DR2005013

DATA REPOSITORY - SUPPLEMENTARY MATERIAL GSA ONLINE DATASET

Sample Processing and Analytical Methods

A composite sample of garnetiferous wacke was collected from ~40 m of section containing visible eclogite clasts. Samples were wet screened to less than 0.25 mm fraction, passed through a magnetic separator operating at 2.1 Tesla, and underwent two steps of heavy liquid separation to specific gravities greater than 3.33 at Vancouver Indicator Processors Inc, Vancouver, B.C. The heavy-mineral fraction was studied petrographically and for major and trace elements of key minerals. Thirty to 150 grains of each mineral observed in magnetic heavy mineral fractions of were hand-picked, mounted in epoxy, and polished. Major element compositions of the grains were determined by electron microprobe analysis at the University of British Columbia using procedures described in MacKenzie and Canil (MacKenzie and Canil, 1999). Trace element data on mantle garnets were obtained by laser ablation inductively coupled plasma mass spectrometry (LA ICPMS) at the University of Victoria, using methods described elsewhere (Canil et al., 2003b).

Table 1a- Major Element Data for Pyroxenes and Garnets

Table 1b- Trace Element Data for Selected Peridotitic Garnets

Table 2- Thermobarometry for Garnets, Pyroxenes and Eclogite Clasts

TABLE DR1A - MAJOR AND TRACE ELEMENT DATA FOR PYROXENES AND GARNETS FROM THE LABERGE GARNETIFEROUS WACKE

CLINOPYROXENES (values in wt% oxide)

Sample	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Cr2O3	MnO	FeO	P2O5	TOTAL
2300-Crdiop-1	2.35	15.48	3.09	53.1	0.00	19.44	0.29	1.59	0.00	2.77	0.00	98.12
2300-Crdiop-11	2.62	15.01	3.77	53.1	0.00	18.92	0.43	1.03	0.09	3.48	0.00	98.45
2300-Crdiop-12	2.51	14.54	2.70	53.0	0.00	20.37	0.10	1.63	0.06	3.28	0.00	98.14
2300-Crdiop-13	2.36	14.47	1.99	53.7	0.00	20.74	0.02	2.03	0.00	3.00	0.00	98.27
2300-Crdiop-14	2.56	14.66	3.72	52.3	0.00	19.59	0.42	1.84	0.02	3.08	0.00	98.15
2300-Crdiop-16	2.00	15.74	2.86	53.0	0.00	19.74	0.36	1.31	0.11	3.03	0.00	98.16
2300-Crdiop-19	6.66	8.44	8.73	54.1	0.00	13.19	0.09	0.52	0.08	5.68	0.00	97.51
2300-Crdiop-20	6.34	8.72	10.25	54.6	0.00	13.49	0.06	1.38	0.00	3.56	0.00	98.38
2300-Crdiop-21	2.33	14.84	2.63	53.6	0.00	20.30	0.12	1.33	0.11	3.22	0.00	98.44
2300-Crdiop-3	2.53	14.72	2.82	53.4	0.00	20.25	0.10	1.47	0.04	3.28	0.00	98.58
2300-Crdiop-4	3.43	13.15	2.84	53.0	0.00	18.84	0.00	3.87	0.00	2.60	0.00	97.74
2300-Crdiop-8	2.37	15.30	3.51	52.6	0.00	19.20	0.22	1.61	0.09	2.92	0.00	97.79
2300-Crdiop-9	1.76	15.88	2.37	52.8	0.00	20.69	0.28	1.95	0.04	2.58	0.00	98.35
2300-pyx-1	0.33	15.74	2.60	52.4	0.00	23.27	0.25	0.11	0.11	5.18	0.00	100.02
2300-pyx-11	0.26	14.65	3.75	50.8	0.00	24.19	0.32	0.07	0.13	5.39	0.00	99.52
2300-pyx-12	0.26	15.66	2.30	52.0	0.00	23.37	0.28	0.11	0.15	5.11	0.00	99.27
2300-pyx-13	0.28	15.63	2.47	52.2	0.00	23.50	0.31	0.31	0.13	4.81	0.00	99.62
2300-pyx-14	2.35	12.78	5.04	52.0	0.00	20.17	0.45	0.05	0.02	6.41	0.00	99.28
2300-pyx-15	0.20	16.25	1.90	52.6	0.00	23.67	0.23	0.46	0.13	4.07	0.00	99.49
2300-pyx-16	0.33	15.85	1.71	52.7	0.00	23.77	0.16	0.20	0.09	4.93	0.00	99.73
2300-pyx-17	0.20	17.04	1.33	53.5	0.00	24.00	0.18	0.31	0.07	3.40	0.00	99.99
2300-pyx-18	0.39	15.87	2.20	52.1	0.00	22.80	0.27	0.11	0.20	5.80	0.00	99.73
2300-pyx-19	0.59	16.04	2.17	53.0	0.00	22.43	0.23	0.33	0.16	4.78	0.00	99.72
2300-pyx-2	0.32	14.56	3.29	51.0	0.00	22.90	0.31	0.05	0.16	6.88	0.00	99.46
2300-pyx-20	5.35	7.45	11.44	50.5	0.00	14.82	0.86	0.02	0.03	8.52	0.00	99.00
2300-pyx-21	0.33	16.11	1.71	52.7	0.00	23.57	0.14	0.26	0.06	4.57	0.00	99.48
2300-pyx-22	0.54	15.12	2.68	52.1	0.00	23.01	0.27	0.30	0.14	5.51	0.00	99.71
2300-pyx-23	0.27	15.25	2.21	52.0	0.00	23.86	0.25	0.12	0.19	5.54	0.00	99.71
2300-pyx-3	0.55	14.23	2.56	51.4	0.00	22.42	0.24	0.14	0.19	6.87	0.00	98.62
2300-pyx-4	0.29	16.22	2.06	53.0	0.00	23.40	0.27	0.59	0.12	4.57	0.00	100.46
2300-pyx-5	0.35	14.81	3.35	51.1	0.00	22.61	0.36	0.13	0.14	6.24	0.00	99.13
2300-pyx-6	0.41	15.15	2.47	52.0	0.00	23.29	0.22	0.35	0.20	5.47	0.00	99.53
2300-pyx-7	0.44	15.41	2.41	51.7	0.00	22.26	0.17	0.43	0.19	5.34	0.00	98.31
2300-pyx-8	0.61	16.59	1.94	52.9	0.00	22.29	0.12	0.95	0.09	3.52	0.00	98.97
2300-pyx-9	0.32	15.76	2.21	52.1	0.00	22.96	0.25	0.50	0.16	4.80	0.00	99.07

