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The Univariate And Multivariate Statistical Studies For Detection Of Metal Anomalies In The 1:100000 Dolat-Abad Sheet

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Abstract

In Geochemical exploration, preparing of geochemical maps in 1:100000 scale map is a common method to recognize hopeful potential in unknown areas. In this paper, with explanation and analysis of systematic sampling results of alluvium-diluvium from 1:100000 Dolat-Abad sheet, mining potential areas have been recognized. 811 samples, from this sheet analyzed for 43 elements and 20 of them used to analyze in this study. Using univariate and multivariate statistical methods and with help of geological information, at least nine hopeful zones have been recognized. At last, detailed geochemical exploration recommended, base of this study result.

Keywords: univariate and multivariate statistical methods, Dolat-Abad, Cluster analysis, variance analysis.

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... Auto cad ,Surfer , spss

28°00' - 28°30' 56°30' - 57°00'

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Al₂O₃ ,Fe₂O₃ ,Cao ,Mgo ,K₂o ,Na₂o ,Mno₂ ,Tio₂ ,P₂o₅ ,Ag B ,Ba ,Bi :

.,Co ,Cr ,Cu ,Ni ,Pb ,Sn ,Sr ,V ,Zn

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ppm ppm ppm Ni
ppm / ppm
Ni []
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Excel

