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Preliminary Report of Porphyry Cu Exploration at Central Province of Iran

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Abstract

Dalli mineralized area is located in Markazi province, about 200 km SW of Tehran within the Urumieh–Dokhtar Magmatic Arc. This mineralized area is hosted by andesite to dacite rocks that intruded into the volcanic rocks dominantly in andesitic composition and pyroclastics in miocene-pliocene age. In this area, igneous rocks have porphyritic texture and are composed mainly of biotite, amphibole, plagioclase, and quartz with variable amount of opaque minerals including dominantly pyrite, chalcopyrite and magnetite and secondary minerals such as epidote, calcite, chlorite, sericite. Geological and geochemical investigations show that mineralization in this area is of gold – rich porphyry Copper type. The content of Cu and Au is high which is more than 0.75w% and about 1.2 ppm respectively. The mineralization is associated by felsic porphyritic igneous rocks and hydrothermal alteration such as potassic (secondary biotite, magnetite, and secondary k-feldspar), phyllic (sericite, quartz, and pyrite) and propylitic (calcite, chlorite, epidote...). The content of magnetite and stockworks of quartz – magnetite is high. These evidences can prove that Dalli mineralized area is a porphyry copper system.

Keywords: Copper, Porphyry, Hydrothermal alteration.

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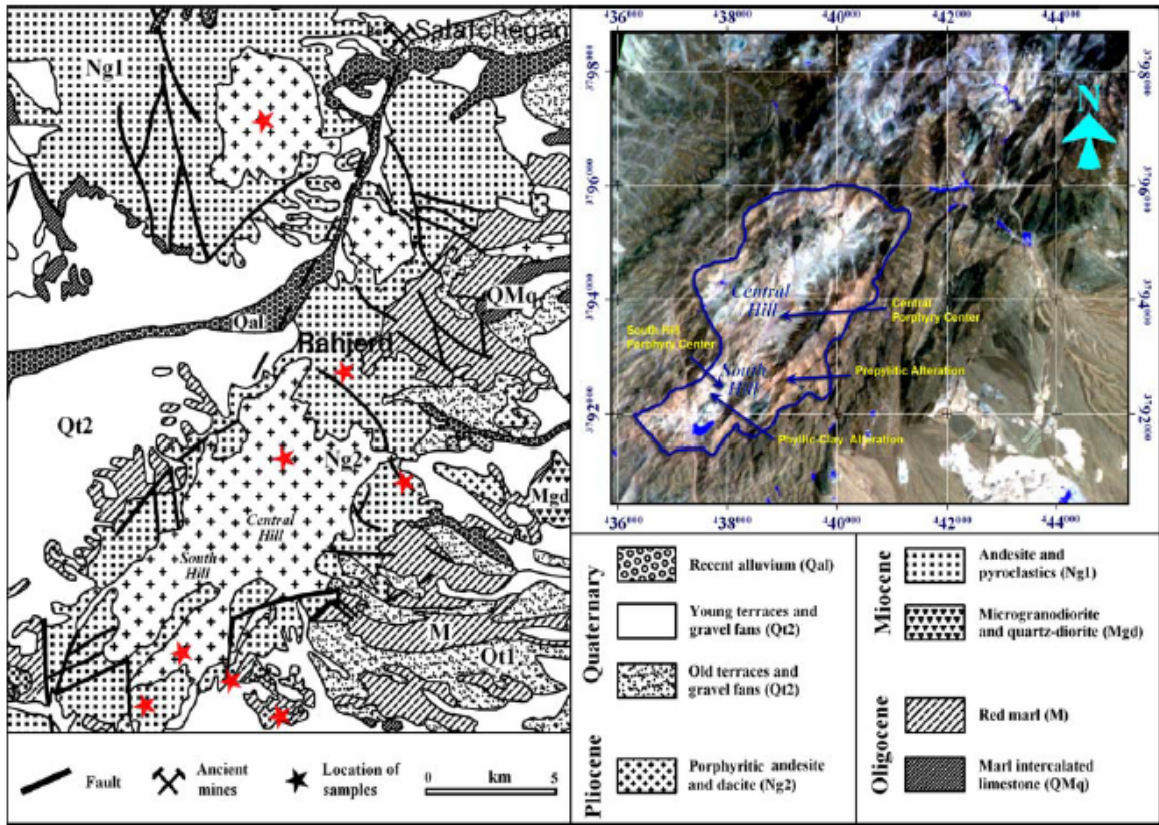
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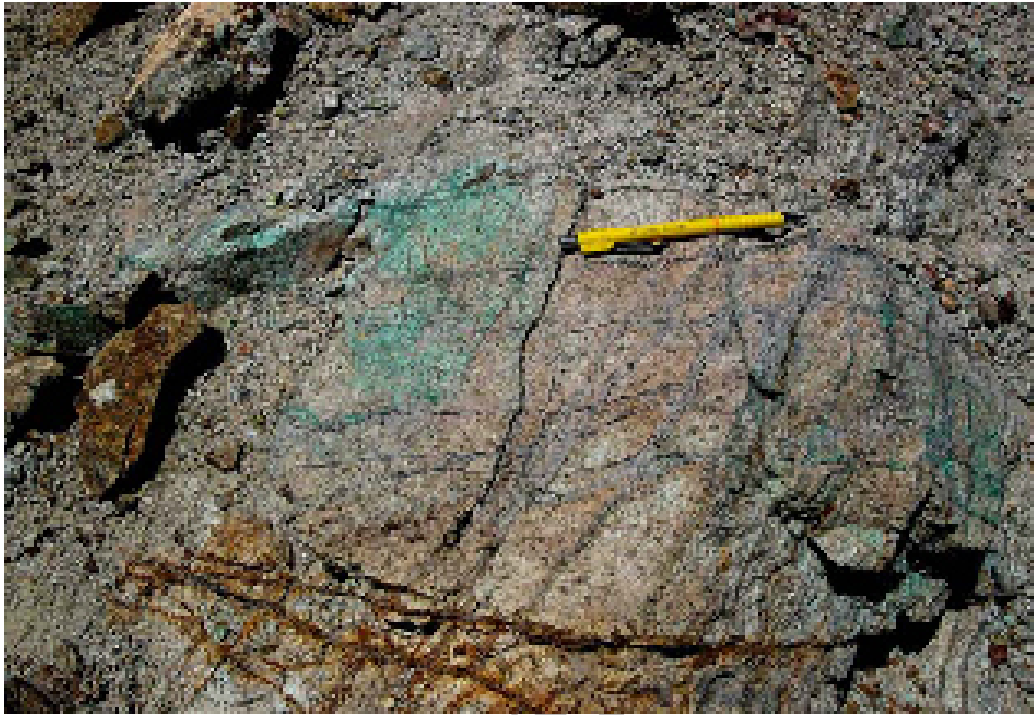
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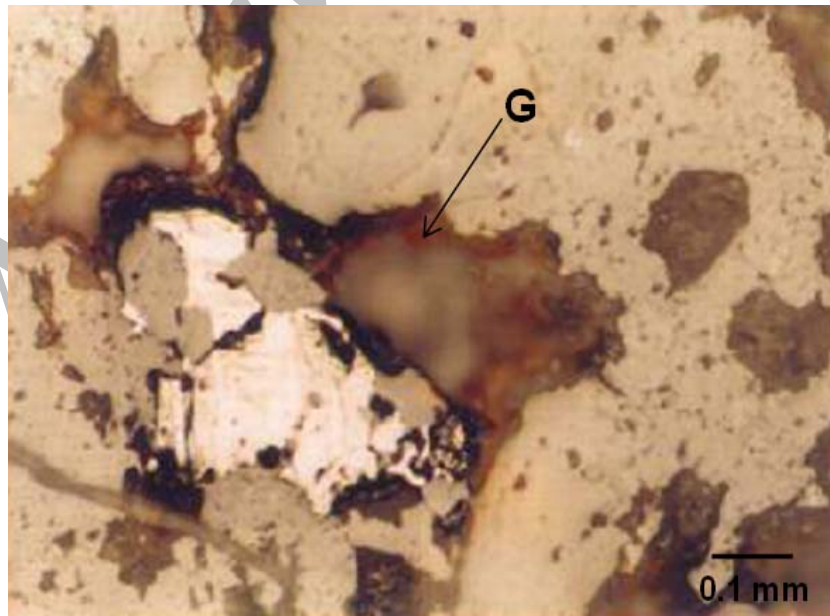
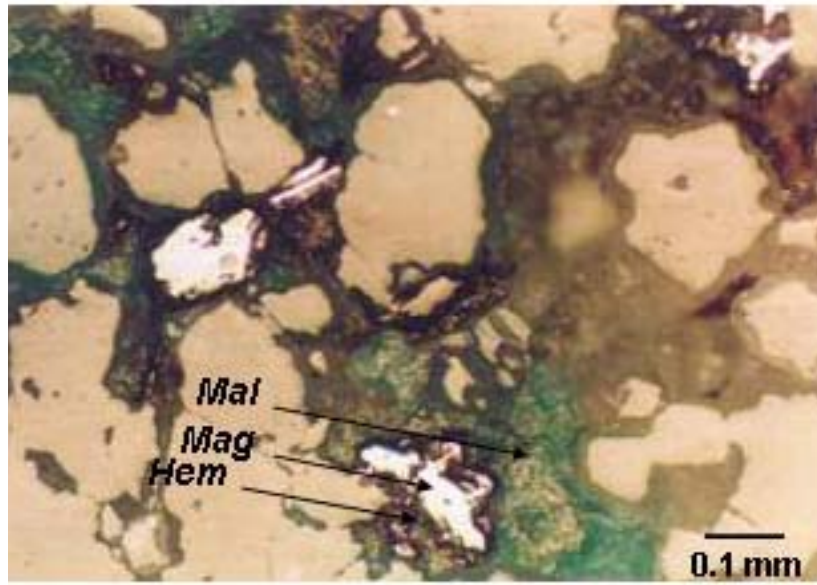
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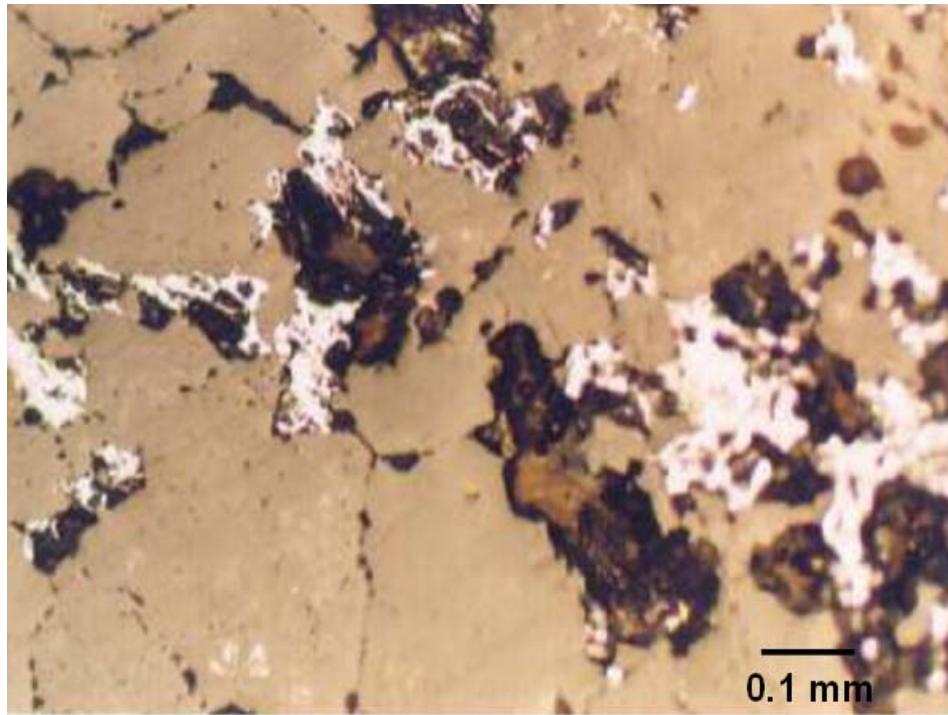
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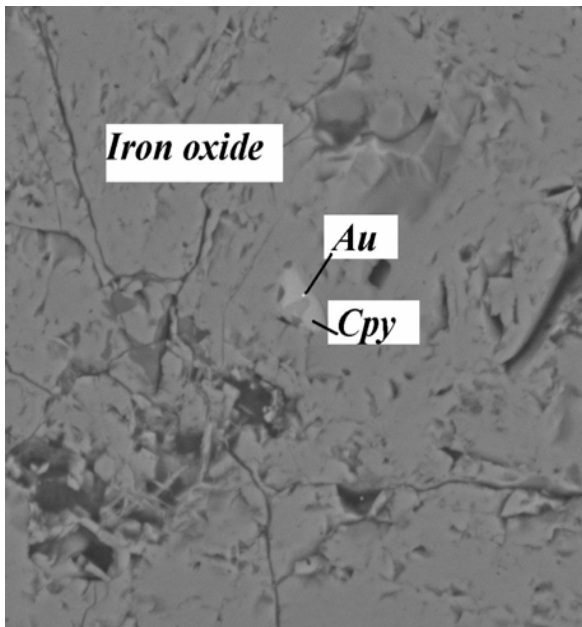
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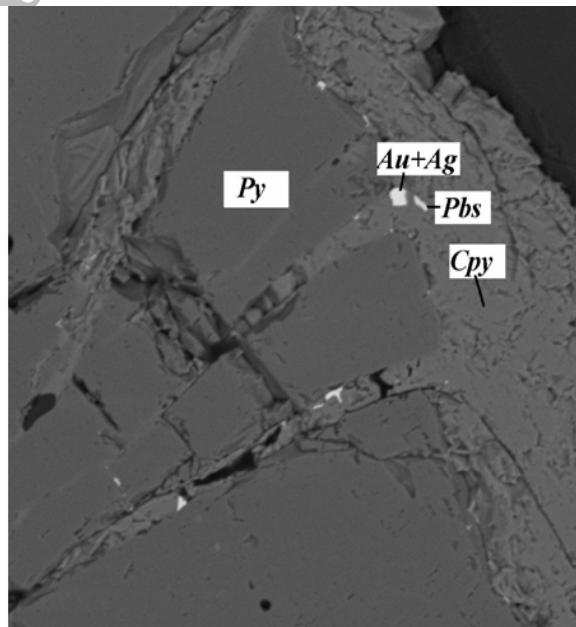