TABLE DR1A - MAJOR AND TRACE ELEMENT DATA FOR PYROXENES AND GARNETS FROM THE LABERGE GARNETIFEROUS WACKE

Eclogite Clasts

Sample	Na2O	MgO	Al2O3	SiO2	K2O	CaO	TiO2	Cr2O3	MnO	FeO	P2O5	TOTAL
8	5.82	7.01	11.42	53.6	0.01	12.71	0.39	0.04	0.06	8.43	0.02	99.46
9	5.88	7.10	11.49	53.7	0.01	12.72	0.39	0.00	0.06	8.41	0.00	99.79
10	5.90	7.17	11.45	53.7	0.01	12.77	0.38	0.05	0.05	8.37	0.01	99.90
27	0.73	12.25	4.90	49.4	0.01	22.42	0.52	0.01	0.14	8.91	0.00	99.33
28	0.69	12.51	4.59	49.7	0.01	22.47	0.49	0.01	0.15	8.85	0.00	99.45
29	0.69	12.15	4.82	49.4	0.00	22.31	0.48	0.04	0.16	8.81	0.00	98.80
35	3.19	12.03	6.32	53.0	0.00	17.77	0.33	0.00	0.08	6.00	0.01	98.71
36	3.20	12.15	6.41	53.3	0.02	17.79	0.33	0.02	0.09	6.22	0.00	99.47
37	3.19	11.93	6.30	53.2	0.02	17.79	0.32	0.02	0.08	6.11	0.00	98.95
38	3.25	12.25	6.32	53.1	0.00	17.78	0.32	0.03	0.08	6.02	0.00	99.18
46	1.27	14.48	2.96	52.6	0.01	21.66	0.16	0.00	0.07	5.61	0.01	98.80
47	1.27	14.56	2.90	52.7	0.01	21.71	0.17	0.00	0.08	5.53	0.00	98.92
48	1.23	14.53	2.84	52.7	0.00	21.72	0.15	0.00	0.09	5.69	0.01	98.96
49	1.35	14.24	3.15	52.4	0.02	21.68	0.17	0.00	0.05	5.67	0.00	98.68
50	1.29	14.50	2.97	52.5	0.02	21.78	0.16	0.00	0.04	5.74	0.00	99.03
54	0.72	12.17	5.38	49.2	0.00	22.37	0.54	0.02	0.12	8.99	0.01	99.55
55	0.73	12.12	5.46	49.2	0.00	22.35	0.56	0.00	0.14	9.04	0.00	99.61
56	0.70	12.48	5.04	49.6	0.00	22.32	0.50	0.00	0.14	8.81	0.01	99.60
57	0.71	12.09	5.54	49.2	0.00	22.25	0.56	0.02	0.13	8.82	0.00	99.30
58	0.71	11.83	6.18	48.4	0.00	22.11	0.65	0.00	0.13	9.10	0.00	99.14
59	0.76	11.94	6.17	48.6	0.00	22.12	0.66	0.02	0.13	9.07	0.00	99.50

