Yang, Y., Liu, Y.C., Li, Y., Groppo, C., and Rolfo, F., 2021, Magmatism and related metamorphism as a response to mountain-root collapse of the Dabie orogen: Constraints from geochronology and petrogeochemistry of metadiorites: GSA Bulletin, <https://doi.org/10.1130/B36194.1>.

Supplemental Material

Table S1. Electron microprobe analyses (wt%) of representative minerals in the NDZ metadiorites

Table S2. Major and trace elements concentrations of the NDZ metadiorites

Table S3. Zircon SHRIMP U-Pb isotopic compositions of the NDZ metadiorites

Table S4. Zircon REE concentrations of sample 1310YZH5 from the NDZ.

Table S5. Zircon Lu-Hf isotopic compositions of the NDZ metadiorites

Table S6. Whole-rock Rb-Sr, Sm-Nd and Pb isotopic data of the NDZ metadiorites

Table S7. P-T estimates of the NDZ metadiorites

TABLE S1. ELECTRON MICROPROBE ANALYSES (wt. %) OF REPRESENTATIVE MINERALS IN THE NDZ METADIORITES

Sample	1310YZH5												
Mineral	Amphibole							Biotite					
Spot No.	Y1A-1	Y1A-2	Y2A-1	Y2A-2	Y5A-1	Y5A-2	Y5A-3	Y1B-1	Y1B-2	Y1B-3	Y1B-4	Y2B-1	Y2B-2
SiO ₂	42.34	43.56	43.60	42.94	43.82	43.97	42.47	36.36	36.84	36.54	35.98	36.24	36.12
TiO ₂	1.49	1.24	1.28	1.63	1.08	1.29	1.52	4.97	5.14	5.19	4.55	5.03	4.99
Al ₂ O ₃	10.36	9.79	9.39	10.24	9.38	9.62	9.86	13.53	13.45	13.66	13.64	13.40	13.75
Cr ₂ O ₃	N.A.	0.01	N.A.	0.03	0.03	0.05	0.03	N.A.	0.05	0.04	N.A.	0.03	0.03
FeO	17.20	17.30	16.67	16.61	17.98	17.08	17.08	18.86	19.24	18.99	19.08	18.37	19.38
MnO	1.00	0.81	0.86	1.02	0.76	0.78	0.79	0.56	0.56	0.56	0.53	0.47	0.57
MgO	10.42	10.39	10.84	10.81	10.47	10.19	10.35	11.95	11.74	11.66	11.67	11.58	11.70
CaO	11.60	11.57	11.63	11.40	11.77	11.61	11.25	0.03	0.03	0.00	0.05	0.01	0.06
Na ₂ O	1.27	1.03	1.00	1.24	1.02	1.03	1.26	0.03	0.03	0.03	0.03	N.A.	0.01
K ₂ O	1.42	1.26	1.26	1.38	1.33	1.18	1.40	9.13	9.23	9.26	9.37	9.16	9.27
Total	97.20	97.06	96.63	97.42	97.76	96.92	96.12	95.80	96.41	96.15	95.16	94.62	96.27
Domain	C	R	R	M	R	R	R	S1	S1	S1	S1	S1	S1

Note: C, M and R in the “Domain” row stand for mineral cores, mantles and rims, respectively. S1, S2, S3 and S4 represent mineral grains in matrix, inclusions in other minerals, myrmekites or coronas around Kfs porphyroblasts and large Kfs porphyroblasts, respectively; N.A. represents for not applicable.

TABLE S1 (Continued)

Sample	1310YZH5										1505LNA1			
Mineral	K-feldspar						Pl				Amphibole			
Spot No.	Y1K-1	Y1K-2	Y1K-3	Y2K-1	Y3K-1	Y5K-1	Y1P-1	Y2P-1	Y2P-2	Y5P-1	L3A-2	L3A-3	L3A-4	L3A-5
SiO ₂	65.51	64.35	65.64	64.71	65.37	65.67	61.10	60.60	59.85	60.58	43.48	44.42	43.51	43.75
TiO ₂	N.A.	0.01	N.A.	N.A.	N.A.	N.A.	0.02	N.A.	0.01	N.A.	1.21	1.04	1.34	1.28
Al ₂ O ₃	18.07	18.10	18.15	18.12	18.00	18.26	24.12	24.15	24.21	24.08	9.51	9.24	9.94	9.66
Cr ₂ O ₃	0.01	0.01	0.03	N.A.	0.00	N.A.	N.A.	N.A.	N.A.	N.A.	0.15	0.07	0.02	0.07
FeO	0.09	0.15	0.11	0.38	0.01	N.A.	0.27	0.43	0.44	0.17	16.83	16.80	17.26	16.98
MnO	0.02	0.05	0.06	0.08	N.A.	0.02	0.03	0.03	N.A.	0.02	0.87	0.84	0.99	1.03
MgO	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.00	10.79	11.34	10.54	10.96
CaO	0.03	0.04	0.04	0.03	0.05	0.05	5.99	6.52	6.41	6.24	11.36	11.75	11.19	11.44
Na ₂ O	0.79	0.12	1.14	0.19	1.07	1.11	7.82	7.69	7.74	7.48	1.13	1.00	1.41	1.18
K ₂ O	14.77	16.60	14.63	16.55	14.66	14.39	0.38	0.37	0.30	0.37	1.14	1.13	1.42	1.31
Total	99.30	99.43	99.80	100.06	99.17	99.50	99.73	99.78	98.97	98.94	96.56	97.71	97.69	97.73
Domain	S1	S1	S2	S1	S2	S2	S1	S1	S1	S1	M	M	C	M

