Instituto Tecnológico
GeoMinero de España

INVESTIGACIÓN DE MINERALES DENSOS
GALICIA

INVESTIGACIONES GEOLÓGICO-MINERAS EN EL SUR DE LA PROVINCIA DE OURENSE

A N E X O - III

1994

MINISTERIO DE INDUSTRIA Y ENERGIA

INVESTIGACIONES GEOLÓGICO-MINERAS EN EL SUR DE LA PROVINCIA DE OURENSE

ANEXO 3: ANÁLISIS ESTADÍSTICO DE LOS RESULTADOS DE LAS CAMPAÑAS DE GEOQUÍMICA DE SUELOS

Este trabajo fue realizado por el Instituto Tecnológico Geominero de España (I.T.G.E.), como trabajo por Administración.

EQUIPO DE TRABAJO:

Ángel Ferrero Arias (geólogo, I.T.G.E): Realizó este trabajo, con datos inéditos del Plan de Exploración Sistemática (P.E.S.) facilitados por Rogelio Urbano (ing. de minas, I.T.G.E.).

Marzo de 1994

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1. ZONA MOSTEIRO

1.1. PRIMERA FASE

1.1.1. RESULTADOS DE ANÁLISIS

Los resultados de análisis obtenidos para los elementos, y que se recogen más adelante, tienen los siguientes límites inferiores (en ppm) de dosibilidad:

NI	Cr	Co	Sn	W	Mo	Nb	P	V	Y	Be	B
10	10	10	20	10	2	10	10	10	5	1	10

F	Fe(*)	Mn	Cu	Zn	Pb	Ag	Cd	Sb	As	Ba
10	10000	10	10	10	10	0.2	1	20	20	10

* $Fe = Fe_2O_3$

REF	CX	CY	AS	W	BA	FE2X	MN	CU	ZN	PB	AG	CD	SB	NI	CR	CO	SN	MO	NB	P	V	Y	BE	B	NºOrden
197	0	0	32	12	299	4.00	144	10	52	16	.2	1	20	10	22	10	20	3	14	561	37	6	3	13	1
198	0	100	234	10	352	5.27	177	10	54	18	.2	1	20	10	29	10	20	2	15	715	51	8	4	21	2
199	0	200	72	16	309	4.42	265	15	67	22	.2	1	20	15	30	10	20	2	10	893	46	6	3	18	3
200	0	300	28	12	300	3.78	179	14	53	28	.2	1	20	15	26	10	20	2	10	617	41	5	3	12	4
201	0	400	20	10	408	4.73	422	22	70	35	.4	1	20	23	35	10	20	2	10	742	52	6	3	13	5
202	0	500	31	10	415	4.94	368	23	93	16	.2	1	20	25	44	10	20	2	10	1011	54	7	4	13	6
203	0	600	56	10	363	5.13	736	31	95	30	.2	1	20	31	49	19	20	2	10	1225	75	11	4	15	7
204	0	700	47	10	366	7.07	1478	28	102	22	.2	1	20	33	70	19	20	3	10	1013	98	5	3	13	8
205	0	800	53	10	326	6.18	1136	26	86	26	.2	1	20	31	58	16	20	5	10	813	84	5	3	15	9
206	0	900	41	10	406	6.05	473	30	95	20	.2	1	20	33	74	19	20	2	10	766	104	9	4	17	10
207	0	1000	20	10	354	5.38	430	25	84	28	.4	1	20	34	58	20	20	2	10	987	80	12	6	12	11
208	0	1100	34	10	346	7.09	1224	23	89	16	.3	1	20	37	74	21	20	2	10	779	104	7	3	10	12
209	0	1200	49	13	317	7.87	1164	33	104	16	.4	1	20	46	92	31	20	4	10	676	129	10	4	10	13
210	0	1300	20	10	345	7.47	816	27	105	10	.2	1	20	39	70	20	20	3	15	603	83	8	4	12	14
211	0	1400	20	10	286	7.88	833	41	206	46	.2	1	20	41	91	20	20	2	10	629	130	7	5	13	15
212	100	0	36	10	401	2.66	155	10	42	24	.2	1	20	10	24	10	20	2	10	680	41	13	3	17	16
213	100	100	37	10	352	4.06	147	10	47	14	.2	1	20	10	24	10	20	2	10	604	38	7	4	10	17
214	100	200	48	10	353	3.35	176	10	44	21	.2	1	20	10	32	10	20	3	10	649	51	6	3	14	18
215	100	300	39	10	421	2.98	196	10	54	25	.3	1	20	22	37	10	20	3	10	664	58	9	5	14	19
216	100	400	48	10	495	5.51	512	22	73	26	.5	1	20	24	48	10	20	5	12	845	74	5	3	12	20
217	100	500	26	10	340	5.55	310	24	109	25	.2	1	20	28	51	12	20	2	10	938	72	7	4	10	21
218	100	600	77	10	362	5.69	621	27	94	25	.2	1	20	32	43	16	20	5	10	781	63	13	5	10	22
219	100	700	20	10	319	7.51	1500	35	112	23	.2	1	20	33	65	17	20	2	10	1103	94	5	3	10	23
220	100	800	22	10	310	7.68	1489	24	98	19	.2	1	20	30	57	20	20	2	10	963	75	5	3	10	24
221	100	900	20	10	351	7.28	846	42	113	10	.2	1	20	49	80	18	20	2	10	742	109	7	4	10	25
222	100	1000	27	10	358	7.10	927	30	104	15	.2	1	20	37	67	18	20	2	11	711	90	7	4	10	26
223	100	1100	26	16	381	4.83	355	14	69	10	.2	1	20	23	55	17	20	2	10	736	79	8	4	15	27
224	100	1200	20	10	324	7.61	976	32	106	14	.2	1	20	34	75	24	20	2	10	787	103	15	4	10	28
225	100	1300	24	10	281	8.11	438	22	127	26	.3	1	20	49	96	16	20	2	10	651	104	9	4	10	29
226	100	1400	20	19	339	6.59	901	28	121	31	.3	1	20	27	62	16	20	2	10	647	85	9	3	10	30

REF	CX	CY	AS	W	BA	FE2X	MN	CU	ZN	PB	AG	CD	SB	NI	CR	CO	SN	MO	NB	P	V	Y	BE	B	NºOrden
227	200	0	121	10	306	4.88	244	15	81	21	.2	1	20	10	26	10	20	2	10	534	36	7	4	15	31
228	200	100	51	10	470	2.58	136	10	40	30	.2	1	20	10	23	10	20	2	10	805	33	10	4	12	32
229	200	200	34	16	259	3.85	175	10	46	18	.2	1	20	10	36	10	20	2	10	536	57	6	3	17	33
230	200	300	21	10	355	3.96	277	11	50	29	.3	1	20	10	35	10	20	2	10	549	56	7	2	11	34
231	200	400	37	10	380	4.63	449	23	77	28	.2	1	20	20	50	16	20	2	10	887	70	10	5	10	35
232	200	500	61	20	428	6.46	989	32	105	39	.2	1	20	34	63	16	20	2	11	867	86	10	4	10	36
233	200	600	49	10	404	7.19	723	28	113	30	.2	1	20	35	64	14	20	2	10	800	85	8	4	14	37
234	200	700	34	10	302	7.00	1106	38	107	43	.3	1	20	48	75	19	20	2	10	946	98	6	3	10	38
235	200	800	20	10	271	6.48	664	23	85	32	.2	1	20	30	61	16	20	2	10	719	71	6	4	10	39
236	200	900	20	10	304	5.03	416	21	89	35	.2	1	20	38	59	17	20	2	10	664	82	8	4	10	40
237	200	1000	40	10	335	6.96	1147	27	113	31	.3	1	20	53	68	21	20	2	10	937	85	9	4	12	41
238	200	1100	20	10	285	4.35	1145	18	80	45	.4	1	20	27	40	20	20	2	10	923	53	6	3	14	42
239	200	1200	42	10	346	6.70	935	29	112	47	.3	1	20	45	76	19	20	3	10	961	102	8	4	10	43
240	200	1300	20	10	316	7.13	754	29	119	26	.2	1	20	40	66	18	20	2	10	925	83	10	3	10	44
241	200	1400	20	10	412	7.04	726	26	118	31	.2	1	20	33	65	16	20	2	10	913	90	12	4	11	45
242	300	0	29	10	272	2.95	127	10	39	20	.2	1	20	10	20	10	20	2	10	552	37	9	3	16	46
243	300	100	25	12	319	4.30	207	15	61	38	.3	1	20	18	38	10	20	2	10	548	58	7	3	10	47
244	300	200	42	21	352	4.22	147	16	59	30	.2	1	20	10	30	10	20	2	10	736	46	7	3	10	48
245	300	300	63	10	318	6.15	560	21	89	25	.2	1	20	20	47	17	20	2	10	571	65	6	4	13	49
246	300	400	57	10	289	6.26	996	26	92	22	.2	1	20	28	48	16	20	2	10	692	73	7	4	10	50
247	300	500	58	19	421	5.79	713	29	98	35	.2	1	20	29	66	18	20	2	10	1114	90	8	5	10	51
248	300	600	41	10	337	6.43	1003	20	87	20	.2	1	20	24	46	15	20	2	10	820	67	6	3	12	52
249	300	700	45	10	324	6.43	618	29	98	28	.2	1	20	35	64	15	20	2	10	814	83	7	3	10	53
250	300	800	51	10	277	6.09	253	18	84	22	.2	1	20	29	54	14	20	2	10	654	73	7	4	10	54
251	300	900	30	20	361	5.48	698	21	93	22	.2	1	20	25	53	12	20	2	10	848	67	7	4	10	55
252	300	1000	27	10	279	6.36	667	31	93	14	.2	1	20	33	60	16	20	2	10	691	83	8	4	11	56
253	300	1100	29	10	305	5.71	676	23	101	27	.2	1	20	25	45	12	20	2	10	826	60	8	4	10	57
254	300	1200	22	10	277	6.01	864	20	102	28	.3	1	20	24	44	12	20	2	10	734	60	8	3	10	58
255	300	1300	35	10	395	7.91	456	31	125	31	.2	1	20	35	78	15	20	2	10	1191	103	11	4	12	59
256	300	1400	30	12	328	6.11	805	36	114	37	.2	1	20	17	58	15	20	2	10	1221	71	9	3	10	60
257	400	0	149	10	314	4.76	269	24	74	42	.2	1	20	13	34	10	20	2	10	870	54	7	4	10	61
258	400	100	58	19	350	2.46	122	10	29	23	.2	1	20	10	29	10	20	2	10	1200	45	12	2	12	62
259	400	200	36	10	322	4.59	159	11	55	21	.2	1	20	12	33	10	20	2	10	508	50	6	2	11	63
260	400	300	95	10	380	5.68	405	21	73	33	.2	1	20	18	47	10	20	2	10	749	73	7	3	15	64
261	400	400	88	10	430	1.62	128	10	24	23	.2	1	20	10	26	10	20	2	10	887	43	12	3	12	65
262	400	500	43	10	442	4.52	174	13	55	11	.2	1	20	12	50	10	20	2	10	823	71	9	3	11	66
263	400	600	55	10	392	5.18	209	11	75	28	.2	1	20	22	58	10	20	2	10	662	80	10	3	17	67
264	400	700	112	10	336	4.09	207	14	56	12	.2	1	20	19	42	19	20	2	10	928	59	8	5	10	68
265	400	800	38	10	423	5.23	448	29	95	12	.2	1	20	14	55	13	20	2	10	918	72	8	4	10	69
266	400	900	47	10	328	6.62	1054	32	122	30	.2	1	20	13	57	15	20	2	10	1118	76	7	4	10	70
267	400	1000	30	10	343	5.71	600	29	99	12	.2	1	20	10	51	10	20	2	10	629	63	8	3	10	71
268	400	1100	45	10	273	7.03	1454	35	107	55	.4	1	20	41	78	20	20	2	10	1055	108	7	4	10	72
269	400	1200	24	10	216	4.57	588	12	75	28	.2	1	20	15	30	10	20	2	10	938	44	6	5	12	73
270	400	1300	22	10	198	4.64	940	17	76	27	.2	1	20	15	28	10	20	2	10	1196	39	6	8	13	74
271	400	1400	32	10	364	6.69	1140	38	130	30	.3	1	20	32	52	16	20	2	10	1642	71	10	5	10	75
272	500	0	137	10	290	4.76	392	17	80	41	.2	1	20	17	27	10	20	2	10	933	45	8	4	10	76
273	500	100	119	10	245	4.19	340	20	69	40	.2	1	20	21	28	12	20	2	10	983	37	8	3	10	77
274	500	200	90	10	337	4.80	450	22	79	40	.2	1	20	24	34	13	20	2	10	837	49	8	3	11	78
275	500	300	33	10	298	3.52	154	11	45	28	.2	1	20	17	34	10	20	2	10	746	53	7	3	10	79
276	500	400	116	10	363	2.46	213	11	41	33	.2	1	20	10	36	10	20	2	10	832	51	13	3	10	80

REF	CX	CY	AS	W	BA	FE2X	MN	CU	ZN	PB	AG	CD	SB	NI	CR	CO	SN	MO	NB	P	V	Y	BE	B	NºOrden
277	500	500	59	10	297	5.07	291	13	61	24	.2	1	20	14	37	10	20	2	10	688	60	9	3	13	81
278	500	600	40	10	333	4.56	370	14	63	31	.2	1	20	15	35	10	20	2	10	712	52	10	3	12	82
279	500	700	43	10	413	5.47	210	22	72	31	.2	1	20	19	48	10	20	2	10	1016	73	12	4	12	83
280	500	800	29	10	328	5.17	212	15	71	34	.2	1	20	16	40	10	20	2	10	718	60	7	2	11	84
281	500	900	20	10	283	6.52	723	28	97	24	.2	1	20	28	55	12	20	2	10	841	71	5	3	10	85
282	500	1000	33	10	286	5.24	832	33	94	21	.2	1	20	19	43	10	20	2	10	1457	55	9	3	10	86
283	500	1100	31	10	242	5.01	742	26	87	10	.2	1	20	23	32	13	20	2	10	740	38	6	6	10	87
284	500	1200	29	10	321	7.41	1021	26	99	28	.2	1	20	37	69	18	20	2	10	963	90	9	4	11	88
285	500	1300	20	10	306	5.13	597	21	83	14	.2	1	20	11	33	11	20	2	10	1005	37	8	3	10	89
286	500	1400	20	10	308	6.21	530	27	100	27	.2	1	20	25	49	11	20	2	10	1215	72	11	3	10	90
287	600	0	156	10	232	4.02	271	21	64	34	.2	1	20	12	26	10	20	2	10	671	36	8	3	10	91
288	600	100	134	16	310	4.09	263	14	63	41	.2	1	20	19	26	10	20	2	10	797	35	8	2	12	92
289	600	200	70	22	388	5.64	648	22	80	21	.2	1	20	21	44	11	20	2	10	713	58	8	4	10	93
290	600	300	91	10	369	6.26	782	23	87	19	.2	1	20	25	68	16	20	2	10	605	97	8	4	10	94
291	600	400	85	10	304	5.10	350	18	92	29	.3	1	20	36	60	21	20	2	10	746	71	12	5	10	95
292	600	500	83	19	372	5.18	197	21	73	24	.2	1	20	23	56	10	20	2	10	717	81	6	3	10	96
293	600	600	35	14	363	4.10	163	10	58	31	.2	1	20	14	35	10	20	4	10	626	54	8	3	12	97
294	600	700	42	12	175	3.66	322	14	58	55	.2	1	20	10	29	10	20	2	10	817	42	5	3	10	98
295	600	800	47	10	168	3.83	621	15	58	45	.2	1	20	10	23	10	20	2	10	850	34	6	3	10	99
296	600	900	21	22	199	3.89	848	17	71	35	.2	1	20	14	23	10	20	2	10	1140	33	6	3	10	100
297	600	1000	20	10	211	3.83	690	15	60	27	.2	1	20	13	23	10	20	2	10	783	35	5	5	11	101
298	600	1100	20	11	213	4.63	571	21	77	31	.2	1	20	22	33	11	20	2	10	869	47	8	4	10	102
299	600	1200	38	10	264	5.48	838	16	98	29	.2	1	20	19	32	12	20	2	10	1098	46	10	3	10	103
300	600	1300	20	10	321	5.62	525	24	77	100	.2	1	20	26	47	10	20	2	10	818	73	11	3	10	104
301	600	1400	36	10	256	5.45	718	36	86	27	.2	1	20	28	49	11	20	2	10	1465	72	9	4	10	105
302	700	0	87	10	284	4.60	414	18	72	35	.2	1	20	21	28	12	20	2	10	799	48	10	3	16	106
303	700	100	71	10	271	5.68	630	20	81	30	.2	1	20	21	32	10	20	2	10	975	48	5	3	10	107
304	700	200	42	10	290	7.48	1104	22	137	31	.2	1	20	34	57	22	20	2	10	819	77	7	4	13	108
305	700	300	68	10	280	6.12	1116	20	98	26	.2	1	20	29	41	19	20	2	10	793	59	7	4	10	109
306	700	400	387	17	329	5.59	997	27	89	24	.2	1	20	26	47	17	20	2	11	750	67	11	4	14	110
307	700	500	97	10	344	6.46	1015	32	100	23	.2	1	20	35	66	20	20	2	10	841	101	10	4	11	111
308	700	600	36	10	268	3.64	254	10	58	20	.2	1	20	18	38	10	20	2	10	645	53	6	3	12	112
309	700	700	55	10	321	3.58	442	11	65	24	.2	1	20	20	36	10	20	2	12	1059	44	7	4	13	113
310	700	800	42	10	284	5.69	888	28	104	21	.2	1	20	38	62	17	20	2	14	1021	74	11	4	11	114
311	700	900	38	10	260	3.08	730	10	53	34	.2	1	20	12	18	10	20	2	10	835	28	5	3	14	115
312	700	1000	29	11	263	3.35	781	10	64	35	.2	1	20	11	18	10	20	2	10	927	25	8	3	12	116
313	700	1100	36	10	246	4.71	911	18	92	28	.2	1	20	19	38	10	20	2	10	880	50	7	3	12	117
314	700	1200	27	10	239	5.68	808	23	99	26	.2	1	20	26	49	14	20	2	10	804	70	6	4	10	118
315	700	1300	34	18	352	5.86	1107	20	109	26	.3	1	20	23	47	14	20	2	10	1177	67	10	5	12	119
316	700	1400	25	10	336	6.77	1055	23	113	20	.2	1	20	26	58	15	20	2	10	951	83	6	4	10	120
317	800	0	127	10	350	5.24	583	21	84	27	.2	1	20	23	46	11	20	2	10	1040	67	8	3	12	121
318	800	100	123	60	377	6.46	256	28	113	21	.2	3	20	37	60	19	20	2	12	979	81	7	5	10	122
319	800	200	45	10	369	5.04	696	19	94	28	.2	1	20	28	46	13	20	2	10	882	60	7	4	11	123
320	800	300	150	10	342	5.84	676	24	108	25	.2	1	20	27	52	18	20	2	15	900	71	8	3	10	124
321	800	400	174	10	341	5.24	792	26	88	25	.2	1	20	26	49	16	20	2	10	796	63	6	3	10	125
322	800	500	137	17	291	4.19	584	25	77	40	.2	1	20	27	38	14	20	2	10	718	54	7	3	10	126
323	800	600	135	10	293	5.41	1333	27	93	28	.2	1	20	34	53	18	20	2	10	1099	72	9	3	11	127
324	800	700	123	22	336	5.71	994	27	99	24	.2	1	20	41	62	20	20	2	10	827	81	11	3	10	128
325	800	800	68	16	302	4.91	510	17	74	24	.2	1	20	27	46	12	20	2	10	709	66	6	3	12	129
326	800	900	35	12	286	3.42	896	15	67	35	.2	1	20	19	27	12	20	2	10	835	38	7	3	13	130

