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LAMPIRAN 1. Data Statistik Kandungan Geokimia Daerah Penelitian

Row Labels	Easting	Northing	% Ni	% Co	% Fe	% Si	% Mg
C000602	350875.06	9533074.99	0.91	0.04	33.2	21.08	2.88
C000603	351075.21	9533075.15	1.04	0.03	36.72	13.81	2.52
C000604	351275.04	9533074.99	0.66	0.01	31.08	24.85	3.35
C000608	350275	9532874.93	1.5	0.05	36.33	10.7	3.8
C000609	350475.87	9532873.96	1.27	0.04	37.92	11.56	2.1
C000611	350875	9532875	0.9	0.05	29.31	27.99	3.62
C000612	351075.26	9532874.77	1.17	0.05	38.27	11.91	2.5
C000613	351274.93	9532874.97	1.05	0.03	38.3	11.17	2.52
C000617	350275.3	9532675.06	0.82	0.02	30.07	20.91	3.39
C000618	350475.11	9532675.2	0.93	0.03	36.71	13.52	1.95
C000619	350675.1	9532674.61	1.06	0.07	34.89	16.33	2.6
C000620	350875.04	9532674.92	0.94	0.02	30.2	27.72	1.55
C000621	351075.09	9532675.01	0.75	0.02	34.81	16.57	2.12
C000622	351274.68	9532674.63	1.32	0.05	34.93	17.62	4.1
C000625	351874.77	9532675.04	1.23	0.06	39.05	9.89	3.65
C000628	348875.21	9532474.55	1.16	0.03	36.78	8.42	2.97
C000629	349075.14	9532474.87	1.45	0.04	37.24	9.82	4.15
C000630	349274.85	9532474.94	0.72	0.07	29.15	26.77	2.79
C000631	350074.94	9532475.01	0.92	0.03	25.34	34.94	3.57
C000633	350475.01	9532475.02	1.04	0.06	29.98	26.16	2.81
C000634	350674.57	9532474.52	0.96	0.01	40.05	9.4	1.62
C000635	350875	9532475	1.1	0.03	33.44	19.08	2.56
C000636	351075.31	9532475.39	0.92	0.04	33.53	19.89	4.45
C000640	351874.85	9532475.08	0.94	0.04	38.31	10.62	4.59
C000645	349075.28	9532275.35	1.55	0.02	40.59	6.86	1.79
C000646	349275.12	9532274.81	0.97	0.04	39	9.04	2.87
C000648	349674.8	9532275.2	1.18	0.04	31.28	24.6	4.84
C000649	349874.85	9532274.99	1.19	0.03	37.99	11.35	3.1
C000650	350075.2	9532275.03	0.97	0.04	36.34	13.94	0.97
C000652	350474.93	9532274.88	1.05	0.03	34.68	13.38	3.09
C000653	350675.04	9532275.16	1.08	0.04	37.34	9.45	3.29
C000654	350874.6	9532275.45	1.45	0.08	34.91	12.7	3.62
C000655	351074.7	9532274.92	0.88	0.03	29.13	23.63	4.1
C000656	351274.75	9532274.95	1.21	0.05	35.26	13.25	2.27
C000657	351474.54	9532274.83	1.06	0.06	34.75	16.58	2.39
C000658	351675.06	9532275.02	1.53	0.08	39.49	6.39	2.1
C000659	351874.89	9532275.23	1.26	0.04	38.3	11.6	4.19
C000665	349274.87	9532074.97	1.16	0.02	39.33	7.44	1.88

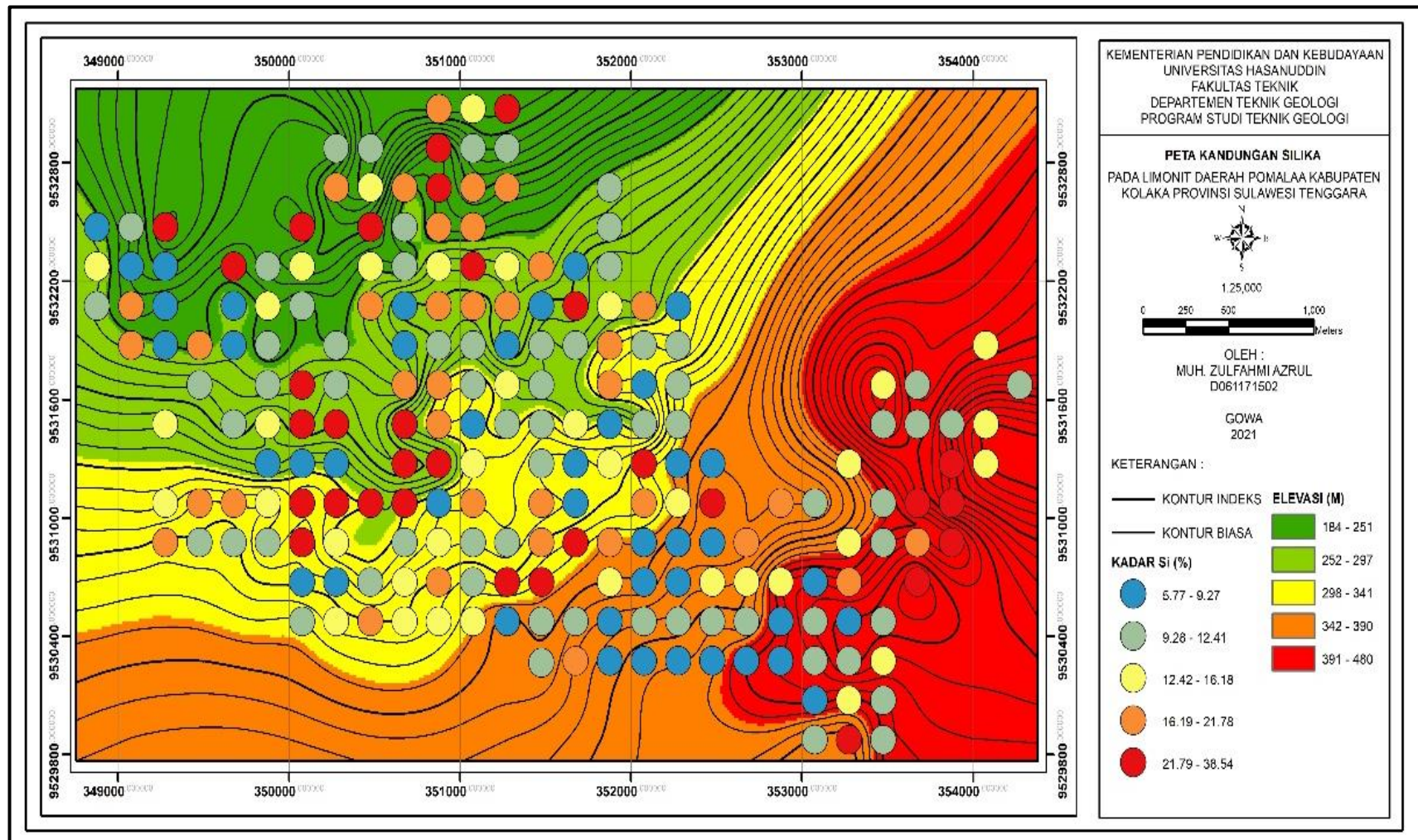
Row Labels	Easting	Northing	% Ni	% Co	% Fe	% Si	% Mg
C000667	349674.68	9532075.51	1.22	0.03	38.88	7.11	2.82
C000668	349875.03	9532075.09	1.41	0.04	34.06	15.24	2.85
C000669	350074.76	9532074.58	0.9	0.03	38.23	10.07	2.05
C000671	350475.47	9532075.35	1.13	0.03	31.11	20.93	2.21
C000672	350674.96	9532075.06	1.57	0.03	38.25	8.66	2.63
C000673	350875	9532075	1.18	0.05	32.7	20.07	2.93
C000674	351075	9532074.89	0.86	0.02	33.96	17	2.32
C000675	351275.06	9532075	0.99	0.02	34.03	17.46	2.44
C000676	351475.02	9532075.07	1.36	0.04	40.07	9.18	4.22
C000677	351675.01	9532075.05	1.09	0.03	29.02	26.8	4.18
C000678	351875	9532075.04	1.07	0.06	34.54	15.09	3.76
C000679	352075.46	9532074.8	1.11	0.03	33.35	19.74	4.81
C000680	352275.12	9532075.04	1.11	0.03	38.68	9.27	4.31
C000686	349475.36	9531875.17	1.37	0.03	33.92	16.54	2.8
C000687	349675.17	9531874.95	1.32	0.06	38.34	5.77	2.19
C000688	349874.85	9531875.03	1.03	0	38.63	9.96	2.06
C000690	350275.03	9531875.02	1.22	0.02	34.28	11.03	3.35
C000692	350674.59	9531875.11	1.08	0.03	36.5	6.81	2.66
C000693	350874.99	9531874.96	1.86	0.03	35.52	11.35	3.59
C000694	351075.05	9531874.92	1.42	0.08	35.54	10.23	1.79
C000695	351274.96	9531875.06	1.36	0.04	39.49	9.18	3.83
C000696	351474.99	9531874.96	1.61	0.04	37.62	10.72	2.6
C000697	351674.98	9531875.04	1.48	0.06	35.48	11.41	3.02
C000698	351874.99	9531875.06	1.52	0.04	32.96	16.58	4.33
C000699	352075.12	9531875.09	1.62	0.04	36.53	11.67	4.34
C000700	352275.05	9531875.12	1.32	0.04	37.26	10.96	3.91
C000708	349475.03	9531674.93	1.03	0.01	38.51	9.96	1.72
C000710	349875	9531675.07	1.65	0.04	36.19	11.5	2.6
C000711	350075.13	9531675.04	0.92	0.02	28.34	25.42	3.33
C000712	350275.1	9531675.02	1.25	0.03	35.43	11.97	3.1
C000714	350674.88	9531674.97	1.19	0.04	34.88	16.29	2.25
C000715	350875.05	9531674.86	1.43	0.05	33.57	16.89	4.14
C000716	351075.11	9531675.04	1.09	0.04	34.76	10.83	3.02
C000717	351274.85	9531674.97	1.42	0.06	32.92	14.82	3.24
C000718	351474.96	9531674.96	1.65	0.06	36.04	10.25	2.68
C000720	351874.98	9531675.04	1.18	0.07	31.57	21.08	4.02
C000721	352074.85	9531675.11	1.28	0.02	39.09	8.66	4.6
C000722	352275.01	9531675.09	1.16	0.03	40.21	11.58	4.11
C000728	353474.87	9531674.89	1	0.09	36.3	13.41	2.79
C000729	353674.85	9531674.94	1.16	0.04	38.83	11.99	2.86

Row Labels	Easting	Northing	% Ni	% Co	% Fe	% Si	% Mg
C000731	350074.9	9531474.97	0.88	0.03	28.26	26.91	2.88
C000732	350275.21	9531475.01	0.87	0.02	29.01	23.67	2.8
C000734	350674.87	9531474.84	0.78	0.01	28.26	30	4.06
C000735	350874.98	9531475.04	1.03	0.03	31.37	21.78	3.07
C000736	351075	9531474.99	1.39	0.03	38.38	6.47	2.76
C000737	351274.95	9531474.99	1.34	0.04	36.97	11.57	4.44
C000738	351474.83	9531475.11	1.42	0.04	36.62	10.76	2.8
C000739	351674.95	9531474.78	0.93	0.07	34.48	13.23	1.71
C000740	351875.4	9531474.84	1.36	0.04	38.83	7.09	3.72
C000741	352075.64	9531475.58	1.62	0.03	37.5	9.58	3.8
C000742	352275.01	9531474.77	1.22	0.03	35.71	12.41	3.64
C000748	353474.69	9531474.94	1.14	0.01	37.88	12.24	3.74
C000749	353674.66	9531474.87	1.21	0.03	38.38	11.74	4.32
C000750	353875.56	9531475.59	1.03	0.06	38.74	11.06	5.54
C000752	350674.99	9531274.87	0.96	0.05	29.7	24.58	3.22
C000753	350874.93	9531274.94	0.9	0.03	30.64	24.1	3.54
C000754	351074.93	9531275.09	1.05	0.03	34.82	13.78	3.72
C000756	351474.91	9531275.01	1.41	0.05	36.28	12.12	4.02
C000757	351674.73	9531275.39	1.69	0.03	37.96	8.54	3.3
C000758	351875.21	9531274.89	1.54	0.04	33.68	15.52	3.15
C000759	352074.68	9531274.57	1.22	0.05	30.45	23.12	3.86
C000760	352275.04	9531275.16	1.24	0.05	37.37	8.96	2.98
C000761	352474.58	9531274.93	1.38	0.01	39.04	7.82	3.1
C000765	353274.47	9531274.9	1.24	0.04	36.52	13.32	2.58
C000768	353875.48	9531274.54	1.16	0.09	30.96	22.53	4.51
C000769	350674.95	9531074.96	0.92	0.03	31.61	22.52	2.47
C000770	350874.93	9531075.14	1.38	0.03	36.82	7.74	2.65
C000771	351075.08	9531074.76	1.37	0.02	33.62	16.52	3.48
C000773	351475.03	9531074.89	1.3	0.04	33.92	16.9	2.62
C000774	351675.11	9531074.81	1.03	0.03	40.35	6.59	1.32
C000776	352075.02	9531075	1.26	0.03	32.27	20.3	3.43
C000777	352274.98	9531075.8	1.27	0.06	35.35	14.85	3.94
C000778	352475.09	9531074.88	0.99	0.03	30.9	23.56	3.47
C000780	352875.49	9531074.68	1	0.07	34.47	17.02	6.88
C000781	353075.18	9531075.03	1.3	0.06	39.42	9.45	3.14
C000783	353475.03	9531074.88	1.5	0.07	37.74	11.53	4.59
C000784	353675.22	9531074.81	0.93	0.05	29.7	26.5	1.08
C000785	353875	9531075	0.84	0.07	29.64	24.41	3.13
C000786	350875.01	9530875.17	1.12	0.02	35.51	15.68	2.92
C000787	351075.06	9530875	1.38	0.04	36.87	10.97	3.22