TABLE S1 (Continued)

Sample	1505LNA1													
Mineral	Amphibole	Biotite										K-feldspar		
Spot No.	L3A-6	L1B-1	L1B-2	L2B-1	L3A-1	L3B-1	L4B-1	L4B-2	L4B-3	L4B-4	L5B-1	L5B-2	L1K-1	L4K-1
SiO ₂	44.32	37.39	37.18	37.33	37.29	37.47	37.49	36.90	37.00	37.37	36.85	37.11	63.91	63.14
TiO ₂	1.18	5.36	5.22	5.05	3.68	5.69	4.93	5.17	5.16	4.59	5.19	4.86	N.A.	N.A.
Al ₂ O ₃	8.99	13.59	13.61	13.29	13.64	13.39	13.53	13.77	12.92	13.34	13.43	13.28	18.20	18.43
Cr ₂ O ₃	N.A.	0.02	0.13	0.05	0.10	0.08	0.49	0.49	0.40	0.05	N.A.	0.06	0.08	0.61
FeO	16.97	18.69	18.58	18.21	17.69	18.20	17.43	17.50	19.61	18.13	18.77	18.85	0.05	0.08
MnO	1.01	0.43	0.58	0.38	0.59	0.65	0.65	0.54	0.48	0.46	0.53	0.51	0.01	N.A.
MgO	11.18	11.12	12.22	12.13	11.95	12.37	12.85	12.67	11.42	12.26	12.11	11.74	N.A.	N.A.
CaO	11.52	0.05	0.13	0.05	0.05	0.01	0.08	0.12	0.06	0.05	0.02	0.02	0.04	0.21
Na ₂ O	1.13	0.03	0.03	0.03	0.08	0.01	0.03	0.03	0.02	0.02	0.02	0.02	1.71	2.23
K ₂ O	1.17	9.63	8.88	9.54	9.73	9.69	9.14	9.07	9.13	9.25	9.53	9.34	15.75	14.60
Total	97.53	96.45	96.84	96.29	94.87	97.87	96.69	96.53	96.42	95.61	96.74	95.86	99.79	99.30
Domain	R	S2	S2	S1	S2	S2	S1	S1	S2	S1	S1	S1	S4, C	S4, C

TABLE S1 (Continued)

Sample	1505LNA1														
Mineral	K-feldspar						Plagioclase								
Spot No.	L4K-2	L4K-3	L4K-4	L4K-5	L5K-2	L5K-3	L1P-1	L4P-1	L4P-2	L4P-3	L4P-4	L4P-5	L5K-1	L5P-1	L5P-2
SiO ₂	64.29	63.88	63.90	64.07	64.19	63.32	61.07	61.47	61.58	61.30	61.40	61.38	61.44	61.29	61.38
TiO ₂	0.02	0.01	N.A.	N.A.	0.06	0.03	0.02	N.A.	N.A.	0.02	N.A.	0.00	0.05	0.05	0.06
Al ₂ O ₃	18.18	18.08	18.40	18.20	18.17	18.16	24.26	23.62	23.61	23.58	23.62	23.66	23.93	23.45	23.24
Cr ₂ O ₃	0.17	0.12	N.A.	0.10	0.10	0.07	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
FeO	0.09	0.11	0.15	0.22	0.06	0.09	0.35	0.84	0.34	0.28	0.20	0.46	0.20	0.37	0.22
MnO	N.A.	0.07	N.A.	0.01	N.A.	N.A.	0.01	N.A.	N.A.	N.A.	N.A.	N.A.	0.20	N.A.	0.01
MgO	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	0.00	N.A.	N.A.	N.A.	N.A.	0.01	0.00	N.A.	N.A.
CaO	0.07	0.08	0.04	0.06	0.04	0.07	5.89	5.59	5.67	5.59	5.58	5.74	5.63	5.47	5.56
Na ₂ O	1.70	1.81	1.66	1.63	1.30	1.18	8.06	8.42	8.23	8.09	8.34	7.97	7.58	8.01	8.06
K ₂ O	14.93	15.46	14.85	14.69	14.21	14.52	0.25	0.23	0.22	0.41	0.31	0.26	0.35	0.29	0.30
Total	99.43	99.61	99.04	99.96	98.18	97.44	99.92	100.19	99.66	99.26	99.45	99.49	99.38	98.94	98.83
Domain	S4, M	S4, R	S3	S3	S3	S2	S2	S2	S1	S3	S3	S3	S1	S1	S3