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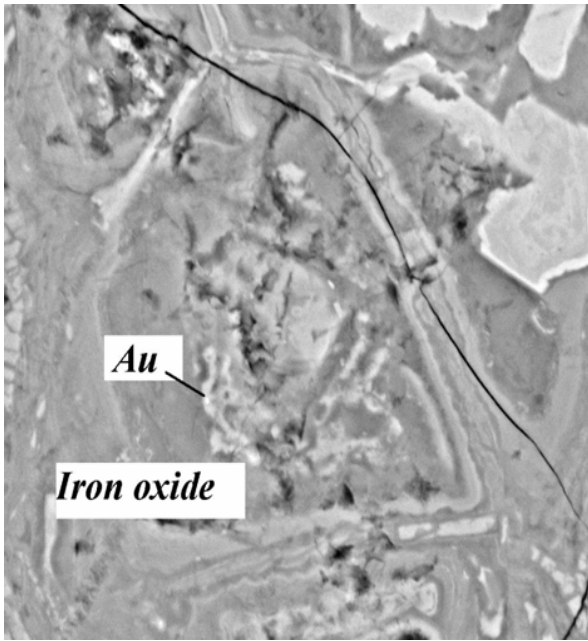


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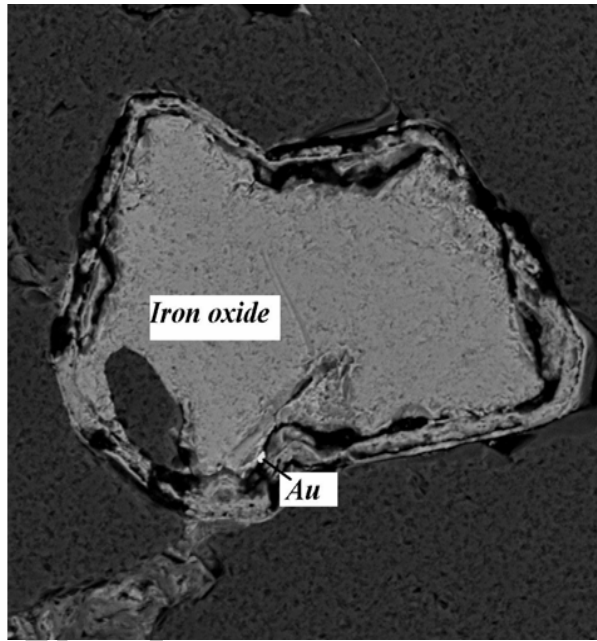
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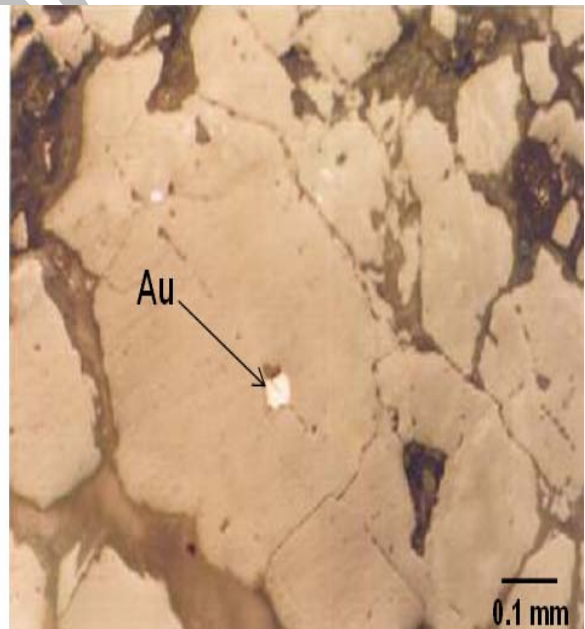
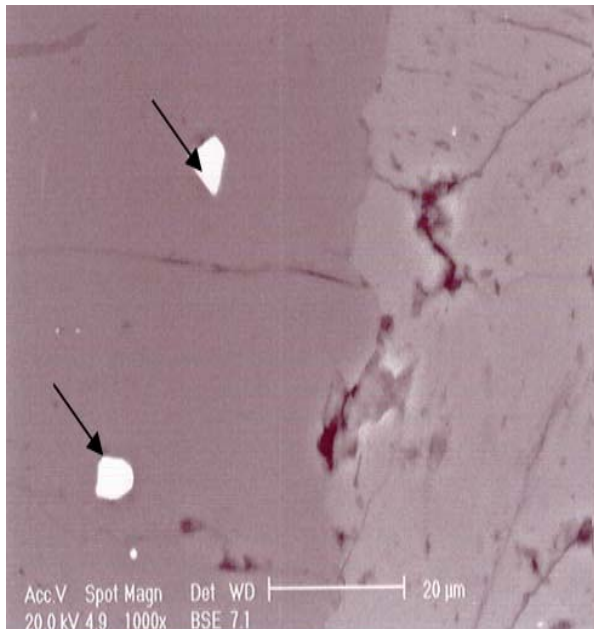