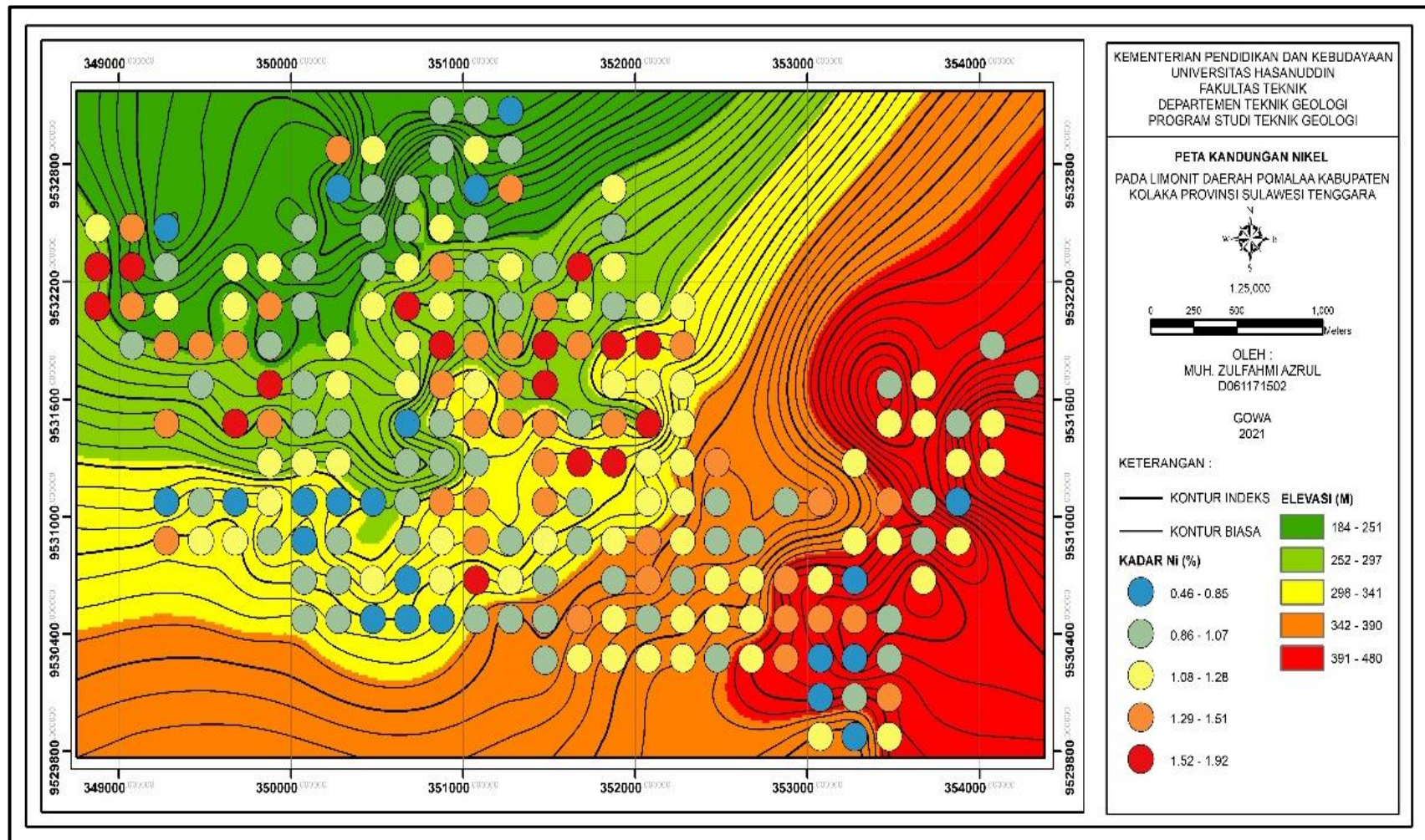
Row Labels	Easting	Northing	% Ni	% Co	% Fe	% Si	% Mg
C000788	351275.04	9530875.1	0.88	0.01	37.57	9.8	4.74
C000789	351475.13	9530874.97	1.14	0.03	33.63	16.53	3.87
C000790	351675.28	9530874.68	1.04	0.05	28.18	26.64	2.33
C000791	351874.97	9530874.98	1.13	0.05	31.19	18.05	2.36
C000792	352075	9530875	1.45	0.01	39.8	6.32	1.15
C000793	352275.08	9530875	1.15	0.04	39.29	8.47	2.64
C000794	352475.06	9530875.11	1.04	0.04	39.7	8.21	2.26
C000795	352674.57	9530875.24	0.99	0.05	35.37	18.15	4.07
C000798	353274.91	9530874.88	1.14	0.05	36.03	12.81	3.11
C000799	353474.87	9530874.59	1.14	0.05	38.21	9.6	3.2
C000800	353674.97	9530874.91	0.87	0.04	33.97	18.13	3.25
C000801	353875.02	9530875.04	1.24	0.03	30.99	26.28	4.44
C000802	350874.93	9530675.08	1.21	0.04	33.34	17.43	2.97
C000803	351075	9530675	1.58	0.05	37.88	10.54	1.37
C000804	351275.07	9530674.96	1.1	0.09	32.07	23.91	6.47
C000805	351475.1	9530674.87	0.93	0.04	27.9	27.78	5.48
C000807	351875.21	9530674.91	1.01	0.05	35.74	13.5	2.03
C000808	352074.81	9530675.07	1.51	0.07	38.75	8.71	7.15
C000809	352275	9530674.91	1.07	0.05	38.2	8.91	1.39
C000810	352474.97	9530675.09	1.19	0.05	36.35	15.1	2.45
C000811	352675.52	9530675.31	1.14	0.08	36.44	12.54	5.56
C000812	352874.78	9530674.73	1.32	0.05	35.22	13.14	3.46
C000813	353075.06	9530674.84	1.28	0.03	39.35	8.96	2.09
C000814	353274.84	9530674.9	0.85	0.04	34.19	16.29	2.71
C000816	353674.86	9530675.18	1.15	0.04	31.76	23.17	3.65
C000818	351475.18	9530475.46	1.01	0.03	34.91	12.15	2.45
C000819	351674.99	9530474.94	1.38	0.09	38.33	9.98	5.79
C000820	351875.45	9530474.8	1.23	0.07	38.25	8.22	2.72
C000821	352074.46	9530475.07	1.04	0.06	37.6	10.48	7.75
C000822	352275.41	9530475.27	1.28	0.03	38.1	12.09	2.26
C000823	352475.06	9530475.24	1.27	0.07	37.57	9.83	3.42
C000824	352674.95	9530474.93	1.22	0.04	38.23	9.43	4.91
C000825	352874.89	9530475.05	1.43	0.11	35.91	8.46	2.88
C000826	353075.04	9530475.09	1.4	0.05	37.64	9.76	2.94
C000827	353274.89	9530475.04	1.44	0.07	37.64	8.66	2.18
C000828	353475.07	9530475.04	0.94	0.05	36.81	11.97	5.5
C000831	351475	9530265	1.07	0.05	38.01	9.74	6.18
C000832	351675.02	9530275	1.17	0.04	31.54	21.06	2.74
C000833	351875.61	9530274.91	1.19	0.04	37.47	9.19	4.25
C000834	352075	9530274.99	1.2	0.03	40.35	6.06	5.4

Row Labels	Easting	Northing	% Ni	% Co	% Fe	% Si	% Mg
C000835	352275.21	9530275.14	1.22	0.04	38.64	7.78	1.69
C000836	352474.97	9530275.48	1.07	0.03	37.64	8.15	2.43
C000837	352674.94	9530274.72	1.18	0.03	37.58	9.17	4.08
C000838	352874.63	9530274.83	1.34	0.05	39.37	9.03	5.68
C000839	353074.85	9530275.06	0.76	0.04	33.05	12.04	2.82
C000840	353274.95	9530274.86	0.78	0.05	33.3	10.34	2.53
C000841	353474.96	9530274.63	0.89	0.06	36.75	12.6	5.3
C000849	353075.05	9530075.09	0.68	0.02	36.24	8.23	2.2
C000850	353274.9	9530074.83	1.04	0.08	34.24	14.75	4.44
C000851	353475.03	9530074.99	1.37	0.07	40.95	10.27	3.94
C000858	353074.72	9529875.81	1.11	0.03	37.61	11.62	3.84
C000859	353274.77	9529874.68	0.46	0.02	21.77	31.62	2.66
C000860	353474.74	9529874.66	1.17	0.07	37.6	11.65	2.45
C000881	348874.78	9532274.86	1.64	0.05	34.09	14.95	4.85
C000882	350275.28	9531274.93	1.08	0.02	41.48	6.09	2.17
C000883	354074.94	9531274.8	1.23	0.06	37.13	14.77	3.34
C000885	349275.29	9531075	0.83	0.13	33.5	15.73	1.05
C000886	349475.21	9531075.05	0.99	0.03	33.44	19.42	1.66
C000887	349675	9531074.95	0.79	0.03	32.42	17.52	4.12
C000888	349875.04	9531075.17	1.24	0.04	32.28	12.78	3.25
C000889	350075.08	9531075.04	0.76	0.03	29.02	28.62	3.14
C000890	350275.39	9531074.99	0.78	0.03	21.82	38.54	2.53
C000891	350474.99	9531075	0.75	0.03	27.93	26.73	2.61
C000894	349274.95	9530875.03	1.34	0.03	31.73	19.02	3.79
C000895	349475.04	9530874.98	1.11	0.05	35.1	10.85	3.21
C000896	349675	9530875	1.09	0.05	37.05	9.51	3.5
C000897	349875	9530875	0.95	0.03	34.63	9.72	4.09
C000898	350075	9530874.99	0.7	0.03	28.64	22.84	4.51
C000899	350275.27	9530874.64	0.93	0.05	33.68	15.4	3.33
C000901	350674.98	9530874.93	1.04	0.05	36.69	9.56	1.84
C000902	350075	9530674.99	1.01	0.05	37.76	5.88	2.31
C000903	350275.2	9530674.61	0.91	0.06	35.03	6.9	2.7
C000904	350474.82	9530675	1.19	0.04	37.97	11.54	3.1
C000905	350675.15	9530674.67	0.77	0.02	32.06	14.52	2.52
C000906	350075.01	9530474.95	0.92	0.03	34.79	10.51	4.49
C000907	350275	9530475.02	0.93	0.05	33.8	12.57	3.66
C000908	350475	9530475	0.66	0.03	29.4	16.41	5.46
C000909	350675	9530475	0.61	0.03	31.98	16.04	3.05
C000910	350874.85	9530475.02	0.81	0.03	34.51	14.43	3.43
C000911	351074.88	9530475.21	0.98	0.03	32.5	16.18	3.17