Table S2. MAJOR AND TRACE ELEMENTS CONCENTRATIONS OF THE NDZ METADIORITES

Sample	1310YZH5	1505LNA1	1505XPG1-1	1505XPG2	1505XPG4-1	1505XPG4-2	1505MSH2	1505MSH4
<i>Major elements (wt. %)</i>								
SiO ₂	56.95	60.93	59.12	55.21	56.20	54.60	60.56	61.87
Al ₂ O ₃	17.17	16.89	16.56	17.80	17.13	18.11	16.52	16.53
TiO ₂	0.99	0.75	0.85	1.00	0.95	1.07	0.92	0.77
Fe ₂ O ₃	2.77	1.98	2.60	3.01	2.86	3.21	2.54	2.36
FeO	4.30	2.98	3.72	4.28	4.30	4.42	3.22	2.88
CaO	5.79	4.37	5.30	6.48	6.20	6.35	4.80	4.30
MgO	3.35	2.57	3.30	3.88	3.91	3.57	2.89	2.23
K ₂ O	2.84	4.07	2.93	1.77	2.54	2.04	2.18	3.56
Na ₂ O	3.95	4.02	3.96	4.53	4.10	4.67	4.62	4.08
MnO	0.11	0.08	0.10	0.11	0.11	0.12	0.09	0.08
P ₂ O ₅	0.37	0.32	0.33	0.41	0.38	0.43	0.43	0.32
LOI	0.82	0.63	0.93	1.22	0.98	1.12	0.92	0.66
A/CNK	1.16	1.13	1.14	1.17	1.13	1.16	1.15	1.14
A/NK	1.80	1.53	1.71	1.90	1.81	1.83	1.66	1.57
FeO _T	6.80	4.76	6.06	6.99	6.87	7.30	5.50	5.01
Mg#	46.8	49.0	49.3	49.7	50.3	46.6	48.3	44.2
<i>Trace elements (ppm)</i>								
Y	22.7	24.0	18.8	20.7	17.9	25.6	19.6	12.4
La	43.1	44.0	33.7	56.7	36.0	51.8	70.6	46.7
Ce	99.1	103.9	74.5	113.8	82.5	109.6	149.6	99.4
Pr	12.8	13.9	10.1	14.5	11.5	14.4	18.2	12.2
Nd	52.0	52.7	39.5	54.4	46.1	55.5	67.2	43.9
Sm	9.18	8.24	6.14	8.07	7.11	8.47	9.57	5.84
Eu	2.17	1.97	1.70	2.28	2.12	2.11	2.38	1.76
Gd	7.31	6.51	4.79	6.22	5.56	6.63	7.04	4.58
Tb	0.98	1.01	0.76	0.93	0.83	1.05	0.97	0.61
Dy	5.09	4.10	3.25	3.69	3.35	4.49	3.63	2.26
Ho	0.93	0.91	0.74	0.81	0.72	1.02	0.77	0.49
Er	2.50	2.35	1.87	2.06	1.76	2.63	1.93	1.22
Tm	0.37	0.38	0.31	0.31	0.27	0.42	0.29	0.19
Yb	2.14	2.34	1.93	1.91	1.61	2.53	1.77	1.23
Lu	0.35	0.33	0.27	0.28	0.24	0.37	0.25	0.18
Li	11.2	9.2	19.3	13.8	10.6	12.8	11.6	9.6
Be	1.84	1.92	2.13	2.34	1.60	2.29	2.14	1.98
Sc	17.3	12.6	18.0	19.4	18.6	17.0	14.4	12.8
V	178	100	153	172	149	148	119	112
Cr	72.1	50.3	45.4	48.6	56.4	31.2	35.1	35.6
Co	22.9	15.6	24.7	29.1	26.7	25.5	18.7	18.0
Ni	24.7	20.7	20.2	25.1	26.9	17.4	17.3	15.4
Cu	28.4	26.8	45.3	48.0	39.4	26.4	12.7	22.4
Zn	91.8	76.7	104.6	128.3	105.4	122.6	111.4	100.8
Ga	23.9	21.8	25.3	29.1	23.9	27.6	27.3	25.3
Rb	58.5	85.0	75.0	37.9	57.7	43.1	45.7	81.2
Sr	920	814	858	1242	888	970	1133	837
Zr	313	241	176	232	217	273	247	205
Nb	12.1	14.9	12.9	12.9	10.1	12.3	11.6	10.8
Mo	0.22	0.27	0.43	0.23	0.21	0.64	0.18	0.31
Cs	0.67	0.53	0.80	0.47	0.50	0.60	0.48	0.50
Ba	2162	2607	2128	1477	2178	1415	1594	2515
Hf	17.7	13.1	10.0	13.4	10.8	13.8	12.7	11.2
Ta	0.40	0.79	0.76	0.73	0.53	0.71	0.57	0.62
W	0.08	0.08	0.17	0.20	0.08	0.18	0.09	0.08
Pb	15.6	24.9	22.9	19.7	16.6	17.2	14.4	23.1
Th	0.80	4.70	4.48	6.97	2.43	3.41	3.37	4.94
U	0.12	0.28	0.35	0.45	0.28	0.67	0.14	0.26
δ _{Eu}	0.81	0.82	0.96	0.99	1.03	0.86	0.89	1.04