REF	CX	CY	AS	W	BA	FE2X	MN	CU	ZN	PB	AG	CD	SB	NI	CR	CO	SN	MO	NB	P	V	Y	BE	B	NºOrden
327	800	1000	46	10	235	4.19	756	18	80	27	.2	1	20	20	39	10	20	2	10	658	49	6	4	10	131
328	800	1100	46	10	246	4.37	273	18	86	27	.2	1	20	19	37	10	20	2	10	803	49	9	3	10	132
329	800	1200	29	13	294	4.91	569	21	100	26	.2	1	20	22	44	10	20	3	10	698	60	9	4	10	133
330	800	1300	48	10	304	6.22	687	28	117	27	.2	1	20	37	63	16	20	2	10	756	84	10	5	10	134
331	800	1400	32	10	342	5.82	1093	22	104	27	.2	1	20	25	52	13	20	3	10	923	75	7	4	11	135
332	900	0	85	10	320	5.27	531	18	71	29	.2	1	20	20	42	10	20	2	10	855	65	7	3	12	136
333	900	100	78	17	313	6.21	534	20	205	37	.2	1	20	33	54	11	20	2	10	787	68	5	3	10	137
334	900	200	60	10	325	6.16	753	23	99	23	.2	1	20	32	53	15	20	2	10	806	69	6	4	10	138
335	900	300	65	20	357	4.98	967	18	89	25	.2	1	20	24	46	12	20	2	10	885	60	8	4	12	139
336	900	400	75	10	310	5.74	996	27	106	22	.2	1	20	37	61	18	20	2	10	947	77	8	3	10	140
337	900	500	54	10	466	6.06	393	25	96	16	.2	1	20	39	70	19	20	2	10	790	92	9	4	10	141
338	900	600	40	10	397	3.85	204	16	57	12	.2	1	20	22	55	10	20	2	10	554	68	6	3	10	142
339	900	700	135	117	230	4.08	1426	26	83	27	.3	1	20	23	33	15	20	2	10	863	48	8	4	10	143
340	900	800	112	79	326	4.43	261	20	70	23	.2	1	20	21	46	13	20	2	10	886	63	10	3	10	144
341	900	900	48	46	329	4.59	232	16	89	20	.2	1	20	22	52	10	20	2	11	600	73	8	3	10	145
342	900	1000	46	48	307	4.93	1028	25	94	29	.3	1	20	30	49	18	20	3	10	789	68	6	3	10	146
343	900	1100	35	10	310	5.28	760	29	110	29	.3	1	20	35	55	15	20	2	10	745	75	7	4	11	147
344	900	1200	23	10	268	3.93	524	15	91	30	.2	1	20	15	28	10	20	2	10	766	39	6	2	10	148
345	900	1300	31	10	290	5.78	540	23	102	25	.2	1	20	22	51	11	20	2	10	1008	76	8	2	10	149
346	900	1400	20	10	288	5.99	727	23	103	26	.2	1	20	27	54	15	20	2	10	969	79	8	3	10	150
347	1000	0	121	20	330	7.74	707	35	106	21	.2	2	20	40	63	21	20	2	10	1001	106	9	4	10	151
348	1000	100	112	28	285	5.21	668	23	87	29	.2	2	20	25	44	12	20	2	12	1035	60	8	3	10	152
349	1000	200	170	79	269	7.00	796	20	99	16	.2	1	20	36	86	27	20	3	15	799	111	9	5	10	153
350	1000	300	189	38	244	5.08	690	17	79	22	.2	3	20	26	46	17	20	2	10	816	62	8	3	10	154
351	1000	400	123	21	337	4.19	664	18	76	33	.2	1	20	23	37	11	20	2	10	794	51	6	3	11	155
352	1000	500	75	10	378	5.20	759	22	95	26	.2	1	20	36	75	17	20	2	10	852	72	9	4	10	156
353	1000	600	67	11	347	5.91	940	26	115	25	.2	1	20	36	64	18	20	2	10	707	85	7	4	12	157
354	1000	700	113	88	267	5.03	735	26	102	25	.3	4	20	24	40	14	20	5	10	766	58	5	3	15	158
355	1000	800	47	10	249	4.42	707	17	89	25	.2	1	20	20	33	12	20	2	10	741	48	7	3	11	159
356	1000	900	47	10	249	4.47	237	23	90	25	.2	1	20	29	43	15	20	2	10	523	56	7	3	11	160
357	1000	1000	58	10	328	4.91	651	33	97	25	.2	1	20	37	56	18	20	2	10	823	74	8	4	10	161
358	1000	1100	32	10	314	5.14	847	23	89	26	.2	1	20	35	51	16	20	2	10	754	68	6	3	10	162
359	1000	1200	23	10	319	5.27	407	20	94	23	.2	1	20	26	50	12	20	2	10	682	68	9	3	10	163
360	1000	1300	49	10	273	5.91	871	21	103	29	.2	1	20	25	54	15	20	2	10	1079	77	9	3	10	164
361	1000	1400	25	10	330	5.92	823	24	99	23	.2	1	20	26	55	14	20	2	10	890	78	8	3	10	165
362	1100	0	53	10	313	4.15	504	23	71	30	.2	1	20	21	85	10	20	2	10	965	50	5	3	12	166
363	1100	100	130	10	295	5.86	836	29	94	32	.2	1	20	34	67	15	20	2	10	1151	86	7	3	10	167
364	1100	200	127	10	342	5.85	888	31	104	33	.2	1	20	27	57	15	20	2	10	1503	80	7	3	10	168
365	1100	300	121	20	344	5.08	932	25	102	35	.2	1	20	27	50	19	20	2	10	1189	68	8	4	10	169
366	1100	400	138	10	327	4.27	508	22	80	32	.2	1	20	24	42	10	20	2	10	753	57	6	3	10	170
367	1100	500	85	10	263	4.40	366	18	81	22	.2	1	20	17	36	10	20	2	10	944	54	7	2	10	171
368	1100	600	33	10	313	3.05	541	10	62	36	.2	1	20	19	25	15	20	2	10	812	28	7	4	13	172
369	1100	700	20	10	243	3.48	588	10	82	32	.2	1	20	11	23	10	20	2	10	807	34	5	3	12	173
370	1100	800	41	10	229	3.07	296	10	67	30	.3	1	20	10	18	10	20	2	10	916	29	5	3	14	174
371	1100	900	33	10	296	4.26	399	18	72	26	.2	1	20	19	40	10	20	2	10	630	58	5	2	11	175
372	1100	1000	83	10	416	5.89	1137	35	120	29	.2	1	20	40	75	20	20	2	10	968	97	12	4	10	176
373	1100	1100	72	14	338	6.36	589	51	112	19	.2	1	20	50	88	15	20	2	10	963	126	7	4	10	177
374	1100	1200	35	10	307	4.86	678	20	90	27	.2	1	20	21	42	14	20	2	10	702	58	7	3	10	178
375	1100	1300	49	10	324	5.00	428	16	82	23	.2	1	20	21	48	11	20	2	10	783	70	8	3	10	179
376	1100	1400	36	10	321	5.77	651	24	101	25	.2	1	20	25	54	14	20	2	10	938	76	8	3	10	180

REF	CX	CY	AS	W	BA	FE2X	MN	CU	ZN	PB	AG	CD	SB	NI	CR	CO	SN	MO	NB	P	V	Y	BE	B	NºOrden
377	1200	0	106	58	397	7.33	600	90	125	22	.2	3	20	36	89	21	20	4	11	1066	117	11	5	10	181
378	1200	100	118	11	313	6.05	562	23	91	23	.2	1	20	27	57	12	20	2	10	963	78	7	3	10	182
379	1200	200	117	14	327	4.96	692	22	92	28	.2	1	20	20	44	13	20	2	11	1107	59	9	3	10	183
380	1200	300	140	10	304	3.92	517	21	83	28	.2	1	20	16	33	12	20	2	10	1292	43	7	3	10	184
381	1200	400	116	10	241	3.62	436	16	77	35	.2	1	20	16	31	10	20	2	10	1131	43	8	4	12	185
382	1200	500	83	10	232	3.99	449	12	81	20	.2	1	20	15	28	10	20	2	10	980	40	7	2	10	186
383	1200	600	38	11	257	5.50	707	20	93	17	.2	1	20	22	40	13	20	2	10	740	58	5	3	10	187
384	1200	700	20	10	202	4.03	932	10	73	24	.2	1	20	14	24	10	20	2	10	759	38	5	3	10	188
385	1200	800	20	10	215	4.17	436	10	84	22	.2	1	20	11	21	10	20	2	10	745	36	6	2	10	189
386	1200	900	26	10	271	3.71	479	10	84	27	.2	1	20	14	23	10	20	2	10	717	34	5	2	11	190
387	1200	1000	35	10	342	4.27	678	17	89	30	.2	1	20	20	38	11	20	2	10	842	55	9	2	10	191
388	1200	1100	50	10	250	4.06	728	18	84	31	.2	1	20	21	36	11	20	2	10	1230	45	7	3	10	192
389	1200	1200	43	10	377	4.73	322	17	93	28	.2	1	20	24	50	10	20	2	10	1149	67	8	4	11	193
390	1200	1300	53	10	322	5.35	863	22	99	29	.2	1	20	25	49	17	20	2	10	1041	69	10	3	10	194
391	1200	1400	78	10	270	5.64	573	23	99	26	.2	1	20	27	52	15	20	2	10	1084	73	9	3	10	195
392	1300	0	49	12	231	5.13	523	19	85	18	.2	1	20	24	38	13	20	2	10	1172	50	6	3	10	196
393	1300	100	164	30	277	5.40	696	21	94	18	.2	1	20	21	42	15	20	2	10	1196	57	9	3	10	197
394	1300	200	161	10	239	4.71	708	21	90	20	.2	1	20	20	37	11	20	2	10	1181	52	7	3	10	198
395	1300	300	117	10	261	4.29	561	17	83	24	.2	1	20	16	29	10	20	2	10	1220	41	8	3	10	199
396	1300	400	138	10	261	4.49	611	16	85	19	.2	1	20	17	30	11	20	2	10	1147	43	8	3	10	200
397	1300	500	54	10	237	5.78	505	10	91	12	.2	1	20	21	37	11	20	2	10	750	55	6	3	10	201
398	1300	600	97	10	227	5.32	454	11	74	13	.2	1	20	19	36	10	20	2	10	761	52	5	2	10	202
399	1300	700	30	10	227	5.58	685	13	76	14	.2	1	20	19	32	13	20	2	10	786	51	7	3	10	203
400	1300	800	31	10	242	5.77	1116	11	103	18	.2	1	20	23	41	12	20	2	10	795	60	8	2	10	204
401	1300	900	46	10	170	4.46	796	11	83	22	.2	1	20	18	25	11	20	2	10	734	41	6	2	10	205
402	1300	1000	54	21	185	4.06	695	14	86	22	.2	1	20	17	27	10	20	2	10	940	41	5	2	10	206
403	1300	1100	45	10	266	4.30	531	18	79	28	.2	1	20	18	29	11	20	2	10	1027	40	8	3	10	207
404	1300	1200	54	10	216	4.44	457	19	77	24	.2	1	20	19	29	11	20	2	10	978	45	7	2	10	208
405	1300	1300	62	10	242	4.23	211	13	83	21	.2	1	20	18	34	10	20	2	10	642	46	10	3	10	209
406	1300	1400	321	10	255	4.57	283	28	76	23	.2	1	20	28	37	14	20	2	10	777	52	12	4	15	210
407	1400	0	158	11	274	5.51	718	24	99	24	.2	1	20	24	41	15	20	2	10	1321	56	8	4	10	211
408	1400	100	92	10	222	4.02	426	18	74	24	.2	1	20	22	32	12	20	2	10	964	45	8	3	10	212
409	1400	200	134	10	244	4.61	578	19	91	20	.2	1	20	19	35	10	20	3	10	1325	49	9	2	10	213
410	1400	300	111	12	242	4.63	501	17	83	24	.2	1	20	16	34	10	20	3	10	1291	49	8	3	10	214
411	1400	400	138	10	194	4.33	439	15	70	20	.2	1	20	16	30	10	20	2	10	840	40	5	2	10	215
412	1400	500	84	17	260	5.01	631	15	81	18	.2	1	20	18	36	10	20	2	10	849	51	7	3	10	216
413	1400	600	112	10	228	4.00	473	10	75	25	.2	1	20	14	26	10	20	3	10	1076	36	10	4	10	217
414	1400	700	69	10	214	5.51	657	15	90	21	.3	1	20	25	50	10	20	2	10	690	59	8	3	13	218
415	1400	800	37	10	193	5.45	700	12	90	18	.2	1	20	21	39	11	20	2	10	766	56	7	2	10	219
416	1400	900	55	10	231	4.97	865	13	87	21	.2	1	20	19	32	14	20	2	10	671	49	6	2	10	220
417	1400	1000	79	10	251	5.30	769	16	87	23	.2	1	20	20	38	11	20	2	10	865	57	7	2	12	221
418	1400	1100	46	10	296	5.77	759	27	100	24	.2	1	20	40	59	18	20	2	10	972	78	7	3	10	222
419	1400	1200	53	10	321	4.90	446	31	96	21	.2	1	20	28	45	14	20	2	10	1018	67	10	4	10	223
420	1400	1300	65	17	260	4.90	309	20	96	20	.2	1	20	24	45	10	20	2	10	731	62	14	3	10	224
421	1400	1400	121	010	265	5.84	1095	29	123	031	.2	1	20	25	49	11	20	2	10	2145	069	09	4	10	225
422	1500	0000	129	010	257	4.98	0801	28	093	032	.2	1	20	25	39	17	20	2	10	1032	054	06	3	10	226
423	1500	0100	077	019	226	4.79	0359	16	072	021	.2	1	20	17	34	10	20	2	10	0794	048	08	3	10	227
424	1500	0200	131	010	195	5.04	0384	16	081	016	.2	1	20	22	35	10	20	2	10	0708	048	06	2	10	228
425	1500	0300	299	010	238	5.00	0430	15	082	020	.2	1	20	20	31	10	20	2	10	0777	043	06	2	10	229
426	1500	0400	256	016	223	3.89	0487	16	075	024	.2	1	20	24	30	10	20	2	10	0744	029	06	3	11	230

