

### Supplementary Table 3

**Table S3.** Selected microprobe analyses for garnet of high-pressure granulites in this study.

Lithology			garnet pyroxenite																		
Point	Rim		Mantle						Core			Mantle				Rim					
SiO <sub>2</sub>	37.69	37.37	38.51	38.56	36.89	38.78	37.13	36.95	37.75	38.03	37.90	38.06	41.73	38.42	38.07	38.06	38.40	37.95	38.38	37.23	
TiO <sub>2</sub>	0.07	0.13	0.13	0.05	0.11	0.09	0.07	0.04	0.03	0.06	0.05	0.05	0.06	0.10	0.08	0.08	0.06	0.03	0.10	0.10	
Al <sub>2</sub> O <sub>3</sub>	21.71	20.89	21.64	21.66	21.65	21.73	21.40	21.58	21.16	20.90	20.78	21.51	18.83	20.84	21.12	21.17	21.15	21.74	21.12	21.12	
Cr <sub>2</sub> O <sub>3</sub>	0.00	0.03	0.04	0.03	0.02	0.01	0.06	0.06	0.02	0.03	0.01	0.04	0.00	0.03	0.00	0.03	0.01	0.00	0.05	0.01	
FeO	26.75	25.76	24.85	24.40	24.66	24.76	25.27	25.24	24.94	25.03	25.67	25.85	23.98	24.95	24.61	24.78	24.73	25.40	25.16	25.79	
MnO	0.77	0.52	0.57	0.66	0.63	0.67	0.70	0.70	0.69	0.65	0.71	0.73	0.67	0.77	0.76	0.74	0.73	0.67	0.71	0.75	
MgO	4.34	4.27	3.85	3.62	3.59	3.74	3.81	3.82	3.93	3.88	3.88	3.77	3.48	3.59	3.60	3.56	3.64	3.72	4.11	4.02	
CaO	7.92	9.47	10.80	11.09	10.85	10.24	9.86	9.98	10.09	10.05	9.46	9.52	9.59	10.64	10.67	10.58	10.43	10.41	9.65	9.09	
Na <sub>2</sub> O	0.00	0.01	0.01	0.00	0.06	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.04	
K <sub>2</sub> O	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
ZnO	0.04	0.00	0.00	0.05	0.00	0.02	0.06	0.06	0.03	0.00	0.03	0.00	0.00	0.00	0.05	0.04	0.02	0.00	0.02	0.00	
P <sub>2</sub> O <sub>5</sub>	0.01	0.01	0.00	0.03	0.01	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.03	0.01	0.00	
X <sub>Fe</sub>	0.78	0.77	0.78	0.79	0.79	0.79	0.79	0.79	0.78	0.78	0.79	0.79	0.79	0.80	0.79	0.80	0.79	0.79	0.77	0.78	
Py	17.04	16.53	14.89	14.11	14.03	14.75	14.97	14.97	15.38	15.22	15.22	14.76	14.36	13.97	14.12	13.95	14.33	14.40	16.08	15.79	
Alm	58.92	55.97	53.87	53.36	54.07	54.75	55.64	55.41	54.74	55.03	56.50	56.80	55.59	54.53	54.13	54.55	54.55	55.15	55.22	56.86	
Gro	22.34	26.36	29.98	31.07	30.49	29.01	27.83	28.08	28.36	28.31	26.69	26.80	28.47	29.80	30.06	29.84	29.49	28.96	27.13	25.67	
Sp	1.71	1.13	1.25	1.46	1.41	1.49	1.55	1.55	1.52	1.45	1.59	1.63	1.58	1.69	1.68	1.65	1.62	1.48	1.57	1.67	

Lithology	garnet pyroxenite				garnet two-pyroxene granulite					garnet-bearing-plagioclase amphibolite			
Point	Relic fine grains				Mentle section of garnet with inclusions					Relic fine grains in matrix			
SiO <sub>2</sub>	37.91	38.11	37.62	37.51	38.19	36.99	37.59	37.40	37.21	38.16	37.73	37.64	
TiO <sub>2</sub>	0.06	0.03	0.07	0.05	0.08	0.06	0.00	0.03	0.05	0.00	0.02	0.07	
Al <sub>2</sub> O <sub>3</sub>	21.60	21.68	21.72	21.65	21.82	21.58	21.77	21.70	21.43	21.73	21.38	21.73	
Cr <sub>2</sub> O <sub>3</sub>	0.01	0.05	0.00	0.00	0.02	0.04	0.01	0.00	0.01	0.03	0.03	0.00	
FeO	27.76	25.97	25.36	24.52	26.31	24.91	26.51	26.42	27.13	26.44	25.81	24.43	
MnO	0.75	0.53	0.54	2.07	1.31	0.79	1.24	1.32	1.28	2.63	2.34	2.78	
MgO	4.13	4.01	3.89	3.33	5.14	3.39	3.73	3.80	3.04	4.46	4.07	3.68	
CaO	7.87	9.56	10.18	9.61	6.79	10.42	9.96	9.66	9.80	6.57	7.72	8.92	
Na <sub>2</sub> O	0.00	0.02	0.01	0.00	0.01	0.01	0.04	0.00	0.02	0.00	0.02	0.00	

K <sub>2</sub> O	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00
ZnO	0.05	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.10
P <sub>2</sub> O <sub>5</sub>	0.02	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.00
X <sub>Fe</sub>	0.79	0.78	0.79	0.81	0.74	0.80	0.80	0.80	0.83	0.77	0.78	0.79
Py	16.03	15.58	15.12	13.22	20.14	13.40	14.11	14.43	11.69	17.49	16.00	14.50
Alm	60.39	56.58	55.26	54.67	57.82	55.23	56.17	56.33	58.46	58.14	56.96	54.01
Gro	21.92	26.67	28.43	27.45	19.11	29.59	27.05	26.38	27.05	18.51	21.82	25.27
Sp	1.66	1.17	1.19	4.67	2.92	1.78	2.66	2.85	2.80	5.86	5.22	6.22