Note: A/CNK and A/NK were calculated as A/CNK = Al/(Ca + Na + K) and A/NK = Al/(Na + K) on molar basis; FeO_T = FeO + 0.8998*Fe₂O₃;

Mg# = molar 100*Mg/(Mg+Fe); δ_{Eu} = Eu/Eu* = Eu_N/(Sm_N*Gd_N)^{1/2}.

TABLE S3. ZIRCON SHRIMP U-Pb ISOTOPIC COMPOSITIONS OF THE NDZ METADIORITES

Spot No.	Domain	$^{206}\text{Pb}_c$ (%)	U ppm	Th ppm	Th/U	$^{206}\text{Pb}^*$ ppm	$^{207}\text{Pb}/^{206}\text{Pb}$	1σ %	$^{207}\text{Pb}/^{235}\text{U}$	1σ %	$^{206}\text{Pb}/^{238}\text{U}$	1σ %	$^{206}\text{Pb}/^{238}\text{U}$ age (Ma)	1σ
<i>Sample 1310YZH5</i>														
1.1	C	0.1	230	223	1.00	4	0.0410	17	0.115	17	0.02036	1.6	130	2
1.2	C	5.0	274	301	1.14	5	0.0616	14	0.180	15	0.02118	1.4	135	2
2.1	C	0.5	216	165	0.79	4	0.0401	12	0.110	12	0.01990	1.2	127	2
3.1	C	0.3	197	145	0.76	3	0.0380	13	0.106	13	0.02021	1.3	129	2
3.2	C	-0.4	103	136	1.37	2	0.0440	37	0.122	37	0.01991	2.6	127	3
4.1	C	1.0	204	239	1.21	4	0.0382	10	0.108	10	0.02056	1.2	131	2
5.1	C	0.4	96	82	0.89	2	0.0495	11	0.137	12	0.02000	1.8	128	2
6.1	R	-0.5	101	90	0.92	2	0.0248	20	0.067	20	0.01966	1.6	126	2
7.1	R	0.1	141	87	0.64	2	0.0300	35	0.080	35	0.01963	1.8	125	2
7.2	C	0.2	184	217	1.22	3	0.0453	7.3	0.128	7.4	0.02056	1.3	131	2
8.1	C	0.4	332	256	0.80	6	0.0524	4.0	0.147	4.1	0.02037	0.93	130	1
9.1	C	-0.1	218	155	0.74	4	0.0414	20	0.115	20	0.02016	1.5	129	2
10.2	C	1.8	101	131	1.34	2	0.0320	35	0.087	35	0.01961	2.1	125	3
11.1	C	1.1	126	103	0.85	2	0.0526	13	0.147	14	0.02024	1.6	129	2
12.1	R	0.9	133	64	0.50	2	0.0443	17	0.125	17	0.02044	1.7	130	2
13.1	C	-0.4	228	223	1.01	4	0.0424	16	0.116	16	0.01984	2.1	127	3
13.2	R	3.5	125	54	0.44	2	0.0390	34	0.109	34	0.02008	2.1	128	3
14.1	R	1.5	172	74	0.45	3	0.0280	41	0.078	41	0.01988	1.8	127	2
15.1	C	-0.1	318	295	0.96	5	0.0429	8.0	0.118	8.1	0.01992	1.0	127	1
16.1	C	0.9	144	154	1.10	3	0.0453	8.5	0.127	8.6	0.02042	1.4	130	2
17.1	C	0.8	111	86	0.80	2	0.0603	9.2	0.172	9.3	0.02070	1.6	132	2
18.1	C	0.2	299	331	1.14	5	0.0470	4.8	0.132	4.9	0.02041	0.99	130	1
<i>Sample 1505LNAI</i>														
1.1	C	0.3	180	164	0.94	3	0.0473	9.6	0.130	9.8	0.01995	1.9	127	2
2.1	C	1.9	188	112	0.62	3	0.0430	24	0.122	24	0.02077	2.2	133	3
3.1	C	0.5	333	336	1.04	6	0.0463	3.4	0.127	3.6	0.01994	1.1	127	1
4.1	C	0.3	346	265	0.79	6	0.0481	4.6	0.134	4.7	0.02021	1.1	129	2
5.1	C	0.3	435	483	1.15	8	0.0469	3.5	0.131	3.7	0.02020	1.1	129	1
5.2	C	0.8	151	79	0.54	3	0.0473	8.8	0.132	8.9	0.02014	1.5	129	2
6.1	C	3.2	185	89	0.50	3	0.0450	22	0.128	23	0.02046	1.8	131	2
7.1	C	0.7	184	124	0.70	3	0.0530	7.7	0.149	7.8	0.02037	1.5	130	2
8.1	C	0.8	432	444	1.06	8	0.0467	7.5	0.130	7.6	0.02017	1.3	129	2
9.1	C	2.1	132	86	0.67	2	0.0465	16	0.128	16	0.01991	1.5	127	2
10.1	R	1.1	126	57	0.46	2	0.0475	12	0.127	12	0.01932	1.6	123	2
11.1	C	3.5	183	134	0.76	3	0.0410	25	0.114	25	0.02004	1.7	128	2
12.1	C	0.4	470	412	0.91	8	0.0470	5.7	0.129	5.8	0.01991	1.1	127	1
13.1	C	1.4	174	117	0.69	3	0.0474	10	0.131	10	0.01999	1.5	128	2