PERIDOTITIC GARNETS

Sample	Na2O	MgO	Al2O3	SiO2	CaO	TiO2	Cr2O3	MnO	FeO	P2O5	TOTAL
PPGT-44	0.04	19.2	21.7	40.7	3.9	0.10	2.83	0.66	10.26	0.00	99.42
2300-ROGTs-2	0.01	18.6	21.5	41.1	6.0	0.09	3.22	0.39	9.02	0.00	99.95
2300-ROGTs-1	0.01	18.6	20.5	40.8	6.4	0.06	4.39	0.54	8.81	0.00	100.12
2300-ROGTs-3	0.01	18.6	21.3	40.9	6.2	0.08	3.47	0.42	8.87	0.00	99.86
2300-ROGTs-4	0.02	20.0	22.0	41.6	5.5	0.07	2.81	0.44	8.39	0.00	100.91
2300-ROGTs-12	0.06	20.1	22.6	41.5	4.5	0.27	1.97	0.43	9.10	0.00	100.51
2300-ROGTs-16	0.01	19.5	22.1	41.6	6.2	0.05	2.88	0.48	8.61	0.00	101.42
2300-ROGTs-17	0.01	18.1	21.4	40.5	5.9	0.12	2.97	0.44	10.47	0.00	99.93
2300-ROGTs-20	0.01	18.6	21.0	41.0	6.2	0.06	3.92	0.48	8.91	0.00	100.16
2300-ROGTs-21	0.01	19.2	21.6	41.3	6.3	0.02	3.72	0.50	8.29	0.00	100.94
2300-ROGTs-22	0.03	19.8	22.4	41.5	5.5	0.11	2.28	0.39	8.64	0.00	100.63
PPGT-51	0.02	18.1	20.3	39.9	6.3	0.05	4.43	0.52	9.06	0.00	98.75
PPGT-9	0.02	18.4	20.9	40.7	6.1	0.08	3.93	0.39	9.18	0.00	99.64
PPGT-82	0.02	19.8	22.0	41.1	5.9	0.03	2.81	0.42	8.01	0.00	100.06
PPGT-81	0.03	18.3	19.9	40.5	6.5	0.00	4.87	0.50	9.09	0.00	99.64
PPGT-80	0.02	17.3	20.8	40.0	6.2	0.19	2.93	0.66	11.46	0.00	99.64
PPGT-8	0.02	18.6	20.7	40.7	6.1	0.16	3.85	0.50	9.28	0.00	99.87
PPGT-77	0.01	18.4	20.3	40.8	6.4	0.10	4.49	0.48	9.19	0.00	100.22
PPGT-76	0.01	18.3	20.3	40.0	6.3	0.00	4.86	0.50	8.89	0.00	99.12
PPGT-75	0.00	18.9	20.9	40.5	6.1	0.05	3.98	0.39	8.73	0.00	99.52
PPGT-74	0.00	18.1	21.4	40.3	5.5	0.05	3.04	0.64	10.33	0.00	99.31
PPGT-73	0.01	18.6	20.8	40.6	6.2	0.08	4.30	0.48	8.94	0.00	100.05
PPGT-71	0.01	18.0	20.2	40.1	6.4	0.16	4.26	0.41	9.22	0.00	98.79
PPGT-69	0.03	18.8	21.0	40.8	6.4	0.01	3.82	0.57	9.22	0.00	100.68
PPGT-68	0.03	19.5	22.5	41.0	6.0	0.05	2.16	0.46	7.94	0.00	99.70
PPGT-66	0.02	18.7	21.7	40.9	5.9	0.12	2.86	0.47	9.34	0.00	100.01

