1118	1333	1419	1074	1170	1069	1019
Co	25.2	26.5	26.8	28.2	23.0	26.8	24.1	26.6	27.7	27.2	27.2
Ni	19.2	19.1	19.2	19.9	18.3	19.9	18.9	19.2	20.1	18.8	19.2
Cu	20.7	17.5	22.7	24.2	21.6	29.9	31.9	41.6	42.0	41.9	42.0
Zn	86.1	84.9	85.1	89.2	88.2	79.1	74.1	83.9	85.3	87.1	89.2
Ga	18.0	18.4	17.9	18.4	18.5	18.4	18.3	18.6	18.9	19.3	18.9
Ge	2.35	2.66	2.64	2.66	2.47	2.31	2.27	2.55	2.73	2.73	2.67
Rb	23.8	39.2	37.1	38.0	20.0	29.5	26.4	27.1	30.5	19.1	17.0
Sr	314	387	378	383	389	401	394	425	422	440	432
Y	23.2	23.6	23.2	23.3	23.0	22.0	21.1	23.4	24.1	24.1	23.9
Zr	119	125	120	124	121	120	114	125	128	129	128
Nb	7.67	8.18	7.95	8.26	7.97	7.73	7.24	8.08	8.25	8.34	8.25
Cs	3.12	0.711	0.988	0.744	1.28	0.898	1.25	3.85	7.26	4.47	4.06
Ba	206	305	302	306	206	284	262	368	344	375	400

La	22.6	22.6	21.8	22.8	23.0	22.0	21.0	23.6	24.0	23.6	23.3
Ce	46.0	46.3	44.9	46.6	46.5	44.5	42.7	47.5	48.8	48.4	47.2
Pr	5.74	5.64	5.52	5.86	5.71	5.49	5.16	5.83	5.97	5.85	5.78
Nd	23.3	23.3	23.0	23.9	23.3	22.1	21.1	24.0	24.2	24.0	23.5
Sm	4.77	4.83	4.66	4.80	4.74	4.52	4.31	4.84	4.94	4.89	4.89
Eu	1.28	1.32	1.27	1.33	1.30	1.27	1.26	1.33	1.36	1.33	1.34
Gd	4.56	4.57	4.40	4.49	4.43	4.27	4.13	4.57	4.62	4.54	4.55
Tb	0.681	0.696	0.669	0.699	0.676	0.646	0.628	0.702	0.722	0.704	0.697
Dy	4.13	4.09	4.03	4.12	4.01	3.84	3.75	4.13	4.24	4.16	4.16
Ho	0.848	0.85	0.842	0.851	0.831	0.795	0.757	0.857	0.865	0.852	0.857
Er	2.23	2.30	2.18	2.27	2.18	2.13	2.07	2.31	2.36	2.32	2.31
Tm	0.321	0.336	0.32	0.334	0.321	0.307	0.296	0.329	0.345	0.332	0.325
Yb	2.08	2.11	2.06	2.12	2.06	1.94	1.86	2.06	2.11	2.09	2.08
Lu	0.309	0.323	0.311	0.318	0.306	0.307	0.295	0.336	0.34	0.334	0.331
Hf	3.36	3.36	3.26	3.48	3.36	3.30	3.15	3.48	3.51	3.51	3.44
Ta	0.457	0.471	0.457	0.484	0.465	0.477	0.447	0.499	0.504	0.5	0.49
Pb	9.03	8.91	7.54	8.03	8.53	8.57	8.60	8.43	9.42	8.72	8.26
Th	6.76	6.86	6.69	6.98	6.93	6.77	6.51	7.13	7.33	7.23	7.11
U	1.27	1.31	1.21	1.31	1.26	1.28	1.21	1.36	1.41	1.40	1.38
ΣREE	119	119	116	120	119	114	109	122	125	123	121
Eu/Eu*	0.84	0.86	0.85	0.88	0.87	0.89	0.91	0.87	0.87	0.86	0.87
(Gd/Yb) <sub>N</sub>	1.81	1.79	1.77	1.75	1.78	1.82	1.84	1.83	1.82	1.80	1.81
(La/Yb) <sub>N</sub>	7.83	7.51	7.51	7.68	8.05	7.69	7.61	7.54	7.56	7.57	7.54