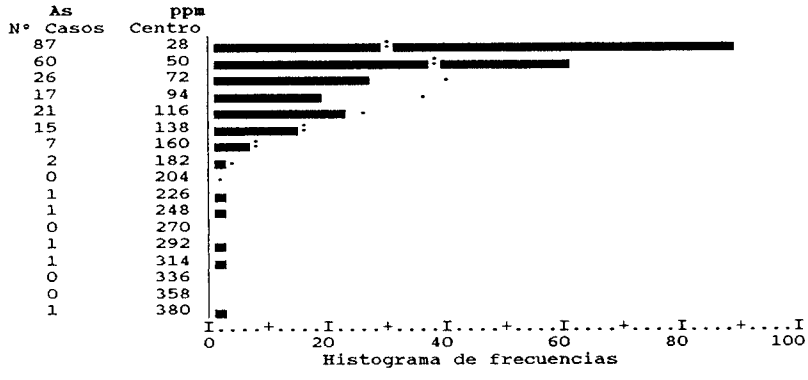
REF	CX	CY	AS	W	BA	FE2X	MN	CU	ZN	PB	AG	CD	SB	NI	CR	CO	SN	MO	NB	P	V	Y	BE	B	NºOrden
427	1500	0500	096	010	238	4.98	0685	12	077	023	.2	1	20	20	34	12	20	2	10	0693	049	05	3	10	231
428	1500	0600	078	019	241	4.97	0394	14	076	024	.2	1	20	18	38	10	20	2	10	0807	054	09	4	10	232
429	1500	0700	070	014	209	4.97	0419	15	084	029	.2	1	20	20	38	10	20	2	10	0798	050	07	3	10	233
430	1500	0800	061	011	245	5.17	0764	14	085	020	.2	1	20	20	39	11	20	2	10	0771	052	08	3	10	234
431	1500	0900	088	010	284	5.51	0929	16	102	021	.2	1	20	26	47	13	20	2	10	0750	061	10	3	12	235
432	1500	1000	105	010	221	5.62	0554	13	089	016	.2	1	20	17	38	10	20	2	10	0839	056	09	2	10	236
433	1500	1100	067	010	313	5.35	0781	18	092	020	.2	1	20	24	43	10	20	2	10	0773	062	12	3	10	237
434	1500	1200	076	020	414	6.57	0996	29	120	024	.2	1	20	34	66	16	20	2	10	1075	093	09	3	10	238
435	1500	1300	066	010	362	6.08	1025	39	131	031	.2	1	20	32	66	12	20	4	10	1941	085	10	4	10	239
436	1500	1400	057	010	377	6.16	0655	34	121	023	.2	1	20	35	63	14	20	4	10	0954	086	10	4	10	240

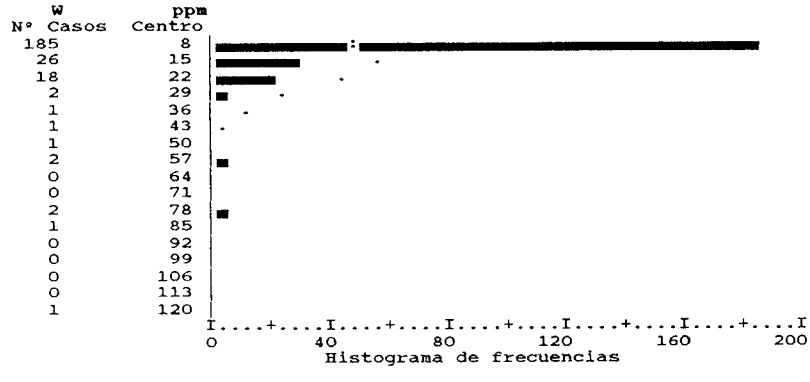
Número de casos= 240

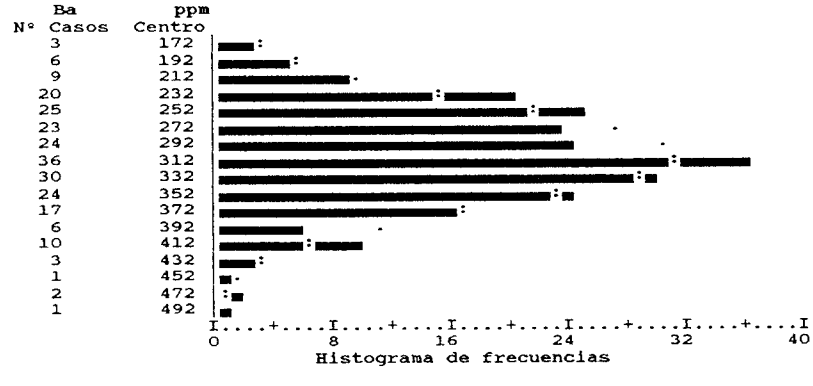
1.1.2. ANÁLISIS UNIVARIANTE

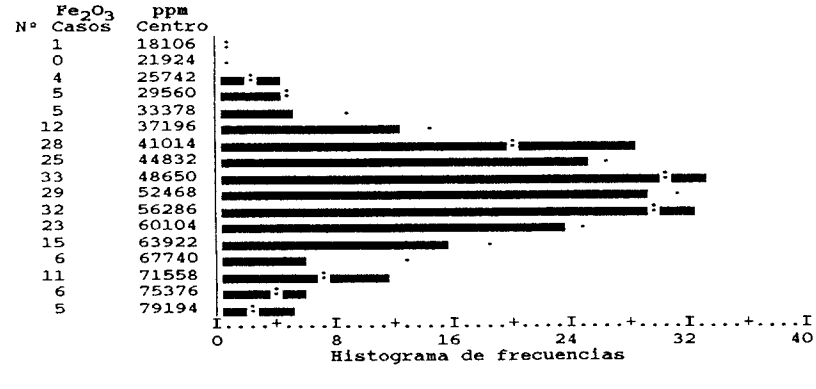
Paso 1

Histogramas de frecuencias obtenidos para todas las variables y todos los casos:

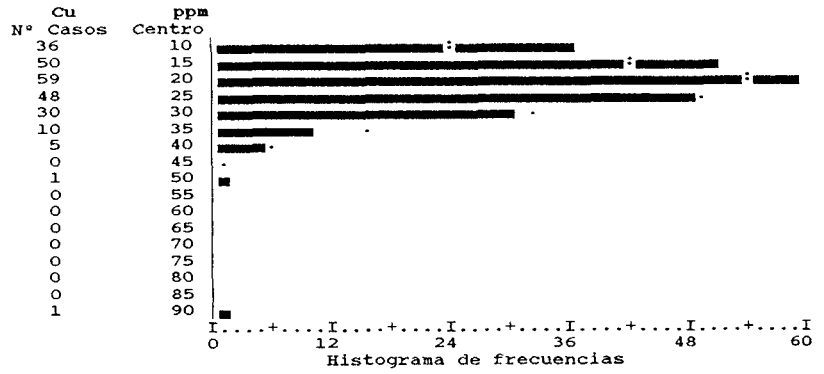


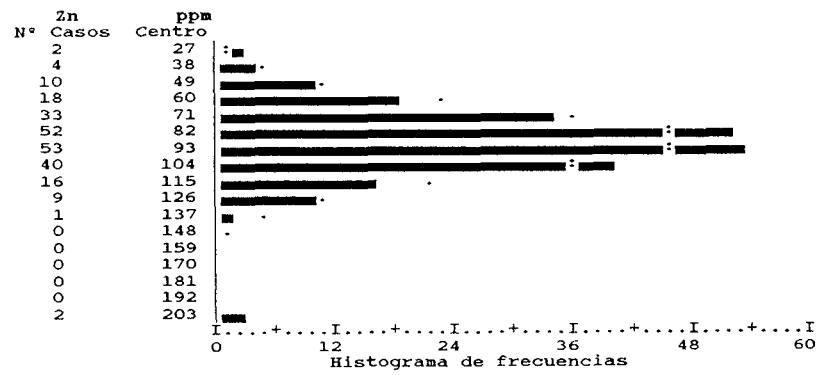


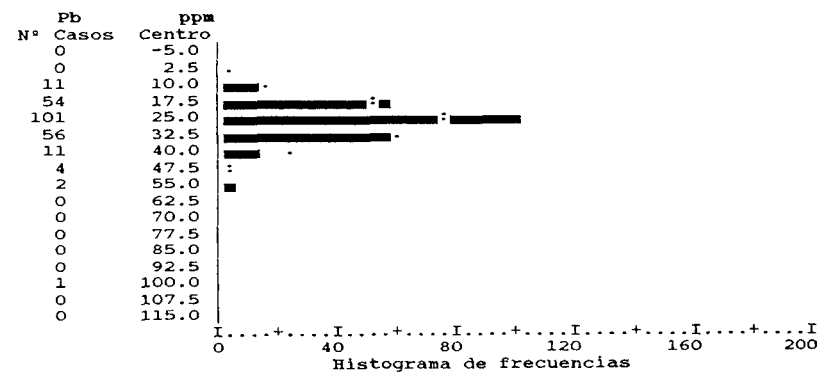


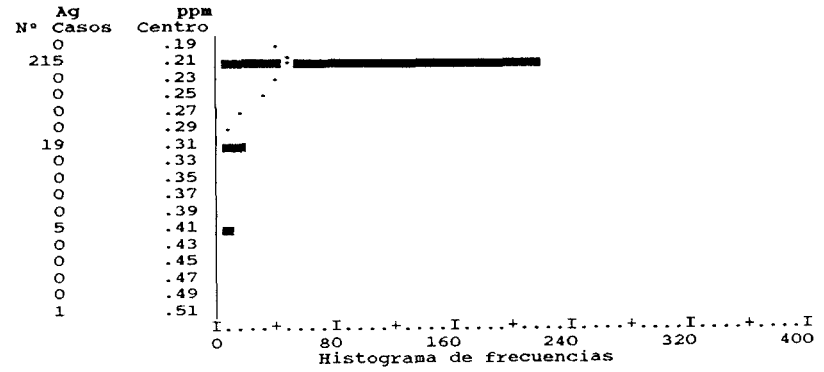


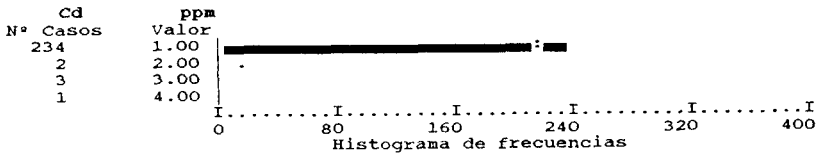

Mn
ppm
Nº Casos
Centro
16 155
23 237
11 319
22 401
21 483
24 565
22 647
32 729
18 811
13 893
13 975
7 1057
11 1139
1 1221
1 1303
0 1385
5 1467
I....+....I....+....I....+....I....+....I....+....I....+....I
0 8 16 24 32 40
Histograma de frecuencias

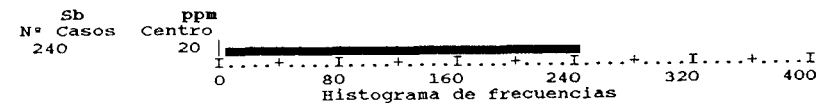

Cu
ppm
Nº Casos
Centro
36 10
50 15
59 20
48 25
30 30
10 35
5 40
0 45
1 50
0 55
0 60
0 65
0 70
0 75
0 80
0 85
1 90
I....+....I....+....I....+....I....+....I....+....I....+....I
0 12 24 36 48 60
Histograma de frecuencias

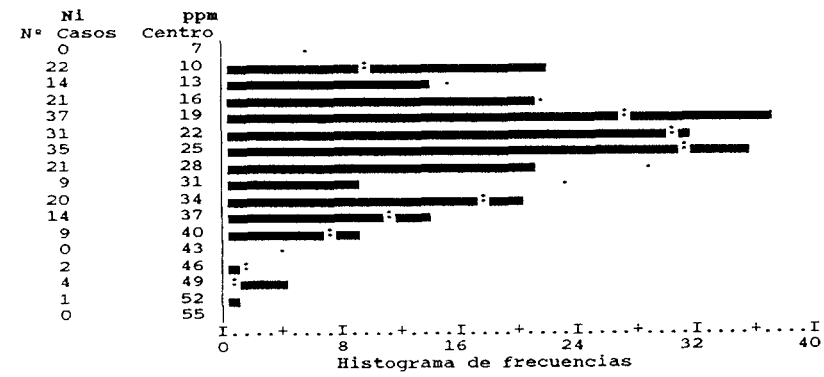

Zn
ppm
Nº Casos
Centro
2 27
4 38
10 49
18 60
33 71
52 82
53 93
40 104
16 115
9 126
1 137
0 148
0 159
0 170
0 181
0 192
2 203
I....+....I....+....I....+....I....+....I....+....I....+....I
0 12 24 36 48 60
Histograma de frecuencias


Pb
ppm
Nº Casos
Centro
0 -5.0
0 2.5
11 10.0
54 17.5
101 25.0
56 32.5
11 40.0
4 47.5
2 55.0
0 62.5
0 70.0
0 77.5
0 85.0
0 92.5
1 100.0
0 107.5
0 115.0
I....+....I....+....I....+....I....+....I....+....I....+....I
0 40 80 120 160 200
Histograma de frecuencias

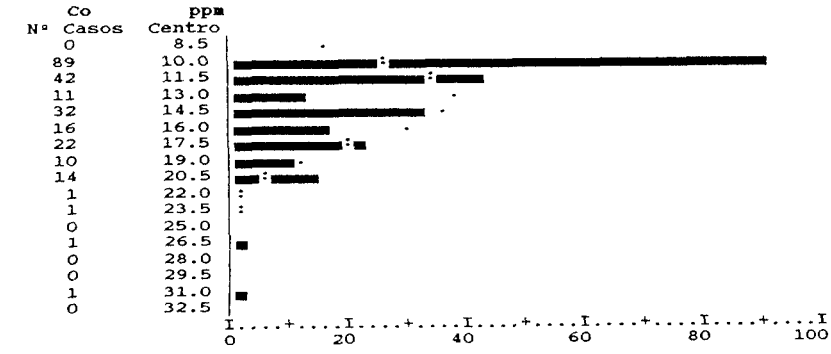

Ag
Nº Casos
ppm
Centro
0 .19
215 .21
0 .23
0 .25
0 .27
0 .29
19 .31
0 .33
0 .35
0 .37
0 .39
5 .41
0 .43
0 .45
0 .47
0 .49
1 .51
0 80 160 240 320 400
Histograma de frecuencias

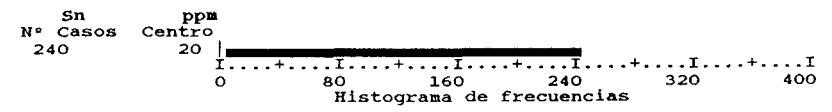

Cd
Nº Casos
ppm
Valor
234 1.00
2 2.00
3 3.00
1 4.00
0 80 160 240 320 400
Histograma de frecuencias

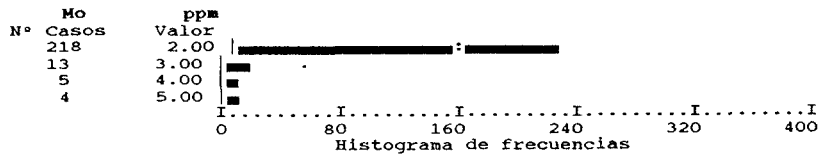

Sb
Nº Casos
ppm
Centro
240 20
0 80 160 240 320 400
Histograma de frecuencias

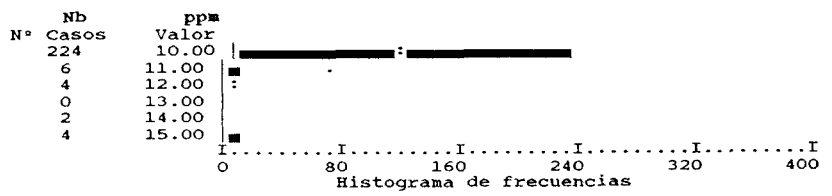

Ni
Nº Casos
ppm
Centro
0 7
22 10
14 13
21 16
37 19
31 22
35 25
21 28
9 31
20 34
14 37
9 40
0 43
2 46
4 49
1 52
0 55
0 8 16 24 32 40
Histograma de frecuencias