TABLE DR1A - MAJOR AND TRACE ELEMENT DATA FOR PYROXENES AND GARNETS FROM THE LABERGE GARNETIFEROUS WACKE

PPGT-65	0.01	18.4	21.3	40.5	5.9	0.11	2.93	0.40	9.39	0.00	98.96
PPGT-64	0.02	18.7	21.1	40.5	6.0	0.20	3.56	0.49	9.64	0.00	100.21
PPGT-63	0.01	18.6	20.7	40.7	6.2	0.03	4.12	0.47	8.64	0.00	99.52
PPGT-62	0.03	19.3	21.4	40.7	5.5	0.19	3.57	0.40	8.66	0.00	99.76
PPGT-61	0.04	19.5	21.8	40.9	4.9	0.18	2.75	0.36	9.04	0.00	99.45
PPGT-60	0.01	18.2	20.4	40.3	6.7	0.04	4.83	0.48	8.69	0.00	99.61
PPGT-6	0.02	18.1	20.5	40.4	6.5	0.08	4.33	0.50	9.48	0.00	99.93
PPGT-59	0.01	19.1	20.9	41.0	6.1	0.06	4.10	0.36	8.50	0.00	100.11
PPGT-58	0.02	18.8	23.2	40.7	5.4	0.00	1.14	0.46	10.24	0.00	99.88
PPGT-57	0.01	18.8	21.2	40.8	6.2	0.08	3.79	0.39	8.83	0.00	100.19
PPGT-56	0.03	19.4	22.0	40.5	5.4	0.09	2.61	0.44	9.03	0.00	99.49
PPGT-54	0.03	19.2	21.8	40.8	5.4	0.09	2.72	0.49	8.96	0.00	99.42
PPGT-52	0.03	19.8	22.7	40.8	5.1	0.14	1.76	0.47	8.47	0.00	99.30
PPGT-5	0.03	19.5	21.6	41.1	5.5	0.11	3.30	0.42	8.71	0.00	100.29
PPGT-42	0.01	18.7	20.8	40.5	6.1	0.06	3.63	0.48	8.99	0.00	99.25
PPGT-41	0.02	18.8	21.0	40.6	6.1	0.05	4.01	0.47	8.64	0.00	99.60
PPGT-40	0.01	18.5	20.4	40.4	6.3	0.06	4.38	0.53	8.99	0.00	99.56
PPGT-39	0.01	17.9	21.7	40.6	5.6	0.02	2.83	0.66	10.62	0.00	99.96
PPGT-37	0.02	18.6	21.3	40.8	6.2	0.00	3.62	0.53	8.46	0.00	99.56
PPGT-36	0.01	19.0	22.1	40.5	5.8	0.09	2.28	0.53	8.55	0.00	98.81
PPGT-35	0.03	18.5	20.9	40.4	6.2	0.13	3.68	0.44	9.28	0.00	99.50
PPGT-33	0.02	19.2	21.1	40.9	6.2	0.06	3.89	0.44	7.81	0.00	99.62
PPGT-32	0.02	18.7	20.6	40.7	6.2	0.08	4.12	0.51	8.80	0.00	99.76
PPGT-31	0.01	18.3	20.4	40.4	6.5	0.00	4.46	0.42	8.70	0.00	99.26
PPGT-30	0.01	18.2	20.2	40.3	6.7	0.01	4.83	0.53	8.94	0.00	99.78
PPGT-26	0.01	19.1	21.5	40.5	6.1	0.04	3.58	0.47	8.40	0.00	99.63
PPGT-25	0.02	20.4	22.1	41.6	5.1	0.05	3.08	0.34	7.95	0.00	100.65
PPGT-24	0.01	18.0	21.2	40.3	6.2	0.19	2.90	0.56	9.77	0.00	99.14
PPGT-23	0.02	18.4	21.0	40.8	6.3	0.00	3.71	0.38	9.05	0.00	99.59
PPGT-22	0.01	19.6	21.4	40.7	4.8	0.05	3.33	0.46	9.30	0.00	99.78
PPGT-20	0.01	18.7	21.5	40.5	6.3	0.03	3.15	0.42	9.13	0.00	99.72
PPGT-19	0.01	18.7	20.8	40.6	6.2	0.07	4.31	0.47	8.58	0.00	99.75
PPGT-18	0.02	18.4	20.5	40.3	6.3	0.00	4.51	0.48	8.72	0.00	99.18
PPGT-17	0.02	18.5	21.0	40.7	6.2	0.06	3.70	0.39	9.36	0.00	99.94
PPGT-16	0.01	18.3	20.8	40.3	6.3	0.08	3.70	0.47	9.06	0.00	98.97
PPGT-15	0.01	18.1	20.9	40.7	6.2	0.07	3.29	0.34	9.52	0.00	99.12
PPGT-14	0.02	18.5	20.4	40.3	6.5	0.06	4.40	0.49	8.78	0.00	99.42
PPGT-13	0.02	20.0	21.7	41.1	5.3	0.08	3.07	0.37	8.16	0.00	99.74
PPGT-12	0.01	18.7	21.4	40.7	6.3	0.11	3.37	0.51	8.88	0.00	100.02
PPGT-11	0.05	20.4	22.7	41.4	4.8	0.07	1.92	0.35	8.32	0.00	99.93
PPGT-10	0.01	18.9	22.4	40.9	5.4	0.02	2.35	0.57	10.05	0.00	100.59
2300-Gt 1	0.01	18.6	20.5	40.8	6.4	0.06	4.39	0.54	8.81	0.00	100.12
2300-Gt2	0.01	18.6	21.5	41.1	6.0	0.09	3.22	0.39	9.02	0.00	99.95
2300-Gt 3	0.01	18.6	21.3	40.9	6.2	0.08	3.47	0.42	8.87	0.00	99.86
2300-Gt 4	0.02	20.0	22.0	41.6	5.5	0.07	2.81	0.44	8.39	0.00	100.91
2300-Gt 12	0.06	20.1	22.6	41.5	4.5	0.27	1.97	0.43	9.10	0.00	100.51
2300-Gt 16	0.01	19.5	22.1	41.6	6.2	0.05	2.88	0.48	8.61	0.00	101.42
2300-Gt 17	0.01	18.1	21.4	40.5	5.9	0.12	2.97	0.44	10.47	0.00	99.93
2300-Gt 20	0.01	18.6	21.0	41.0	6.2	0.06	3.92	0.48	8.91	0.00	100.16
2300-Gt 21	0.01	19.2	21.6	41.3	6.3	0.02	3.72	0.50	8.29	0.00	100.94
2300-Gt 22	0.03	19.8	22.4	41.5	5.5	0.11	2.28	0.39	8.64	0.00	100.63

TABLE DR1A - MAJOR AND TRACE ELEMENT DATA FOR PYROXENES AND GARNETS FROM THE LABERGE GARNETIFEROUS WACKE

ECLOGITIC GARNETS

Sample	Na2O	MgO	Al2O3	SiO2	CaO	TiO2	Cr2O3	MnO	FeO	P2O5	TOTAL
ol-9	0.03	10.2	23.0	39.1	14.0	0.14	0.04	0.21	12.79	0.00	99.55
ol-8	0.03	11.6	23.1	40.0	16.8	0.17	0.14	0.14	7.52	0.00	99.46
ol-7	0.04	14.2	23.5	40.4	13.0	0.14	0.12	0.16	7.83	0.00	99.39
ol-6	0.03	16.2	23.8	40.8	9.4	0.04	0.08	0.18	9.14	0.00	99.69
ol-5	0.04	10.3	22.7	38.9	16.0	0.22	0.15	0.21	10.82	0.00	99.44
ol-4	0.01	18.4	24.2	41.3	10.0	0.03	0.10	0.07	5.82	0.00	99.87
ol-24	0.03	14.6	23.7	40.7	13.8	0.08	0.05	0.11	6.62	0.00	99.64
ol-22	0.03	15.8	24.1	41.0	12.1	0.05	0.00	0.15	7.07	0.00	100.27
ol-21	0.04	15.7	23.1	39.7	7.3	0.14	0.07	0.17	12.77	0.00	98.92
ol-20	0.02	16.7	24.0	41.3	10.8	0.09	0.06	0.13	7.34	0.00	100.54
ol-2	0.02	16.4	24.2	41.0	11.5	0.09	0.04	0.09	7.10	0.00	100.38
ol-19	0.02	16.2	23.9	41.0	11.4	0.05	0.04	0.15	7.15	0.00	99.92
ol-18	0.03	15.8	23.6	40.6	10.8	0.05	0.12	0.26	8.43	0.00	99.79
ol-17	0.02	15.9	23.8	40.6	12.0	0.05	0.02	0.08	6.96	0.00	99.44
ol-16	0.04	15.4	23.7	40.4	10.7	0.09	0.14	0.09	9.05	0.00	99.66
ol-15	0.04	11.8	23.1	39.6	15.8	0.09	0.14	0.18	8.59	0.00	99.35
ol-14	0.03	16.7	24.0	40.9	7.9	0.10	0.00	0.12	10.43	0.00	100.18
ol-13	0.03	20.3	24.1	41.4	6.2	0.07	0.12	0.13	7.40	0.00	99.76
ol-12	0.03	12.7	23.4	40.0	15.5	0.13	0.11	0.16	7.89	0.00	99.94
ol-11	0.03	15.9	23.7	40.2	10.5	0.05	0.02	0.36	8.27	0.00	99.14
ol-10	0.02	16.0	23.9	40.6	11.8	0.06	0.01	0.07	6.74	0.00	99.26
ol-1	0.03	15.4	23.8	41.1	12.6	0.06	0.09	0.07	6.75	0.00	99.87
CRD-40	0.02	12.4	22.8	39.5	10.5	0.19	0.08	0.32	13.89	0.00	99.68
ol-23	0.04	12.9	23.3	39.6	12.9	0.12	0.23	0.30	10.06	0.00	99.40
2300-PPGts-1	0.03	10.2	22.5	39.5	8.6	0.18	0.00	0.60	19.66	0.00	101.24
2300-PPGts-5	0.04	7.4	21.9	38.9	9.8	0.23	0.04	0.55	22.98	0.00	101.88