3.10. Table S10: Whole-rock Sr–Nd–Hf isotope data for the Nakoulai mafic dikes.

Sample	Rb	Sr	$^{87}\text{Sr}/^{86}\text{Sr}$		$(^{87}\text{Sr}/^{86}\text{Sr})_i$	Sm	Nd	$^{143}\text{Nd}/^{144}\text{Nd}$		$(^{143}\text{Nd}/^{144}\text{Nd})_i$	$\epsilon_{\text{Nd}}(t)$	$T_{\text{Nd}}^{\text{DM}}$ (Ma)	$f_{\text{Sm}/\text{Nd}}$
	ppm	ppm	ratio	$\pm 1\sigma$		ppm	ppm	ratio	$\pm 1\sigma$				
16BG11-2	39.2	387	0.706482	0.000009	0.70599	4.83	23.3	0.512472	0.000004	0.512375	-2.15	1172	-0.36
16BG11-3	37.1	378	0.706452	0.000010	0.70597	4.66	23.0	0.512487	0.000006	0.512391	-1.82	1110	-0.38
16BG11-4	38.0	383	0.706460	0.000009	0.70597	4.80	23.9	0.512489	0.000005	0.512395	-1.75	1092	-0.38
17BG02-1	29.5	401	0.706510	0.000012	0.70616	4.52	22.1	0.512486	0.000006	0.512392	-1.90	1131	-0.37
17BG02-2	26.4	394	0.706507	0.000010	0.70619	4.31	21.1	0.512487	0.000006	0.512394	-1.86	1125	-0.37
17BG03-1	27.1	425	0.706391	0.000008	0.70609	4.84	24.0	0.512502	0.000005	0.512410	-1.55	1084	-0.38
17BG03-2	30.5	422	0.706458	0.000010	0.70612	4.94	24.2	0.512492	0.000006	0.512399	-1.76	1112	-0.37
17BG03-3	19.1	440	0.706274	0.000009	0.70607	4.89	24.0	0.512492	0.000008	0.512399	-1.77	1113	-0.37
17BG03-4	17.0	432	0.706275	0.000008	0.70609	4.89	23.5	0.512486	0.000006	0.512391	-1.92	1152	-0.36

Table S10. (continued)

Sample	Lu	Hf	$^{176}\text{Hf}/^{177}\text{Hf}$		$(^{176}\text{Hf}/^{177}\text{Hf})_i$	$\epsilon_{\text{Hf}}(t)$	$T_{\text{Hf}}^{\text{DM}}$ (Ma)	$f_{\text{Lu}/\text{Hf}}$
	ppm	ppm	ratio	$\pm 1\sigma$				
16BG11-2	0.323	3.36	0.282825	0.000006	0.282794	3.4	912	-0.59
16BG11-3	0.311	3.26	0.282813	0.000004	0.282782	3.0	935	-0.59
16BG11-4	0.318	3.48	0.282827	0.000006	0.282798	3.5	884	-0.61
17BG02-1	0.307	3.30	0.282816	0.000005	0.282787	3.1	915	-0.60
17BG02-2	0.295	3.15	0.282803	0.000007	0.282774	2.6	946	-0.60
17BG03-1	0.336	3.48	0.282800	0.000006	0.282770	2.5	968	-0.59
17BG03-2	0.340	3.51	0.282809	0.000005	0.282779	2.8	949	-0.59
17BG03-3	0.334	3.51	0.282820	0.000005	0.282791	3.2	917	-0.59
17BG03-4	0.331	3.44	0.282827	0.000006	0.282798	3.5	907	-0.59