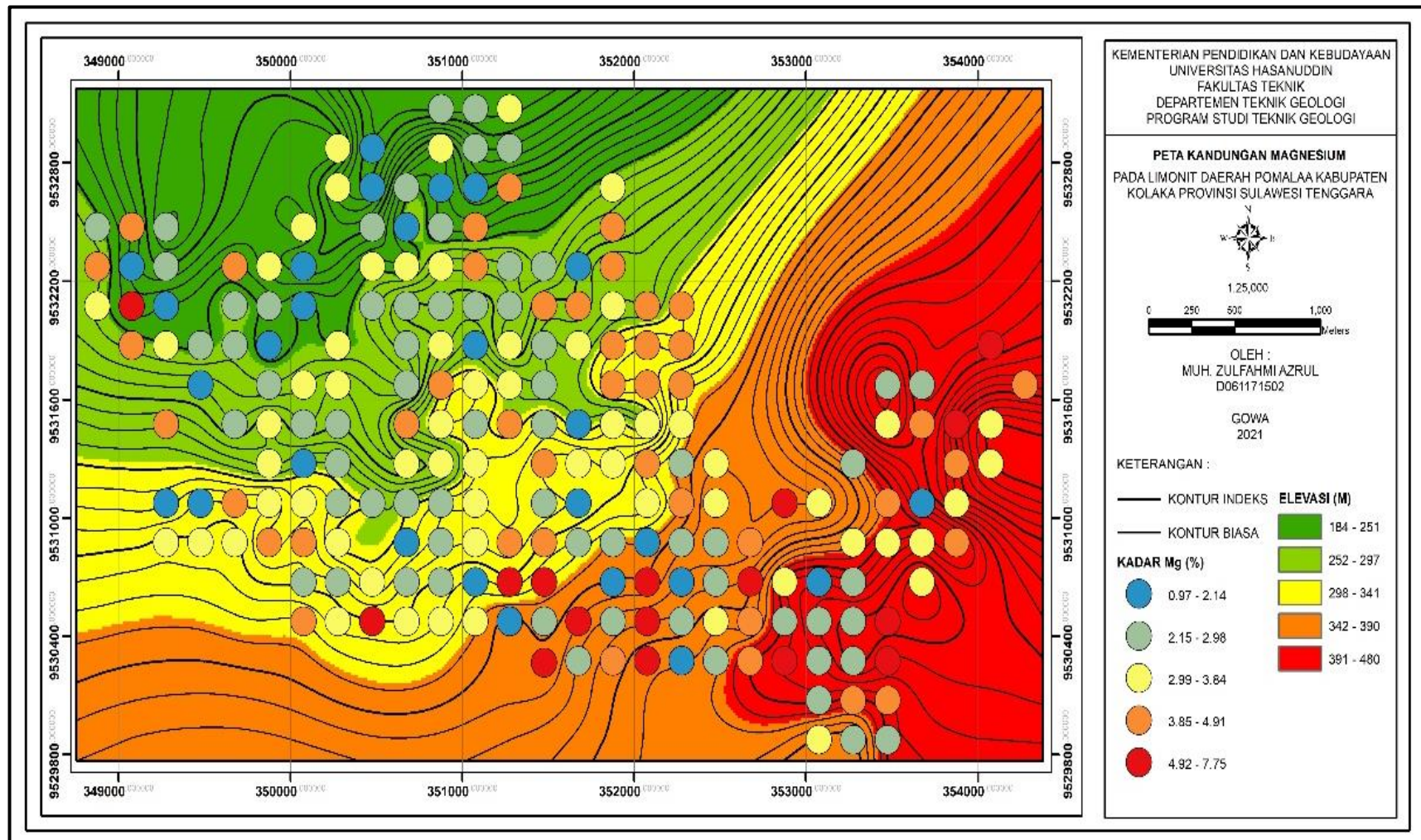




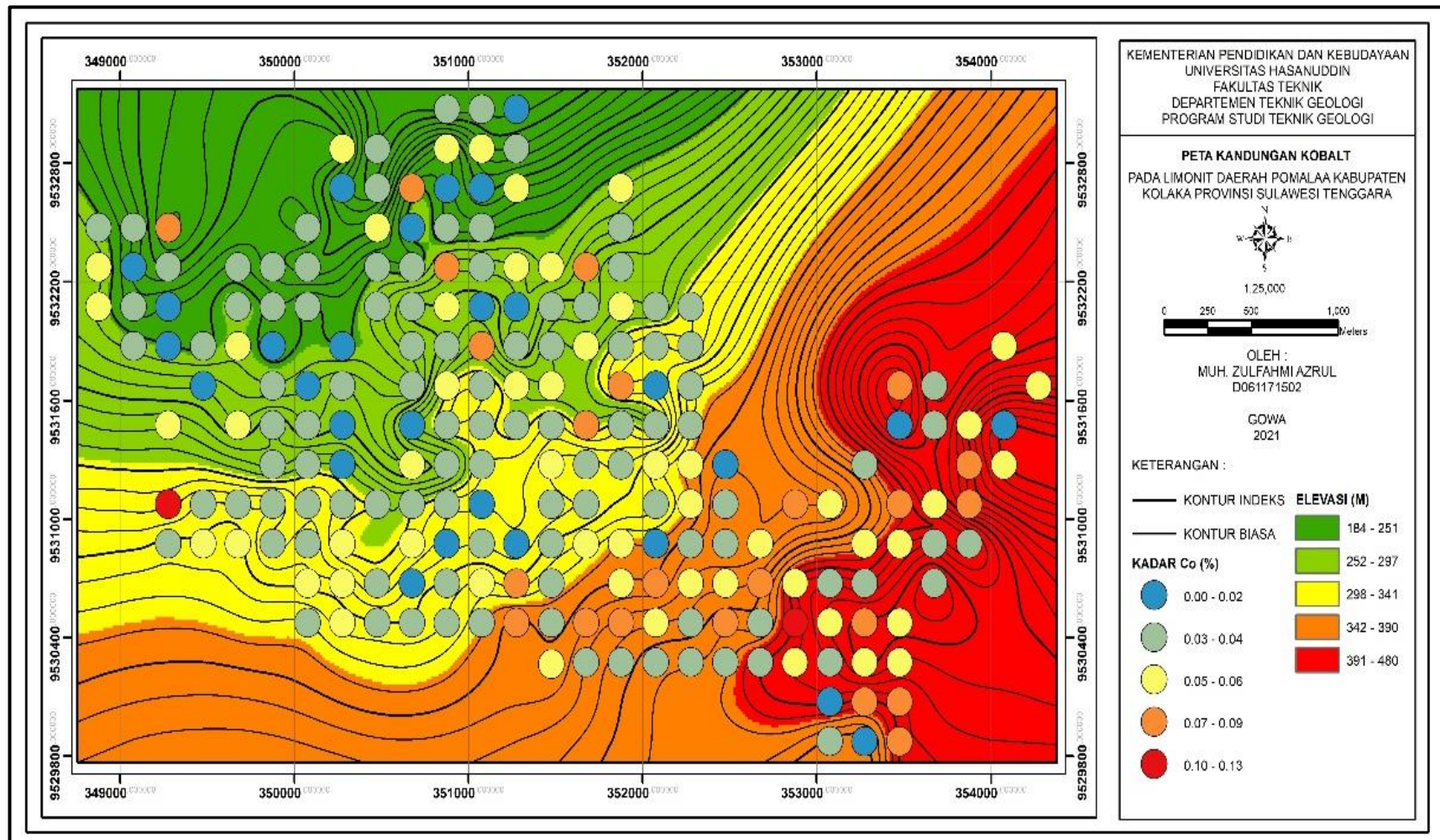
Lampiran 2 Peta Kandungan Silika Pada Daerah Penelitian



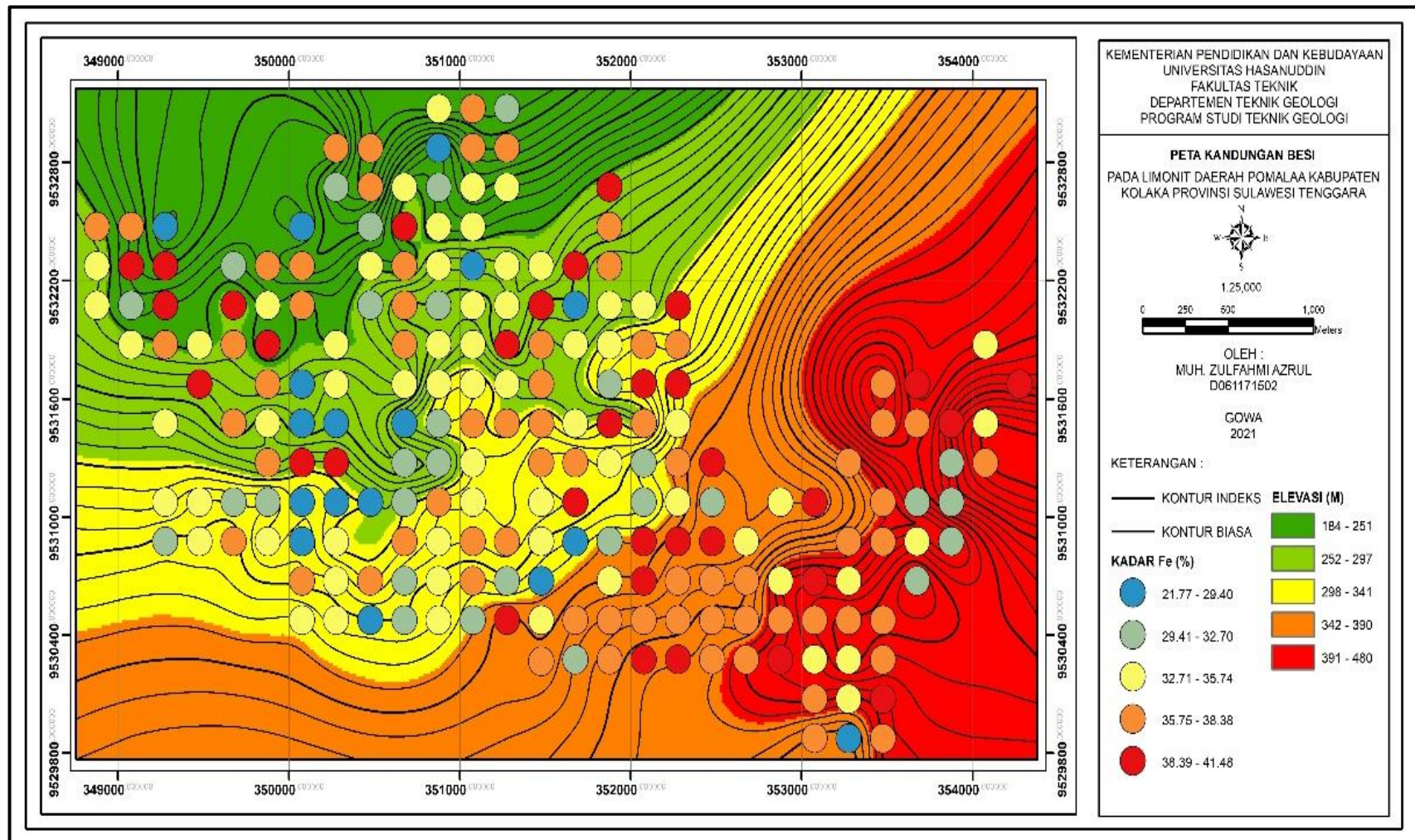
Lampiran 3 Peta Kandungan Nikel Pada Daerah Penelitian



**Lampiran 4** Peta Kandungan Magnesium Pada Daerah Penelitian



Lampiran 5 Peta Kandungan Kobalt Pada Daerah Penelitian



Lampiran 6 Peta Kandungan Besi Pada Limonit Daerah Penelitian

**Lampiran 7 Kadar Geokimia Limonite Ore Daerah Penelitian**

Hole ID	Easting	Northing	Tebal limore	Meteran Ke-	Ni	Co	Fe	Si	Mg
C000603	351075.2	9533075	2	0 – 2	1.039497	0.025252	36.72346	13.81302	2.515972
C000608	350275	9532875	18.9	0 - 18.9	1.495025	0.047525	36.3289	10.69571	3.804351
C000609	350475.9	9532874	1.9	0 - 1.9	1.271009	0.044752	37.91724	11.56166	2.097703
C000612	351075.3	9532875	1.9	0 - 1.9	1.166246	0.051925	38.27178	11.90947	2.496494
C000613	351274.9	9532875	1.9	0 - 1.9	1.054835	0.032099	38.30275	11.16857	2.51967
C000617	350275.3	9532675	1	0 – 1	1.24	0.028	33.17	14.76	3.85
C000619	350675.1	9532675	1.9	0 - 1.9	1.06043	0.066215	34.89482	16.33077	2.596505
C000622	351274.7	9532675	1	0 – 1	1.32	0.045	34.93	17.62	4.1
C000625	351874.8	9532675	1.9	0 - 1.9	1.228962	0.063104	39.05336	9.890927	3.650044
C000628	348875.2	9532475	17	0 – 17	1.341265	0.035505	35.94718	9.303076	2.954971
C000629	349075.1	9532475	14.7	0 - 14.7	1.528922	0.036605	36.58523	10.1518	4.31198
C000631	350074.9	9532475	1	0 – 1	1.22	0.028	21.78	39.81	4.99
C000633	350475	9532475	4	0 – 4	1.101228	0.064274	27.61305	30.76749	3.091339
C000634	350674.6	9532475	1	0 – 1	1.06	0.012	37.42	11.31	1.58
C000635	350875	9532475	8	0 - 8	1.18352	0.038288	32.69711	20.33428	2.727703
C000645	349075.3	9532275	1.9	0 - 1.9	1.549203	0.015418	40.59163	6.857849	1.794861
C000646	349275.1	9532275	2	0 - 2	1.044819	0.075434	37.13	9.676747	4.537349
C000648	349674.8	9532275	1	0 - 1	1.18	0.041	31.28	24.6	4.84
C000649	349874.9	9532275	6.9	0 - 6.9	1.18752	0.030102	37.98737	11.35054	3.100902
C000652	350474.9	9532275	13	0 - 13	1.288499	0.03855	34.38554	13.38179	3.390201
C000653	350675	9532275	6	0 - 6	1.200677	0.043277	36.88485	10.31393	3.399992
C000654	350874.6	9532275	6.9	0 - 6.9	1.445589	0.081473	34.91042	12.70096	3.621033
C000656	351274.8	9532275	4.9	0 - 4.9	1.214783	0.051613	35.26238	13.25409	2.266684

Hole ID	Easting	Northing	Tebal_limore	Meteran Ke-	Ni	Co	Fe	Si	Mg
C000657	351474.5	9532275	1.75	0 - 1.75	1.064851	0.056067	34.75108	16.58452	2.392948
C000658	351675.1	9532275	4.9	0 - 4.9	1.533306	0.083271	39.49017	6.387885	2.102657
C000659	351874.9	9532275	2	0 - 2	1.264923	0.039538	38.29662	11.60138	4.185538
C000665	349274.9	9532075	2.9	0 - 2.9	1.15902	0.02102	39.3307	7.443382	1.88317
C000667	349674.7	9532076	14	0 - 14	1.533369	0.028747	37.59383	8.061682	3.418372
C000668	349875	9532075	13	0 - 13	1.476301	0.036371	34.4705	13.80304	2.765346
C000669	350074.8	9532075	1	0 - 1	1.02	0.036	37.77	10.45	0.91
C000671	350475.5	9532075	20	0 - 20	1.329332	0.029859	31.03302	20.04605	2.381252
C000672	350675	9532075	12.9	0 - 12.9	1.565369	0.031746	38.24849	8.658984	2.625498
C000673	350875	9532075	18.9	0 - 18.9	1.300283	0.049705	34.59305	16.13792	3.148911
C000675	351275.1	9532075	3	0 - 3	1.118518	0.035813	35.10254	15.71493	2.432718
C000676	351475	9532075	6.9	0 - 6.9	1.357279	0.041153	40.06853	9.179953	4.221226
C000677	351675	9532075	4	0 - 4	1.33224	0.017032	32.22366	17.92237	4.274906
C000678	351875	9532075	3	0 - 3	1.151635	0.089237	33.72938	15.47189	3.954199
C000679	352075.5	9532075	0.9	0 - 0.9	1.11	0.026	33.35	19.74	4.81
C000680	352275.1	9532075	4	0 - 4	1.161832	0.035205	38.59521	9.449689	4.435807
C000686	349475.4	9531875	12	0 - 12	1.42089	0.029331	34.81287	14.61118	2.787389
C000687	349675.2	9531875	12	0 - 12	1.661609	0.075642	37.13827	6.014635	2.273021
C000688	349874.8	9531875	1.9	0 - 1.9	1.028684	0.003171	38.62646	9.964974	2.063799
C000690	350275	9531875	12	0 - 12	1.294615	0.02556	34.37407	10.3299	3.481359
C000692	350674.6	9531875	6	0 - 6	1.185357	0.029695	36.0776	6.94326	3.045969
C000693	350875	9531875	8.9	0 - 8.9	1.861522	0.027015	35.51839	11.34969	3.585007
C000694	351075.1	9531875	24	0 - 24	1.475643	0.084751	35.06747	10.5609	1.653527
C000695	351275	9531875	6	0 - 6	1.358659	0.043818	39.48988	9.180213	3.833495

Hole ID	Easting	Northing	Tebal_limore	Meteran Ke-	Ni	Co	Fe	Si	Mg
C000696	351475	9531875	13.9	0 - 13.9	1.611532	0.041523	37.62308	10.72145	2.604851
C000697	351675	9531875	9.9	0 - 9.9	1.481378	0.057362	35.4835	11.41099	3.015613
C000698	351875	9531875	11	0 - 11	1.721165	0.039539	32.72676	15.37674	4.183434
C000699	352075.1	9531875	10.95	0 - 10.95	1.615016	0.036198	36.52947	11.66917	4.343977
C000700	352275	9531875	6	0 - 6	1.378066	0.043117	37.0933	10.85647	3.848182
C000708	349475	9531675	0.9	0 - 0.9	1.03	0.005	38.51	9.96	1.72
C000710	349875	9531675	14.9	0 - 14.9	1.645554	0.036554	36.19248	11.50227	2.603362
C000711	350075.1	9531675	8.9	0 - 8.9	1.287703	0.025088	34.8034	9.484437	3.798385
C000712	350275.1	9531675	8	0 - 8	1.428946	0.032401	35.22061	12.21472	3.660272
C000714	350674.9	9531675	3.9	0 - 3.9	1.185745	0.036325	34.88045	16.2898	2.24665
C000715	350875	9531675	25.8	0 - 25.8	1.57578	0.047033	35.88592	12.15936	3.761485
C000716	351075.1	9531675	7	0 - 7	1.462153	0.032739	34.97286	11.43467	2.845385
C000717	351274.9	9531675	16.9	0 - 16.9	1.419296	0.059533	32.92439	14.82483	3.237075
C000718	351475	9531675	7.9	0 - 7.9	1.654576	0.061981	36.04269	10.24788	2.675131
C000720	351875	9531675	7.9	0 - 7.9	1.279119	0.077422	33.85067	16.49092	3.858447
C000721	352074.8	9531675	10	0 - 10	1.303203	0.022588	38.88416	8.761476	4.690999
C000722	352275	9531675	2.9	0 - 2.9	1.156403	0.032708	40.21142	11.58127	4.113294
C000728	353474.9	9531675	1	0 - 1	1.07	0.11	36.6	13.55	2.8
C000729	353674.8	9531675	2.9	0 - 2.9	1.162299	0.036504	38.8313	11.9927	2.855798
C000731	350074.9	9531475	4	0 - 4	1.082102	0.050647	27.5098	28.02415	3.164194
C000732	350275.2	9531475	4	0 - 4	1.312955	0.015783	31.53203	18.49378	2.659703
C000735	350875	9531475	11	0 - 11	1.165471	0.03404	31.17898	22.43302	2.997339
C000736	351075	9531475	14	0 - 14	1.502258	0.02888	38.34325	6.629026	3.048749
C000737	351275	9531475	5	0 - 5	1.400167	0.049082	36.72831	11.80577	4.52974