14.1	R	2.2	104	81	0.81	2	0.0456	19	0.123	19	0.01959	1.8	125	2
15.1	R	1.7	159	110	0.72	3	0.0434	13	0.116	13	0.01944	1.5	124	2
<i>Sample 1505MSH2</i>														
1.1	C	2.1	62	61	1.01	1	0.0492	14	0.140	14	0.02067	2.0	132	3
3.1	C	1.7	203	153	0.78	4	0.0446	14	0.126	14	0.02053	2.0	131	3
4.1	C	1.0	212	150	0.73	4	0.0490	11	0.137	11	0.02031	1.4	130	2
4.2	C	4.8	89	74	0.86	2	0.0580	28	0.169	28	0.02099	2.6	134	3
5.1	C	1.9	77	50	0.67	1	0.0388	22	0.112	22	0.02093	2.0	134	3
6.1	C	0.3	230	214	0.96	4	0.0488	11	0.142	11	0.02114	1.4	135	2
7.1	R	3.6	75	79	1.10	1	0.0451	22	0.122	22	0.01955	2.0	125	3
8.1	C	3.3	89	182	2.12	2	0.0460	43	0.129	43	0.02044	2.5	130	3
9.1	R	1.0	127	652	5.30	2	0.0579	12	0.159	12	0.01988	1.8	127	2
10.1	C	1.2	205	149	0.75	4	0.0430	14	0.126	14	0.02120	1.7	135	2
11.1	C	4.6	51	101	2.03	1	0.0480	33	0.138	33	0.02096	2.7	134	4
12.1	C	0.5	188	128	0.70	3	0.0512	9.0	0.145	9.1	0.02057	1.3	131	2
13.1	C	2.2	105	70	0.69	2	0.0340	34	0.100	34	0.02104	2.1	134	3
14.1	C	0.3	227	197	0.90	4	0.0495	6.1	0.141	6.2	0.02066	1.3	132	2
14.2	C	3.4	75	69	0.95	1	0.0630	27	0.188	28	0.02178	2.4	139	3
<i>Sample 1505XPG1-1</i>														
1.1	C	0.8	230	108	0.49	4	0.0496	6.8	0.143	6.9	0.02088	1.3	133	2
2.1	C	1.1	120	96	0.83	2	0.0491	14	0.142	14	0.02105	1.8	134	2
3.1	C	0.4	220	104	0.49	4	0.0461	10	0.134	10	0.02112	1.3	135	2
4.1	C	1.0	297	187	0.65	5	0.0470	8.7	0.135	8.8	0.02079	1.3	133	2
5.1	C	0.0	168	135	0.83	3	0.0504	4.2	0.150	4.4	0.02154	1.3	137	2
6.1	C	0.7	286	170	0.61	5	0.0455	6.0	0.128	6.1	0.02037	1.2	130	2
8.1	C	0.2	239	251	1.09	4	0.0503	6.2	0.140	6.3	0.02026	1.3	129	2
9.1	C	0.9	135	137	1.05	2	0.0501	5.9	0.144	6.1	0.02085	1.5	133	2
10.1	R	2.4	279	126	0.47	5	0.0411	24	0.109	24	0.01918	1.6	123	2
12.1	C	0.2	218	301	1.43	4	0.0488	10	0.138	10	0.02051	1.4	131	2