Eclogite Clasts

Sample	Na2O	MgO	Al2O3	SiO2	CaO	TiO2	Cr2O3	MnO	FeO	P2O5	TOTAL
2	0.01	18.5	23.6	41.1	5.1	0.40	0.06	0.30	10.68	0.02	99.72
40	0.09	11.8	22.9	39.9	7.3	0.17	0.00	0.57	17.74	0.02	100.40
39	0.05	11.7	22.8	39.7	7.5	0.19	0.03	0.59	17.77	0.05	100.40
41	0.08	11.8	22.7	39.6	7.4	0.15	0.00	0.58	17.69	0.03	100.02
6	0.07	6.7	22.6	39.0	8.7	0.12	0.02	0.48	24.33	0.02	101.97
7	0.08	6.7	22.5	38.7	8.6	0.10	0.02	0.47	24.33	0.02	101.51
5	0.10	6.6	22.4	38.8	8.7	0.10	0.01	0.43	24.23	0.01	101.48
44	0.04	10.5	22.3	39.2	7.2	0.13	0.00	0.63	20.02	0.01	100.11
45	0.05	10.6	22.3	39.4	7.3	0.19	0.00	0.62	20.04	0.03	100.51
23	0.05	4.6	22.3	38.3	11.6	0.04	0.02	0.29	23.41	0.01	100.55
22	0.02	4.3	22.2	38.3	11.4	0.05	0.02	0.32	24.29	0.00	100.93
52	0.04	10.3	22.1	39.1	7.1	0.22	0.04	0.65	20.63	0.03	100.29
51	0.08	10.3	22.1	39.3	7.1	0.22	0.00	0.65	20.68	0.01	100.43
43	0.10	10.5	22.0	39.1	7.2	0.22	0.00	0.64	20.21	0.01	100.03
63	0.05	7.0	21.8	38.5	9.3	0.17	0.06	1.28	22.74	0.00	101.01
60	0.06	6.9	21.8	38.5	9.2	0.14	0.03	1.23	22.96	0.02	100.89
62	0.04	6.6	21.8	38.6	10.1	0.14	0.04	1.21	22.27	0.00	100.84
61	0.08	6.7	21.7	38.5	9.7	0.14	0.00	1.25	22.52	0.01	100.65
31	0.03	7.3	21.7	38.5	8.9	0.17	0.04	1.23	23.04	0.00	100.92
64	0.00	7.1	21.7	38.6	9.2	0.14	0.00	1.24	22.75	0.03	100.80
32	0.07	7.3	21.7	38.7	9.1	0.17	0.05	1.24	22.76	0.02	101.04
30	0.06	7.1	21.7	38.8	9.1	0.14	0.05	1.22	23.17	0.03	101.32
65	0.07	7.1	21.6	38.3	9.3	0.14	0.02	1.27	22.84	0.03	100.58
17	0.08	4.4	20.9	38.2	12.0	0.76	0.00	1.36	23.89	0.05	101.67
18	0.13	4.6	20.9	38.0	11.5	0.69	0.02	1.14	24.45	0.05	101.46