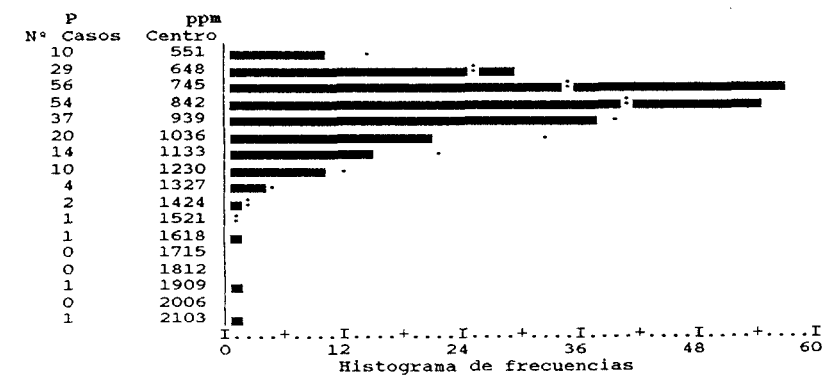

Cr
Nº Casos
ppm
Centro
3 17
12 22
22 27
28 32
34 37
23 42
28 47
23 52
20 57
15 62
12 67
5 72
7 77
1 82
4 87
2 92
1 97
0 8 16 24 32 40
Histograma de frecuencias

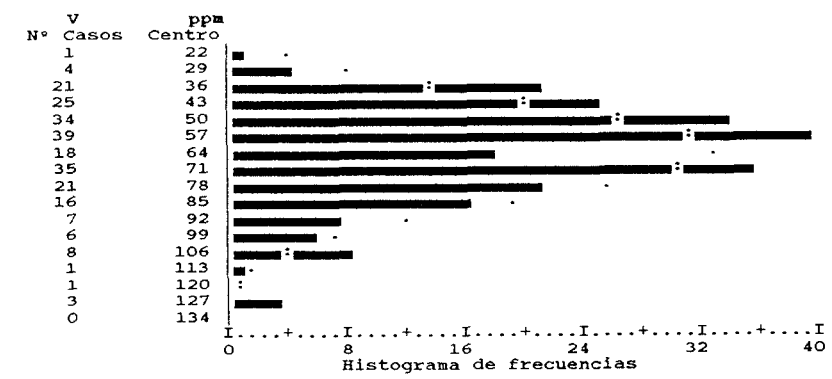

Co
Nº Casos
ppm
Centro
0 8.5
89 10.0
42 11.5
11 13.0
32 14.5
16 16.0
22 17.5
10 19.0
14 20.5
1 22.0
1 23.5
0 25.0
1 26.5
0 28.0
0 29.5
1 31.0
0 32.5
0 20 40 60 80 100

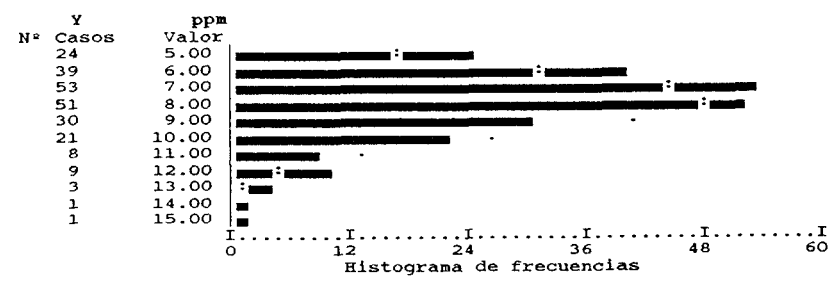

Sn
ppm
Nº Casos
Centro
240
20
0
80
160
240
320
400
Histograma de frecuencias

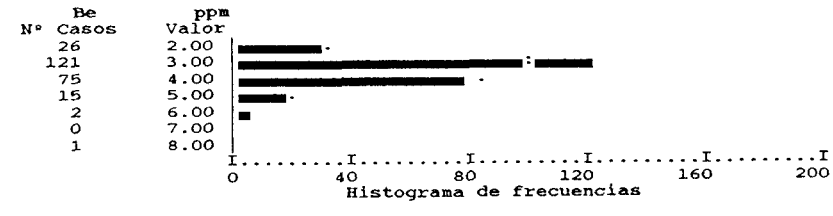

Mo
ppm
Nº Casos
Valor
218
2.00
13
3.00
5
4.00
4
5.00
0
80
160
240
320
400
Histograma de frecuencias

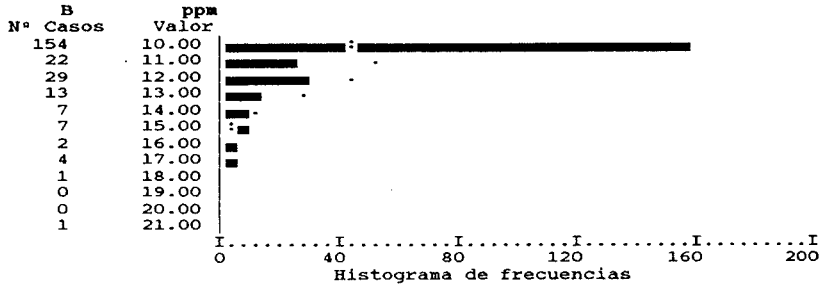

Nb
ppm
Nº Casos
Valor
224
10.00
6
11.00
4
12.00
0
13.00
2
14.00
4
15.00
0
80
160
240
320
400
Histograma de frecuencias


P
ppm
Nº Casos
Centro
10
551
29
648
56
745
54
842
37
939
20
1036
14
1133
10
1230
4
1327
2
1424
1
1521
1
1618
0
1715
0
1812
1
1909
0
2006
1
2103
0
12
24
36
48
60
Histograma de frecuencias


V
ppm
Nº Casos
Centro
1
22
4
29
21
36
25
43
34
50
39
57
18
64
35
71
21
78
16
85
7
92
6
99
8
106
1
113
1
120
3
127
0
134
0
8
16
24
32
40
Histograma de frecuencias


Y
ppm
Nº Casos
Valor
24
5.00
39
6.00
53
7.00
51
8.00
30
9.00
21
10.00
8
11.00
9
12.00
3
13.00
1
14.00
1
15.00
0
12
24
36
48
60
Histograma de frecuencias


Be
ppm
Nº Casos
Valor
26
2.00
121
3.00
75
4.00
15
5.00
2
6.00
0
7.00
1
8.00
0
40
80
120
160
200
Histograma de frecuencias



Histograma de frecuencias

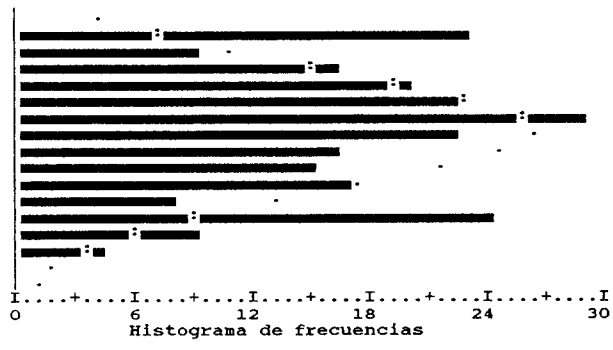
PASO 2

Histogramas de frecuencias obtenidos después de eliminar casos extremos y pasar a logaritmos las variables con tendencia lognormal. Se incluyen los resultados antes de pasar transformar a logaritmos de aquellas variables (Ba, Fe_2O_3, Mn y Zn) que presentan una tendencia normal.

Se incluyen, también, los resultados del análisis de la varianza a través de los gráficos de probabilidad, de dispersión y gráficos de caja.

As LOGppm

N°Casos	Centro
0	1.200
23	1.275
9	1.350
16	1.425
20	1.500
23	1.575
29	1.650
22	1.725
16	1.800
15	1.875
17	1.950
8	2.025
24	2.100
9	2.175
4	2.250
0	2.325
0	2.400



Histograma de frecuencias

Media	1.711	Std Err	.017	Mediana	1.681
Moda	1.301	Std Dev	.267	Varianza	.072
Angulos.	-.991	S E Ang.	.316	Asim.	.197
S E Asim.	.159	Rango	.975	Mínimo	1.301
Máximo	2.276	Suma	402.006		
Casos válidos	235	Casos eliminados	5		

Gráfico de probabilidad

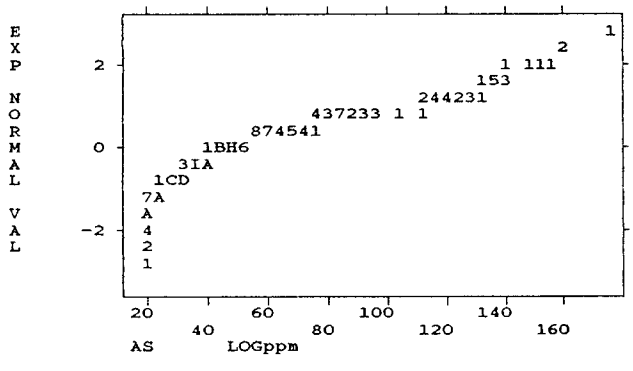


Gráfico de dispersión

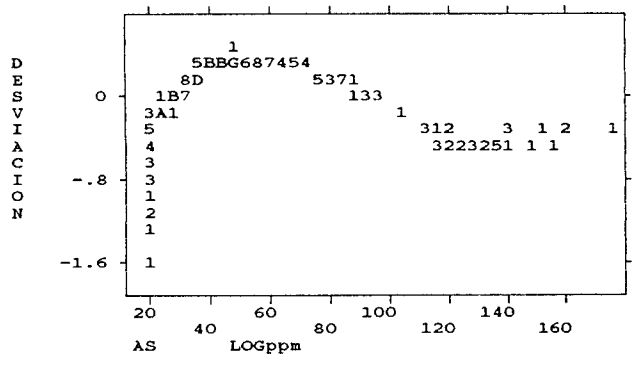
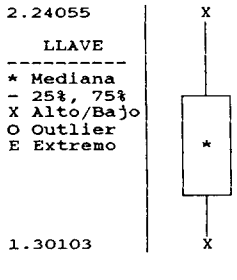
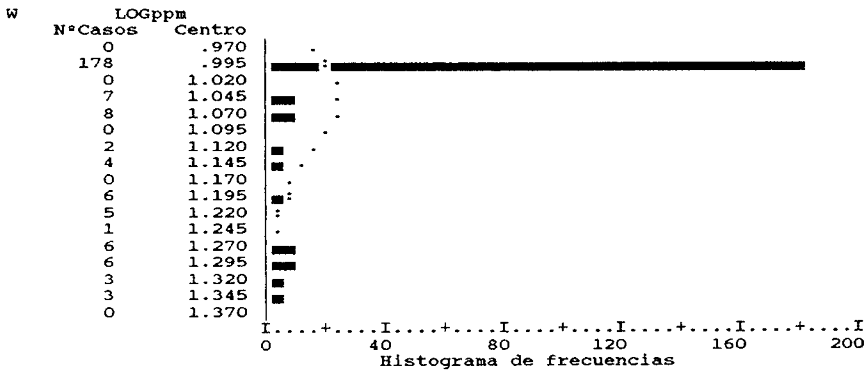


Gráfico de caja para la variable .. AS LOGppm





Media	1.043	Std Err	.006	Mediana	1.000
Moda	1.000	Std Dev	.094	Varianza	.009
Angulos.	2.838	S E Ang.	.320	Asim.	2.075
S E Asim.	.161	Rango	.342	Mínimo	1.000
Máximo	1.342	Suma	238.840		
Casos válidos	229	Casos eliminados	11		

Gráfico de probabilidad

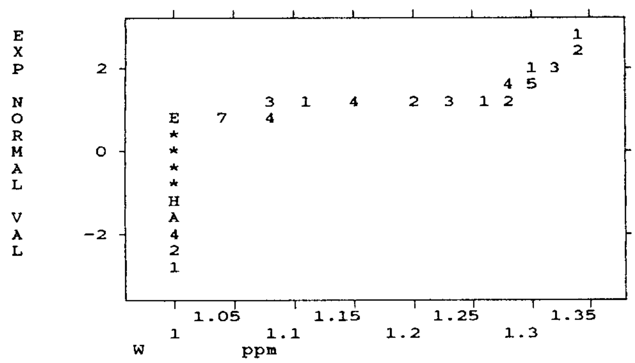


Gráfico de dispersión

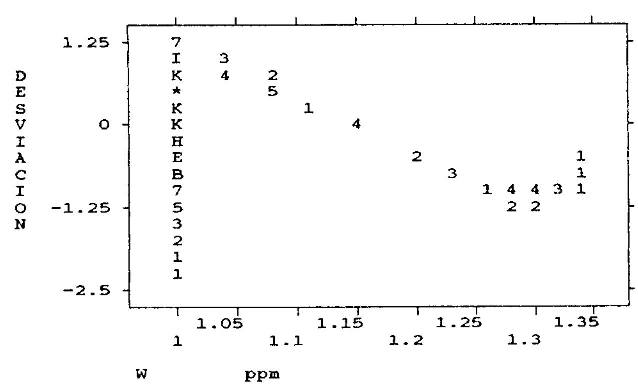
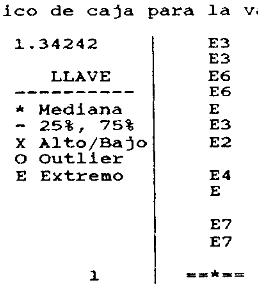
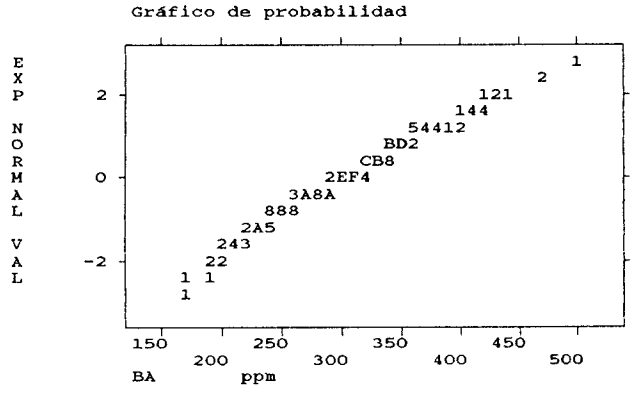
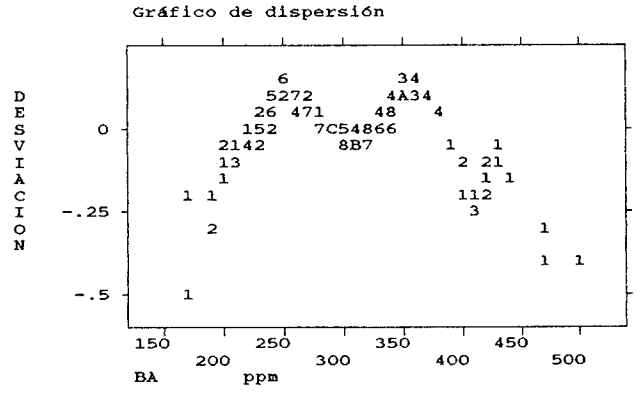


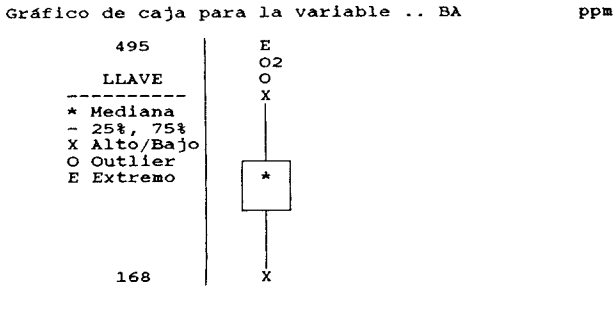
Gráfico de caja para la variable .. W ppm

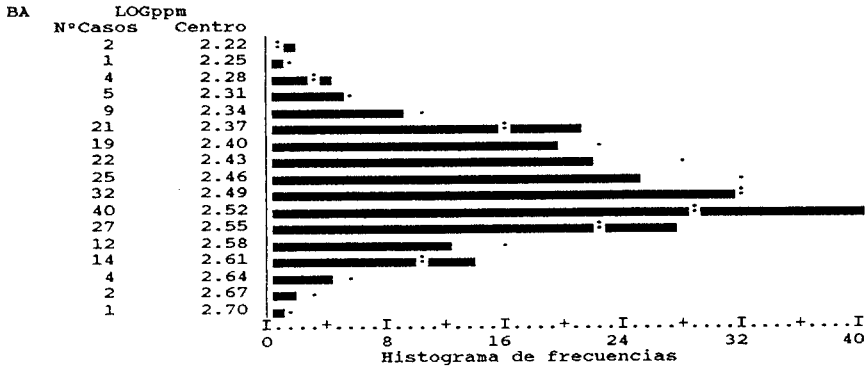


Media	305.029	Std Err	3.923	Mediana	307.000
Moda	313.000	Std Dev	60.773	Varianza	3693.376
Angulos.	-.089	S E Ang.	.313	Asim.	.239
S E Asim.	.157	Rango	327.000	Mínimo	168.000
Máximo	495.000	Suma	73207.000		
Casos válidos	240	Casos eliminados	0		