Note: Pb_c and Pb* indicate the common and radiogenic lead portions, respectively; C and R in the “Domain” column stand for zircon cores and rims, respectively.

TABLE S4. ZIRCON REE CONCENTRATIONS OF SAMPLE 1310YZH5 FROM THE NDZ

Spot No.	1.2	4.1	5.1	6.1	7.1	11.1	13.1	7.2	13.2
Domain	C	C	C	R	R	C	C	C	R
La	0.19	0.08	0.00	0.01	0.02	0.15	0.20	0.02	0.01
Ce	35.65	19.86	24.11	18.70	22.65	20.79	19.64	36.03	14.33
Pr	0.24	0.08	0.04	0.01	0.02	0.10	0.07	0.22	0.04
Nd	3.33	1.16	1.01	0.58	0.71	1.53	1.20	3.23	0.52
Sm	5.02	3.07	3.00	1.01	0.99	1.86	1.62	6.04	1.03
Eu	1.20	0.79	0.84	0.39	0.25	0.73	0.48	1.96	0.34
Gd	21.73	12.70	12.19	3.26	5.72	9.75	9.55	30.99	4.62
Tb	6.55	4.31	3.95	1.50	2.20	3.29	2.94	8.64	1.50
Dy	75.28	49.73	45.77	19.18	27.86	39.68	36.60	99.54	20.02
Ho	27.78	18.68	17.13	8.01	11.82	15.28	13.93	35.91	7.88
Er	128.35	87.01	80.25	40.41	58.04	70.40	65.72	156.90	38.96
Tm	27.01	19.13	18.01	9.59	13.92	15.00	14.78	33.54	8.49
Yb	260.53	181.13	174.91	105.51	142.88	147.19	144.50	326.44	95.14
Lu	54.58	39.92	37.12	23.92	32.01	31.96	32.02	68.16	21.73
ΣREE	647.44	437.65	418.34	232.09	319.10	357.72	343.26	807.61	214.59
δ _{Eu}	0.35	0.39	0.42	0.66	0.32	0.53	0.38	0.44	0.47

Note: C and R in the “Domain” column stand for zircon cores and rims, respectively; δ_{Eu} was calculated as $\delta_{Eu} = Eu/Eu^* = Eu_N/(Sm_N * Gd_N)^{1/2}$, N stands for chondrite-normalized values of REEs from Boynton (1984).