Hole ID	Easting	Northing	Tebal_limore	Meteran Ke-	Ni	Co	Fe	Si	Mg
C000738	351474.8	9531475	8	0 - 8	1.645888	0.053904	36.30511	12.2474	3.416359
C000739	351675	9531475	1	0 - 1	1.07	0.062	35.7	11.31	1.46
C000740	351875.4	9531475	11	0 - 11	1.474904	0.047465	38.21007	7.324989	3.55493
C000741	352075.6	9531476	18	0 - 18	1.730242	0.0318	37.79908	8.724711	3.905589
C000742	352275	9531475	9.9	0 - 9.9	1.253409	0.02905	36.36363	11.42253	3.74441
C000748	353474.7	9531475	4	0 - 4	1.139468	0.014602	37.87699	12.24085	3.741668
C000749	353674.7	9531475	5	0 - 5	1.359758	0.043745	38.20306	12.67222	3.640279
C000750	353875.6	9531476	3	0 - 3	1.391519	0.072391	36.00217	13.44761	5.051374
C000752	350675	9531275	7.8	0 - 7.8	1.118991	0.041393	35.57699	14.131	2.924289
C000753	350874.9	9531275	4	0 - 4	1.049344	0.015546	31.23728	23.71244	3.712306
C000754	351074.9	9531275	5	0 - 5	1.16787	0.031081	33.97135	14.65608	3.404967
C000756	351474.9	9531275	7.8	0 - 7.8	1.411414	0.050571	36.2788	12.1231	4.021392
C000757	351674.7	9531275	12.9	0 - 12.9	1.691561	0.02612	37.95869	8.54398	3.30037
C000758	351875.2	9531275	21.9	0 - 21.9	1.561648	0.042124	34.14352	14.69424	3.133494
C000759	352074.7	9531275	12.3	0 - 12.3	1.358306	0.053127	34.16655	16.67528	3.624794
C000760	352275	9531275	5.9	0 - 5.9	1.283919	0.040592	37.41517	9.208867	3.113195
C000761	352474.6	9531275	4.9	0 - 4.9	1.376339	0.014491	39.04058	7.815541	3.09588
C000765	353274.5	9531275	7	0 - 7	1.33495	0.046566	36.84869	13.36048	2.777565
C000768	353875.5	9531275	6	0 - 6	1.3162	0.101713	29.11931	25.97482	4.437303
C000769	350675	9531075	5	0 - 5	1.124145	0.041175	29.73323	27.42725	2.358231
C000770	350874.9	9531075	13.9	0 - 13.9	1.528425	0.029987	36.75709	8.0016	2.679088
C000771	351075.1	9531075	12.9	0 - 12.9	1.426116	0.018724	34.84175	13.72479	3.557336
C000773	351475	9531075	7	0 - 7	1.34164	0.041414	33.52913	17.43555	2.571873
C000774	351675.1	9531075	1.9	0 - 1.9	1.213401	0.036964	40.27376	6.797324	1.31322

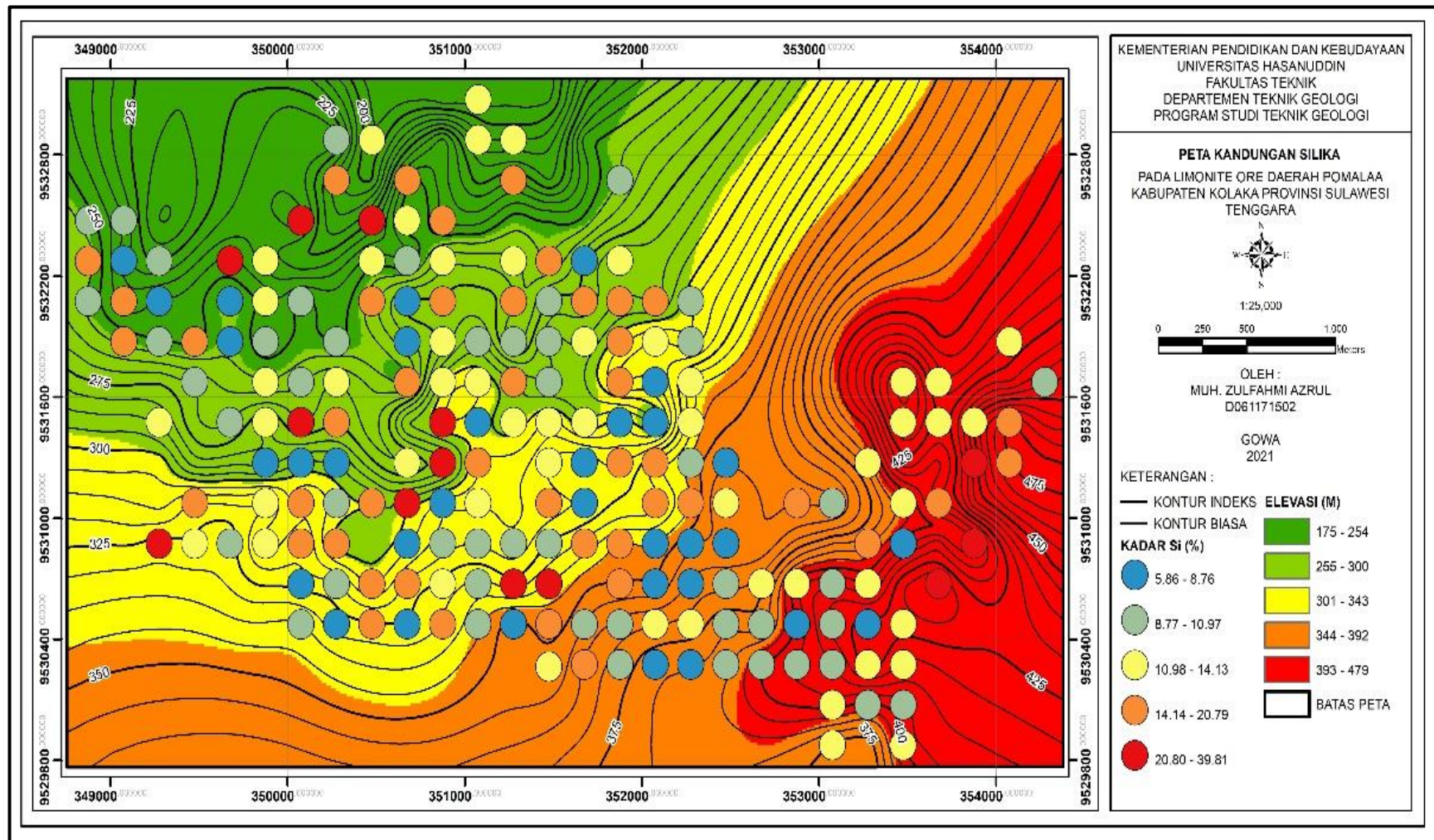
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C000776	352075	9531075	8.9	0 - 8.9	1.291555	0.035111	33.01988	18.46047	3.157207
C000777	352275	9531076	8	0 - 8	1.335102	0.063572	34.32821	16.41839	4.058281
C000778	352475.1	9531075	7	0 - 7	1.243217	0.016938	36.8102	14.05402	3.60603
C000780	352875.5	9531075	3	0 - 3	1.062458	0.080385	34.63498	15.14382	5.357142
C000781	353075.2	9531075	2.8	0 - 2.8	1.295758	0.059438	39.42237	9.454247	3.139054
C000783	353475	9531075	1.7	0 - 1.7	1.501071	0.066214	37.74071	11.52714	4.588214
C000784	353675.2	9531075	4	0 - 4	1.157527	0.039268	34.26102	19.6467	0.655271
C000786	350875	9530875	10	0 - 10	1.27158	0.015954	39.38092	9.001874	2.568989
C000787	351075.1	9530875	15.9	0 - 15.9	1.3772	0.042591	36.86825	10.96984	3.223467
C000788	351275	9530875	1	0 - 1	1.21	0.012	36.44	10.4	3.04
C000789	351475.1	9530875	2.9	0 - 2.9	1.292925	0.023451	38.15143	9.337545	3.878404
C000790	351675.3	9530875	1.9	0 - 1.9	1.134957	0.058104	32.38691	19.44306	1.858473
C000791	351875	9530875	8.9	0 - 8.9	1.194476	0.037686	32.82861	15.07401	2.342324
C000792	352075	9530875	2	0 - 2	1.449862	0.007993	39.8009	6.318131	1.154879
C000793	352275.1	9530875	8.9	0 - 8.9	1.166472	0.041237	39.07749	8.658926	2.813421
C000794	352475.1	9530875	3	0 - 3	1.074549	0.041457	39.55494	8.371941	2.433571
C000798	353274.9	9530875	2	0 - 2	1.391887	0.068019	32.27736	15.59585	4.131509
C000799	353474.9	9530875	4	0 - 4	1.335088	0.044849	38.67216	8.59114	2.780407
C000801	353875	9530875	8	0 - 8	1.465414	0.025687	30.97527	27.00417	3.906455
C000802	350874.9	9530675	8.9	0 - 8.9	1.462482	0.045907	37.52199	11.42431	3.020012
C000803	351075	9530675	10.9	0 - 10.9	1.575323	0.05447	37.87655	10.53704	1.367831
C000804	351275.1	9530675	3	0 - 3	1.270865	0.106582	29.40291	28.0326	5.128295
C000805	351475.1	9530675	2	0 - 2	1.20569	0.020833	31.47477	22.31672	3.600057
C000807	351875.2	9530675	3	0 - 3	1.163327	0.061638	33.50514	17.63135	2.501947

Hole ID	Easting	Northing	Tebal_limore	Meteran Ke-	Ni	Co	Fe	Si	Mg
C000808	352074.8	9530675	11	0 - 11	1.562067	0.077407	39.08879	8.5102	6.857503
C000809	352275	9530675	2	0 - 2	1.191231	0.039946	39.16274	8.654218	1.281231
C000810	352475	9530675	4.9	0 - 4.9	1.255235	0.05609	38.6237	10.06179	2.700902
C000811	352675.5	9530675	7	0 - 7	1.300828	0.099821	37.41729	12.90063	3.934976
C000812	352874.8	9530675	10	0 - 10	1.413199	0.056742	35.65565	12.16606	3.091903
C000813	353075.1	9530675	12	0 - 12	1.343567	0.028672	38.93236	9.477699	2.135625
C000814	353274.8	9530675	2	0 - 2	1.108803	0.04356	38.56789	11.87193	2.778085
C000816	353674.9	9530675	1.8	0 - 1.8	1.152853	0.043023	31.75936	23.17238	3.645524
C000818	351475.2	9530475	4	0 - 4	1.439414	0.03162	35.10717	15.67172	3.350937
C000819	351675	9530475	7	0 - 7	1.429786	0.102291	38.321	9.944969	5.252752
C000820	351875.4	9530475	3	0 - 3	1.648636	0.111526	36.80268	10.36775	4.055646
C000821	352074.5	9530475	2	0 - 2	1.200736	0.078147	37.60358	11.52301	3.408694
C000822	352275.4	9530475	15	0 - 15	1.337955	0.029822	37.68231	12.53064	2.196192
C000823	352475.1	9530475	2.9	0 - 2.9	1.271149	0.066556	37.56876	9.828477	3.422199
C000824	352675	9530475	7.7	0 - 7.7	1.307522	0.041193	37.49625	10.24868	3.355184
C000825	352874.9	9530475	11.9	0 - 11.9	1.431863	0.108743	35.91235	8.457221	2.884305
C000826	353075	9530475	16.9	0 - 16.9	1.401571	0.047515	37.64346	9.758679	2.942532
C000827	353274.9	9530475	16	0 - 16	1.438633	0.066213	37.64477	8.655717	2.183248
C000828	353475.1	9530475	1	0 - 1	1.08	0.044	36.78	14.09	4.84
C000831	351475	9530265	4	0 - 4	1.242561	0.075712	37.43581	11.66451	3.636417
C000832	351675	9530275	12	0 - 12	1.389359	0.038643	33.96731	16.48752	2.148269
C000833	351875.6	9530275	8	0 - 8	1.291527	0.049967	37.20631	9.707623	2.715823
C000834	352075	9530275	13	0 - 13	1.576296	0.047888	39.25338	7.063422	2.745473
C000835	352275.2	9530275	20	0 - 20	1.412168	0.048682	38.02998	7.525799	1.37274