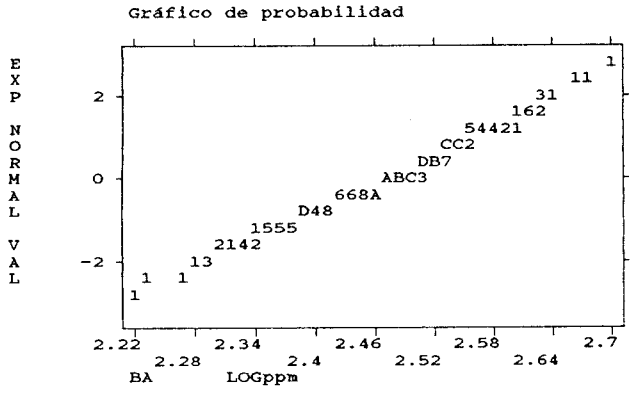


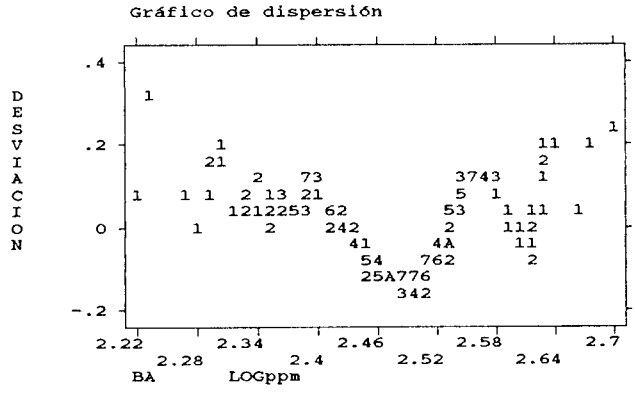


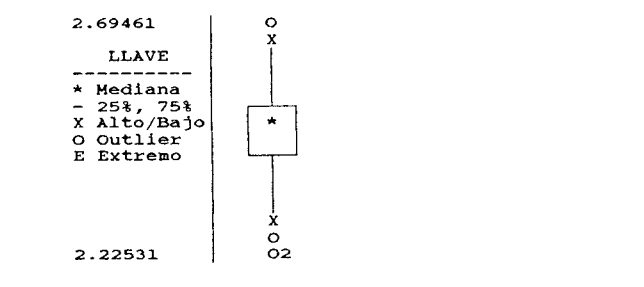


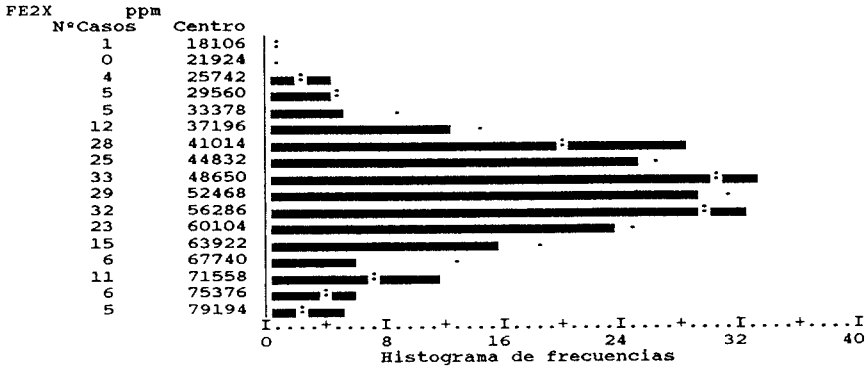


Media	2.476	Std Err	.006	Mediana	2.487
Moda	2.496	Std Dev	.088	Varianza	.008
Angulos .	-.129	S E Ang.	.313	Asim.	-.297
S E Asim.	.157	Rango	.469	Mínimo	2.225
Máximo	2.695	Suma	594.132		
Casos válidos	240	Casos eliminados	0		

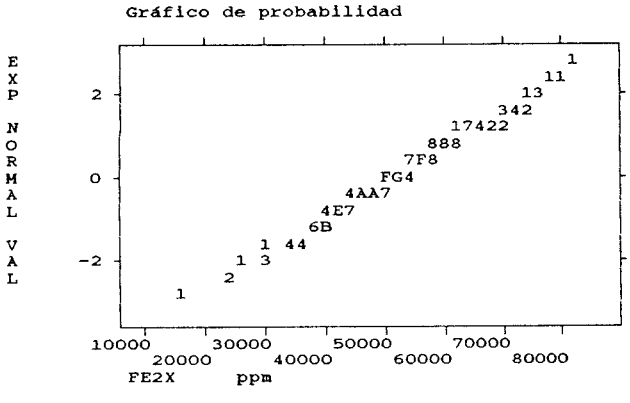


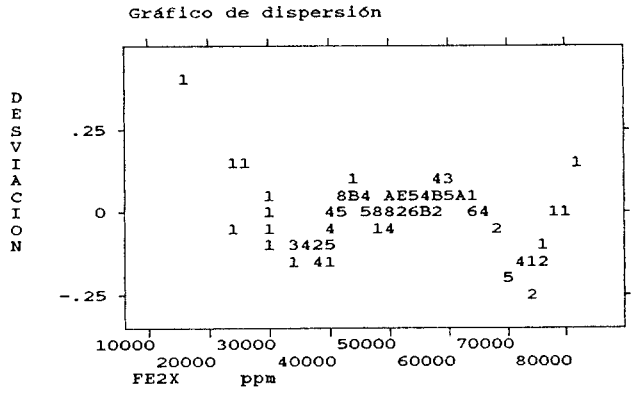


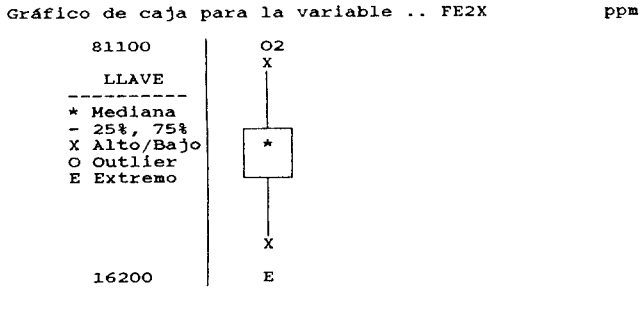


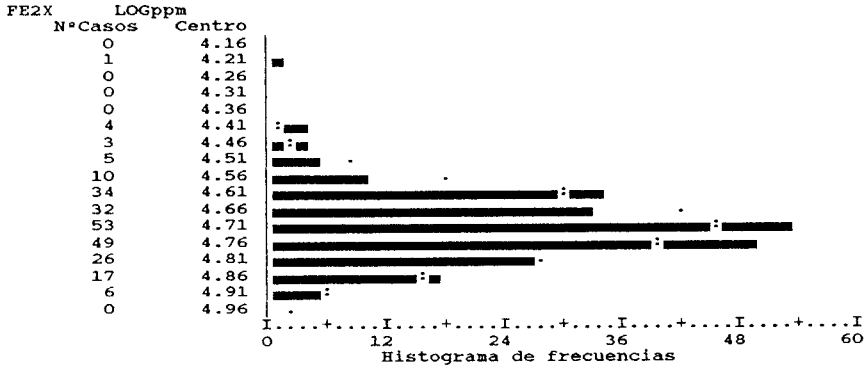


Media	51953.333	Std Err	748.419	Mediana	51350.000
Moda	41900.000	Std Dev	11594.461	Varianza	134431537
Angulos.	.061	S E Ang.	.313	Asim.	.093
S E Asim.	.157	Rango	64900.000	Mínimo	16200.000
Máximo	81100.000	Suma	12468800.0		
Casos válidos	240	Casos eliminados	0		

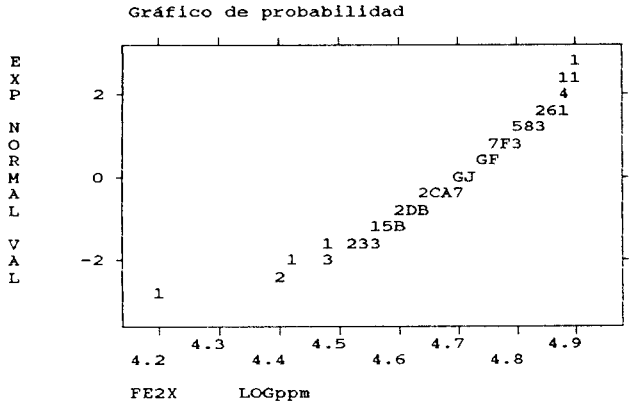


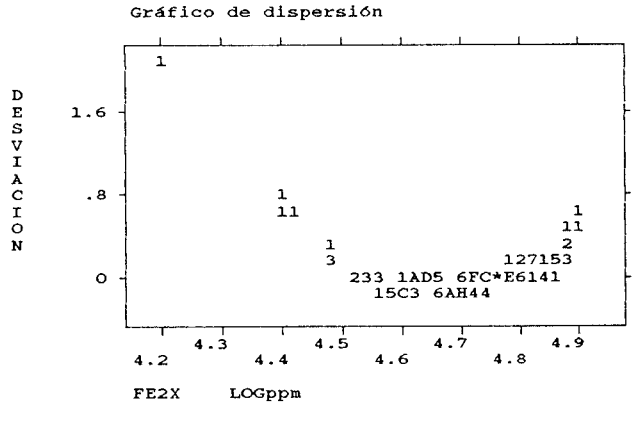


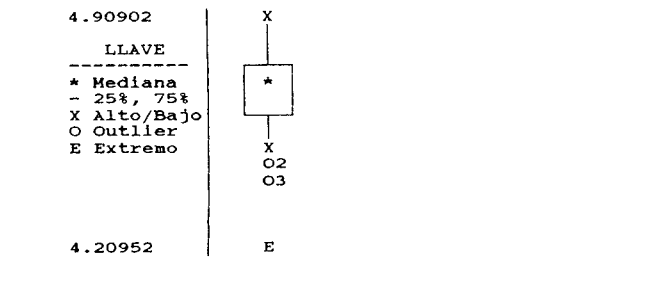




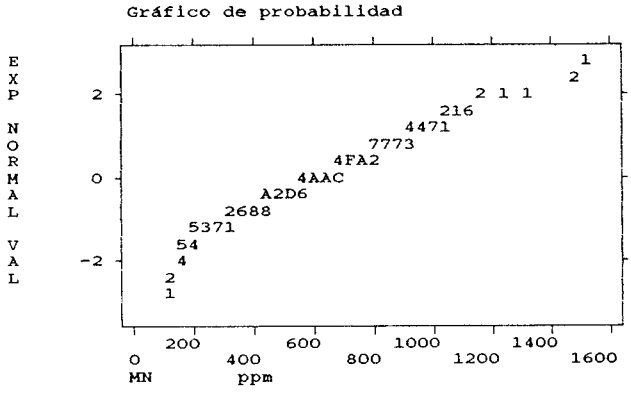
Media	4.704	Std Err	.007	Mediana	4.711
Moda	4.622	Std Dev	.104	Varianza	.011
Angulos.	2.038	S E Ang.	.313	Asim.	-.826
S E Asim.	.157	Rango	.700	Mínimo	4.210
Máximo	4.909	Suma	1128.959		
Casos válidos	240	Casos eliminados	0		

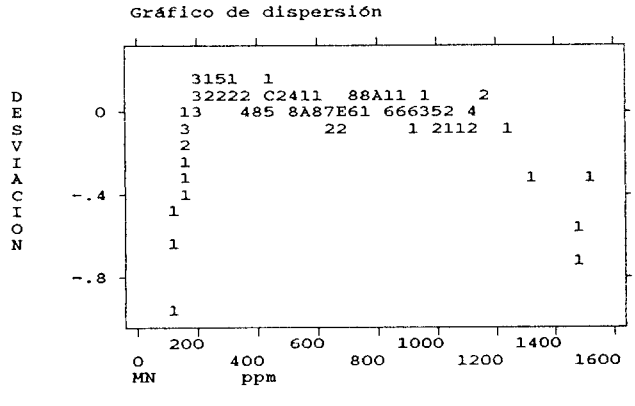


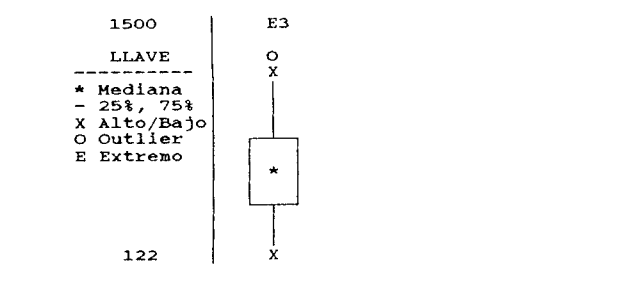


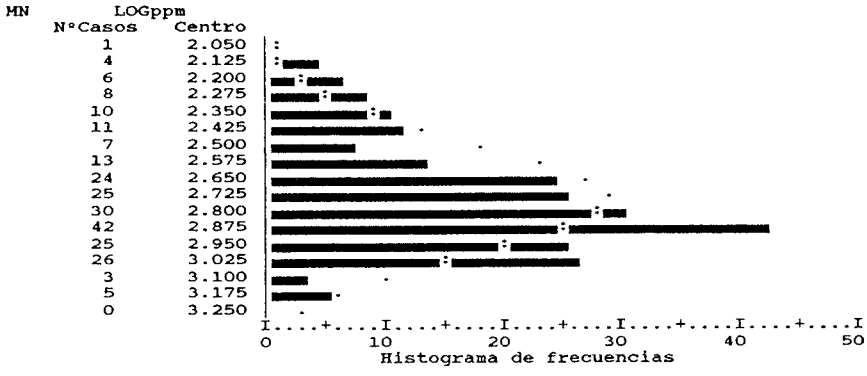


Media	626.479	Std Err	19.516	Mediana	621.000
Moda	707.000	Std Dev	302.343	Varianza	91411.338
Angulos.	-.114	S E Ang.	.313	Asim.	.429
S E Asim.	.157	Rango	1378.000	Mínimo	122.000
Máximo	1500.000	Suma	150355.000		
Casos válidos	240	Casos eliminados	0		

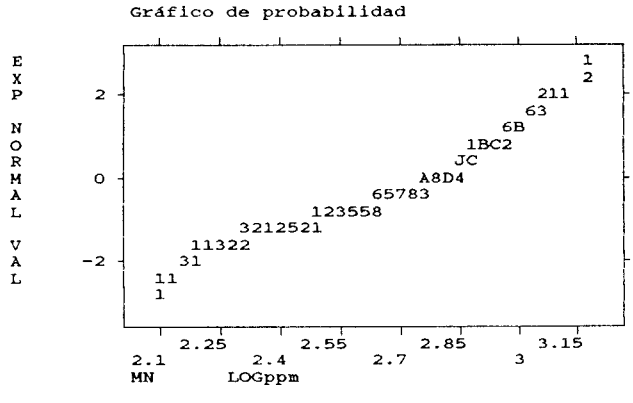


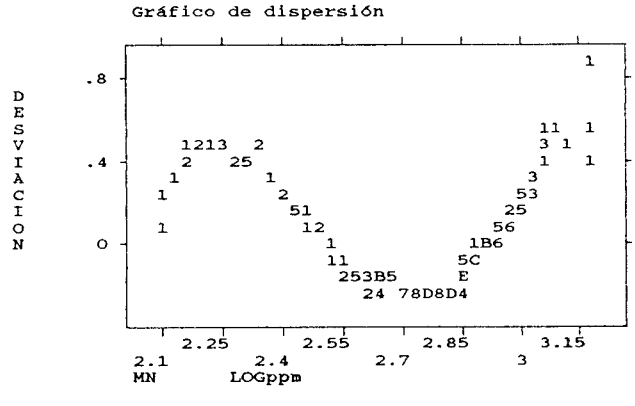


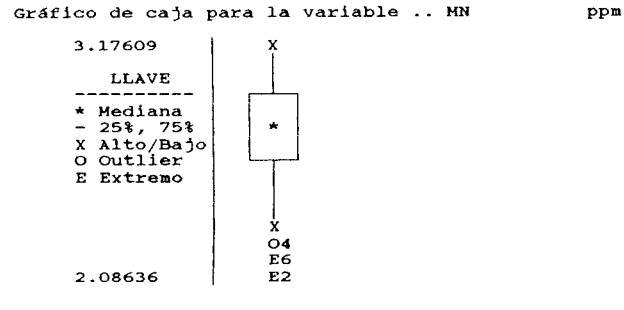




Media	2.736	Std Err	.016	Mediana	2.793
Moda	2.849	Std Dev	.248	Varianza	.061
Angulos.	-.118	S E Ang.	.313	Asim.	-.728
S E Asim.	.157	Rango	1.090	Mínimo	2.086
Máximo	3.176	Suma	656.640		
Casos válidos	240	Casos eliminados	0		

