

APPENDIX 2

Geochemical composition of the Silurian greywackes of Holy Cross Mountains

	Łysogóry Region Greywackes (LRG)														Kielce Region Greywackes (KRG)														BS	SB	PAAS	UCC							
	Dębniak W	Dębniak	Dębniak E	Ciekoty S	Wilków	Kajetanów	Jeleniów	Ciekoty N	Serwis	Dębno	Łężyce	Trochowiny S	Trochowiny N	av.	SD	Kierdony	Gustak	Zalesie	Zbylutka	Kędziorka	Sadków	Widelki	Piskrzyn	Niestachów 1	Niestachów 2	Niestachów 3	Mójca	Międzygórz					Golebiów	Niewachłów	Gruchawka 1	Gruchawka 2	av.	SD	
Major element [wt.%]	41	42	43	44	45	46	47	48	49	50	51	52	53	av.	SD	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	av.	SD	BS	SB	PAAS	UCC	
SiO ₂	83.15	77.66	85.33	77.87	76.21	70.06	83.68	84.09	75.88	75.80	74.62	68.27	67.95	76.97	5.91	74.92	74.47	71.35	73.80	71.63	66.66	74.59	71.49	87.57	72.33	71.07	82.83	64.84	77.24	74.13	75.68	76.25	74.17	6.06	89.35	57.51	62.80	66.00	
Al ₂ O ₃	7.07	9.93	6.52	9.76	10.58	13.49	7.32	6.49	11.18	10.53	9.87	13.53	14.16	10.03	2.65	11.81	12.91	13.72	12.75	13.27	15.67	13.25	14.13	6.43	13.82	13.93	7.62	16.48	9.93	11.35	10.12	9.81	12.18	3.05	3.57	29.36	18.90	15.20	
Fe ₂ O ₃	5.85	8.54	5.07	8.09	8.97	11.59	6.19	7.29	8.25	9.21	11.08	12.82	12.59	8.89	2.52	5.96	4.08	5.23	4.53	5.99	6.88	3.83	5.49	2.97	5.08	8.05	5.38	7.89	7.39	9.16	9.83	9.71	6.32	2.18	2.39	2.91	5.65	5.00	
MgO	1.18	1.47	0.91	1.34	1.17	1.53	0.97	0.87	1.06	1.35	1.92	1.92	1.83	1.35	0.37	1.30	1.62	2.19	1.96	2.43	2.93	1.41	1.74	0.62	1.90	1.33	0.97	2.42	1.56	1.65	1.12	1.69	0.64	0.45	2.08	2.20	2.20		
CaO	0.40	0.28	0.11	0.31	0.18	0.17	0.34	0.14	0.55	0.55	0.29	0.43	0.28	0.31	0.14	0.53	0.72	0.54	0.41	0.49	0.93	0.32	0.65	0.23	0.53	0.30	0.32	0.89	0.34	0.28	0.24	0.39	0.48	0.24	1.47	0.87	1.30	4.20	
Na ₂ O	0.90	0.65	0.97	1.28	1.44	0.97	0.09	0.05	1.21	1.16	1.02	1.09	1.07	0.92	0.42	2.14	2.64	3.58	3.14	2.97	3.68	4.32	3.68	0.36	1.74	2.50	1.15	5.10	1.67	1.19	0.75	0.39	2.42	1.58	0.17	0.28	1.20	3.90	
K ₂ O	0.53	0.84	0.54	0.69	0.73	1.32	0.73	0.57	1.12	0.62	0.49	1.14	1.30	0.82	0.30	2.41	2.77	2.50	2.69	2.30	2.23	1.58	1.85	1.37	3.71	1.93	0.85	1.06	1.00	1.28	0.97	1.62	1.89	0.78	1.14	6.40	3.70	3.40	
TiO ₂	0.72	0.47	0.43	0.50	0.56	0.68	0.52	0.38	0.55	0.63	0.51	0.63	0.66	0.56	0.10	0.76	0.60	0.66	0.50	0.66	0.66	0.54	0.70	0.37	0.62	0.70	0.60	0.70	0.63	0.76	0.63	0.55	0.63	0.10	0.38	0.51	1.00	0.50	