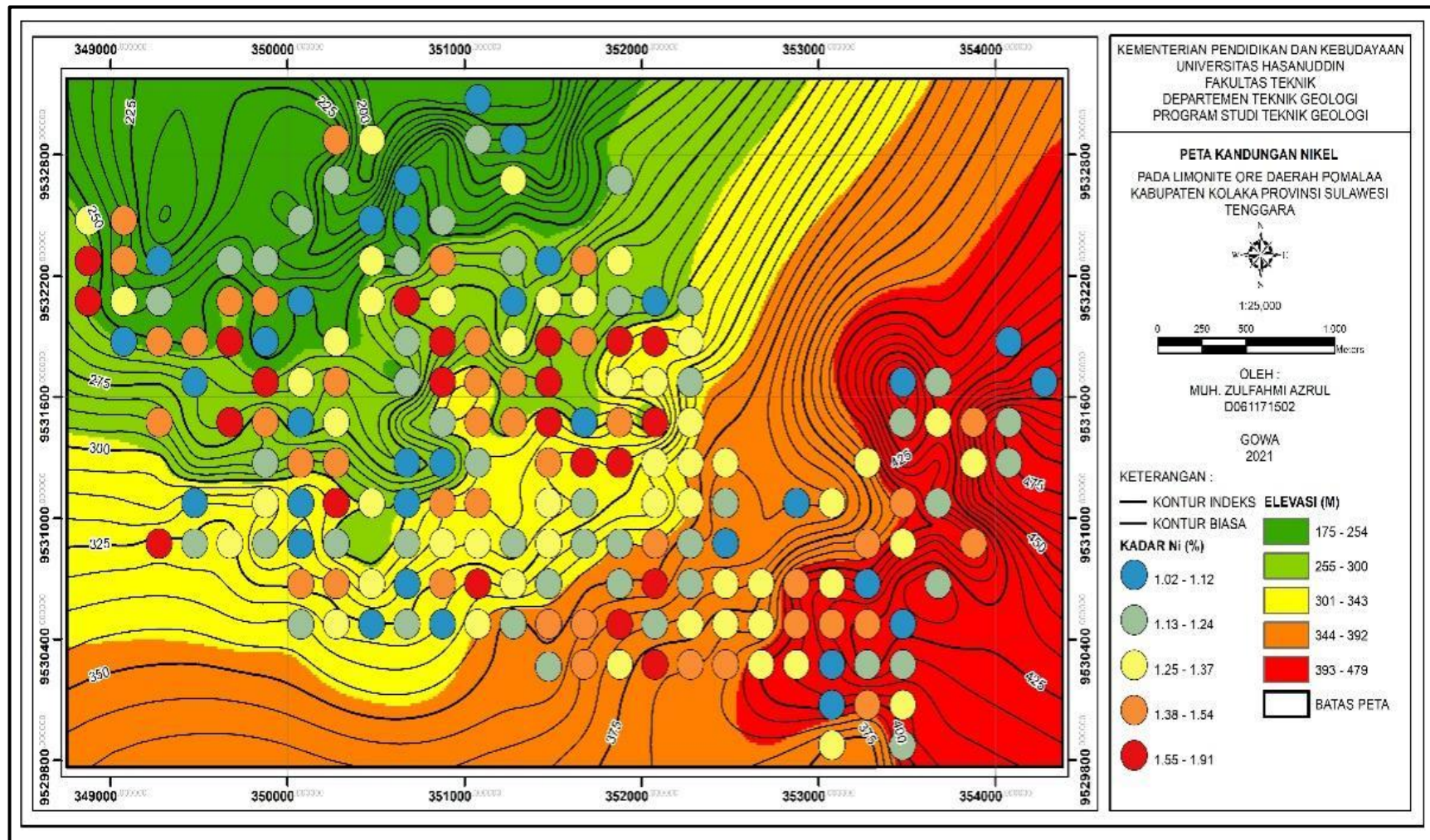
Hole ID	Easting	Northing	Tebal_limore	Meteran Ke-	Ni	Co	Fe	Si	Mg
C000836	352475	9530275	17	0 - 17	1.479189	0.036372	36.60482	10.00975	2.427098
C000837	352674.9	9530275	18	0 - 18	1.349307	0.031242	37.63667	9.545854	4.277746
C000838	352874.6	9530275	16	0 - 16	1.340674	0.045685	39.37269	9.029677	5.680051
C000839	353074.8	9530275	1	0 - 1	1.04	0.032	38.09	9.33	3.56
C000840	353274.9	9530275	1	0 - 1	1.13	0.086	36.8	12.04	4.52
C000841	353475	9530275	3	0 - 3	1.171439	0.082563	37.31581	12.72077	4.779466
C000849	353075	9530075	1	0 - 1	1.02	0.083	33.96	11.65	2.08
C000850	353274.9	9530075	4	0 - 4	1.456761	0.074942	40.10022	10.4803	5.931064
C000851	353475	9530075	2.9	0 - 2.9	1.372922	0.072987	40.94935	10.26789	3.935227
C000858	353074.7	9529876	8	0 - 8	1.353033	0.032287	37.80772	12.44309	4.0426
C000860	353474.7	9529875	1.9	0 - 1.9	1.166789	0.06625	37.60175	11.64753	2.451454
C000881	348874.8	9532275	17	0 - 17	1.667855	0.050787	33.84324	15.38378	5.040416
C000882	350275.3	9531275	10	0 - 10	1.412294	0.022177	42.66133	5.858503	2.050297
C000883	354074.9	9531275	0.9	0 - 0.9	1.23	0.063	37.13	14.77	3.34
C000886	349475.2	9531075	1	0 - 1	1.06	0.026	32.54	20.79	2.08
C000888	349875	9531075	14	0 - 14	1.326431	0.041569	31.9743	12.82945	3.614808
C000889	350075.1	9531075	3	0 - 3	1.096297	0.025225	37.11781	14.52151	4.156326
C000890	350275.4	9531075	3	0 - 3	1.744874	0.061194	34.39408	9.09155	2.632224
C000891	350475	9531075	2	0 - 2	1.290971	0.024491	33.52373	15.46731	2.444373
C000894	349275	9530875	3	0 - 3	1.57221	0.024575	29.3887	22.57283	3.4457
C000895	349475	9530875	5	0 - 5	1.225452	0.060079	35.23803	11.47439	3.687306
C000896	349675	9530875	7	0 - 7	1.312505	0.060326	36.56725	10.41456	5.483144
C000897	349875	9530875	1.9	0 - 1.9	1.163338	0.029918	34.30332	11.8368	5.20174
C000898	350075	9530875	1	0 - 1	1.08	0.021	34.17	15.38	2.69

Hole ID	Easting	Northing	Tebal_limore	Meteran Ke-	Ni	Co	Fe	Si	Mg
C000899	350275.3	9530875	4.9	0 - 4.9	1.132625	0.061936	33.79321	15.06817	4.184516
C000901	350675	9530875	5	0 - 5	1.22501	0.079091	38.55315	8.709554	2.023087
C000902	350075	9530675	19.9	0 - 19.9	1.392858	0.033458	37.52107	6.355225	1.952404
C000903	350275.2	9530675	13	0 - 13	1.391637	0.054209	35.36994	9.158639	2.641411
C000904	350474.8	9530675	4	0 - 4	1.37788	0.054287	36.37666	15.39487	4.389936
C000905	350675.2	9530675	3	0 - 3	1.065381	0.022134	30.81353	16.83927	3.245585
C000906	350075	9530475	5	0 - 5	1.162775	0.050442	35.82518	10.64426	2.944751
C000907	350275	9530475	14	0 - 14	1.280067	0.055528	37.73322	6.634316	2.571054
C000908	350475	9530475	4	0 - 4	1.118779	0.050125	30.95466	16.466	2.840671
C000909	350675	9530475	4	0 - 4	1.182858	0.043494	44.52734	8.654033	2.404594
C000910	350874.9	9530475	3.9	0 - 3.9	1.04708	0.043963	33.51594	17.60757	4.916886
C000911	351074.9	9530475	9.9	0 - 9.9	1.353484	0.039926	39.21635	9.097839	2.590072
C000912	351275	9530475	2.9	0 - 2.9	1.14038	0.090517	39.84543	6.897742	1.579113
C000913	348874.9	9532075	17	0 - 17	1.919901	0.058693	35.42524	9.499062	3.502261
C000914	349074.8	9532075	10	0 - 10	1.368645	0.03253	31.70657	17.84019	6.849161
C000915	349075.1	9531875	2.9	0 - 2.9	1.086733	0.032252	34.48627	18.91263	2.890899
C000916	349275.1	9531875	14	0 - 14	1.525822	0.028241	37.77291	9.136487	3.534747
C000918	354074.9	9531875	1	0 - 1	1.05	0.051	36.48	12.9	4.58
C000922	354274.6	9531675	1	0 - 1	1.05	0.059	39.73	10.23	4.4
C000923	349275	9531475	8.9	0 - 8.9	1.444048	0.045174	35.53113	12.54848	4.187146
C000925	349675	9531475	11	0 - 11	1.65886	0.057242	36.73568	9.61027	2.963919
C000926	349875.1	9531475	19.9	0 - 19.9	1.442974	0.028722	34.40059	12.57168	3.621455
C000927	354075.4	9531475	4.9	0 - 4.9	1.211061	0.021326	34.09332	15.24708	3.673911
C000932	349875	9531275	7	0 - 7	1.226034	0.030357	36.92182	8.673702	3.322156

Hole ID	Easting	Northing	Tebal_limore	Meteran Ke-	Ni	Co	Fe	Si	Mg
C000933	350074.9	9531275	11	0 - 11	1.464023	0.049658	40.14904	8.197067	1.852497