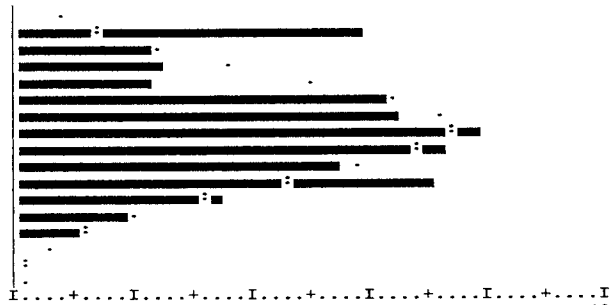






CU LOGppm

N°Casos	Centro
0	.95
23	1.00
9	1.05
10	1.10
9	1.15
25	1.20
26	1.25
31	1.30
29	1.35
22	1.40
28	1.45
14	1.50
7	1.55
5	1.60
0	1.65
1	1.70
0	1.75



Histograma de frecuencias

Media	1.290	Std Err	.010	Mediana	1.322
Moda	1.000	Std Dev	.161	Varianza	.026
Angulos.	-.648	S E Ang.	.314	Asim.	-.221
S E Asim.	.157	Rango	.708	Mínimo	1.000
Máximo	1.708	Suma	308.412		
Casos válidos	239	Casos eliminados	1		

Gráfico de probabilidad

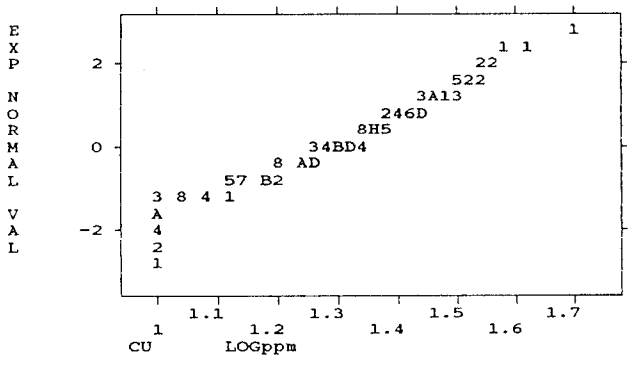


Gráfico de dispersión

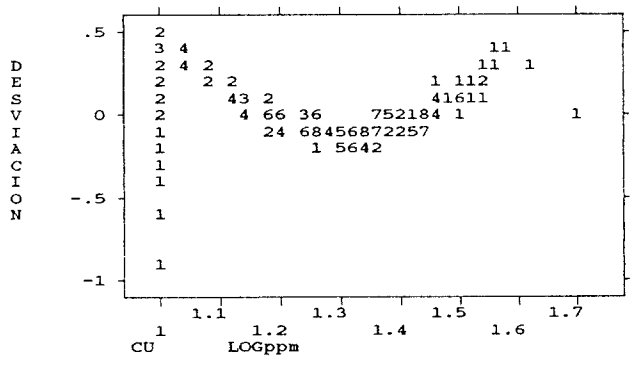
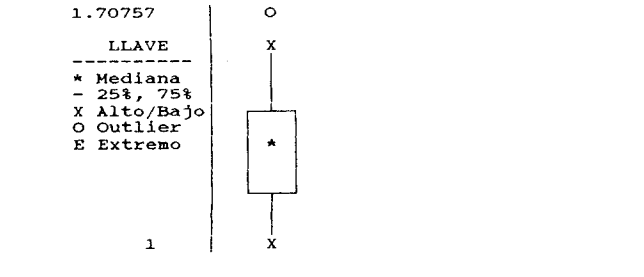
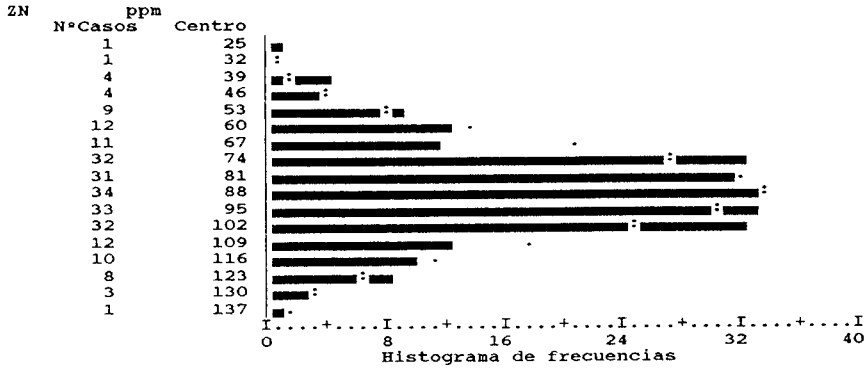
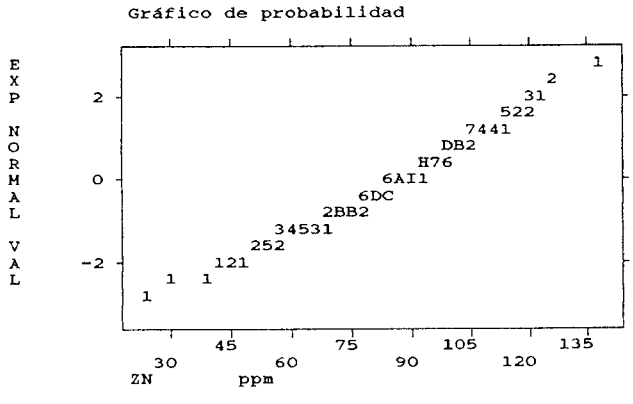


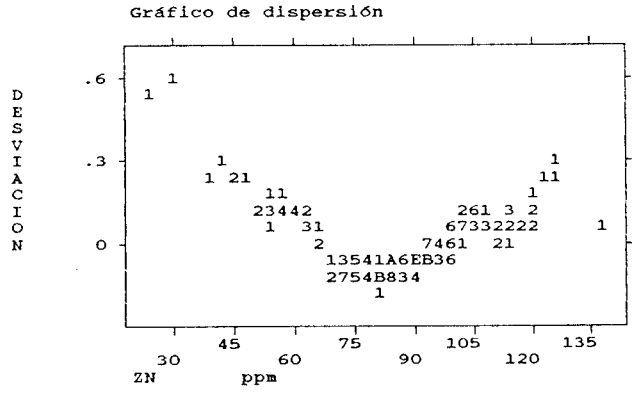
Gráfico de caja para la variable .. CU LOGppm

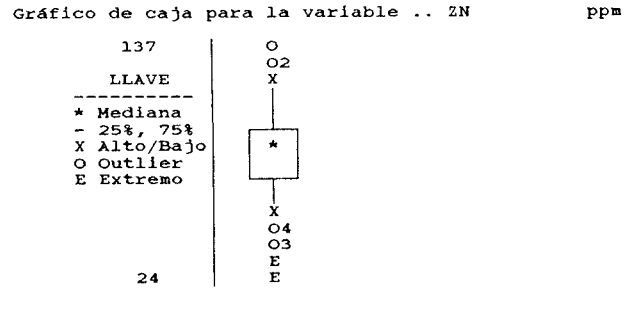


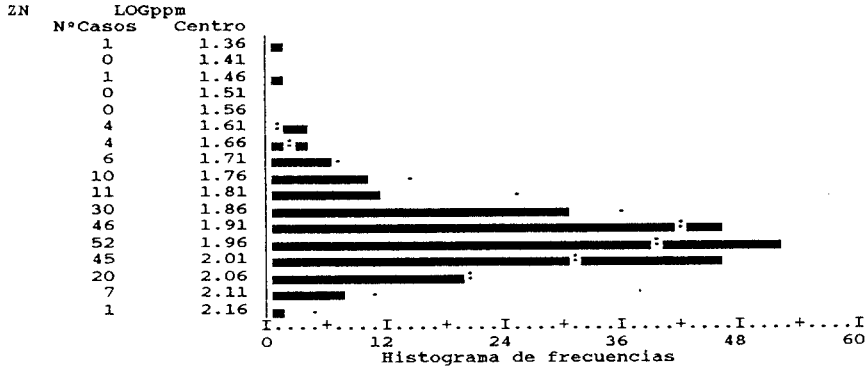


Media	86.437	Std Err	1.280	Mediana	87.500
Moda	89.000	Std Dev	19.745	Varianza	389.876
Angulos.	.274	S E Ang.	.314	Asim.	-.308
S E Asim.	.158	Rango	113.000	Mínimo	24.000
Máximo	137.000	Suma	20572.000		
Casos válidos	238	Casos eliminados	2		

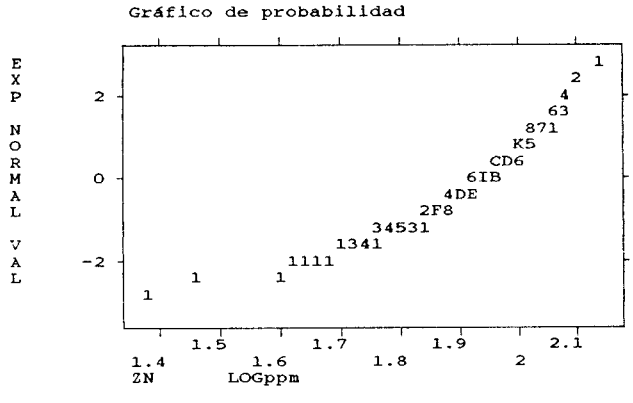


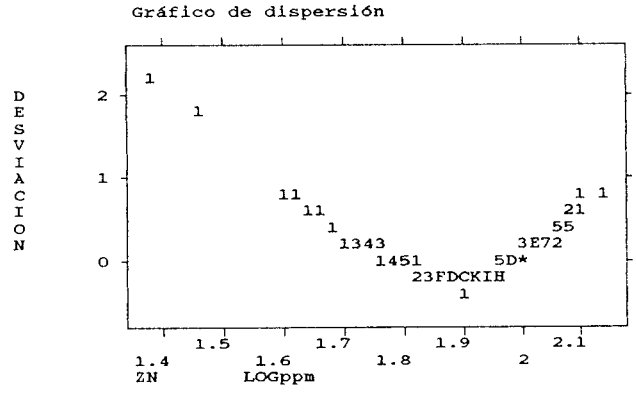


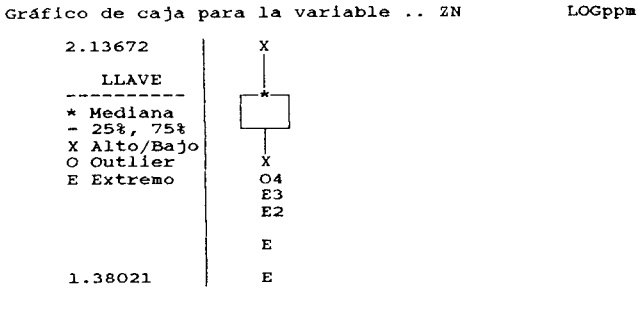


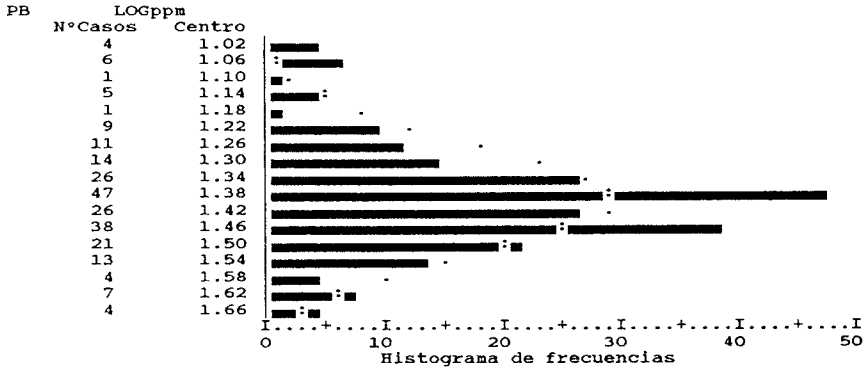


Media	1.923	Std Err	.007	Mediana	1.942
Moda	1.949	Std Dev	.113	Varianza	.013
Angulos.	3.112	S E Ang.	.314	Asim.	-1.327
S E Asim.	.158	Rango	.757	Mínimo	1.380
Máximo	2.137	Suma	457.791		
Casos válidos	238	Casos eliminados	2		

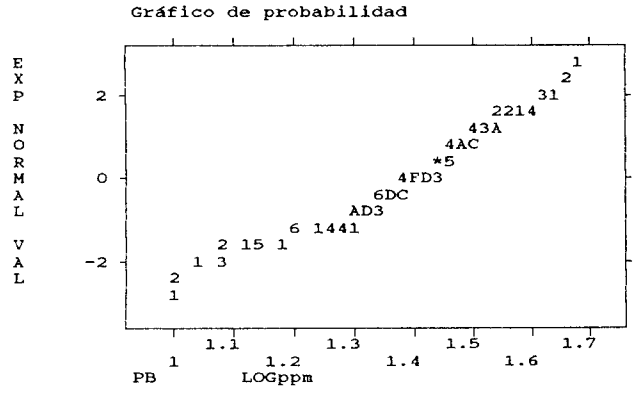


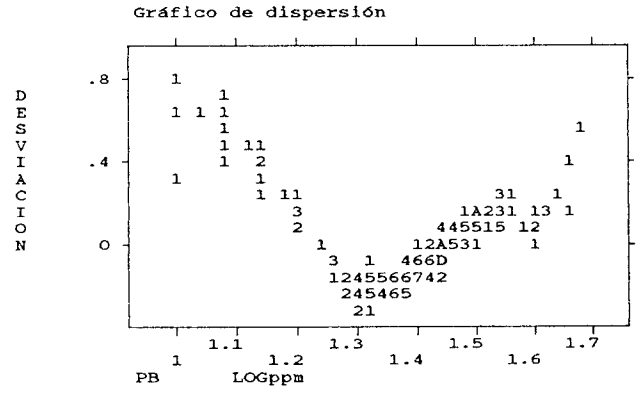


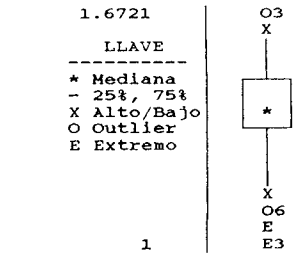


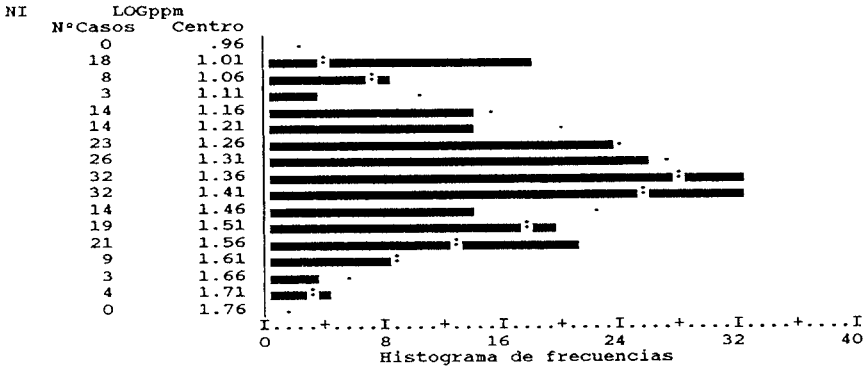


Media	1.389	Std Err	.008	Mediana	1.398
Moda	1.380	Std Dev	.128	Varianza	.016
Angulos.	.932	S E Ang.	.315	Asim.	-.692
S E Asim.	.158	Rango	.672	Mínimo	1.000
Máximo	1.672	Suma	329.207		
Casos válidos	237	Casos eliminados	3		