3.11. Table S11: Zircon Hf–O isotope data for the Nakoulai mafic dikes.

Spot	$^{176}\text{Yb}/^{177}\text{Hf}$	$^{176}\text{Lu}/^{177}\text{Hf}$	$^{176}\text{Hf}/^{177}\text{Hf}$	$\pm 2\sigma$	$(^{176}\text{Hf}/^{177}\text{Hf})_i$	$\epsilon_{\text{Hf}}(0)$	$\epsilon_{\text{Hf}}(t)$	$\pm 2\sigma$	$T_{\text{DM}}$ (Ma)	$f_{\text{Lu/Hf}}$	$\delta^{18}\text{O}(\text{‰})$	$\pm 2\sigma$
16BG11-3												
1	0.15269	0.00428	0.282760	0.000012	0.282750	-0.43	1.89	0.44	764	-0.87	6.85	0.21
2	0.12379	0.00377	0.282798	0.000012	0.282789	0.91	3.29	0.42	695	-0.89	6.71	0.21
3	0.10983	0.00338	0.282779	0.000013	0.282771	0.24	2.59	0.44	716	-0.90	5.66	0.21
4	0.20270	0.00523	0.282738	0.000014	0.282727	-1.19	1.00	0.49	820	-0.84	5.97	0.20
5	0.15725	0.00531	0.282667	0.000012	0.282655	-3.72	-1.53	0.44	936	-0.84	6.69	0.24
6	0.15725	0.00422	0.282643	0.000015	0.282634	-4.55	-2.23	0.54	942	-0.87	6.76	0.26
7	0.12824	0.00411	0.282718	0.000013	0.282709	-1.90	0.36	0.47	824	-0.88	5.64	0.25
8	0.13844	0.00371	0.282724	0.000016	0.282716	-1.69	0.64	0.55	806	-0.89	5.59	0.22
9	0.15387	0.00411	0.282765	0.000012	0.282756	-0.23	2.05	0.41	752	-0.88	6.96	0.23
17BG02-2												
1	0.01580	0.00051	0.282769	0.000009	0.282768	0.20	2.71	0.30	664	-0.98	6.36	0.14
2	0.03991	0.00125	0.282816	0.000010	0.282813	1.90	4.40	0.35	608	-0.96	6.65	0.21
3	0.03518	0.00113	0.282756	0.000010	0.282753	-0.22	2.20	0.36	691	-0.97	6.56	0.26
4	0.03518	0.00111	0.282817	0.000010	0.282815	1.97	4.47	0.36	603	-0.97	6.35	0.32
5											6.12	0.22
6	0.04981	0.00198	0.282830	0.000012	0.282826	2.47	4.82	0.42	597	-0.94	6.26	0.21
7	0.03437	0.00147	0.282679	0.000016	0.282676	-2.72	-0.29	0.55	799	-0.96	6.25	0.29
8	0.03523	0.00134	0.282702	0.000010	0.282699	-2.12	0.22	0.36	772	-0.96	6.24	0.12
9	0.03730	0.00156	0.282894	0.000014	0.282891	4.83	7.24	0.50	494	-0.95	6.44	0.22
10	0.03322	0.00137	0.282733	0.000013	0.282730	-0.92	1.59	0.47	724	-0.96	6.15	0.10
11	0.03948	0.00175	0.282739	0.000013	0.282734	-0.71	1.66	0.47	723	-0.95	6.20	0.30
12	0.02619	0.00115	0.282870	0.000013	0.282867	3.91	6.36	0.45	526	-0.97	6.44	0.26

13	0.09741	0.00335	0.282872	0.000030	0.282865	4.59	6.78	1.06	529	-0.90	6.04	0.24
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3.12. Table S12: LA-ICP-MS analyzed trace elements (ppm) for standard sample (TB-1G).