TABLE DR1A - MAJOR AND TRACE ELEMENT DATA FOR PYROXENES AND GARNETS FROM THE LABERGE GARNETIFEROUS WACKE

CRUSTAL Sample	Na2O	MgO	Al2O3	SiO2	CaO	TiO2	Cr2O3	MnO	FeO	P2O5	TOTAL
euGt-9	0.02	2.3	21.0	35.9	3.3	0.13	0.07	0.61	36.79	0.00	100.08
euGt-8	0.03	2.2	20.8	35.9	3.2	0.17	0.01	0.96	36.84	0.00	100.11
euGt-5	0.03	1.3	21.2	36.0	9.2	0.20	0.00	5.92	25.63	0.00	99.54
euGt-4	0.02	2.2	20.6	35.6	3.5	0.19	0.05	0.87	36.62	0.00	99.65
euGt-3	0.02	1.9	20.8	36.3	5.1	0.09	0.00	1.00	34.71	0.00	99.97
euGt-23	0.02	2.8	22.8	38.9	3.0	0.15	0.05	1.08	36.57	0.00	105.45
euGt-22	0.03	2.5	21.1	36.4	3.0	0.16	0.00	1.08	36.61	0.00	100.95
euGt-21	0.02	2.2	19.2	33.7	9.8	0.06	0.04	2.37	27.86	0.00	95.33
euGt-20	0.01	2.3	20.7	36.4	10.1	0.04	0.02	2.61	27.03	0.00	99.25
euGt-2	0.02	2.0	20.8	35.9	3.7	0.18	0.03	0.70	36.71	0.00	100.04
euGt-17	0.02	2.4	21.0	36.8	10.0	0.14	0.04	2.85	27.97	0.00	101.25
euGt-16	0.02	2.1	20.7	35.9	3.3	0.18	0.03	2.30	35.96	0.00	100.50
euGt-14	0.02	1.8	20.9	36.2	2.1	0.08	0.00	2.35	37.22	0.00	100.68
euGt-13	0.02	4.2	21.3	36.3	2.7	0.08	0.02	1.05	34.31	0.00	100.09
euGt-12	0.03	2.3	20.7	35.8	3.6	0.21	0.00	0.48	36.68	0.00	99.84
euGt-11	0.02	2.4	21.0	36.3	2.7	0.10	0.05	1.41	36.69	0.00	100.78
euGt-10	0.02	2.6	21.1	36.8	3.4	0.13	0.02	0.64	36.44	0.00	101.14
euGt-1	0.01	2.8	21.2	36.4	2.8	0.10	0.03	0.67	36.65	0.00	100.77
CRD-42	0.02	0.9	19.7	35.4	2.4	0.25	0.01	24.32	16.79	0.00	99.70
2300-ROGTs-10	0.03	7.1	22.1	38.1	4.7	0.02	0.04	0.44	27.66	0.00	100.13
2300-ROGTs-9	0.02	6.9	21.9	37.3	1.6	0.03	0.00	1.29	30.99	0.00	100.01
2300-PPGts-7	0.05	4.7	21.4	38.0	9.2	0.23	0.00	1.96	25.31	0.00	100.93
2300-ROGTs-18	0.01	5.1	21.8	37.4	4.5	0.05	0.00	2.99	28.61	0.00	100.50
2300-PPGts-6	0.04	3.4	21.2	37.6	10.0	0.20	0.00	3.24	25.55	0.00	101.10
2300-ROGTs-24	0.04	3.9	21.1	36.8	2.4	0.10	0.04	2.32	33.99	0.00	100.85
2300-ROGTs-13	0.02	4.0	21.2	36.8	2.1	0.05	0.01	1.35	34.68	0.00	100.24
2300-ROGTs-14	0.02	3.9	21.4	37.1	2.7	0.05	0.09	1.08	34.71	0.00	101.11
2300-ROGTs-7	0.01	4.0	21.6	37.0	1.0	0.00	0.00	1.09	36.74	0.00	101.47
2300-ROGTs-5	0.01	3.1	21.3	36.4	1.5	0.02	0.00	3.20	36.04	0.00	101.52
2300-ROGTs-6	0.02	2.5	21.4	36.7	1.0	0.02	0.01	3.56	35.51	0.00	100.78
2300-ROGTs-11	0.01	2.5	21.2	36.6	2.5	0.11	0.00	0.87	36.68	0.00	100.49
2300-PPGts-4	0.03	2.3	21.1	36.6	2.5	0.13	0.03	1.77	36.80	0.00	101.30
2300-ROGTs-25	0.03	2.4	21.0	36.3	2.0	0.03	0.01	0.85	38.31	0.00	100.95
2300-PPGts-3	0.02	1.8	20.6	36.7	2.9	0.16	0.00	8.55	30.84	0.00	101.52
2300-ROGTs-23	0.01	10.7	22.5	38.5	1.2	0.00	0.08	0.38	26.99	0.00	100.38
2300-PPGts-2	0.01	2.6	20.9	36.6	3.4	0.11	0.08	0.55	36.77	0.00	101.08

TABLE DR1B - TRACE ELEMENTS IN PERIDOTITIC GARNETS FROM THE LABERGE GARNETIFEROUS WACKE

(values reported in parts per million - ppm)