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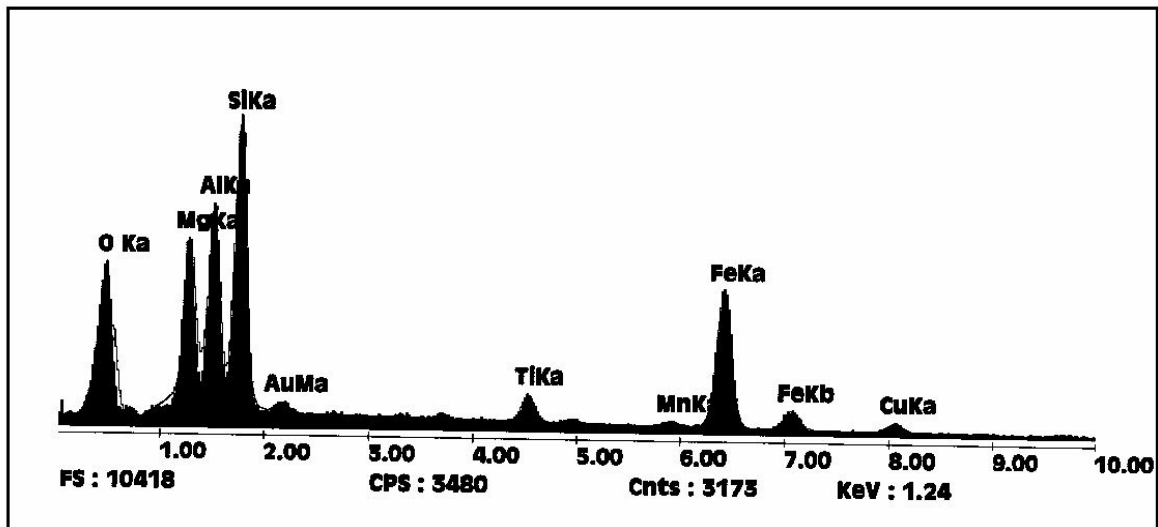
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O Si Al Au Cu

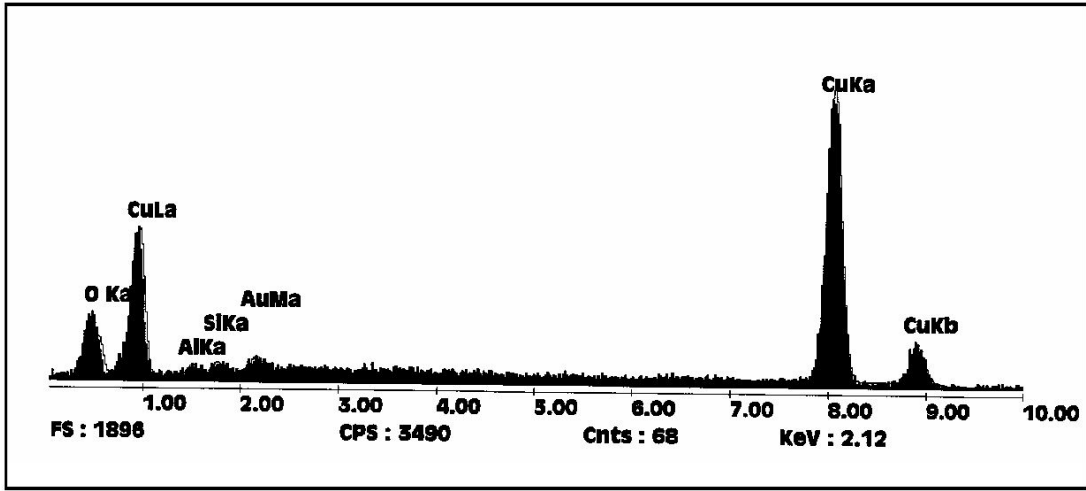
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		K	
35/407	11/076	0/1108	O K
55/121	68/481	0/6848	Cu L
2/244	1/184	0/0118	Al K
2/597	1/426	0/0143	Si K
4/63	17/833	0/1783	Au M
100	100		Total