Spot	Li	Sc	V	Cr	Co	Ni	Cu	Zn	Ga	Rb	Sr	Y	Zr	Nb	Cs	Ba	La
TB-1G-01	18.4	26.0	190	58.9	24.2	16.2	78.6	100	22.7	148	1376	26.6	248	27.3	2.81	1003	45.5
TB-1G-02	18.5	26.1	189	64.5	24.1	17.2	78.3	98	24.3	150	1388	26.0	247	27.1	2.83	1002	45.5
TB-1G-03	18.3	25.1	190	57.5	23.7	14.9	76.6	100	23.5	149	1366	25.8	242	26.9	2.79	983	43.1
TB-1G-04	17.3	24.9	191	58.0	24.0	17.7	77.6	103	23.0	149	1412	26.6	249	27.7	2.90	991	44.6
TB-1G-05	18.0	25.0	189	61.9	24.3	17.7	79.7	103	21.9	151	1412	26.6	247	27.3	2.75	996	45.8
TB-1G-06	17.0	25.2	191	60.9	24.2	16.5	79.5	103	23.6	151	1417	26.2	248	28.4	2.96	989	45.8
TB-1G-07	19.3	24.1	192	55.1	24.0	14.2	77.7	101	23.2	152	1402	26.1	250	28.4	2.86	995	44.9
TB-1G-08	17.1	23.6	192	58.9	24.3	19.0	78.2	103	22.0	149	1386	25.8	250	27.5	2.88	969	44.1
TB-1G-09	18.4	24.2	193	60.9	24.0	17.0	81.0	104	23.0	152	1427	26.6	258	28.3	2.90	1000	45.7
TB-1G-10	18.4	25.0	195	60.6	24.0	18.4	80.1	108	21.0	150	1424	27.0	254	27.4	2.79	1000	45.0
TB-1G-11	19.6	24.4	195	58.0	23.6	17.9	77.5	104	22.3	153	1428	26.4	260	28.3	3.08	999	46.2
TB-1G-12	19.0	25.8	196	60.0	24.0	15.8	76.9	103	22.7	152	1409	26.7	254	27.6	2.92	992	44.9
TB-1G-13	19.9	24.4	195	57.8	23.2	18.3	77.5	102	22.5	151	1410	25.9	255	28.2	3.05	992	45.2
TB-1G-14	17.7	24.0	190	61.4	23.6	19.2	78.6	104	22.4	151	1395	26.5	254	27.0	2.65	989	44.8
TB-1G-15	18.0	24.0	190	59.5	23.8	17.5	77.9	104	22.0	150	1408	26.2	255	28.1	2.81	1001	44.8
TB-1G-16	18.0	24.5	191	53.7	23.8	15.9	77.9	103	22.2	152	1405	27.0	258	27.3	2.95	988	45.5
TB-1G-17	18.2	24.5	193	55.0	23.8	16.5	78.0	105	22.0	150	1410	26.1	257	28.4	3.07	993	46.3
TB-1G-18	17.0	24.8	190	59.2	23.6	16.1	79.6	102	21.9	149	1409	26.4	247	27.5	2.78	987	45.4
TB-1G-19	16.1	24.6	190	58.3	24.1	16.4	80.0	101	21.9	151	1409	26.5	252	27.2	2.92	993	45.0
TB-1G-20	17.7	23.9	194	58.3	24.2	14.9	78.9	103	22.8	149	1413	25.4	251	27.7	2.90	981	45.3

TB-1G-21	16.9	23.7	193	56.5	24.0	16.2	78.6	101	21.9	149	1397	26.3	247	28.0	2.87	999	45.7
TB-1G-22	18.0	23.7	192	57.5	24.4	15.3	78.4	107	21.0	153	1409	27.1	251	28.0	2.95	977	45.0
TB-1G-23	18.4	24.2	195	59.8	23.5	14.5	78.8	102	21.1	152	1408	26.5	251	27.9	2.90	1007	45.7
TB-1G-24	17.7	24.5	190	56.9	24.2	13.6	76.9	106	22.2	151	1410	26.1	256	27.6	2.97	1005	45.7
TB-1G-25	17.5	24.8	191	55.1	24.0	16.5	78.0	103	21.4	152	1410	26.4	250	27.5	2.92	1015	45.2
TB-1G-26	18.0	25.8	191	64.1	24.2	17.3	77.4	106	24.2	149	1401	26.5	252	27.4	2.82	1023	46.0
Reference value*	-	22.8	189	60.0	23.5	19.4	73.1	102	19.8	145	1363	26.9	250	28.2	-	925	45.3

Table S12. (continued)