P ₂ O ₅	0.18	0.13	0.08	0.13	0.13	0.15	0.13	0.08	0.14	0.11	0.12	0.08	0.10	0.12	0.03	0.15	0.16	0.16	0.12	0.17	0.13	0.10	0.22	0.08	0.14	0.13	0.13	0.19	0.18	0.14	0.09	0.13	0.14	0.04	1.07	0.08	0.16	–	
MnO	0.02	0.02	0.02	0.02	0.04	0.04	0.02	0.03	0.06	0.04	0.12	0.09	0.06	0.04	0.02	0.02	0.04	0.07	0.09	0.09	0.04	0.06	0.05	0.01	0.14	0.06	0.15	0.43	0.06	0.06	0.04	0.03	0.09	0.11	0.01	0.01	0.11	0.08	
LOI	3.30	5.10	3.20	4.60	4.00	5.80	4.10	3.60	5.50	5.70	0.12	4.10	5.50	4.47	0.95	4.30	3.30	3.20	3.50	3.90	6.30	2.80	4.30	2.50	4.70	5.10	4.90	5.90	3.00	3.60	2.90	4.90	4.06	1.11	1.50	9.20	–	–	
Trace element [ppm]	Sc	Cr	Co	Ni	V	Ga	Rb	Sr	Ba	Cs	Y	Zr	Nb	Hf	Ta	Pb	Th	U																					
Sc	11.0	7.0	8.0	7.0	9.0	11.0	9.0	5.0	8.0	10.0	6.0	10.0	11.0	8.6	2.0	15.0	10.0	12.0	10.0	13.0	15.0	9.0	11.0	5.0	10.0	10.0	9.0	11.0	10.0	11.0	7.0	10.5	2.5	6.5	17.0	16.0	11.0		
Cr	154.1	46.9	33.5	53.6	40.2	67.0	107.2	26.8	67.0	26.8	40.2	46.9	46.9	58.2	35.8	107.2	73.7	134.0	87.1	73.7	120.6	67.0	120.6	13.4	87.1	100.5	60.3	107.2	87.1	73.7	93.8	73.7	87.1	28.5	40.2	6.0	110.0	35.0	
Co	10.0	10.1	5.5	17.5	16.5	14.9	11.5	11.3	16.5	13.3	26.7	15.8	22.7	14.8	5.6	6.0	16.1	13.8	14.2	6.1	15.6	13.9	2.4	15.5	8.8	11.1	15.7	11.4	10.6	17.6	20.0	12.3	4.8	10.3	5.3	23.0	10.0		
Ni	39.9	74.0	30.6	63.5	44.6	57.4	51.9	66.3	46.3	61.0	56.1	59.2	56.9	54.4	11.7	39.3	35.5	47.6	29.4	40.2	73.4	42.2	49.5	36.5	30.3	43.8	35.8	55.1	39.3	47.9	50.7	37.4	43.2	11.1	25.6	9.2	55.0	20.0	
V	70.0	59.0	51.0	56.0	56.0	93.0	71.0	45.0	67.0	68.0	64.0	80.0	80.0	66.2	13.2	87.0	88.0	99.0	68.0	88.0	132.0	72.0	106.0	39.0	80.0	94.0	61.0	100.0	79.0	80.0	75.0	72.0	83.5	22.6	33.0	30.0	150.0	60.0	
Ga	7.7	10.3	7.4	9.8	12.5	19.9	8.9	7.1	12.5	11.7	13.8	15.9	17.6	11.9	4.0	12.1	16.4	14.9	16.5	14.5	20.7	12.5	16.3	7.6	14.7	13.0	7.6	15.5	11.4	13.0	14.3	12.4	13.7	3.5	4.2	15.5	20.0	17.0	
Rb	24.9	33.1	23.1	25.8	28.2	47.2	31.5	22.5	48.8	29.9	23.3	47.5	52.7	33.7	11.3	50.1	67.8	60.5	51.1	51.4	48.4	31.1	55.4	49.3	71.6	42.1	25.9	33.1	40.5	47.5	41.7	56.0	48.4	12.1	36.0	127.0	160.0	112.0	
Sr	53.5	43.4	29.1	44.8	55.4	69.2	36.2	24.5	66.7	75.8	53.3	57.3	56.2	51.2	15.2	63.3	86.2	102.3	85.0	77.2	122.8	119.3	142.6	42.2	53.7	64.7	70.1	135.3	61.3	63.1	64.2	61.6	83.2	34.1	68.6	21.7	200.0	350.0	
Ba	151.0	272.3	188.0	266.0	175.7	274.6	162.0	90.2	144.0	96.0	101.0	159.9	207.0	176.0	64.4	592.0	789.0	390.0	371.0	285.7	334.0	512.6	398.0	257.0	348.0	614.0	132.7	238.0	140.0	210.4	148.0	613.0	374.9	167.6	452.0	313.8	650.0	550.0	