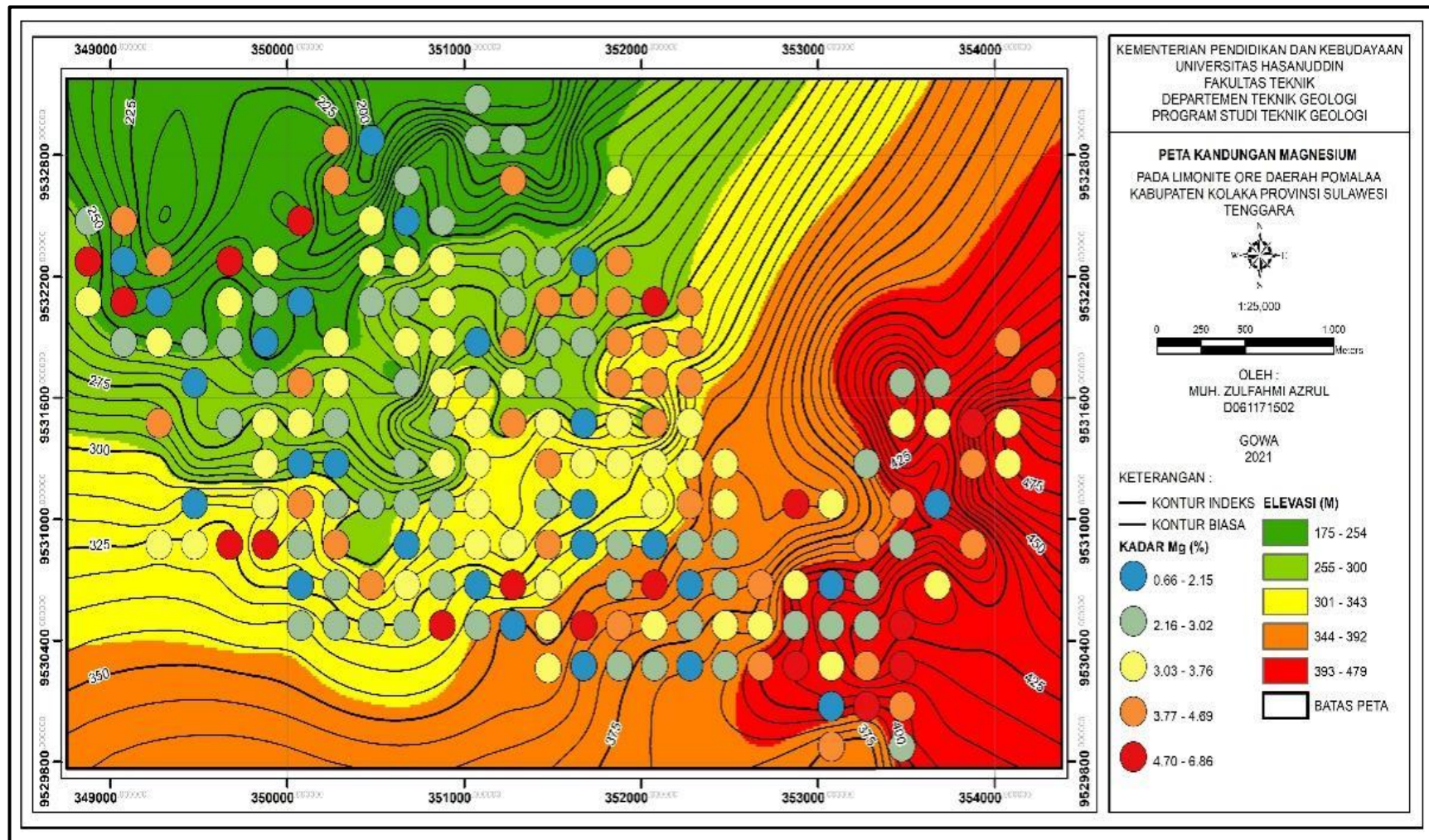


Lampiran 8 Peta Kandungan Silika Pada Limonit Ore Daerah Penelitian

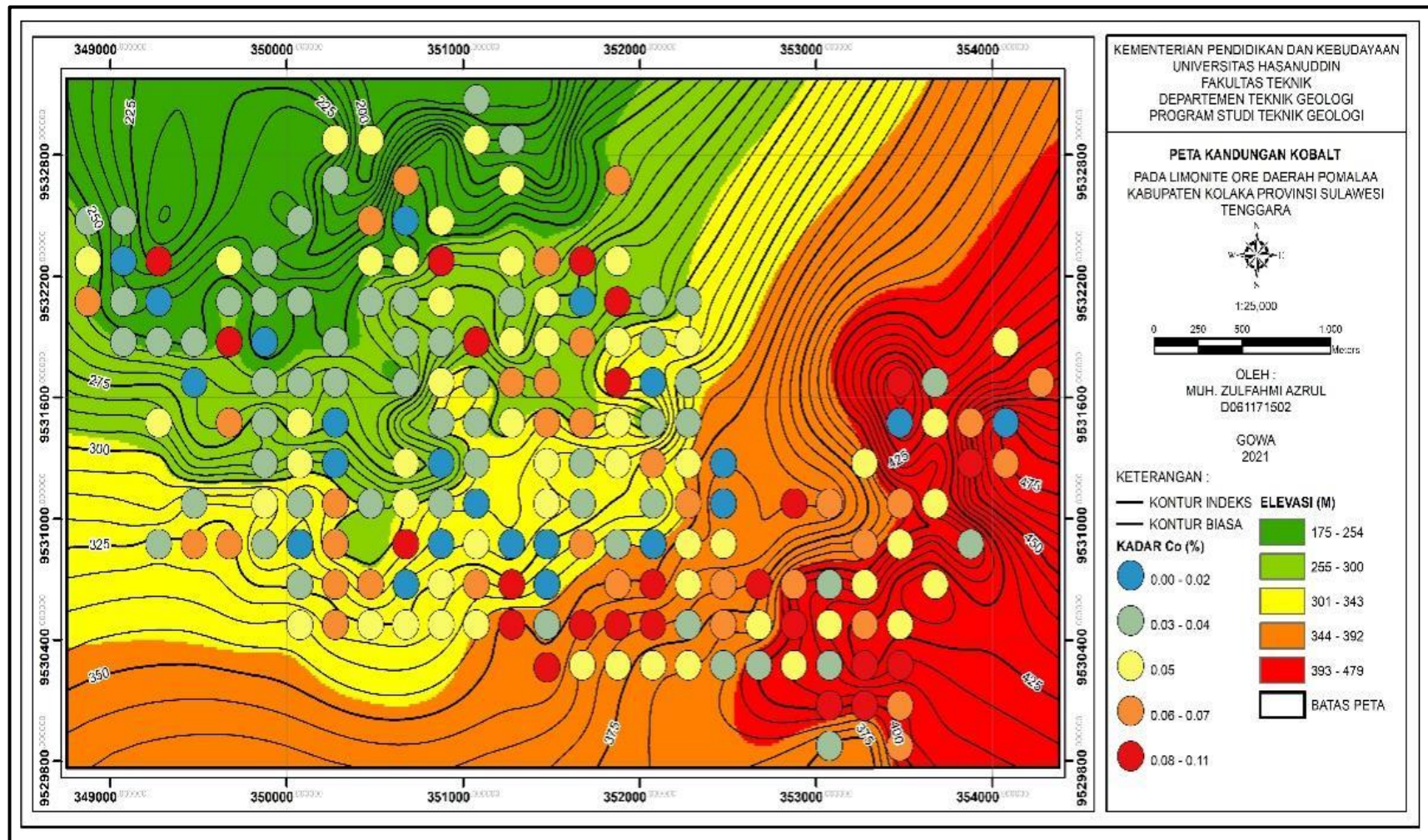


Lampiran 9 Peta Kandungan Nikel Pada Limonit Ore Daerah Penelitian

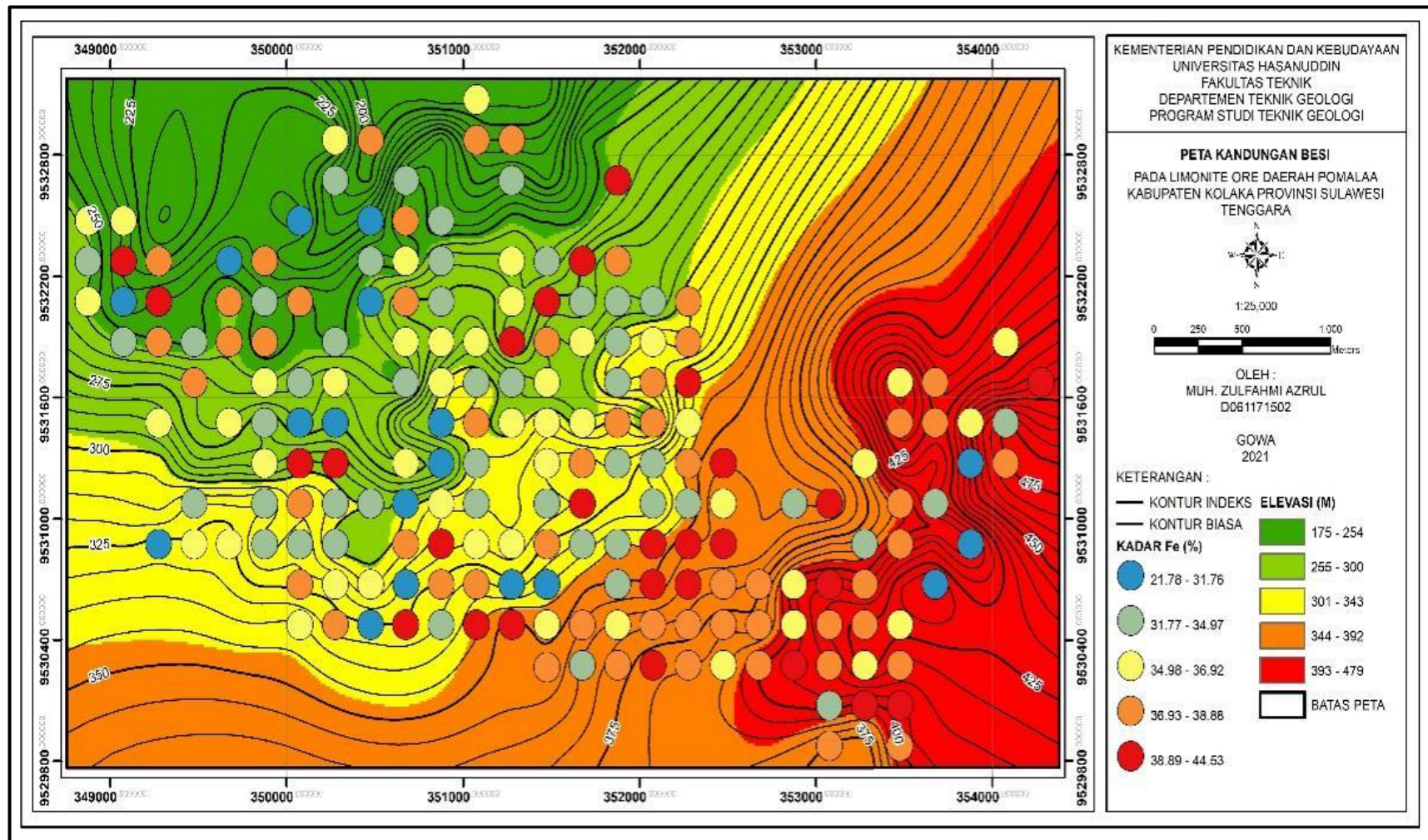




**Lampiran 10** Peta Kandungan Magnesium Pada Limonit Ore Daerah Penelitian



Lampiran 11 Peta Kandungan Kobalt Pada Limonit Ore Daerah Penelitian



Lampiran 12 Peta Kandungan Besi Pada Limonit Ore Daerah Penelitian



## PETROGRAPHIC DESCRIPTION

Sample no.: C250xxx

### Mineralogy: 100%

#### Primary:

Olivine	38.0%
Orthopyroxene	6.0%
Clinopyroxene	1.7%
Spinel	0.8%
Sub-total	46.5%

#### Secondary:

Serpentine	48.7%
Iron oxide/Opaque	2.8%
Tremolite	2.0%
Sub-total	53.5%

### Texture and structure:

The section exhibits holocrystalline allotriomorphic texture, consisting of olivine, pyroxene, and spinel. The intensively fracturing and alteration of olivine into serpentine formed the likely of porphyroblastic texture, consisting of pyroxene phenocrysts, anhedral in shape, and 1.0 – 3.0 mm in size, embedded in the groundmass of serpentine and olivine (< 0.5 mm in size). The inclusion of olivine on the pyroxene formed the poikilitic texture. Some phenocrysts of orthopyroxene has inclusions of fine grains clinopyroxene in their cleavage to form exsolution lamellae texture.

### Alteration intensity:

This sample is medium to strongly altered, the serpentine present on the fractured of olivine and the cleavage of pyroxene. The pyroxenes are usually pseudomorphosed by serpentine or tremolite in the some area of thin section. The iron oxides/opaque rimmed the olivine to make the red brownish – blackish color. The veins or veinlets of serpentine are present to cut the rock in the some area of thin section.

### Mineral/rock paragenesis:

The present of secondary minerals assemblage suggests to hydrothermal alteration of serpentinization type (hydrothermal metamorphism) and then they are filled by the serpentine.

Mineral assemblages	Primary	Secondary
Olivine	*****	
Orthopyroxene	*****	
Clinopyroxene	*****	
Spinel	*****	
Serpentine		*****( <i>vein</i> )
Iron oxide/Opaque		*****
Tremolite		*****

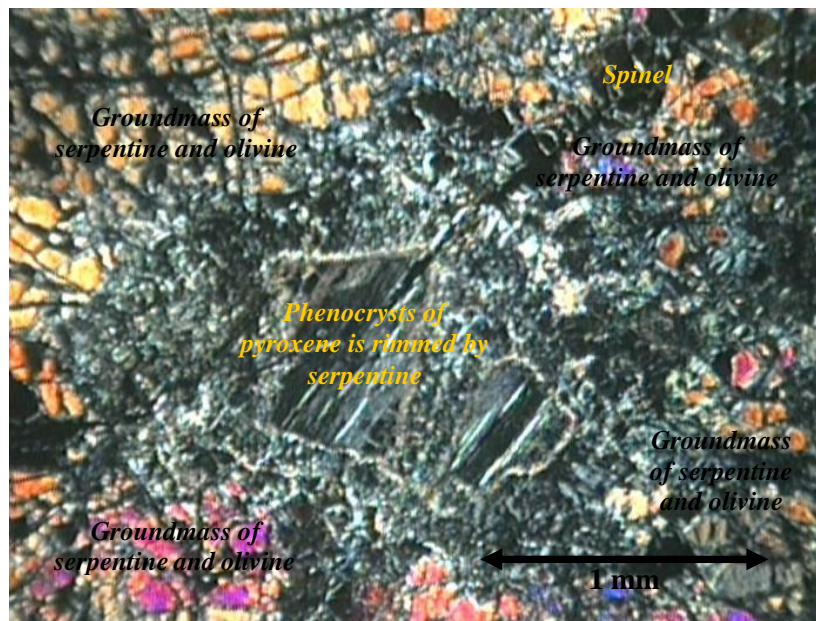
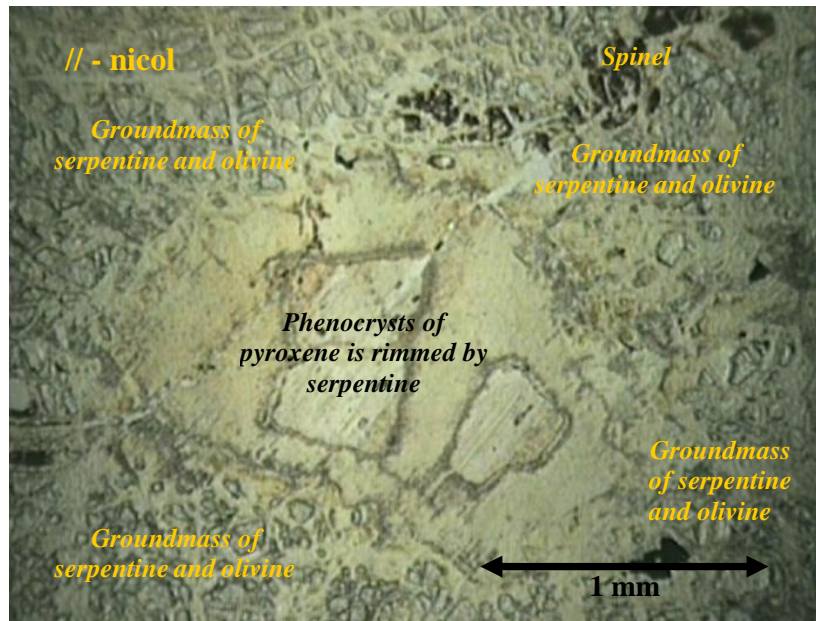
### Remark:

The rock sample represented the intensely deformation process which are observed as the intensely fracturing of olivine and the undulatory extinction of olivine and pyroxene.

**Rock name: Serpentinized of Harzburgite Peridotite ( Dunite )**

## PHOTOMICROGRAPH

Sample no.: C250xxx



The photomicrograph exhibits the likely of porphyroblastic texture, consisting of pyroxene phenocryst embedded in the fine grains groundmass of olivine. The phenocryst of pyroxene is rimmed by serpentine. The olivine shows the intensively fracturing and then they altered into the secondary mineral of serpentine.

## PETROGRAPHIC DESCRIPTION

Sample no.: C210xxx

### Mineralogy: 100%

#### Primary:

Olivine	40.0%
Orthopyroxene	13.2%
Clinopyroxene	4.3%
Spinel	1.5%
Sub-total	59.0%

#### Secondary:

Serpentine	36.2%
Carbonate	2.8%
Iron oxide/Opaque	2.0%
Sub-total	41.0%

### Texture and structure:

The section exhibits holocrystalline allotriomorphic texture, consisting of olivine, pyroxene, and spinel. The intensively fracturing and alteration of olivine into serpentine formed the likely of porphyroblastic texture, consisting of pyroxene phenocrysts, anhedral in shape, and 1.0 – 4.5 mm in size, embedded in the groundmass of serpentine and olivine (< 0.5 mm in size). The inclusion of olivine on the pyroxene formed the poikilitic texture. Some phenocrysts of orthopyroxene has inclusions of fine grains clinopyroxene in their cleavage to form exsolution lamellae texture.

### Alteration intensity:

This sample is medium altered, the serpentine and opaque present on the fractured of olivine and the cleavage of pyroxene. Some pyroxenes are pseudomorphosed by serpentine. The veins or veinlets of serpentine and carbonate ± opaque present to cut the rock in the some area of thin section.

### Mineral/rock paragenesis:

The present of secondary minerals assemblage suggests to hydrothermal alteration of serpentinization type (hydrothermal metamorphism) and then they are filled by the serpentine and carbonate ± opaque.

Mineral assemblages	Primary	Secondary
Olivine	*****	
Orthopyroxene	*****	
Clinopyroxene	*****	
Spinel	*****	
Serpentine		*****( <i>vein</i> )
Carbonate		*****( <i>vein</i> )
Iron oxide/Opaque		*****( <i>vein</i> )

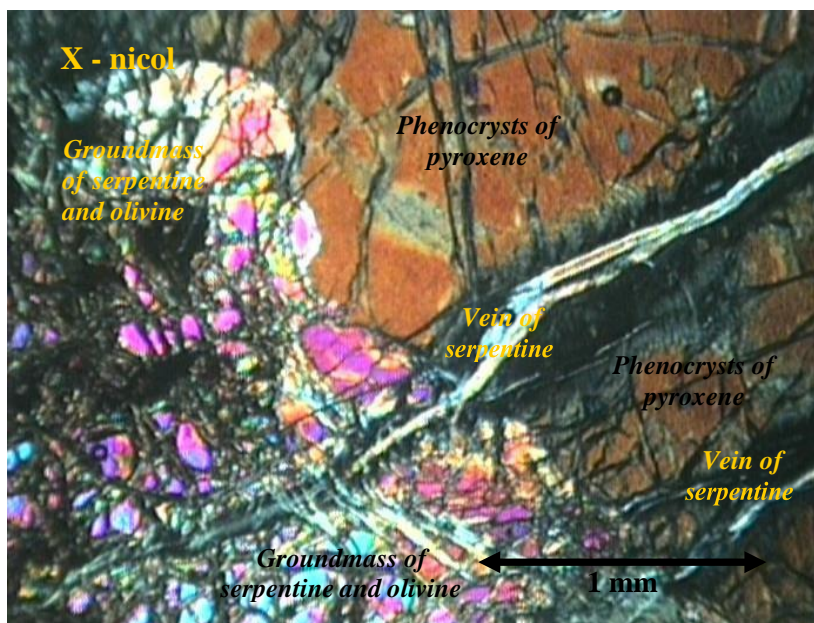
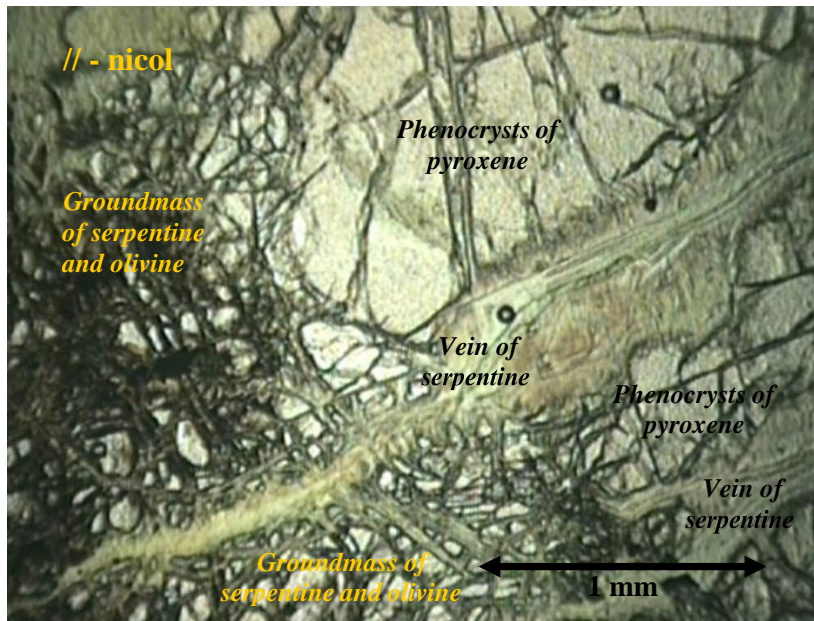
### Remark:

The rock sample represented the intensely deformation process which are observed as the intensely fracturing of olivine and the undulatory extinction of olivine and pyroxene.