sample	Y/Ga	Zr/Y	Sc/V	Sc	Ti	V	Ni	Ga	Sr	Y	Zr	Nb	La	Ce	Pr	Nd
2300-1	1.0	2.5	0.7	128	69	190	20	4.3	0.1	4.4	11.3	0.25	0.00	0.09	0.04	0.49
2300-2	1.5	2.2	0.7	114	72	172	21	4.9	0.2	7.4	16.2	0.21	0.01	0.12	0.05	0.65
2300-3	0.9	2.6	0.5	110	61	205	17	4.2	0.1	3.7	9.5	0.20	0.01	0.07	0.03	0.43
2300-4	1.8	5.8	0.9	86	65	94	22	2.7	0.1	4.8	27.4	0.22	0.02	0.14	0.04	0.55
2300-12	3.1	1.9	0.8	63	166	84	22	4.9	0.8	14.8	28.4	0.15	0.03	0.18	0.06	0.67
2300-16	1.0	3.0	0.8	113	43	133	16	3.1	0.1	3.0	9.0	0.15	0.01	0.07	0.03	0.37
2300-17	2.6	1.2	0.6	108	89	182	17	4.6	0.4	12.0	13.9	0.18	0.06	0.14	0.04	0.39
2300-20	1.4	3.2	0.9	140	60	150	16	3.9	5.3	5.4	17.4	0.25	0.11	0.25	0.06	0.56
2300-21	0.9	5.0	1.1	133	32	119	18	2.4	2.1	2.2	11.1	0.26	0.12	0.29	0.06	0.44
2300-22	1.9	1.4	0.6	63	81	99	22	3.0	0.1	5.6	8.1	0.16	0.01	0.06	0.02	0.30
ppgt17	2.0	1.0	0.5	130	140	252	32	7.8	0.5	15.9	15.8	0.23	0.03	0.07	0.02	0.28
ppgt24	4.2	0.8	1.0	176	134	169	22	6.1	0.5	25.5	19.3	0.18	0.07	0.18	0.06	0.58
ppgt32	1.1	2.9	1.0	272	109	284	31	7.3	0.2	7.8	22.8	0.26	0.01	0.10	0.05	0.97
ppgt33	0.9	3.9	0.9	185	90	213	32	6.4	0.6	5.7	22.3	0.28	0.04	0.21	0.07	0.79
ppgt34a	2.3	1.2	0.8	170	244	203	68	6.8	1.2	15.4	17.8	0.28	0.10	0.18	0.04	0.49
ppgt34b	2.2	1.0	0.8	174	256	208	75	6.8	0.4	14.8	14.6	0.31	0.04	0.10	0.03	0.44
ppgt55	3.8	0.4	0.9	165	175	176	84	5.7	0.6	21.8	9.2	0.22	0.03	0.07	0.02	0.27
ppgt62	1.5	2.3	0.7	140	190	191	39	7.9	0.6	11.9	26.9	0.37	0.11	0.18	0.03	0.35
ppgt64	1.7	1.3	0.7	193	175	277	28	7.8	0.1	13.6	17.7	0.24	0.01	0.08	0.03	0.52
ppgt65	2.2	2.3	0.7	212	120	284	26	7.0	0.3	15.2	34.1	0.19	0.02	0.08	0.04	0.57
ppgt68	3.1	3.4	1.6	200	78	126	36	3.1	0.2	9.7	33.2	0.18	0.03	0.10	0.05	0.57
median	1.8	2.3	0.8					4.9		9.7						
average	1.9	2.3	0.8					5.3		10.5						

TABLE DR1B - TRACE ELEMENTS IN PERIDOTITIC GARNETS FROM THE LABERGE GARNETIFEROUS WACKE

sample	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Th	U	(Sc/Y)n	(Nd/Y)n
2300-1	0.54	0.25	0.68	0.12	0.88	0.17	0.60	0.09	0.85	0.13	0.26	0.00	0.01	7.75	0.38
2300-2	0.80	0.40	1.43	0.23	1.51	0.30	0.80	0.13	1.02	0.17	0.31	0.01	0.01	4.14	0.30
2300-3	0.40	0.16	0.42	0.06	0.51	0.14	0.51	0.10	0.91	0.15	0.22	0.00	0.01	7.99	0.40
2300-4	0.55	0.28	1.01	0.16	1.01	0.18	0.47	0.07	0.46	0.06	0.29	0.02	0.02	4.84	0.39
2300-12	0.69	0.41	1.71	0.36	2.78	0.53	1.46	0.19	1.29	0.16	0.32	0.00	0.00	1.15	0.15
2300-16	0.30	0.13	0.38	0.06	0.48	0.11	0.34	0.06	0.52	0.08	0.17	0.01	0.02	10.24	0.42
2300-17	0.45	0.27	1.03	0.23	1.94	0.44	1.37	0.22	1.66	0.26	0.28	0.02	0.01	2.42	0.11
2300-20	0.55	0.26	0.86	0.14	0.92	0.19	0.62	0.10	0.95	0.17	0.34	0.09	0.02	6.99	0.35
2300-21	0.24	0.09	0.20	0.03	0.25	0.08	0.32	0.07	0.71	0.14	0.22	0.04	0.04	16.15	0.67
2300-22	0.32	0.19	0.78	0.16	1.11	0.20	0.52	0.06	0.47	0.06	0.13	0.00	0.01	3.01	0.18
ppgt17	0.50	0.43	1.66	0.34	2.91	0.57	1.71	0.26	2.00	0.27	0.29	0.01	0.01	2.19	0.06
ppgt24	0.55	0.43	1.95	0.44	3.96	0.91	2.89	0.45	3.12	0.48	0.39	0.04	0.02	1.85	0.08
ppgt32	0.84	0.51	1.68	0.27	1.49	0.25	0.73	0.09	0.86	0.17	0.44	0.00	0.01	9.32	0.43
ppgt33	0.67	0.31	0.90	0.14	0.90	0.20	0.60	0.11	1.04	0.16	0.36	0.01	0.01	8.77	0.48
ppgt34a	0.58	0.39	1.54	0.31	2.32	0.55	1.59	0.25	2.12	0.36	0.45	0.05	0.02	2.95	0.11
ppgt34b	0.57	0.35	1.25	0.30	2.31	0.57	1.79	0.29	2.16	0.35	0.38	0.02	0.01	3.16	0.10
ppgt55	0.42	0.23	1.33	0.32	2.96	0.70	2.37	0.43	3.26	0.45	0.20	0.01	0.00	2.02	0.04
ppgt62	0.46	0.20	1.00	0.22	1.74	0.37	1.25	0.21	1.53	0.24	0.50	0.08	0.01	3.15	0.10
ppgt64	0.60	0.37	1.36	0.26	2.06	0.44	1.40	0.20	1.74	0.26	0.31	-0.01	0.01	3.80	0.13
ppgt65	0.83	0.39	1.51	0.33	2.64	0.56	1.59	0.24	2.04	0.33	0.68	0.02	0.03	3.75	0.13
ppgt68	0.57	0.39	1.61	0.34	2.03	0.31	0.83	0.08	0.66	0.08	0.28	0.02	0.02	5.54	0.20