Spot	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	Pb	Th	U
TB-1G-01	91.1	10.2	41.1	7.47	1.73	5.85	0.782	4.19	0.879	3.10	0.346	2.63	0.348	5.59	1.25	17.5	15.5	4.35
TB-1G-02	91.8	10.2	40.0	7.71	1.95	6.33	0.710	4.55	0.943	2.48	0.350	2.82	0.420	5.31	1.23	17.2	15.2	4.31
TB-1G-03	89.9	9.7	40.4	6.51	1.79	5.22	0.739	4.47	0.868	2.57	0.324	2.32	0.350	5.78	1.39	16.5	15.2	4.11
TB-1G-04	92.0	10.1	43.5	7.61	1.91	5.95	0.749	4.57	0.949	2.77	0.375	2.29	0.376	5.38	1.29	16.6	15.4	4.41
TB-1G-05	92.5	10.3	40.3	7.00	1.98	6.27	0.750	4.24	0.915	2.87	0.384	2.27	0.411	5.19	1.42	17.1	15.7	4.28
TB-1G-06	92.7	10.2	39.6	7.61	2.01	6.02	0.727	4.85	0.909	2.67	0.424	2.86	0.331	5.54	1.40	17.3	15.5	4.34
TB-1G-07	90.5	10.3	42.9	6.63	1.88	6.03	0.777	4.46	0.974	2.39	0.401	2.79	0.385	5.34	1.42	17.4	15.2	4.43
TB-1G-08	90.7	10.0	37.2	7.33	1.90	5.77	0.835	4.61	0.932	2.94	0.341	2.59	0.377	5.33	1.36	17.1	15.1	4.22
TB-1G-09	92.4	10.4	40.1	7.23	1.86	6.31	0.771	5.21	0.864	2.68	0.309	2.63	0.382	5.69	1.43	17.8	15.2	4.24
TB-1G-10	93.3	10.3	39.7	7.69	1.87	6.02	0.807	4.48	0.892	2.78	0.375	2.28	0.360	5.83	1.34	17.7	15.1	4.28
TB-1G-11	94.9	10.5	41.0	8.02	1.92	5.83	0.836	4.79	0.985	2.51	0.318	2.53	0.409	5.85	1.34	17.8	15.9	4.21
TB-1G-12	94.2	10.5	40.1	6.92	1.86	6.01	0.727	4.68	0.959	2.56	0.422	2.62	0.359	5.68	1.34	16.9	15.8	4.23
TB-1G-13	92.6	10.3	39.3	7.71	1.86	5.90	0.790	4.73	0.957	2.45	0.319	2.53	0.381	5.70	1.34	17.5	15.1	4.17
TB-1G-14	91.5	10.2	39.1	7.56	1.91	5.88	0.734	4.26	0.863	2.53	0.401	2.80	0.401	5.40	1.45	16.5	14.6	4.24

TB-1G-15	92.0	10.4	41.4	7.75	1.73	5.27	0.804	4.67	0.926	2.85	0.374	2.84	0.403	5.40	1.27	17.0	14.8	4.37
TB-1G-16	93.0	10.0	39.9	6.91	1.78	5.67	0.816	4.64	0.840	2.82	0.376	3.04	0.407	5.62	1.44	17.0	15.0	4.42
TB-1G-17	91.3	10.2	41.1	7.44	1.68	5.63	0.766	4.66	0.899	2.63	0.387	2.29	0.371	5.68	1.31	17.3	15.0	4.63
TB-1G-18	92.7	10.2	40.3	7.58	1.77	6.06	0.774	4.50	0.876	2.70	0.340	2.69	0.364	5.34	1.30	17.5	14.8	4.28
TB-1G-19	92.7	10.3	40.7	7.58	1.73	6.06	0.789	4.71	0.943	2.90	0.366	3.09	0.394	5.62	1.26	17.1	15.0	4.27
TB-1G-20	91.8	10.4	39.8	6.70	1.85	5.81	0.779	4.84	0.956	3.04	0.357	2.29	0.406	5.48	1.33	17.4	15.7	4.38
TB-1G-21	92.1	10.5	39.9	7.17	1.69	6.48	0.735	4.70	0.907	2.39	0.343	2.37	0.320	5.47	1.29	17.3	15.1	4.40
TB-1G-22	92.0	10.4	40.6	7.17	1.82	6.02	0.746	4.73	0.949	2.83	0.458	2.82	0.383	5.84	1.38	17.6	15.2	4.20
TB-1G-23	92.8	10.2	40.6	7.01	1.71	6.27	0.739	4.17	0.855	2.62	0.336	2.55	0.346	5.69	1.42	17.6	15.9	4.25
TB-1G-24	92.2	10.3	39.4	7.14	1.85	5.51	0.773	4.45	0.874	2.69	0.383	2.74	0.379	5.81	1.38	17.5	14.9	4.29
TB-1G-25	92.6	10.0	38.6	7.74	1.83	5.33	0.708	4.58	0.885	2.90	0.412	2.82	0.396	5.62	1.42	17.4	15.3	4.30
TB-1G-26	94.6	10.4	41.0	7.99	1.98	6.30	0.743	4.60	0.979	2.46	0.354	2.76	0.406	5.50	1.28	17.6	15.6	4.43
Reference value*	89.7	10.6	40.0	7.63	1.91	6.20	0.840	4.95	0.980	2.76	0.390	2.58	0.400	5.87	1.51	16.0	15.0	4.20