**Rock name: Serpentinized of Lherzolite Peridotite (HZ)**

## PHOTOMICROGRAPH

Sample no.: C210xxx



The photomicrograph exhibits the likely of porphyroblastic texture, consisting of pyroxene phenocryst embedded in the fine grains groundmass of serpentine and olivine. The phenocryst of pyroxene shows the undulatory extinction. The rock is cut by veins of serpentine.



## PETROGRAPHIC DESCRIPTION

Sample no.: C251xxx

### Mineralogy: 100%

#### Primary:

Olivine	35.0%
Orthopyroxene	8.7%
Clinopyroxene	5.5%
Spinel	1.8%
Sub-total	51.0%

#### Secondary:

Serpentine	42.4%
Iron oxide/Opaque	5.8%
Talc	0.8%
Sub-total	49.0%

### Texture and structure:

The section exhibits holocrystalline allotriomorphic texture, consisting of olivine, pyroxene, and spinel. The intensively fracturing and alteration of olivine into serpentine formed the likely of porphyroblastic texture, consisting of pyroxene phenocrysts, anhedral in shape, and 0.8 – 3.5 mm in size, embedded in the groundmass of serpentine and olivine (< 0.5 mm in size). The inclusion of olivine on the pyroxene formed the poikilitic texture. Some phenocrysts of orthopyroxene has inclusions of fine grains clinopyroxene in their cleavage to form exsolution lamellae texture.

### Alteration intensity:

This sample is medium altered, the serpentine present on the fractured of olivine and the cleavage of pyroxene. Some pyroxenes are pseudomorphosed by serpentine and talc altered the phenocrysts of pyroxene in the some area of thin section. The iron oxides/opaque altered the olivine. The veins or veinlets of serpentine ± opaque present to cut the rock in the some area of thin section.

### Mineral/rock paragenesis:

The present of secondary minerals assemblage suggests to hydrothermal alteration of serpentinization type (hydrothermal metamorphism) and then they are filled by the serpentine ± opaque.

Mineral assemblages	Primary	Secondary
Olivine	*****	
Orthopyroxene	*****	
Clinopyroxene	*****	
Spinel	*****	
Serpentine		*****( <i>vein</i> )
Iron oxide/Opaque		*****( <i>vein</i> )
Talc		*****

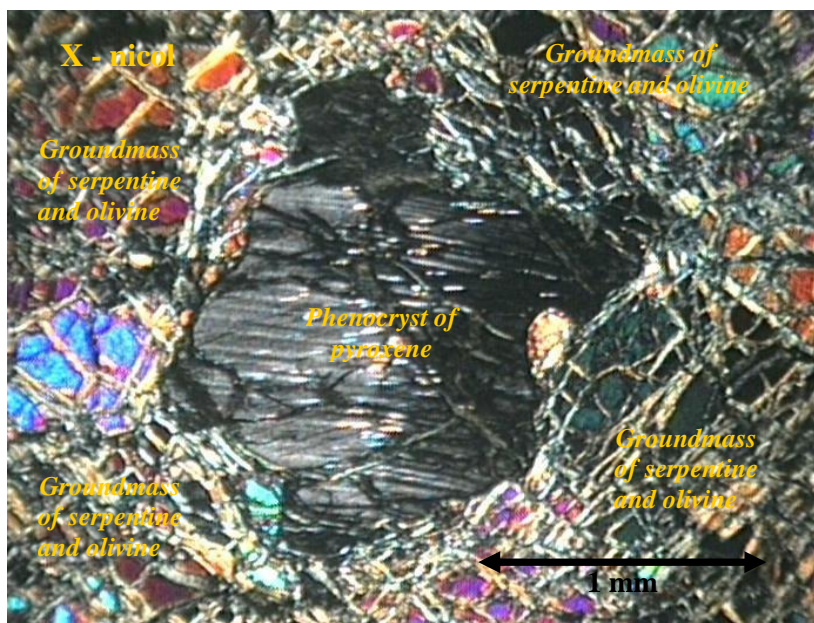
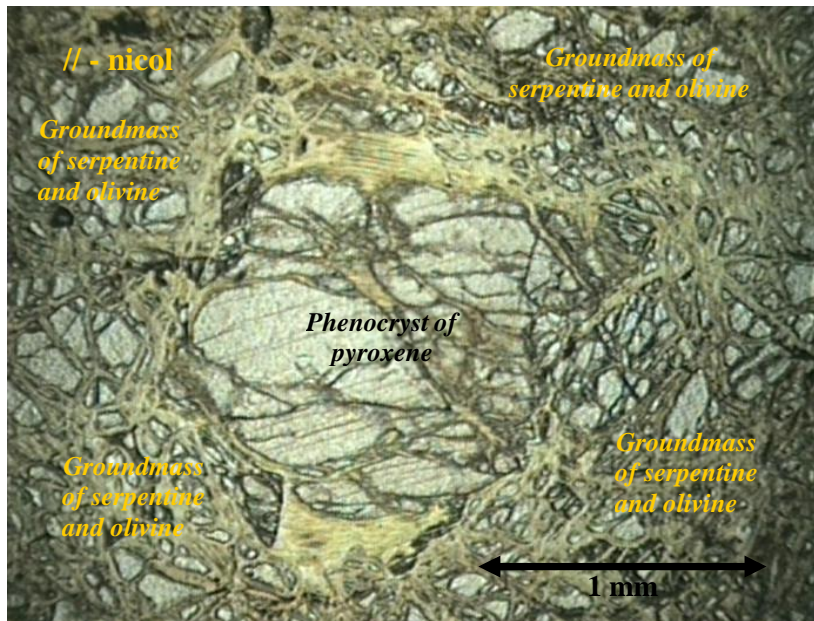
### Remark:

The rock sample represented the intensely deformation process which are observed as the intensely fracturing of olivine and the undulatory extinction of olivine and pyroxene.

**Rock name: Serpentinized of Lherzolite Peridotite ( HZ )**

## PHOTOMICROGRAPH

Sample no.: C251xxx



The photomicrograph exhibits the likely of porphyroblastic texture, consisting of pyroxene phenocryst embedded in the fine grains groundmass of olivine. The pyroxene shows the exsolution lamellae and the undulatory extinction. The olivine shows the intensively fracturing and then they altered into the secondary mineral of serpentine.

## PETROGRAPHIC DESCRIPTION

Sample no.: C251xxx

Mineralogy: 100%

**Primary:**

Orthopyroxene	10.0%
Clinopyroxene	2.0%
Olivine	1.8%
Spinel	1.5%
Sub-total	15.3%

**Secondary:**

Serpentine	71.2%
Iron oxide/Opaque	7.0%
Talc	3.0%
Tremolite	2.5%
Carbonate	1.0%
Sub-total	84.7%

**Texture and structure:**

The thin section of peridotite exhibited the intensively serpentinization on the olivine and pyroxene to form the serpentinite rock. The serpentinized process rested the olivine, pyroxene and spinel crystals as original minerals of the peridotite. The rock show the porphyroblastic texture with the crystals of pyroxene present as phenocrysts, anhedral in shape, 0.8 – 2.5 in crystals size, in the groundmass of serpentine, patches of opaque minerals, relict of olivine and spinel (less than 0.3 mm in size). The inclusion of olivine on the pyroxene (the poikilitic texture) present in the some area of thin section.

**Alteration intensity:**

This sample is strongly altered, the serpentine and iron oxides/opaque altered or pseudomorphosed the olivine and pyroxene. Some pyroxenes are pseudomorphosed by serpentine ± talc ± tremolite. The iron oxides/opaque pseudomorphosed or rimmed the olivine to form the brownish – blackish red color. The veins or veinlets of serpentine and carbonate ± opaque present to cut the rock in the some area of thin section.

**Mineral/rock paragenesis:**

The present of secondary minerals assemblage suggests to hydrothermal alteration of serpentinization type (hydrothermal metamorphism) and then they are filled by the serpentine and carbonate ± opaque.

Mineral assemblages	Primary	Secondary
Olivine	*****	
Orthopyroxene	*****	
Clinopyroxene	*****	
Spinel	*****	
Serpentine		*****( <i>vein</i> )
Iron oxide/Opaque		*****( <i>vein</i> )
Talc		*****
Tremolite		*****
Carbonate		*****( <i>vein</i> )

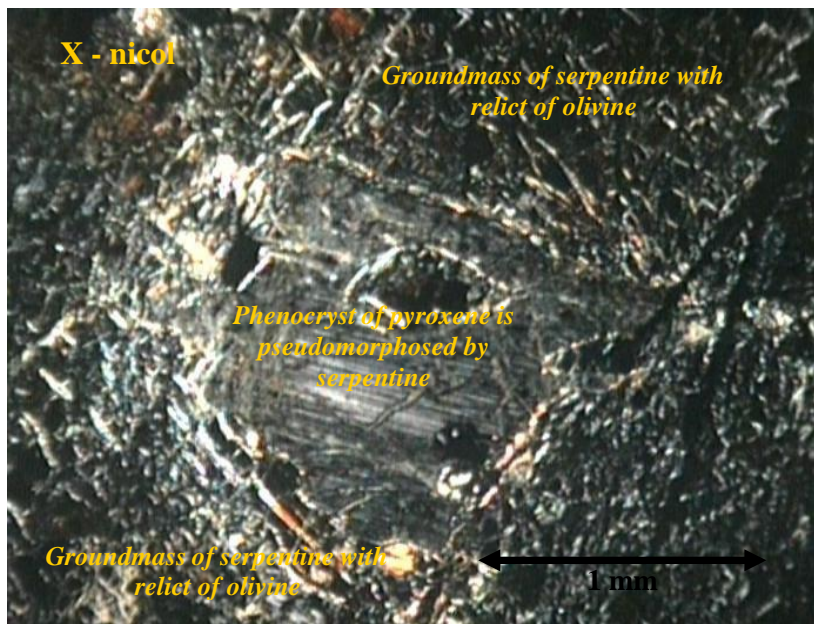
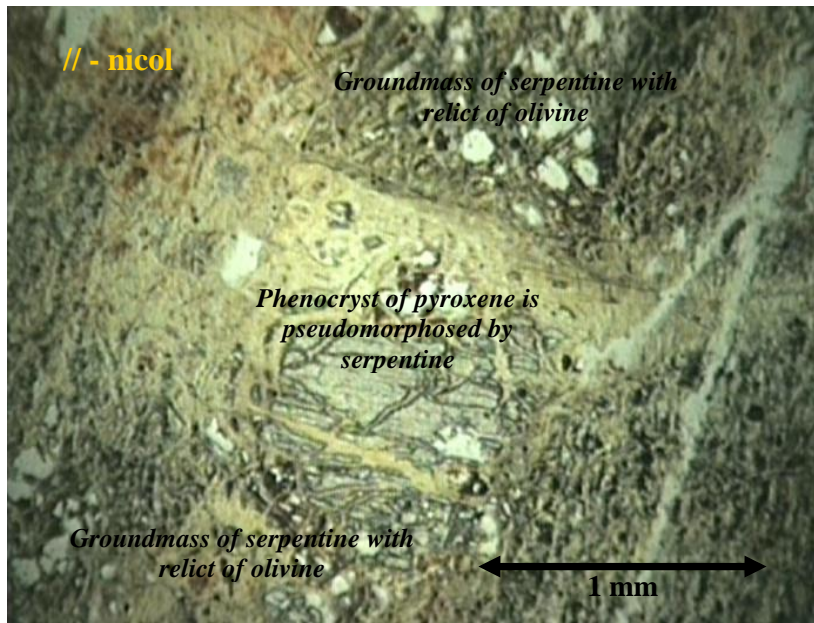
**Remark:**

The rock sample represented the intensely deformation process which are observed as the intensely fracturing of olivine and the undulatory extinction of olivine and pyroxene.

**Rock name: Serpentinite ( Dunite )**

## PHOTOMICROGRAPH

Sample no.: C251xxx



The photomicrograph exhibits the porphyroblastic texture, consisting of pyroxene phenocryst embedded in the fine grains groundmass of serpentine. The phenocryst of pyroxene is pseudomorphosed by serpentine. The relict of olivines rested in the groundmass of serpentine.

## PETROGRAPHIC DESCRIPTION

Sample no.: C2139xx

**Mineralogy: 100%**

**Primary:**

Olivine	21.2%
Orthopyroxene	8.3%
Clinopyroxene	4.0%
Spinel	0.5%
Sub-total	34.0%

**Secondary:**

Serpentine	37.5%
Iron oxide/Opaque	22.5%
Tremolite	6.0%
Sub-total	66.0%

**Texture and structure:**

The section exhibits holocrystalline allotriomorphic texture, consisting of olivine, pyroxene, and spinel in the some area of thin section. The intensively fracturing and alteration of olivine into serpentine and iron oxide/opaque formed the likely of porphyroblastic texture, consisting of pyroxene phenocrysts, anhedral in shape, and 0.8 – 3.5 mm in size, embedded in the groundmass of serpentine and olivine (< 0.5 mm in size).

**Alteration intensity:**

This sample is strongly altered, the serpentine present on the fractured of olivine and the cleavage of pyroxene. Tremolite altered or pseudomorphosed the phenocrysts of pyroxene. Most of pyroxenes are pseudomorphosed by serpentine and they are rimmed by tremolite. The iron oxides/opaque altered or pseudomorphosed the olivine to form the reddish brown color. The veins or veinlets of serpentine and tremolite present to cut the rock in the some area of thin section.

**Mineral/rock paragenesis:**

The present of secondary minerals assemblage suggests to hydrothermal alteration of serpentinization type (hydrothermal metamorphism) and then they are filled by the serpentine and tremolite.