Cs	1.2	1.4	0.8	1.0	1.0	2.7	4.2	1.0	3.2	1.9	1.3	2.3	2.0	1.9	1.0	1.6	1.9	1.3	1.3	1.7	0.8	0.8	1.2	2.1	4.0	2.4	1.3	1.4	1.8	2.7	2.4	3.0	1.9	0.9	1.4	7.7	15.0	3.7	
Y	26.8	25.7	17.1	27.0	18.0	23.4	20.7	15.2	22.2	23.5	15.8	22.7	19.5	21.4	4.0	36.6	22.6	21.7	24.1	23.1	26.9	13.6	23.2	21.3	21.9	29.4	38.4	30.2	26.7	29.9	23.8	21.9	25.6	6.0	41.1	36.3	27.0	22.0	
Zr	721.2	270.1	380.6	234.6	184.8	233.8	486.9	276.0	215.9	284.5	206.4	270.8	205.3	305.5	149.4	460.8	205.8	199.9	126.1	280.4	168.9	161.4	248.5	159.5	195.9	215.2	444.5	210.6	344.8	410.0	309.1	182.1	254.3	95.4	406.7	325.3	210.0	190.0	
Nb	10.4	8.6	7.4	9.1	9.6	12.4	8.3	7.0	9.4	10.0	7.8	11.4	11.4	9.5	1.7	12.7	10.5	9.7	10.6	12.1	9.7	9.7	10.5	6.6	10.6	9.7	8.5	8.2	10.2	12.7	11.2	10.3	10.2	1.6	6.9	24.6	19.0	25.0	
Hf	19.7	6.9	11.4	6.3	4.6	6.6	12.7	7.5	6.2	8.6	6.8	7.4	5.9	8.5	4.0	13.1	6.7	5.7	4.0	7.1	5.0	4.3	7.3	4.9	6.6	6.3	11.8	6.3	10.1	10.1	8.3	5.5	7.2	2.3	11.7	11.6	5.0	5.8	
Ta	0.6	0.6	0.6	0.6	0.6	0.8	0.9	0.9	0.7	0.7	0.6	0.8	0.6	0.7	0.1	0.8	0.9	0.7	0.6	0.7	0.6	0.7	0.6	0.7	0.6	1.2	2.0	0.5	0.5	0.8	0.7	1.0	0.6	0.8	0.4	0.5	2.7	1.3	2.2
Pb	18.3	11.3	8.5	20.0	33.3	2.8	26.4	13.9	26.1	12.2	6.4	60.4	99.5	26.1	26.6	3.0	3.8	3.9	12.4	5.0	8.5	8.0	7.1	68.4	5.3	16.1	5.8	17.3	4.8	18.8	14.7	5.1	12.2	17.1	13.6	14.2	20.0	20.0	
Th	8.0	6.3	4.7	6.6	7.3	8.2	7.8	5.8	7.6	7.8	6.0	8.2	7.8	7.1	1.1	11.7	8.1	7.1	6.8	8.9	5.0	6.8	7.2	5.7	8.0	5.3	8.0	5.8	8.0	10.2	9.5	8.6	7.7	1.7	5.8	46.6	14.6	10.7	
U	2.4	1.7	1.1	1.6	1.6	2.0	1.7	1.4	2.0	2.2	3.3	2.0	1.8	1.9	0.5	2.8	2.0	1.6	1.9	1.8	3.1	1.4	1.9	1.7	1.5	1.6	1.9	1.9	2.1	2.2	2.9	1.6	2.0	0.5	4.3	7.2	3.1	2.8	
Rare Earth Elements [ppm]	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu																									
La	22.10	19.20	17.20	20.60	24.30	29.20	21.30	18.90	20.80	24.70	19.00	19.90	24.20	21.65	3.23	26.70	25.10	23.10	22.30	24.00	18.50	18.70	25.50	18.30	26.90	19.20	23.30	19.00	25.20	26.50	26.00	24.40	23.10	3.43	31.25	28.90	38.00	30.00	
Ce	42.20	40.70	34.30	41.80	46.30	62.20	43.00	37.70	43.60	52.60	40.00	40.10	45.10	43.82	7.05	54.10	51.10	46.80	46.50	49.90	30.20	43.30	52.50	39.30	52.80	35.40	45.60	43.60	54.20	55.20	54.10	48.70	47.25	7.88	83.95	65.50	80.00	64.00	
Pr	4.95	4.93	3.94	4.91	5.11	6.69	5.12	4.23	4.92	5.88	4.27	4.60	5.00	4.97	0.71	7.20	6.02	5.61	5.38	5.73	5.10	4.03	6.17	5.32	5.87	5.42	5.84	6.											