TABLE S5. ZIRCON Lu-Hf ISOTOPIC COMPOSITIONS OF THE NDZ METADIORITE

Spot No.	Domain	Age	$^{176}\text{Yb}/^{177}\text{Hf}$	$^{176}\text{Lu}/^{177}\text{Hf}$	$^{176}\text{Hf}/^{177}\text{Hf}$	2σ	$\varepsilon_{\text{Hf}}(0)$	$\varepsilon_{\text{Hf}}(t)$	2σ	T_{DM2}	2σ	$(^{176}\text{Hf}/^{177}\text{Hf})_i$
<u>Sample 1310YZH5</u>												
1.1	C	130±2	0.017465	0.000532	0.281992	0.000018	-27.6	-24.8	0.3	2740	40	0.281991
2.1	C	127±3	0.027666	0.000820	0.281979	0.000024	-28.1	-25.3	0.4	2772	52	0.281977
3.1	R	127±1	0.027818	0.000883	0.281917	0.000026	-30.2	-27.6	0.5	2911	56	0.281915
4.1	C	128±2	0.024873	0.000837	0.282003	0.000024	-27.2	-24.4	0.4	2718	54	0.282001
5.1	C	130±1	0.042695	0.001195	0.282016	0.000026	-26.8	-24.0	0.5	2692	58	0.282013
6.1	C	135±2	0.030265	0.000882	0.282001	0.000019	-27.3	-24.5	0.3	2723	41	0.281999
7.1	R	129±2	0.030104	0.000934	0.281982	0.000017	-27.9	-25.3	0.3	2768	37	0.281980
8.1	R	125±2	0.017113	0.000565	0.281942	0.000024	-29.3	-26.7	0.4	2854	52	0.281941
9.1	C	130±1	0.020763	0.000636	0.281956	0.000027	-28.9	-26.1	0.5	2821	59	0.281954
10.1	C	125±3	0.018986	0.000573	0.281920	0.000026	-30.1	-27.3	0.5	2900	58	0.281918
11.1	C	129±2	0.015178	0.000507	0.281947	0.000028	-29.2	-26.4	0.5	2839	62	0.281946
12.1	C	127±3	0.022938	0.000755	0.281966	0.000030	-28.5	-25.7	0.5	2800	67	0.281964
13.1	R	127±2	0.013829	0.000452	0.281964	0.000028	-28.6	-25.9	0.5	2805	62	0.281963
14.1	C	130±2	0.025979	0.000778	0.281981	0.000029	-28.0	-25.2	0.5	2766	63	0.281979
15.1	R	N.D.	0.013185	0.000416	0.281949	0.000023	-29.1	-26.4	0.4	2838	50	0.281948
16.1	R	N.D.	0.015704	0.000596	0.281970	0.000013	-28.4	-25.7	0.2	2793	28	0.281968
17.1	R	N.D.	0.021479	0.000704	0.281973	0.000017	-28.3	-25.6	0.3	2787	38	0.281971
<u>Sample 1505LNA1</u>												
1.1	C	127±2	0.021170	0.000649	0.281992	0.000034	-27.6	-24.8	0.6	2741	74	0.281990
2.1	R	127±1	0.014850	0.000504	0.282029	0.000025	-26.3	-23.6	0.4	2661	54	0.282028
3.1	R	129±2	0.027464	0.000880	0.282015	0.000021	-26.8	-24.1	0.4	2695	47	0.282013
4.1	C	129±1	0.025391	0.000818	0.281951	0.000024	-29.0	-26.2	0.4	2832	54	0.281949
5.1	C	129±1	0.022194	0.000705	0.282021	0.000025	-26.5	-23.8	0.4	2677	54	0.282020
6.1	R	130±2	0.030483	0.000935	0.282075	0.000027	-24.6	-22.0	0.5	2561	61	0.282073
7.1	C	129±2	0.017979	0.000543	0.282079	0.000027	-24.5	-21.7	0.5	2549	59	0.282078
8.1	R	123±2	0.005576	0.000219	0.282052	0.000031	-25.5	-22.8	0.6	2611	69	0.282051
9.1	C	N.D.	0.021078	0.000654	0.282051	0.000026	-25.5	-22.7	0.5	2610	57	0.282050
10.1	R	124±2	0.010749	0.000431	0.282073	0.000026	-24.7	-22.0	0.5	2564	57	0.282072
11.1	C	N.D.	0.043467	0.001274	0.282026	0.000033	-26.4	-23.6	0.6	2668	74	0.282023
12.1	C	N.D.	0.020544	0.000617	0.282018	0.000036	-26.7	-23.9	0.6	2685	78	0.282016
1.1	C	133±2	0.031426	0.000890	0.282015	0.000023	-26.8	-24.0	0.4	2691	50	0.282013
<u>Sample 1505XPG1-1</u>												
2.1	C	133±2	0.017313	0.000542	0.282018	0.000018	-26.7	-23.9	0.3	2683	39	0.282017
3.1	C	135±2	0.049512	0.001449	0.282003	0.000023	-27.2	-24.5	0.4	2720	52	0.282000
4.1	C	137±2	0.015697	0.000444	0.281859	0.000019	-32.3	-29.5	0.3	3034	42	0.281857
5.1	C	130±2	0.015557	0.000470	0.282001	0.000021	-27.3	-24.5	0.4	2722	47	0.282000
6.1	C	N.D.	0.020080	0.000601	0.281975	0.000018	-28.2	-25.4	0.3	2778	40	0.281974
7.1	C	133±2	0.027740	0.000839	0.281970	0.000023	-28.3	-25.6	0.4	2790	50	0.281968
8.1	C	129±2	0.027659	0.000780	0.281972	0.000022	-28.3	-25.5	0.4	2787	48	0.281970
9.1	C	N.D.	0.033899	0.000962	0.281964	0.000027	-28.6	-25.8	0.5	2804	59	0.281962
10.1	C	131±2	0.020001	0.000600	0.281955	0.000030	-28.9	-26.1	0.5	2823	66	0.281953
11.1	C	N.D.	0.017503	0.000644	0.281957	0.000022	-28.8	-26.0	0.4	2819	48	0.281955
12.1	C	N.D.	0.025911	0.000776	0.281901	0.000029	-30.8	-28.0	0.5	2943	64	0.281899

Note: $\varepsilon_{\text{Hf}}(t)$ is calculated by assuming crystallization ages of 130 Ma for zircon cores and 125 Ma for rims, respectively;

C and R in the “Domain” column stand for zircon cores and rims, respectively; “N.D.” means no data.