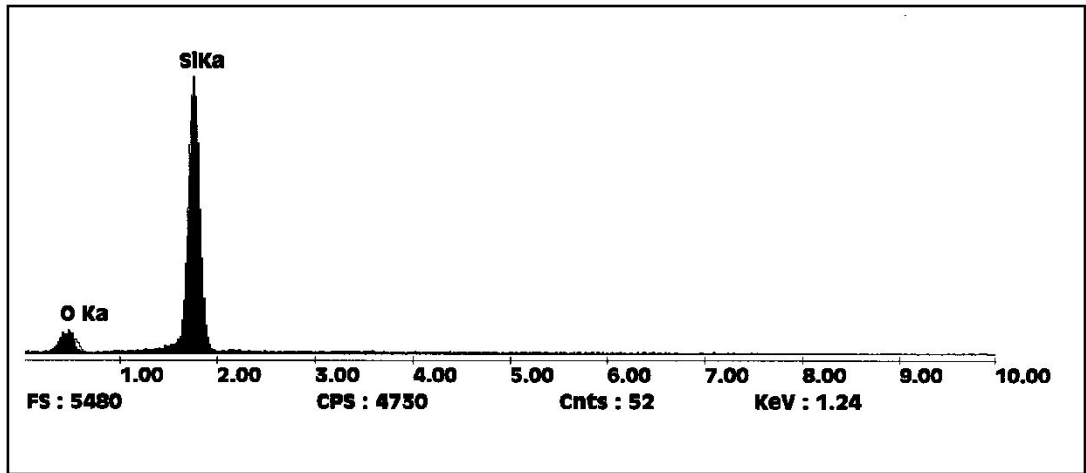


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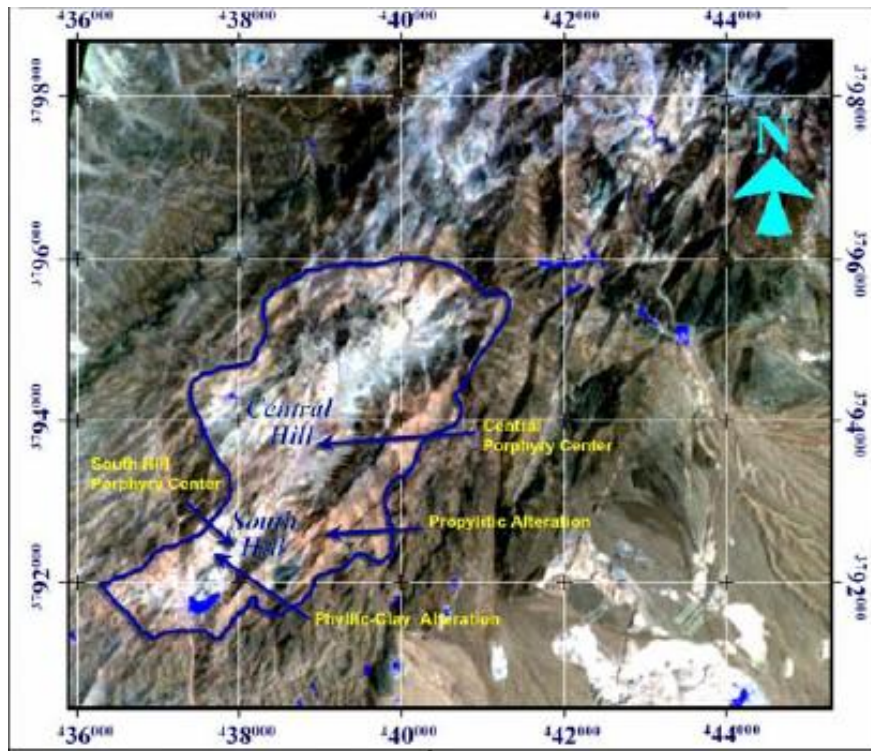


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ICP –MS

Au/Mo Cu/Au, Cu/Mo

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 ppm ppm

Sample No.	Cu ppm	Au ppm	Ag ppm	Mo ppm
Detection	0.2	1	0.01	0.1
DL-1	4470	0.69	2.73	2.3
DL-2	33100	2.04	0.96	1.6
DL-3	774	1.86	1.43	5.3
DL-4	31100	1.25	2.32	8.8
DL-5	7520	1.94	2.29	1.3

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Sample No.	Cu ppm	Au ppm	Ag ppm	Mo ppm
Detection	0.2	1	0.01	0.1
DL-6	505	0.24	0.19	3.5
DL-7	18800	0.52	0.92	2.9
DL-8	24300	0.65	0.91	3.5
DL-9	391	1.20	0.92	1.8

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Sample No.	Cu ppm	Au ppb	Ag ppm	Mo ppm
Detection	0.2	1	0.01	0.1
DL-015	1320	430	0.36	3.7
DL-016	3260	1080	0.95	2.8
DL-017	6090	2630	2.1	27.9

Sample No.	Cu ppm	Au ppb	Ag ppm	Mo ppm
Detection	0.2	1	0.01	0.1
DL-018	2210	270	0.26	8

Sample No.	ppm Cu	ppb Au	ppm Ag	ppm Mo
Detection	0.2	1	0.01	0.1
DL-019	163	30	0.43	47.9