TABLE DR2- THERMOBAROMETRIC ESTIMATES FROM MINERALS FROM THE LABERGE GARNETIFEROUS WACKE

Pressure reported in GPa, Depth in km, Temperature in degrees C

Cpx grain	TNT	PNT	depth (km0 Nimis)	eclo clasts	TKR eclo
2300-pyx-8	910	3.11	100	1	1073
2300-pyx-4	844	2.53	82	4	935
2300-pyx-9	800	2.24	73	5	1047
2300-pyx-15	780	2.30	75	6	858
2300-pyx-7	890	2.41	78	7	946
2300-Crdiop-21	625	3.10	100		
2300-Crdiop-1	809	3.10	100		
2300-Crdiop-14	654	2.30	74		
2300-Crdiop-11	809	2.80	90		
2300-Crdiop-8	820	2.90	93		
2300-Crdiop-9	783	3.10	100		
2300-Crdiop-16	870	3.30	106		
Crdiop-15	847	3.30	106		
Crdiop-10	784	2.90	93		
Crdiop-17	1142	2.80	90		
Crdiop-18	1085	3.60	115		

Gt grain	TOW 3GPa	TNi Canil	TNi Ryan	PCa-in-gt (Gpa)	depth km
2300-1	921	894	789	4.0	128
2300-12	908	908	808	10.0	303
2300-16	982	862	745	3.2	103
2300-17	747	875	763	4.1	131
2300-2	905	905	804	4.2	134
2300-20	1013	864	748	4.5	143
2300-21	975	882	773	3.7	118
2300-22	910	909	810	5.5	173
2300-3	1019	873	761	3.7	118
2300-4		908	809	6.5	203
PPGT-10	794			6.1	192
PPGT-11	1025			8.7	266
PPGT-12	917			2.8	90
PPGT-13	1045			7.9	244
PPGT-14	921			3.5	112
PPGT-15	825			3.1	98
PPGT-16	880			3.0	98
PPGT-17	858	975	905	3.7	118
PPGT-18	918			4.7	150
PPGT-19	945			5.0	157
PPGT-20	889			2.3	74
PPGT-22	874			10.6	320
PPGT-23	883			3.5	111
PPGT-24	800	910	811	2.1	67
PPGT-25	1096			9.1	277
PPGT-26	985			4.1	131
PPGT-30	897			3.2	101
PPGT-31	923			3.2	101
PPGT-32	921	968	894	4.4	139
PPGT-33	1080	971	898	4.3	138
PPGT-34	1233	1146	1177	6.1	190
PPGT-35	861			3.7	118
PPGT-36	953			3.4	111

Gt grain	TOW 3GPa	TNi Canil	TNi Ryan	PCa-in-gt (Gpa)	depth km
PPGT-37	957			3.8	120
PPGT-39	721			5.6	176
PPGT-40	895			4.1	130
PPGT-41	940			5.0	159
PPGT-42	898			3.9	126
PPGT-44	752	894		14.3	416
PPGT-5	953			7.0	219
PPGT-51	871			3.9	125
PPGT-52	987			6.2	194
PPGT-54	905			6.5	202
PPGT-55	1403	1172	1223	6.3	197
PPGT-56	906			6.2	193
PPGT-57	925			4.0	129
PPGT-58	774			3.8	123
PPGT-59	971			5.2	165
PPGT-6	835			3.2	104
PPGT-60	924			3.2	103
PPGT-61	898			9.4	285
PPGT-62	950	1012	959	7.4	229
PPGT-63	937			4.3	138
PPGT-64	835	948	865	4.7	150
PPGT-65	844	941	855	3.8	121
PPGT-68	1072	997	937	2.7	86
PPGT-69	885			3.2	104
PPGT-71	852			3.3	107
PPGT-72	1311			5.8	184
PPGT-73	904			4.8	151
PPGT-74	744			6.1	192
PPGT-75	934			4.8	151
PPGT-76	896			5.1	160
PPGT-77	873			3.9	125
PPGT-8	863			4.7	149
PPGT-80	666			1.8	60
PPGT-81	878			4.3	136
PPGT-82	1071			4.3	137
PPGT-9	865			4.6	146

Abbreviations cited:

TNT	Single clinopyroxene (Cr-exchange) geothermometer after Nimis and Taylor (2000). Iterative calculation with PNT
PNT	Single clinopyroxene (Cr-exchange) geobarometer after Nimis and Taylor (2000). Iterative calculation with TNT
TKR	Garnet-clinopyroxene (Fe-Mg exchange) geothermometer after Krough (1988)
TOW 3GPa	Olivine-garnet (Fe-Mg exchange) geothermometer after O'Neill and Wood (1979) Calculated at an assumed olivine Mg/(Mg+Fe) = 0.90 and assumed pressure of 3 GPa
TNi Canil	Olivine-garnet (Ni-exchange) geothermometer after Canil (1999)
TNi Ryan	Olivine-garnet (Ni-exchange) geothermometer after Ryan et al. (1996)
PCa-in-Gt	Garnet Ca content in equilibrium with clinopyroxene geobarometer after Brenker and Brey (1997)