\*Kimura, J.I., and Chang, Q., 2012. Origin of the suppressed matrix effect for improved analytical performance in determination of major and trace elements in anhydrous silicate samples using 200 nm femtosecond laser ablation sector-field inductively coupled plasma mass spectrometry: *Journal of Analytical Atomic Spectrometry*, v. 27, p. 1549–1559.



3.13. Table S13: Trace element (ppm) compositions of replicate sample and reference materials.

	17BG03-3	17BG03-3R	AGV-2	BHVO-2	GSR-1	GSR-2	GSR-3	W-2a
	Replicate analysis		Reference materials					
Sc	27.0	26.9	12.6	31.1	6.2	9.4	14.4	35.5
Ti	6155	6115	6039	16569	1630	3000	13893	6606
V	247	247	117	319	23	95	168	270
Cr	91.5	92.6	16.6	282	4.64	30.3	134	86.4
Mn	1069	1061	720	1289	458	582	1292	1303
Co	27.2	27.3	15.1	44.2	3.30	12.4	46.7	44.4
Ni	18.8	18.7	17.9	118	2.22	17.13	142	71.32
Cu	41.9	41.6	48.7	128	3.11	54.5	50.1	104
Zn	87.1	88.3	82.8	107	29.0	68.0	144	78.2
Ga	19.3	19.1	20.0	21.6	19.3	18.3	23.9	19.2
Ge	2.73	2.67	2.16	3.29	2.39	1.57	3.53	2.83
Rb	19.1	19.2	63.7	9.71	466	36.7	36.1	19.4
Sr	440	439	632	380	104	799	1111	190
Y	24.1	24.1	19.1	25.9	63.9	8.87	22.6	21.8
Zr	129	130	225	173	162	92.6	282	94.1
Nb	8.34	8.38	14.4	19.3	38.6	6.92	69.6	7.92
Cs	4.47	4.46	1.10	0.098	38.5	2.18	0.418	0.958
Ba	375	373	1126	128	331	1036	527	170
La	23.6	23.9	37.7	15.1	55.8	21.0	55.1	10.2
Ce	48.4	49.1	67.1	37.2	105	40.0	106	23.5
Pr	5.85	5.92	8.06	5.30	13.4	4.69	12.6	3.13
Nd	24.0	24.2	31.0	25.0	48.2	18.5	51.8	13.9
Sm	4.89	4.90	5.42	6.01	10.1	3.30	9.96	3.40

Eu	1.33	1.362	1.50	2.03	0.841	0.997	3.19	1.02
Gd	4.538	4.611	4.669	5.959	9.358	2.643	8.509	3.781
Tb	0.704	0.714	0.616	0.923	1.66	0.371	1.18	0.637
Dy	4.16	4.14	3.537	5.191	10.5	1.778	5.349	3.914
Ho	0.852	0.870	0.698	0.971	2.23	0.332	0.879	0.851
Er	2.32	2.37	1.74	2.38	6.56	0.823	1.91	2.36
Tm	0.332	0.331	0.240	0.308	1.09	0.128	0.268	0.309
Yb	2.09	2.10	1.56	1.87	7.58	0.908	1.49	2.00
Lu	0.334	0.338	0.238	0.270	1.18	0.116	0.185	0.319
Hf	3.51	3.53	5.19	4.11	6.49	2.77	6.34	2.46
Ta	0.500	0.509	0.839	1.38	7.25	0.435	4.30	0.491
Pb	8.72	8.79	12.5	1.48	32.1	9.84	4.30	7.50
Th	7.23	7.24	6.049	1.21	55.1	2.57	5.82	2.22
U	1.40	1.38	1.86	0.422	19.0	0.865	1.41	0.535

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