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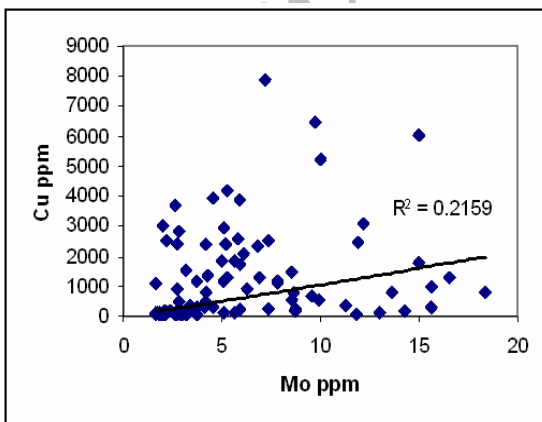
Sample No.	Cu ppm	Au ppb	Ag ppm	Mo ppm
Detection	0.2	1	0.01	0.1
DL-021	1380	720	0.32	9.4
DL-020	436	230	0/5	338

Sample- No	Au-ppb	Cu-ppm	Mo- ppm
SRV-1	179	261	7.4
SRV-2	11	85.7	1.9
SRV-3	65	523	4.2
SRV-6	6	33.1	1.8
SRV-7	6	42	1.6
SRV-8	3	31.5	3.2
SRV-10	68	52.1	2.9
SRV-11	18	73.1	1.8
SRV-12	11	121	2.6
SRV-13	125	177	14.3
SRV-14	488	355	11.3
SRV-15	12	62.8	2.1
SRV-16	4	52.6	2.1
SRV-17	8	51	2
SRV-18	5	59.9	2.6
SRV-20	64	389	3.4
SRV-21	26	75	3
SRV-22	69	151	5.6
SRV-23	11	78.3	1.6
SRV-24	23	118	2.1
SRV-25	33	335	4.5
SRV-26	985	3100	12.2
SRV-27	54	932	2.7
SRV-30	62	332	15.6

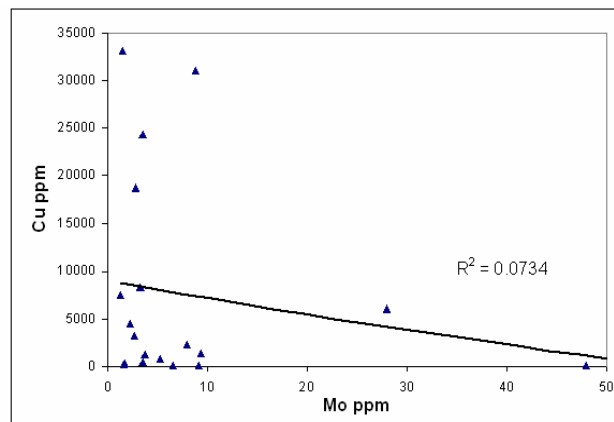
Sample- No	Au-ppb	Cu-ppm	Mo- ppm
SRV-31	11	131	13
SRV-32	7	55.4	2.7
SRV-33	27	163	8.7
SRV-34	110	698	9.5
SRV-36	283	463	2.8
SRV-38	1680	5230	10
SRV-40	1210	6480	9.7
SRV-41	2670	7880	7.2
SRV-43	505	1630	28.9
SRV-44	514	1270	16.5
SRV-46	22	114	1.8
SRV-47	18	163	3.5
SRV-48	171	945	6.3
SRV-50	909	2420	5.2
SRV-51	722	1150	7.8
SRV-53	3410	2470	11.9
SRV-54	1760	6030	15
SRV-56	585	1160	5.1
SRV-58	73	280	4.1
SRV-59	52	781	18.4
SRV-60	46	803	13.6
SRV-63	483	1360	4.3
SRV-65	1070	1480	8.5
SRV-67	1010	4200	5.3
SRV-68	725	3950	4.5
SRV-70	424	2090	6.1

Sample-No	Au-ppb	Cu-ppm	Mo-ppm
SRV-72	20	185	3.2
SRV-73	13	116	1.7
SRV-74	35	163	2.1
SRV-75	32	217	3.6
SRV-78	510	3910	5.9
SRV-80	1280	819	8.6
SRV-81	1120	2540	7.4
SRV-82	491	2560	5.8
SRV-85	57	292	3.7
SRV-87	80	686	23.8
SRV-88	62	535	8.5
SRV-90	686	1270	5.3
SRV-91	1270	2360	6.8
SRV-92	1760	984	15.6
SRV-94	1390	1130	7.8
SRV-96	456	1270	6.9
SRV-98	44	236	5.9
SRV-99	654	1560	3.2
SRV-100	840	2550	2.2
SRV-102	2010	3690	2.6
SRV-103	907	2410	2.7
SRV-105	656	2380	4.2
SRV-106	29	194	2.4
SRV-107	14	177	3.5