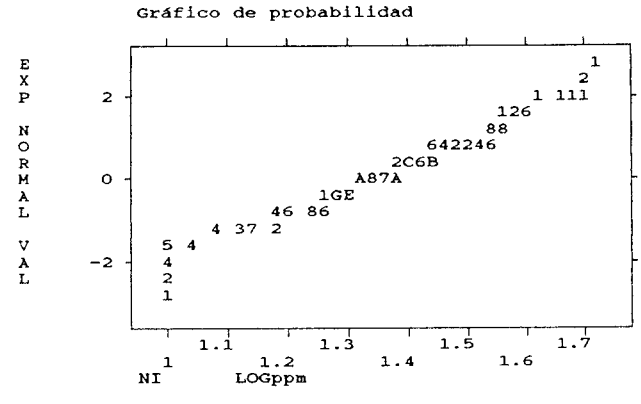


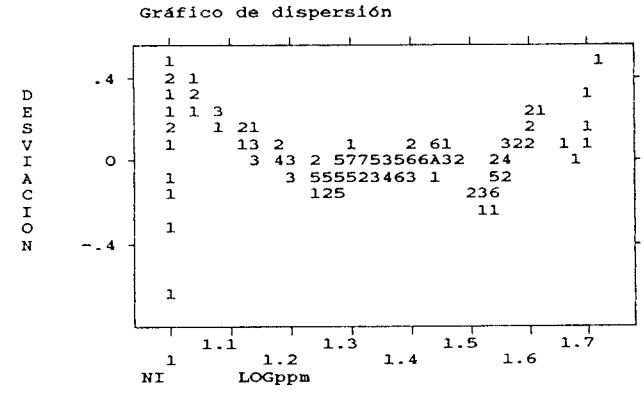


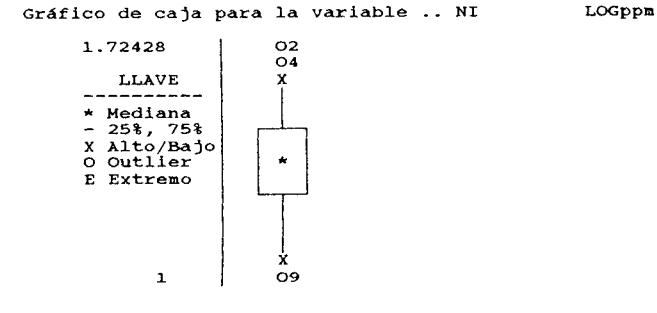


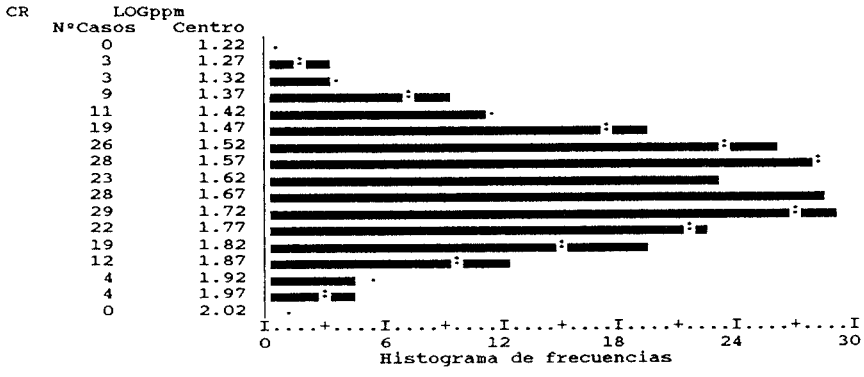


Media	1.348	Std Err	.011	Mediana	1.362
Moda	1.000	Std Dev	.173	Varianza	.030
Angulos.	-.401	S E Ang.	.313	Asim.	-.312
S E Asim.	.157	Rango	.724	Mínimo	1.000
Máximo	1.724	Suma	323.499		
Casos válidos	240	Casos eliminados	0		

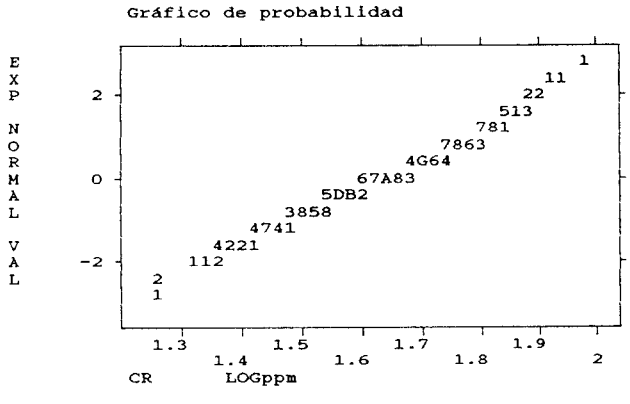


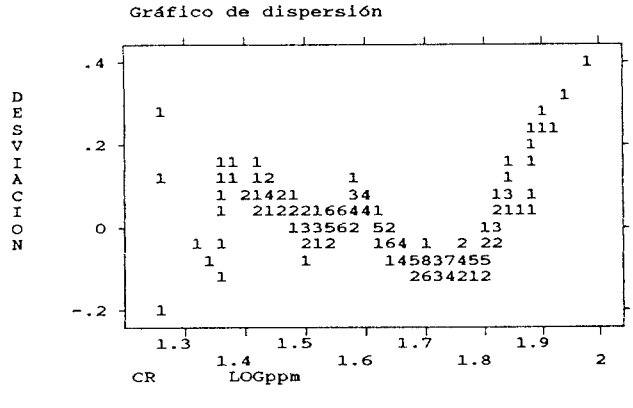


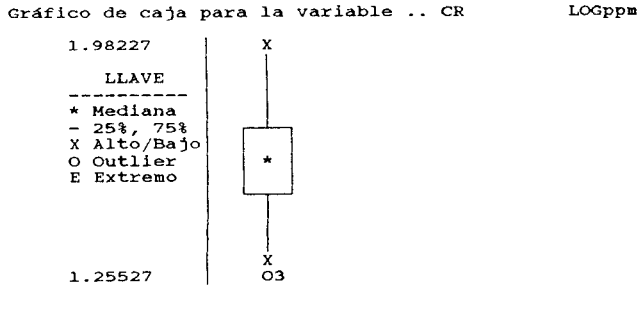


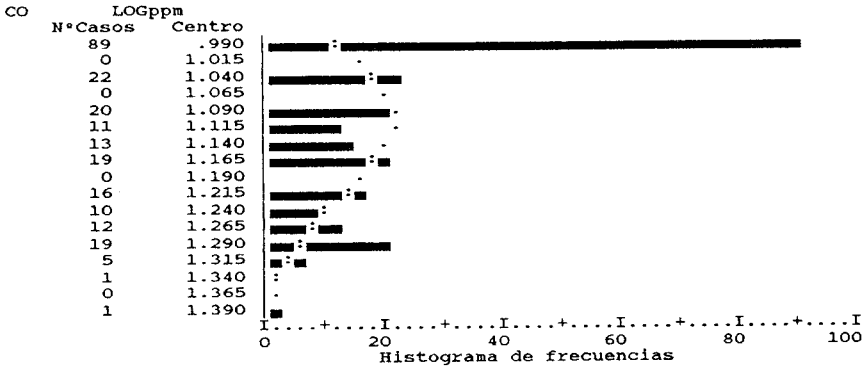


Media	1.636	Std Err	.010	Mediana	1.643
Moda	1.580	Std Dev	.153	Varianza	.023
Angulos.	-.477	S E Ang.	.313	Asim.	-.131
S E Asim.	.157	Rango	.727	Mínimo	1.255
Máximo	1.982	Suma	392.679		
Casos válidos	240	Casos eliminados	0		

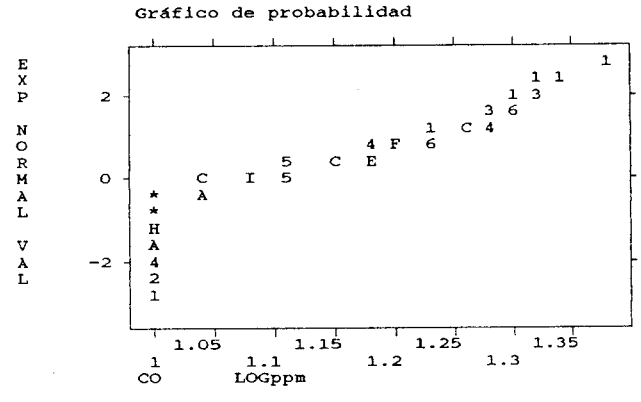


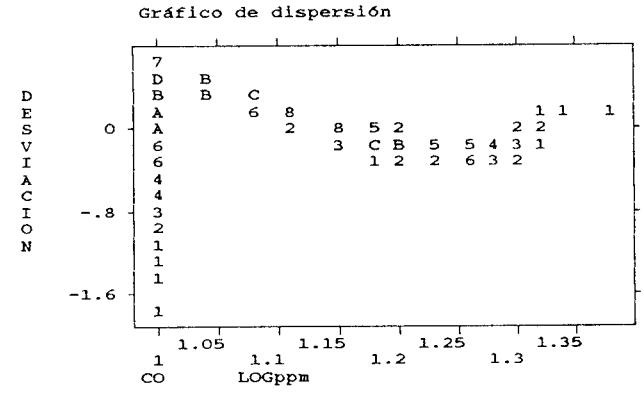


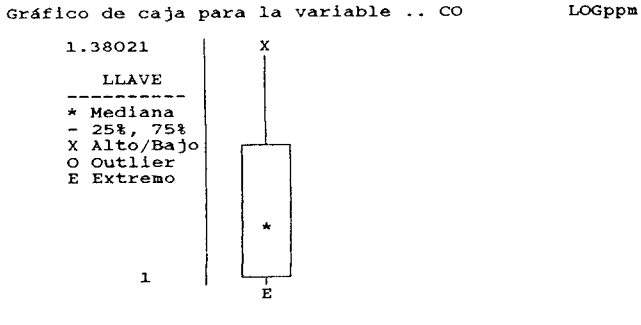




Media	1.107	Std Err	.007	Mediana	1.079
Moda	1.000	Std Dev	.109	Varianza	.012
Angulos.	-1.091	S E Ang.	.314	Asim.	.542
S E Asim.	.158	Rango	.380	Mínimo	1.000
Máximo	1.380	Suma	263.457		
Casos válidos	238	Casos eliminados	2		

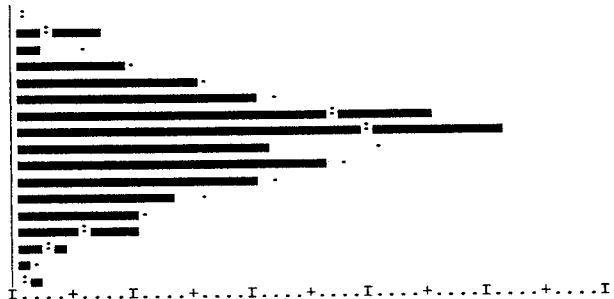






P LOGppm

N°Casos	Centro
1	2.70
7	2.73
2	2.76
9	2.79
15	2.82
20	2.85
35	2.88
41	2.91
21	2.94
26	2.97
20	3.00
13	3.03
10	3.06
10	3.09
4	3.12
1	3.15
2	3.18



Histograma de frecuencias

Media	2.927	Std Err	.006	Mediana	2.915
Moda	2.884	Std Dev	.092	Varianza	.008
Angulos.	-.142	S E Ang.	.315	Asim.	.172
S E Asim.	.158	Rango	.471	Mínimo	2.706
Máximo	3.177	Suma	693.592		
Casos válidos	237	Casos eliminados	3		

Gráfico de probabilidad

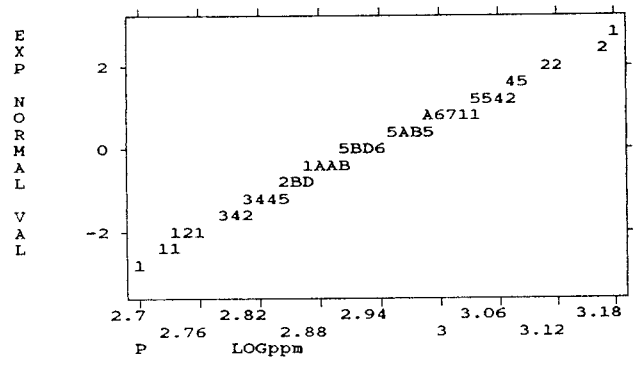


Gráfico de dispersión

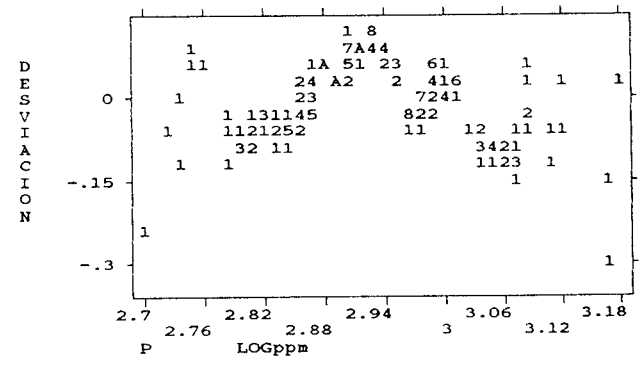
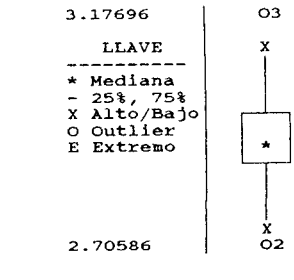
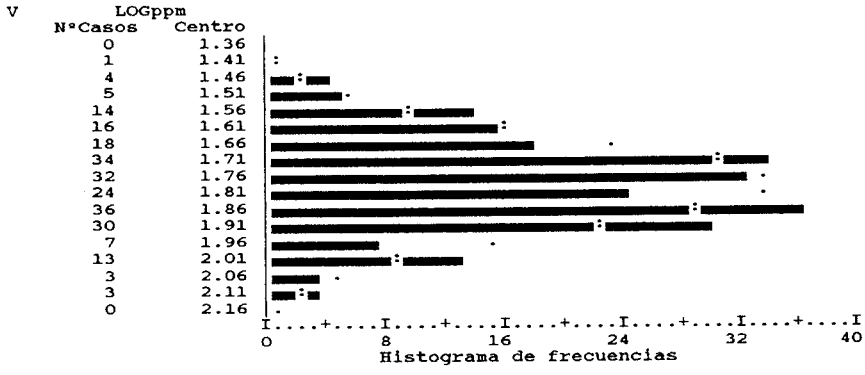
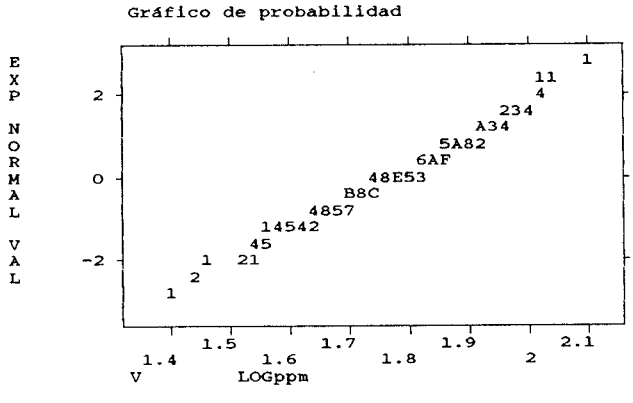


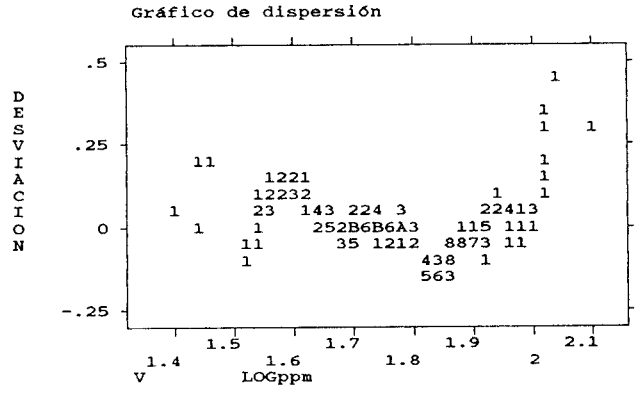
Gráfico de caja para la variable .. P LOGppm

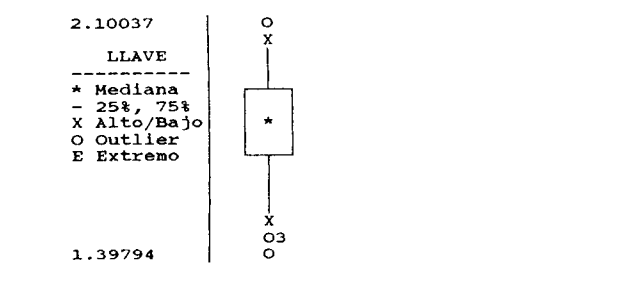




Media	1.781	Std Err	.009	Mediana	1.778
Moda	1.778	Std Dev	.140	Varianza	.020
Angulos.	-.320	S E Ang.	.313	Asim.	-.130
S E Asim.	.157	Rango	.716	Mínimo	1.398
Máximo	2.114	Suma	427.352		
Casos válidos	240	Casos eliminados	0		

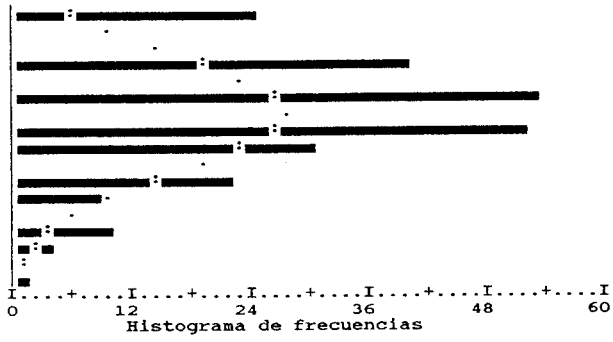






Y LOGppm

N°Casos	Centro
24	.70
0	.73
0	.76
39	.79
0	.82
53	.85
0	.88
51	.91
30	.94
0	.97
21	1.00
8	1.03
0	1.06
9	1.09
3	1.12
1	1.15
1	1.18



