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Supplemental Material

Table S1. Selected microprobe analyses for amphibolite from the north Hengshan terrane.

Table S2. Bulk-rock compositions and their normalized mole-proportions of amphibolite from the north Hengshan terrane.

Table S3. Zircon U-Pb isotopic data obtained by LA-ICP-MS for amphibolite sample H1718 from the north Hengshan terrane.

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TABLE S1. SELECTED MICROPROBE ANALYSES FOR AMPHIBOLITE FROM THE NORTH HENGSHAN TERRANE

Sample Mineral*	H1707													H1708		
	hb-m	hb-in pseu	hb-s	hb-s	pl-m	pl-in pseu	pl-s	pl-s	cpx-m	cpx-s	bi-m	bi-late	ilm	hb	pl	bi
SiO ₂	43.26	42.49	42.89	45.32	62.08	59.89	60.15	60.45	51.75	52.15	36.29	36.10	0.20	41.68	59.94	35.38
TiO ₂	1.61	1.78	1.62	0.73	0.00	0.00	0.00	0.00	0.08	0.06	4.58	4.73	46.43	1.80	0.00	4.60
Al ₂ O ₃	9.97	10.82	9.76	8.55	23.86	25.92	24.57	25.36	1.05	0.96	14.29	14.26	0.06	10.79	24.46	14.39
Cr ₂ O ₃	0.00	0.00	0.21	0.12	0.00	0.01	0.03	0.00	0.03	0.07	0.00	0.03	0.03	0.09	0.06	0.00
Fe ₂ O ₃	2.85	3.08	3.76	3.34	0.06	0.14	0.31	0.17	3.40	3.19	0.00	0.00	11.11	2.02	0.22	0.00
FeO	16.03	16.25	15.17	13.23	0.00	0.00	0.00	0.00	7.33	6.90	20.01	20.45	39.86	18.43	0.00	22.07
MnO	0.31	0.43	0.33	0.13	0.02	0.00	0.02	0.00	0.23	0.25	0.14	0.16	1.16	0.32	0.05	0.23
MgO	9.96	9.57	10.16	11.93	0.00	0.00	0.00	0.00	12.83	13.06	11.87	10.59	0.46	8.13	0.00	9.31
CaO	11.44	11.52	11.43	11.99	4.92	7.04	6.25	6.48	22.67	23.20	0.03	0.05	0.07	11.42	5.96	0.04
Na ₂ O	1.65	1.72	1.60	1.25	7.51	5.34	7.75	6.34	0.54	0.47	0.14	0.07	0.01	1.58	7.58	0.10
K ₂ O	1.10	1.30	1.10	0.88	0.33	0.31	0.24	0.41	0.00	0.02	9.80	9.84	0.00	1.36	0.26	9.57
Total	98.18	98.96	98.03	97.47	98.78	98.65	99.32	99.21	99.91	100.33	97.15	96.28	99.39	97.62	98.53	95.69
O	23	23	23	23	8	8	8	8	6	6	11	11	3	23	8	11
Si	6.51	6.37	6.47	6.75	2.77	2.68	2.70	2.70	1.95	1.95	2.74	2.76	0.01	6.39	2.70	2.74
Ti	0.18	0.20	0.18	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.27	0.89	0.21	0.00	0.27
Al	1.77	1.91	1.73	1.50	1.26	1.37	1.30	1.33	0.05	0.04	1.27	1.28	0.00	1.95	1.30	1.32
Cr	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Fe ³⁺	0.32	0.35	0.43	0.37	0.00	0.01	0.01	0.01	0.10	0.09	0.00	0.00	0.21	0.23	0.01	0.00
Fe ²⁺	2.02	2.04	1.91	1.65	0.00	0.00	0.00	0.00	0.23	0.22	1.26	1.31	0.85	2.36	0.00	1.43
Mn	0.04	0.06	0.04	0.02	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.03	0.04	0.00	0.02
Mg	2.23	2.14	2.28	2.65	0.00	0.00	0.00	0.00	0.72	0.73	1.34	1.21	0.02	1.86	0.00	1.08
Ca	1.85	1.85	1.85	1.91	0.24	0.34	0.30	0.31	0.91	0.93	0.00	0.00	0.00	1.88	0.29	0.00
Na	0.48	0.50	0.47	0.36	0.65	0.46	0.67	0.55	0.04	0.03	0.02	0.01	0.00	0.47	0.66	0.02
K	0.21	0.25	0.21	0.17	0.02	0.02	0.01	0.02	0.00	0.00	0.94	0.96	0.00	0.27	0.02	0.95
X(phase) [†]	0.53	0.51	0.54	0.62	0.26	0.41	0.30	0.35	0.76	0.77	0.51	0.48	-	0.44	0.30	0.43

Notes: Major oxides are given in wt.%, and cations are reported per formula unit (pfu).