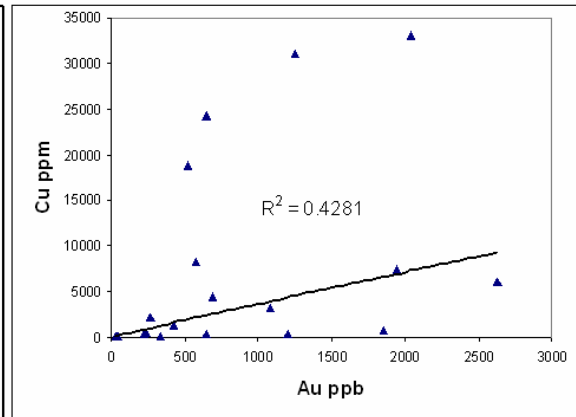
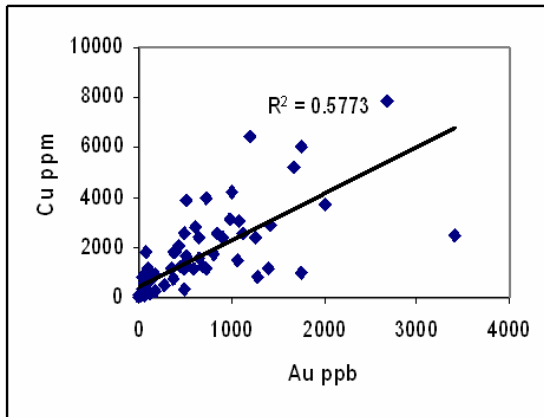
Sample-No	Au-ppb	Cu-ppm	Mo-ppm
SRV-109	811	1700	5.9
SRV-108	382	783	4.2
SRV-112	1090	3020	2
SRV-114	492	1190	82.8
SRV-115	51	234	8.7
SRV-116	29	153	5.1
SRV-117	65	539	9.9
SRV-118	98	1130	1.6
SRV-119	24	105	1.6
SRV-4	5	48.7	3.7
SRV-5	23	62.8	11.8
SRV-9	10	46.2	2.6
SRV-19	8	71	2
SRV-28	77	1800	15
SRV-45	19	137	1.7
SRV-57	361	1150	3.7
SRV-61	12	191	3.2
SRV-64	380	1820	5
SRV-76	390	1840	5.6
SRV-84	1420	2930	5.1
SRV-86	43	344	33.3
SRV-97	53	236	2.8
SRV-110	608	2830	2.8



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Cu-Mo



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Cu-Au :
Au-Mo :

	Au	As	Co	Cr	Cu	Fe	Mn	Mo	Ni	Pb	Zn
Au	1.00										
As	-0.34	1.00									
Co	-0.48	0.32	1.00								
Cr	-0.38	0.38	0.31	1.00							
Cu	0.87	-0.45	-0.44	-0.45	1.00						
Fe	0.22	-0.30	0.02	-0.16	0.35	1.00					
Mn	-0.43	0.38	0.66	0.56	-0.48	0.05	1.00				
Mo	0.07	-0.27	0.02	-0.12	0.17	0.09	-0.26	1.00			
Ni	-0.50	0.53	0.39	0.82	-0.60	-0.35	0.72	-0.31	1.00		
Pb	-0.38	0.27	0.44	-0.12	-0.41	0.05	0.21	0.03	-0.03	1.00	
Zn	-0.34	0.10	0.54	0.05	-0.25	0.32	0.54	-0.11	0.09	0.56	1.00