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Box Plots

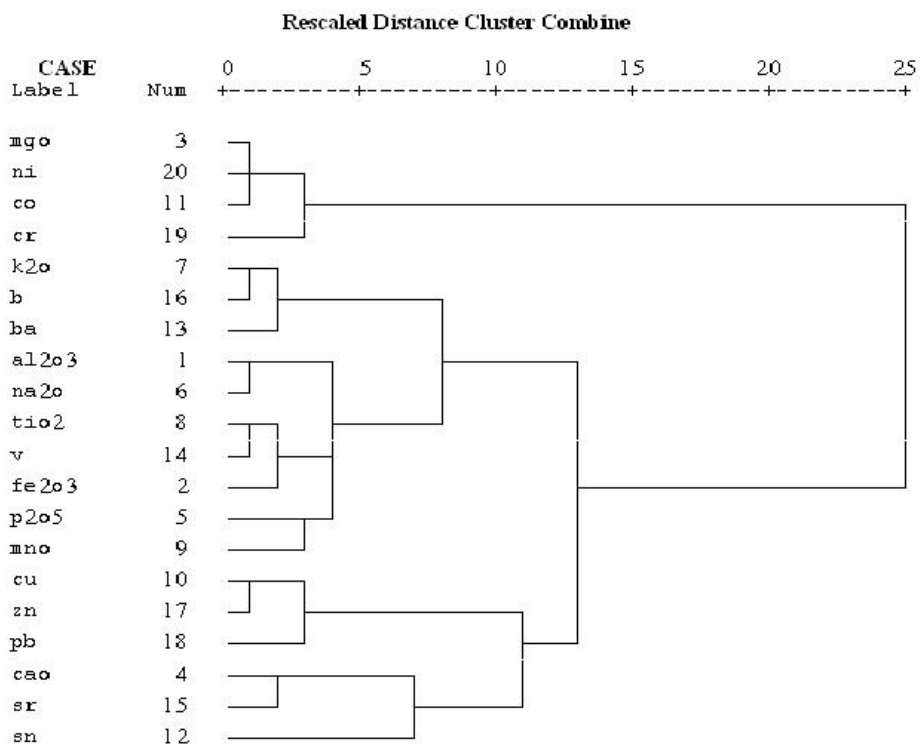
Box and Whisker

	N	Range	Minimu	Maximu	Mean		Std.	Variance	Skewness		Kurtosis	
	Stat	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
al2o3	811	46.90	2.10	49.00	11.5367	.14382	4.09570	16.775	1.723	.086	10.454	.171
fe2o3	811	25.70	1.30	27.00	7.1187	.09934	2.82907	8.004	.926	.086	3.267	.171
cao	811	26.30	1.90	28.20	10.5779	.14878	4.23709	17.953	.631	.086	.435	.171
mgo	811	9.90	1.10	11.00	6.2142	.10826	3.08292	9.504	.551	.086	-1.142	.171
ko	811	4.75	.05	4.80	1.3850	.02467	.70250	.494	1.195	.086	1.967	.171
na2o	811	3.99	.11	4.10	1.4285	.01876	.53430	.285	.566	.086	1.677	.171
mno	811	1.27	.03	1.30	.1590	.00299	.08503	.007	5.222	.086	53.762	.171
tio2	811	2.00	.10	2.10	.7561	.01050	.29914	.089	1.070	.086	2.060	.171
p2o5	811	.88	.02	.90	.0992	.00179	.05090	.003	5.304	.086	75.078	.171
ag	811	2.97	.03	3.00	.1243	.01098	.31277	.098	3.799	.086	17.364	.171
b	811	120.30	4.70	125.00	31.2903	.59186	16.85510	284.095	1.366	.086	2.733	.171
ba	811	662.00	28.00	690.00	217.8039	2.58740	73.68411	5429.348	.692	.086	2.525	.171
co	811	196.00	14.00	210.00	42.5068	.70533	20.08638	403.463	2.003	.086	8.298	.171
cr	811	1285.00	48.00	1333.00	724.1566	13.72559	390.87824	152785.796	.445	.086	-1.138	.171
ni	811	2332.00	-999.00	1333.00	357.6621	10.29920	293.30124	86025.619	1.628	.086	3.348	.171
pb	811	435.41	4.59	440.00	16.3257	.68040	19.37637	375.444	17.373	.086	347.291	.171
sn	271	48.33	5.67	54.00	11.8799	.52223	8.59698	73.908	1.797	.148	3.773	.295
sr	271	50.33	5.67	56.00	11.6907	.54978	9.05056	81.913	2.243	.148	6.246	.295
v	270	1059.00	-999.00	60.00	7.6168	3.78133	62.13352	3860.574	-15.915	.148	258.843	.295
zn	811	1299.00	34.00	1333.00	119.6819	2.41523	68.78106	4730.834	8.134	.086	123.878	.171
cu	811	1328.00	5.00	1333.00	56.4365	1.83658	52.30213	2735.513	18.179	.086	438.903	.171
Valid N (listwise)	270											

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Dendrogram using Ward Method

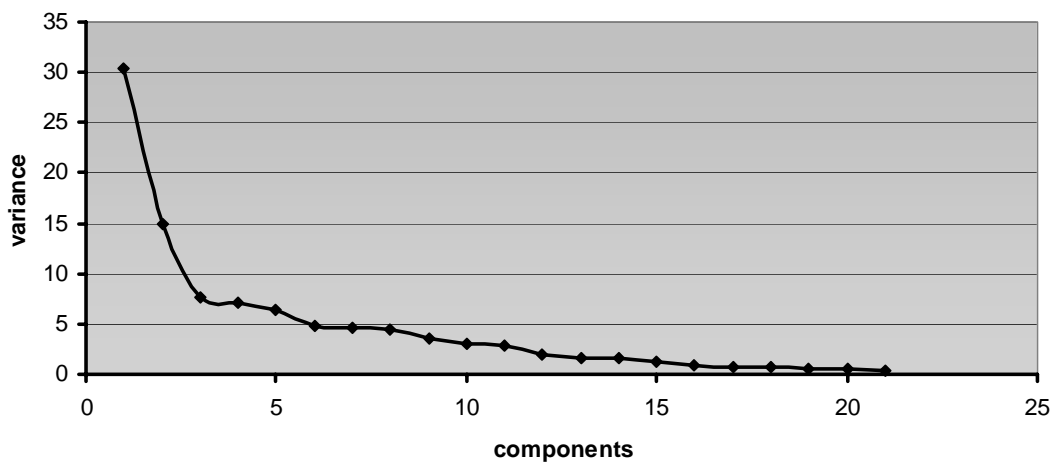


(Base metal)

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$V, Fe_2O_3, MnO, TiO_2, P_2O_5$ F1
 Mn, Fe, V, Ti
 Mn^{4+}, Fe^{3+} V^{3+}, Fe^{3+}, Ti^{4+}
 () P_2O_5
 P_2O_5
 F2 MgO, Co, Cr, Ni F2

:

F2

ZN ,Pb ,Cu

F3

CM

Cao ,B ,Ba ,Sr

F4

Cao

Ba ,Sr

Cr ,Co ,Ni ,V

(Base metals)

CaO

Sr ,B ,Ba

TiO₂ ,Fe₂O₃

Cu , V ,Cr ,Co ,Ni

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[4] Cheng, Q; Unterberg, F: 1996 : *Spatial Analysis Method for Geochemical Anomaly Separation* : Journal of Geochemical Exploration : 56,P 183-195