The mineral formulae were calculated with the program AX (<https://www.esc.cam.ac.uk/research/research-groups/research-projects/tim-hollands-software-pages/ax>).

*-m and -in pseu refer to the hornblende, plagioclase and biotite occurring in the matrix and in garnet pseudomorph, respectively.

*-s refers to the hornblende, plagioclase and clinopyroxene occurring in symplectite.

[†]X(hb/cpx/bi) = Mg/(Fe²⁺ + Mg); [†]X(pl) = Ca/(Ca + Na + K).

TABLE S2. BULK-ROCK COMPOSITIONS AND THEIR NORMALIZED MOLE-PROPORTIONS OF AMPHIBOLITE FROM THE NORTH HENGSHAN TERRANE

Sample	ICP-OES bulk-rock compositions (wt.%)											
	SiO ₂	TiO ₂	Al ₂ O ₃	Fe ₂ O ₃	MnO	MgO	CaO	Na ₂ O	K ₂ O	P ₂ O ₅	LOI [*]	X _{Mg} [†]
H1707	50.14	1.52	12.41	13.65	0.20	6.77	9.34	2.90	1.24	0.35	0.65	0.50
H1708	50.07	1.43	14.23	14.34	0.19	5.00	8.16	3.26	1.56	0.26	0.59	0.41
Sample	Normalized mole-proportions (mol.%)											
	H ₂ O	SiO ₂	TiO ₂	Al ₂ O ₃	FeO	MgO	CaO	Na ₂ O	K ₂ O	O	X _{Mg} [†]	
H1707	0.00	54.14	1.23	7.90	11.09	10.90	10.30	3.03	0.86	0.55	0.50	Fig. 5A
	10.00	48.72	1.11	7.11	9.98	9.81	9.27	2.73	0.77	0.50	0.50	
H1707	4.00	52.26	1.19	7.62	10.70	10.53	9.94	2.93	0.83	0.00	0.50	Fig. 5B
	4.00	51.40	1.17	7.50	10.53	10.35	9.78	2.88	0.81	1.58	0.50	
H1707	4.00	51.97	1.19	7.58	10.64	10.47	9.89	2.91	0.82	0.53	0.50	Fig. 6
H1708		55.11	1.18	9.23	11.88	8.20	9.23	3.48	1.10	0.59	0.41	Fig. 7

Notes: ^{*}LOI= Loss on Ignition. [†]X_{Mg} = Mg/(Mg + Fe) in mole.

TABLE S3. ZIRCON U-PB ISOTOPIC DATA OBTAINED BY LA-ICP-MS FOR AMPHIBOLITE SAMPLE H1718 FROM THE NORTH HENGSHAN TERRANE

Spot	Th (ppm)	U (ppm)	Th/U	Isotopic ratios						Corrected ages (Ma)					
				$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ	$^{207}\text{Pb}/^{206}\text{Pb}$	1 σ	$^{207}\text{Pb}/^{235}\text{U}$	1 σ	$^{206}\text{Pb}/^{238}\text{U}$	1 σ
1	1.1	86	0.01	0.1150	0.0015	5.3856	0.1005	0.3400	0.0051	1880	23	1883	16	1886	25
2	1.3	61	0.02	0.1141	0.0014	5.2798	0.1049	0.3355	0.0053	1866	23	1866	17	1865	26
3	0.6	41	0.02	0.1134	0.0014	5.1133	0.0909	0.3286	0.0044	1854	23	1838	15	1832	22
4	1.1	50	0.02	0.1134	0.0021	5.1177	0.1202	0.3269	0.0044	1855	34	1839	20	1823	21
5	0.5	42	0.01	0.1175	0.0026	5.7796	0.2019	0.3559	0.0085	1920	39	1943	30	1963	41
6	1.8	114	0.02	0.1137	0.0014	5.1675	0.0802	0.3299	0.0043	1861	21	1847	13	1838	21
7	0.9	81	0.01	0.1154	0.0019	5.3497	0.1536	0.3351	0.0062	1887	30	1877	25	1863	30
8	0.7	61	0.01	0.1134	0.0017	5.5163	0.1032	0.3531	0.0052	1855	28	1903	16	1949	25
9	1.4	124	0.01	0.1136	0.0015	5.2783	0.1011	0.3374	0.0059	1858	24	1865	16	1874	29
10	0.8	70	0.01	0.1151	0.0019	5.1297	0.1189	0.3228	0.0045	1881	30	1841	20	1803	22
11	1.0	70	0.01	0.1139	0.0018	5.1850	0.1071	0.3299	0.0046	1865	28	1850	18	1838	22

TABLE S4. TITANIUM AND REE COMPOSITIONS (PPM) OF ZIRCONS FOR AMPHIBOLITE SAMPLE H1718 FROM THE NORTH HENGSHAN TERRANE

[illegible]