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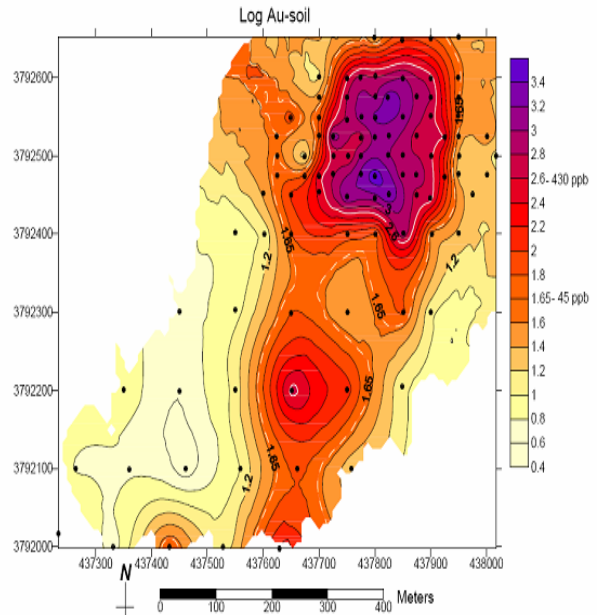
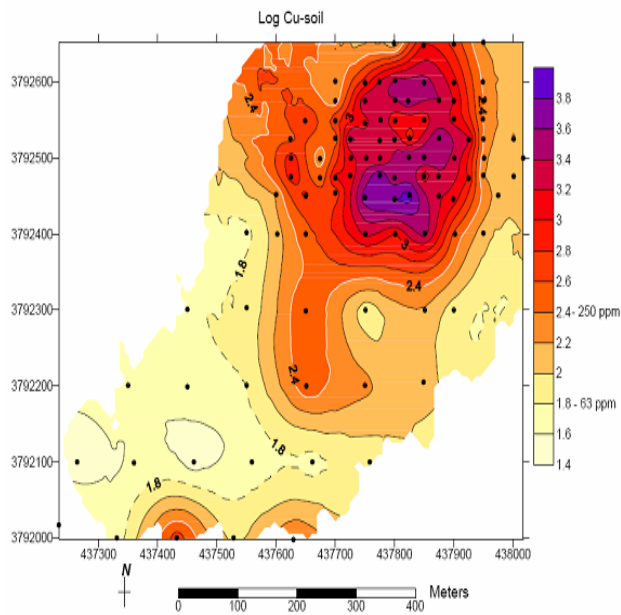
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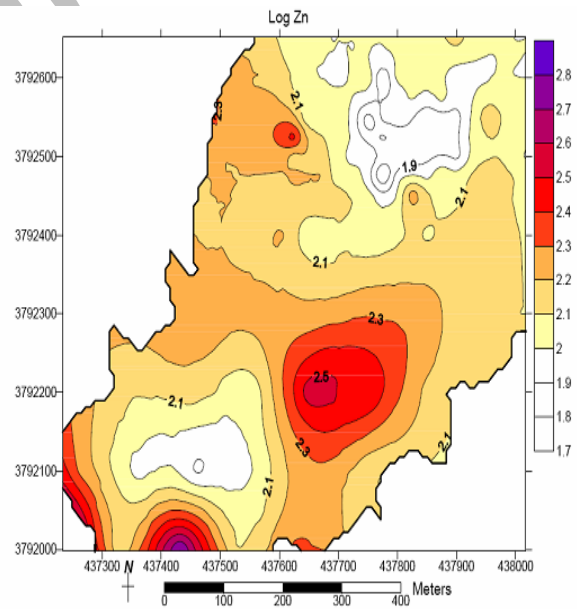
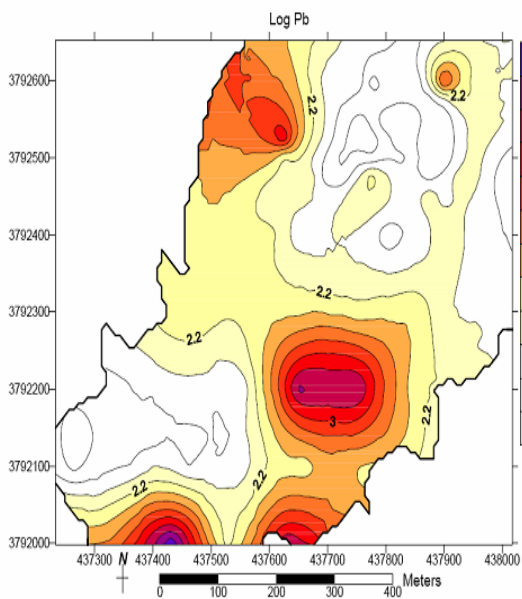
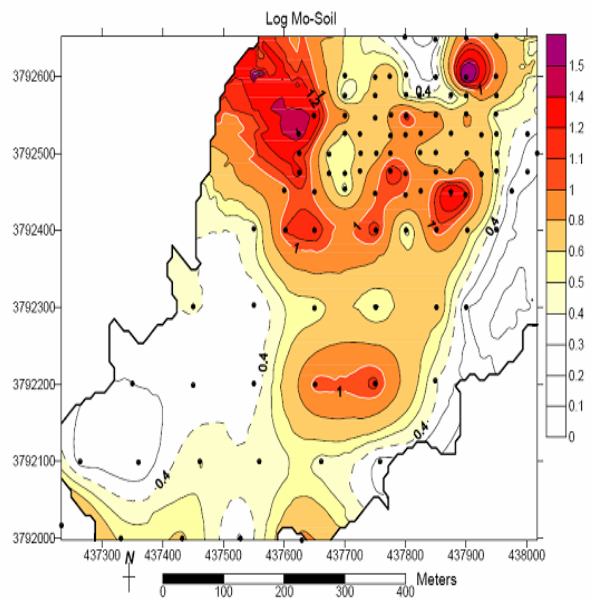
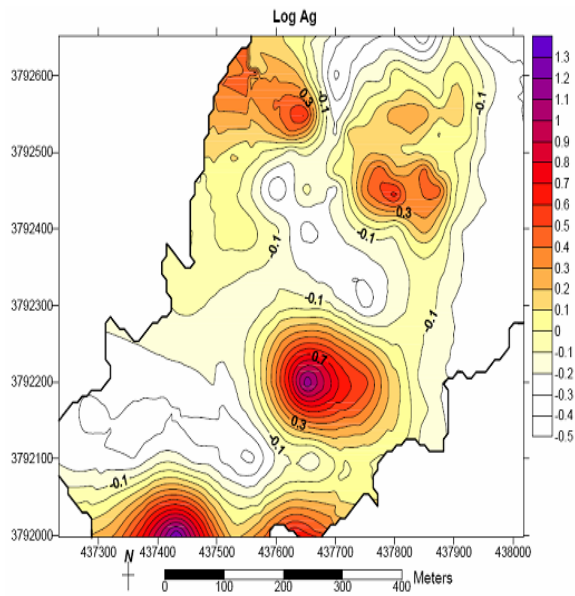
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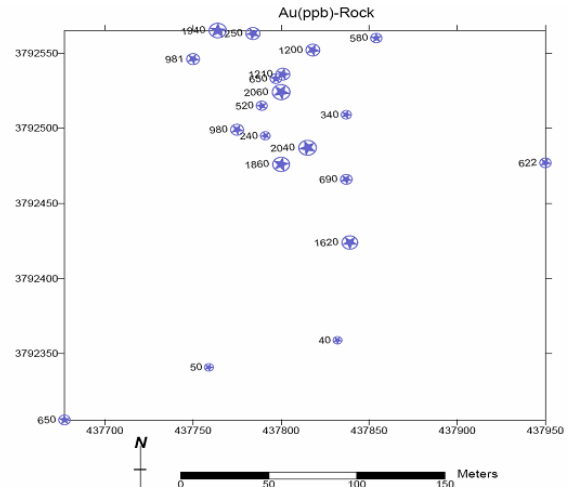
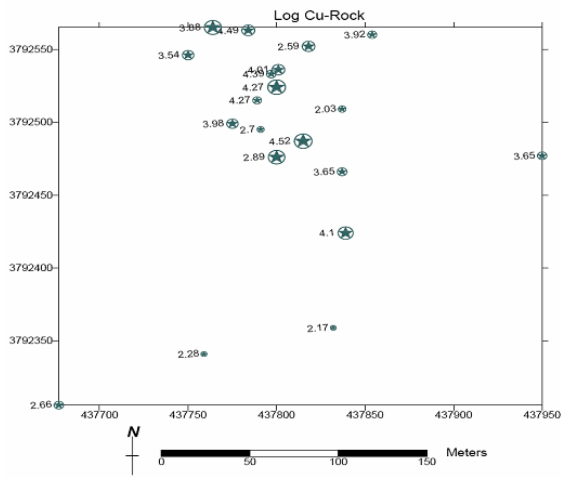
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