Mineral assemblages	Primary	Secondary
Olivine	*****	
Orthopyroxene	*****	
Clinopyroxene	*****	
Spinel	*****	
Serpentine		*****( <i>vein</i> )
Iron oxide/Opaque		*****
Tremolite		*****( <i>vein</i> )

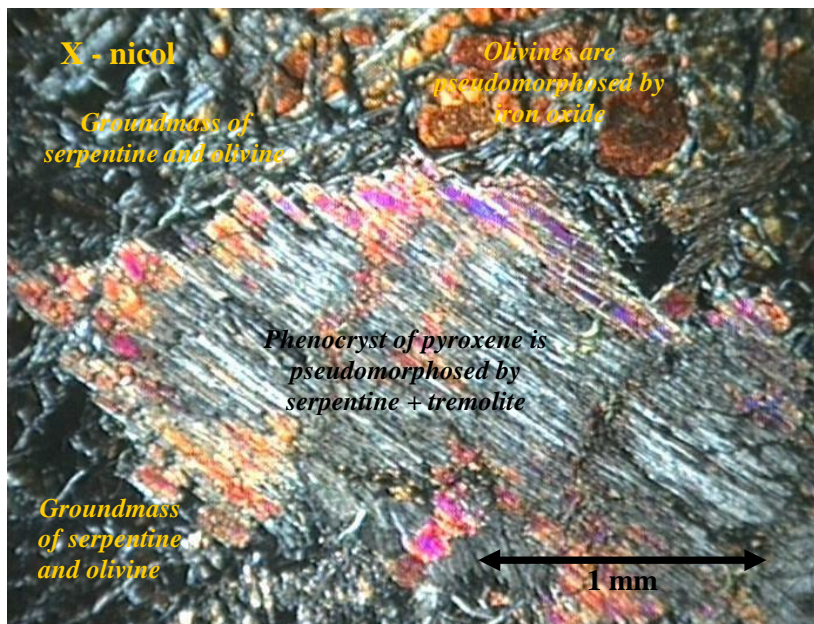
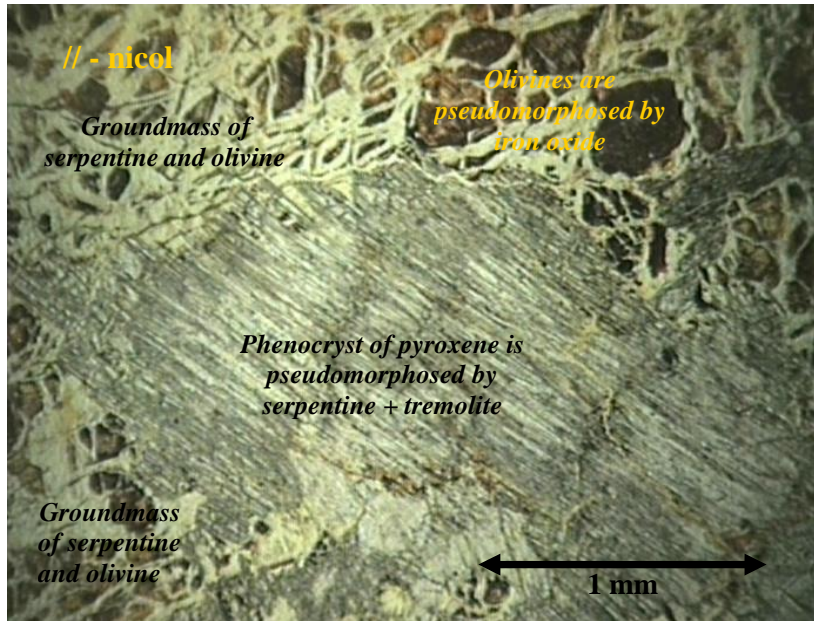
**Remark:**

The rock sample represented the intensely deformation process which are observed as the intensely fracturing of olivine and the undulatory extinction of olivine and pyroxene.

**Rock name: Serpentinized of Lherzolite Peridotite**

## PHOTOMICROGRAPH

Sample no.: C2139xx



The photomicrograph exhibits the likely of porphyroblastic texture, consisting of pyroxene phenocryst embedded in the fine grains groundmass of serpentine and olivine. The phenocryst of pyroxene is pseudomorphosed by serpentine and tremolite. Most of olivine altered into the secondary mineral of serpentine with the core of iron oxide/opaque (reddish brown color).

## PETROGRAPHIC DESCRIPTION

Sample no.: C2103xx

Mineralogy: 100%

**Primary:**

Olivine	36.2%
Orthopyroxene	11.5%
Clinopyroxene	6.5%
Spinel	1.0%
Sub-total	55.2%

**Secondary:**

Serpentine	42.5%
Opaque	1.5%
Carbonate	0.8%
Sub-total	44.8%

**Texture and structure:**

The section exhibits holocrystalline allotriomorphic texture, consisting of olivine, pyroxene, and spinel in the some area of thin section. The intensively fracturing and alteration of olivine into serpentine formed the likely of porphyroblastic texture, consisting of pyroxene phenocrysts, anhedral in shape, and 0.8 – 3.0 mm in size, embedded in the groundmass of serpentine and olivine (< 0.5 mm in size). The inclusion of olivine on the pyroxene formed the poikilitic texture. Some phenocrysts of orthopyroxene has inclusions of fine grains clinopyroxene in their cleavage to form exsolution lamellae texture.

**Alteration intensity:**

This sample is medium altered, the serpentine ± opaque present on the fractured of olivine and the cleavage of pyroxene. Some pyroxenes are pseudomorphosed by serpentine. The veins or veinlets of serpentine and carbonate present to cut the rock in the some area of thin section.

**Mineral/rock paragenesis:**

The present of secondary minerals assemblage suggests to hydrothermal alteration of serpentinization type (hydrothermal metamorphism) and then they are filled by the serpentine and carbonate.

Mineral assemblages	Primary	Secondary
Olivine	*****	
Orthopyroxene	*****	
Clinopyroxene	*****	
Spinel	*****	
Serpentine		*****( <i>vein</i> )
Opaque		*****
Carbonate		*****( <i>vein</i> )

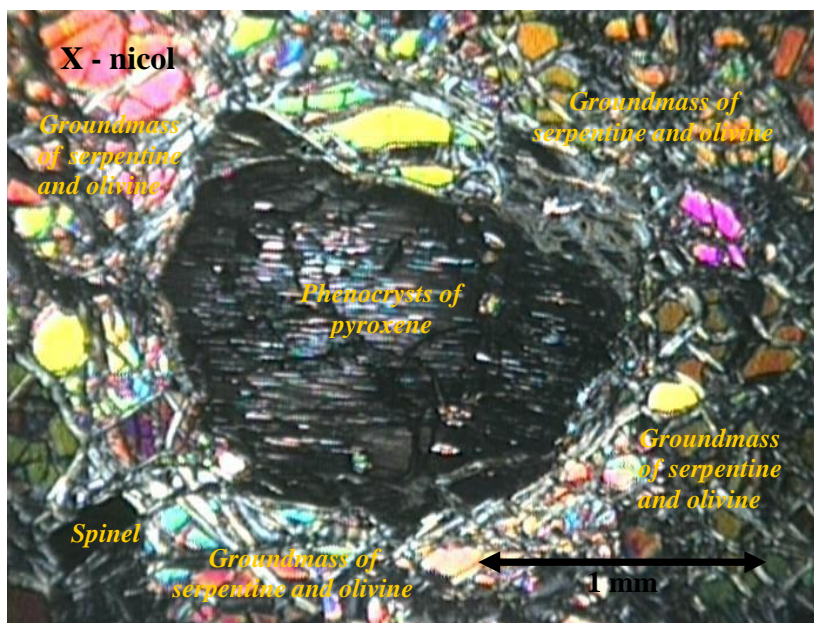
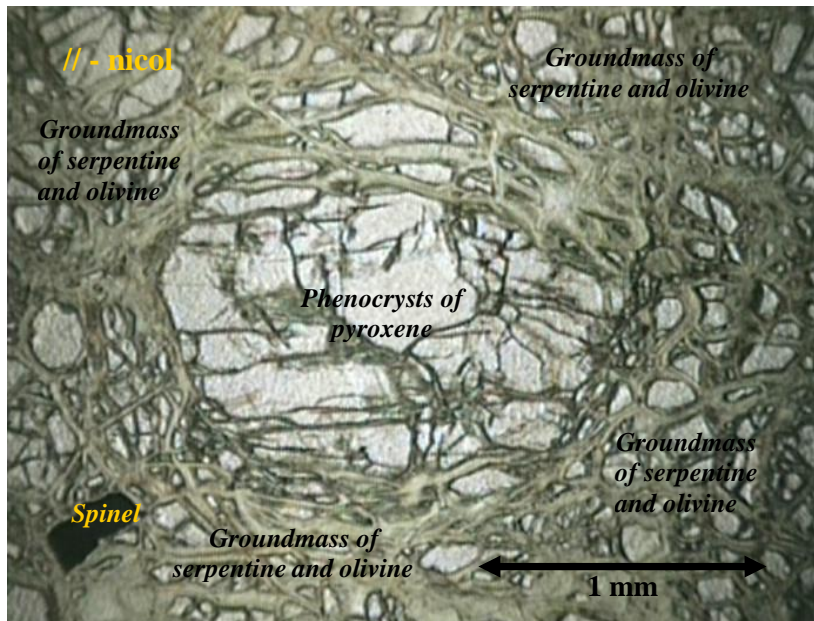
**Remark:**

The rock sample represented the intensely deformation process which are observed as the intensely fracturing of olivine and the undulatory extinction of olivine and pyroxene.

**Rock name: Serpentinized of Lherzolite Peridotite ( Hz )**

## PHOTOMICROGRAPH

Sample no.: C2103xx



The photomicrograph exhibits the likely of porphyroblastic texture, consisting of pyroxene phenocryst embedded in the fine grains groundmass of olivine. The pyroxene shows the exsolution lamellae and the undulatory extinction. The olivine shows the intensively fracturing and then they altered into the secondary mineral of serpentine.



## PETROGRAPHIC DESCRIPTION

Sample no.: C2103xx

**Mineralogy: 100%**

**Primary:**

Olivine	40.0%
Orthopyroxene	13.2%
Clinopyroxene	4.3%
Spinel	1.5%
Sub-total	59.0%

**Secondary:**

Serpentine	36.2%
Carbonate	2.8%
Iron oxide/Opaque	2.0%
Sub-total	41.0%

**Texture and structure:**

The section exhibits holocrystalline allotriomorphic texture, consisting of olivine, pyroxene, and spinel. The intensively fracturing and alteration of olivine into serpentine formed the likely of porphyroblastic texture, consisting of pyroxene phenocrysts, anhedral in shape, and 1.0 – 4.5 mm in size, embedded in the groundmass of serpentine and olivine (< 0.5 mm in size). The inclusion of olivine on the pyroxene formed the poikilitic texture. Some phenocrysts of orthopyroxene has inclusions of fine grains clinopyroxene in their cleavage to form exsolution lamellae texture.

**Alteration intensity:**

This sample is medium altered, the serpentine and opaque present on the fractured of olivine and the cleavage of pyroxene. Some pyroxenes are pseudomorphosed by serpentine. The veins or veinlets of serpentine and carbonate ± opaque present to cut the rock in the some area of thin section.

**Mineral/rock paragenesis:**

The present of secondary minerals assemblage suggests to hydrothermal alteration of serpentinization type (hydrothermal metamorphism) and then they are filled by the serpentine and carbonate ± opaque.

Mineral assemblages	Primary	Secondary
Olivine	*****	
Orthopyroxene	*****	
Clinopyroxene	*****	
Spinel	*****	
Serpentine		*****( <i>vein</i> )
Carbonate		*****( <i>vein</i> )
Iron oxide/Opaque		*****( <i>vein</i> )

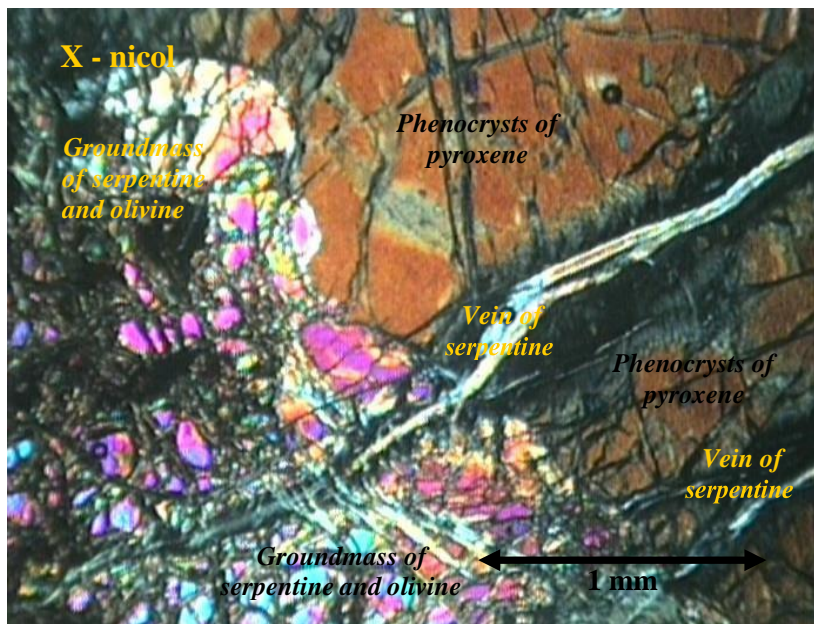
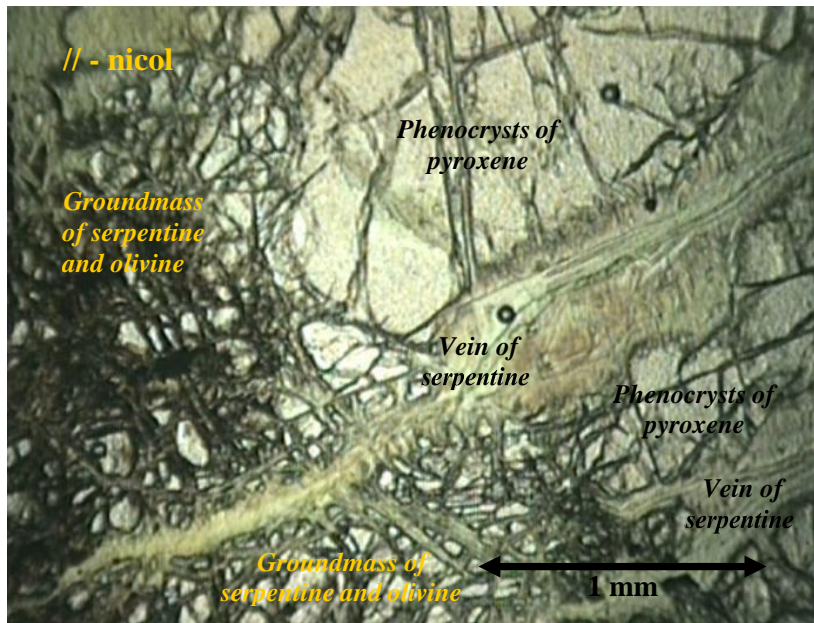
**Remark:**

The rock sample represented the intensely deformation process which are observed as the intensely fracturing of olivine and the undulatory extinction of olivine and pyroxene.

**Rock name: Serpentinized of Lherzolite Peridotite ( HZ )**

## PHOTOMICROGRAPH

Sample no.: C2103xx



The photomicrograph exhibits the likely of porphyroblastic texture, consisting of pyroxene phenocryst embedded in the fine grains groundmass of serpentine and olivine. The phenocryst of pyroxene shows the undulatory extinction. The rock is cut by veins of serpentine.