TABLE S6. WHOLE-ROCK Rb-Sr, Sm-Nd AND Pb ISOTOPIC DATA OF THE NDZ METADIORITE

Sample	1310YZH5	1505LNA1	1505XPG1-1	1505XPG2	1505XPG4-1	1505XPG4-2	1505MSH2	1505MSH4
Rb (ppm)	58.5	85.0	75.0	37.9	57.7	43.1	45.7	81.2
Sr (ppm)	920	814	858	1242	888	970	1133	837
$^{87}\text{Rb}/^{86}\text{Sr}$	0.197855	0.256786	0.217176	0.080719	0.167787	0.136062	0.101670	0.248089
$^{87}\text{Sr}/^{86}\text{Sr}$	0.708308	0.708574	0.708154	0.708138	0.707902	0.708162	0.707795	0.708040
2σ	0.000013	0.000013	0.000013	0.000014	0.000014	0.000013	0.000011	0.000013
$^{87}\text{Sr}/^{86}\text{Sr}_i$	0.707942	0.708099	0.707752	0.707989	0.707592	0.707911	0.707607	0.707582
Sm (ppm)	9.18	8.24	6.14	8.07	7.11	8.47	9.57	5.84
Nd (ppm)	52.0	52.7	39.5	54.4	46.1	55.5	67.2	43.9
$^{147}\text{Sm}/^{144}\text{Nd}$	0.111658	0.111002	0.112804	0.107449	0.110052	0.109618	0.101305	0.095728
$^{143}\text{Nd}/^{144}\text{Nd}$	0.511571	0.511784	0.511659	0.511700	0.511615	0.511613	0.511561	0.511509
2σ	0.000019	0.000009	0.000009	0.000009	0.000010	0.000010	0.000011	0.000011
$\epsilon_{\text{Nd}}(t)$	-19.41	-15.25	-17.71	-16.81	-18.51	-18.55	-19.45	-20.37
$T_{2\text{DM}}$	2498	2162	2361	2289	2426	2429	2500	2574
$^{206}\text{Pb}/^{204}\text{Pb}$	16.6159	16.8590	16.6660	16.7798	16.5353	16.5475	16.3489	16.1116
2σ (%)	0.009	0.006	0.007	0.007	0.006	0.004	0.005	0.006
$^{207}\text{Pb}/^{204}\text{Pb}$	15.3917	15.4550	15.4173	15.4432	15.3997	15.3994	15.3534	15.3174
2σ (%)	0.009	0.006	0.007	0.007	0.006	0.004	0.006	0.007
$^{208}\text{Pb}/^{204}\text{Pb}$	37.5776	37.9173	37.6843	37.8286	37.5310	37.5665	37.4136	37.2637
2σ (%)	0.009	0.007	0.007	0.008	0.007	0.005	0.006	0.007

Note: The $^{87}\text{Sr}/^{86}\text{Sr}_i$ and $\epsilon_{\text{Nd}}(t)$ values were calculated using $t = 130$ Ma as $\epsilon_{\text{Nd}}(t) = [({}^{143}\text{Nd}/{}^{144}\text{Nd})_{\text{sample}}/({}^{143}\text{Nd}/{}^{144}\text{Nd})_{\text{CHUR}} - 1] \times 10000$ using $({}^{147}\text{Sm}/{}^{143}\text{Nd})_{\text{CHUR}} = 0.1967$ and $({}^{143}\text{Nd}/{}^{144}\text{Nd})_{\text{CHUR}} = 0.512638$; The $T_{2\text{DM}}$ were calculated by using present-day $({}^{147}\text{Sm}/{}^{143}\text{Nd})_{\text{DM}} = 0.2137$ and $({}^{143}\text{Sm}/{}^{143}\text{Nd})_{\text{DM}} = 0.51315$.

TABLE S7. P-T ESTIMATES OF THE NDZ METADIORITE

Domain	Pressure (kbar)	Temperature (°C)
<u>Matrix (S1 & S2)</u>		
	<u>Al-in-Hornblende (Schmidt, 1992)</u>	<u>Hornblende-Plagioclase-Quartz (Holland et al., 1994)</u>
Brown Amp	5.38 - 5.73	750 - 768
Green Amp	4.48 - 5.31	712 - 736
<u>Kfs porphyroblast (S3)</u>		
	<u>assume (lower than Amp formation)</u>	<u>Two-feldspars (Benisek et al., 2010)</u>
	< 4.48	640 - 703
<u>myrmekite (S4)</u>		
	<u>assume (lower than Amp formation)</u>	<u>Two-feldspars (Benisek et al., 2010)</u>
	< 4.48	609