Histograma de frecuencias

Media	.880	Std Err	.007	Mediana	.903
Moda	.845	Std Dev	.105	Varianza	.011
Angulos.	-.344	S E Ang.	.313	Asim.	.174
S E Asim.	.157	Rango	.477	Mínimo	.699
Máximo	1.176	Suma	211.306		
Casos válidos	240	Casos eliminados	0		

Gráfico de probabilidad

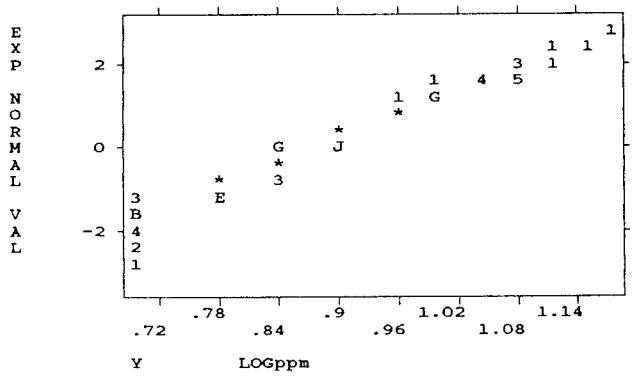


Gráfico de dispersión

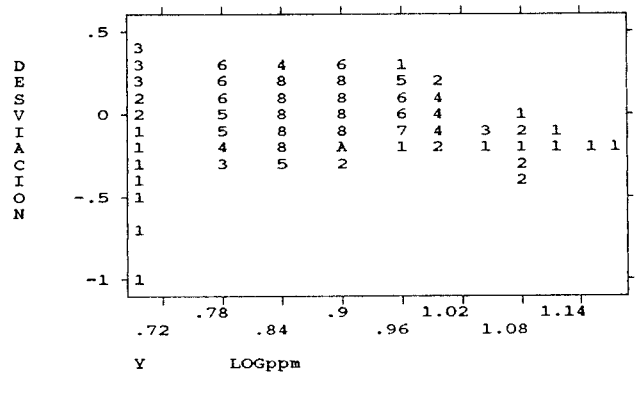
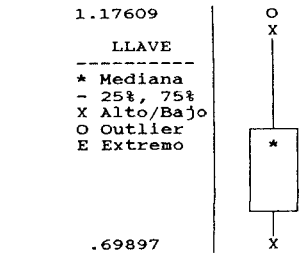
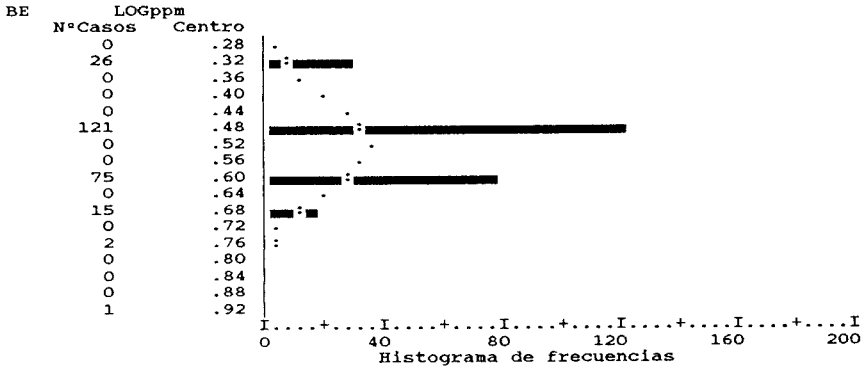
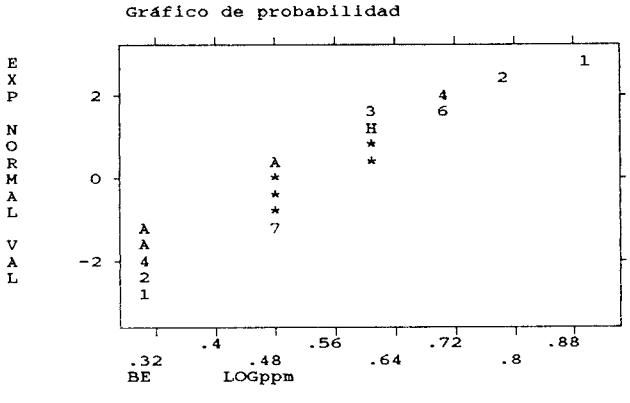


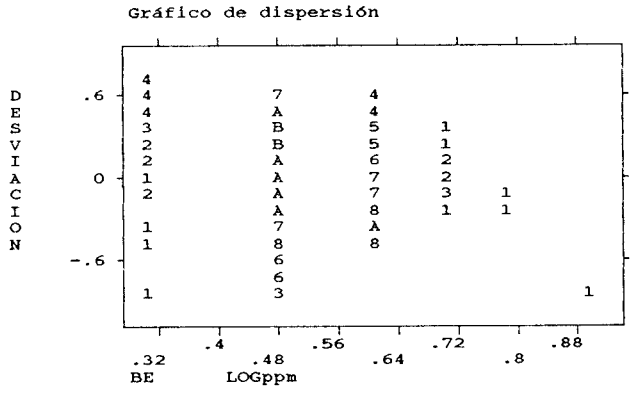
Gráfico de caja para la variable .. Y LOGppm

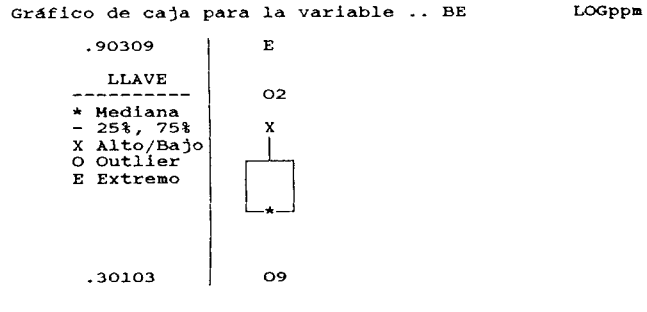




Media	.515	Std Err	.007	Mediana	.477
Moda	.477	Std Dev	.107	Varianza	.011
Angulos.	.533	S E Ang.	.313	Asim.	-.088
S E Asim.	.157	Rango	.602	Mínimo	.301
Máximo	.903	Suma	123.657		
Casos válidos	240	Casos eliminados	0		

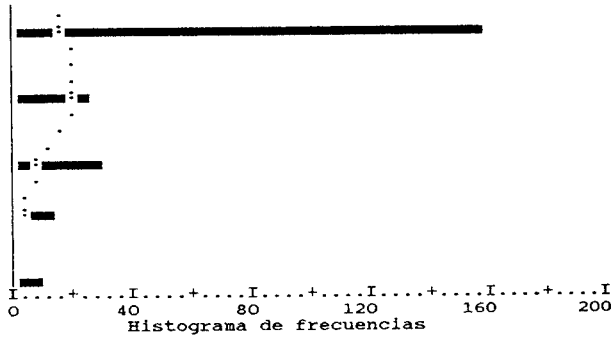






B LOGppm

N°Casos	Centro
0	.99
154	1.00
0	1.01
0	1.02
0	1.03
22	1.04
0	1.05
0	1.06
0	1.07
29	1.08
0	1.09
0	1.10
13	1.11
0	1.12
0	1.13
0	1.14
7	1.15



Histograma de frecuencias

Media	1.025	Std Err	.003	Mediana	1.000
Moda	1.000	Std Dev	.042	Varianza	.002
Angulos.	.830	S E Ang.	.323	Asim.	1.438
S E Asim.	.162	Rango	.146	Mínimo	1.000
Máximo	1.146	Suma	230.711		
Casos válidos	225	Casos eliminados	15		

Gráfico de probabilidad

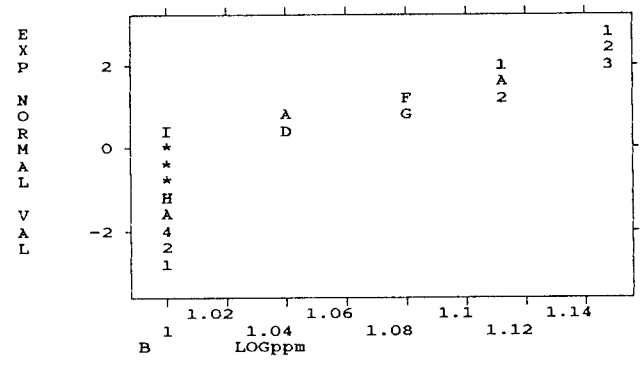


Gráfico de dispersión

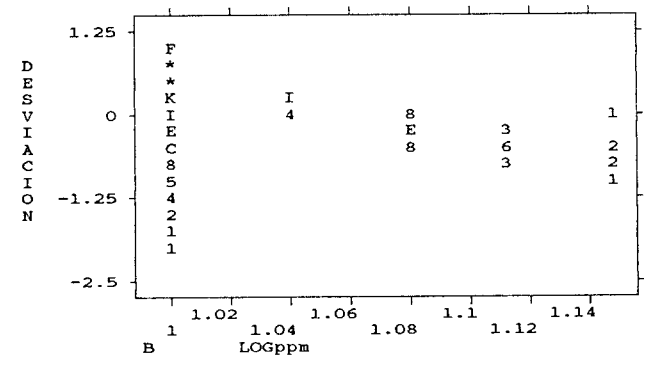
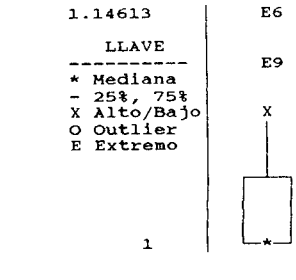


Gráfico de caja para la variable .. B LOGppm



1.1.3. ANÁLISIS BIVARIANTE

Variable	Casos	Media	Std Dev
AS	211	1.7070	.2688
CU	211	1.2882	.1558
PB	211	1.3905	.1274
NI	211	1.3473	.1669
CR	211	1.6329	.1478
CO	211	1.1070	.1074
P	211	2.9322	.0913
V	211	1.7754	.1337
Y	211	.8769	.1015
BE	211	3.3412	.8492
B	211	1.0256	.0416
BA	211	303.8957	61.0161
FE2X	211	51654.5024	11335.4403
MN	211	630.6351	292.1775
ZN	211	86.7299	18.9095

Matriz de correlación

	AS	CU	PB	NI	CR	CO
AS	1.0000					
CU	.0194	1.0000				
PB	.0515	.0396	1.0000			
NI	-.0024	.7336**	-.0077	1.0000		
CR	-.0623	.7676**	-.1265	.8212**	1.0000	
CO	-.0104	.6489**	-.0151	.7664**	.6930**	1.0000
P	.2425**	.3147**	.1975*	.1011	.0721	.1118
V	-.0665	.7389**	-.1325	.7910**	.9563**	.6829**
Y	.1430	.2147**	.0250	.1915*	.2867**	.2137**
BE	-.1261	.3284**	.0105	.3075**	.2864**	.3637**
B	-.1747*	-.3089**	.1632*	-.1801*	-.1952*	-.1413
BA	-.0566	.3261**	.0007	.2505**	.4922**	.2877**
FE2X	-.1648*	.7138**	-.1807*	.7402**	.7951**	.6671**
MN	-.1020	.4775**	.0485	.4952**	.3767**	.5849**
ZN	-.0957	.7331**	-.0343	.7360**	.6978**	.6281**

	P	V	Y	BE	B	BA
P	1.0000					
V	.0444	1.0000				
Y	.2070*	.2992**	1.0000			
BE	.1006	.2548**	.2325**	1.0000		
B	-.1162	-.2016*	-.1183	.1255	1.0000	
BA	-.0262	.5144**	.3238**	.2761**	.1934*	1.0000
FE2X	.0990	.8117**	.1327	.2267**	-.2233**	.2201**
MN	.2960**	.3593**	-.0789	.1219	-.0825	-.0708
ZN	.2628**	.6720**	.1866*	.2116*	-.2903**	.0959

	FE2X	MN	ZN
AS	-.1648*	-.1020	-.0957
CU	.7138**	.4775**	.7331**
PB	-.1807*	.0485	-.0343
NI	.7402**	.4952**	.7360**
CR	.7951**	.3767**	.6978**
CO	.6671**	.5849**	.6281**
P	.0990	.2960**	.2628**
V	.8117**	.3593**	.6720**
Y	.1327	-.0789	.1866*
BE	.2267**	.1219	.2116*
B	-.2233**	-.0825	-.2903**
BA	.2201**	-.0708	.0959
FE2X	1.0000	.5486**	.8208**
MN	.5486**	1.0000	.6103**
ZN	.8208**	.6103**	1.0000

N DE CASOS: 211 1-tailed Signif: * - .01 ** - .001

1.1.4. ANÁLISIS MULTIVARIANTE

1.1.4.1. Test de adecuación multivariante

Después de realizar los primeros test adecuación multivariante se concluyó la eliminación de 5 casos *outliers* multivariantes (muestras 266, 267, 270, 283 y 362):

```
Variable dependiente =  REF

Beginning Block Number  1.  Method:  Enter

   AS        BA        FE2X      MN        CU        ZN        PB        NI
   CR        CO        P         V         Y         BE        B

Variable(s) Entered on Step Number
   1..     B          LOGppm
   2..     MN         ppm
   3..     Y          LOGppm
   4..     PB         LOGppm
   5..     AS         LOGppm
   6..     BE         LOGppm
   7..     P          LOGppm
   8..     BA         ppm
   9..     NI         LOGppm
  10..     FE2X       ppm
  11..     CO         LOGppm
  12..     CU         LOGppm
  13..     ZN         ppm
  14..     V          LOGppm
  15..     CR         LOGppm

Multiple R            .83448
R Square              .69635
Adjusted R Square     .67238
Standard Error      38.62523

Analisis de
la varianza
                 DF       Suma of Squares      Media Square
Regresión        15         650052.44369       43336.82958
Residual         190        283462.58544        1491.90834

F =       29.04792       Signif F = 0.0

        Variables en la ecuación

Variable              B        SE B       Beta          T  Sig T

B           -201.30492    79.59356    -.12333     -2.529  .0122
MN             .01380       .01426     .05995       .967  .3346
Y             2.79036    31.87389 4.1971E-03       .088  .9303
PB          -98.35369    24.49895    -.18048     -4.015  .0001
AS           86.45453    11.19480     .34584      7.723  .0000
BE          -98.12647    32.40944    -.15076     -3.028  .0028
P            77.42437    37.40576     .10419      2.070  .0398
BA             -.31109       .06700    -.28153     -4.643  .0000
NI          101.13598    42.33347     .24865      2.389  .0179
FE2X     -4.11462E-03 5.80626E-04    -.69468     -7.087  .0000
CO          -135.56126    46.02034    -.21658     -2.946  .0036
CU          -160.90742    36.13995    -.37225     -4.452  .0000
ZN             2.70512       .31836     .75817      8.497  .0000
V            149.43722    95.29595     .29596      1.568  .1185
CR           -53.00241    94.70939    -.11541      -.560  .5764

(Constant)   442.53534   151.70577                2.917  .0040

End Block Number   1   All requested variables entered.

Residuals Statistics:

                  Min          Max      Media  Std Dev     N

*PRED         190.8821     459.3216 321.1553   56.3115   206
*ZPRED         -2.3134       2.4536    .0000    1.0000   206
*SEPRED         5.3351      17.3657  10.4838    2.4485   206
*ADJPRED      189.5995     462.9645 321.4730   56.4236   206
*RESID       -112.4996      99.4746   -.0000   37.1853   206
*ZRESID        -2.9126       2.5754   -.0000     .9627   206
*SRESID        -3.0187       2.8225   -.0039    1.0040   206
*DRESID      -120.8451     119.4831   -.3177   40.4824   206
*SDRESID       -3.0856       2.8760   -.0036    1.0091   206
*MAHAL          2.9159      40.4425  14.9272    7.4146   206
*COOK D          .0000        .1002    .0056     .0106   206
*LEVER           .0142        .1973    .0728     .0362   206

Total Casos =      235
```

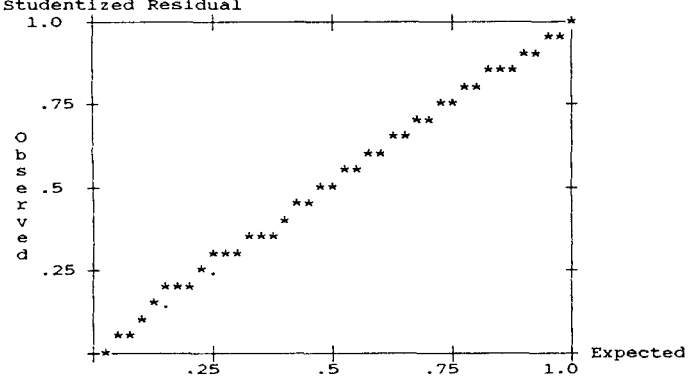
Outliers - Mahalanobis' Distance

Case #	*MAHAL
85	40.44253
62	33.89311
167	33.33397
68	33.20355
69	32.78747
29	32.68989
139	30.90963
19	30.82001
60	30.47386
104	28.80153

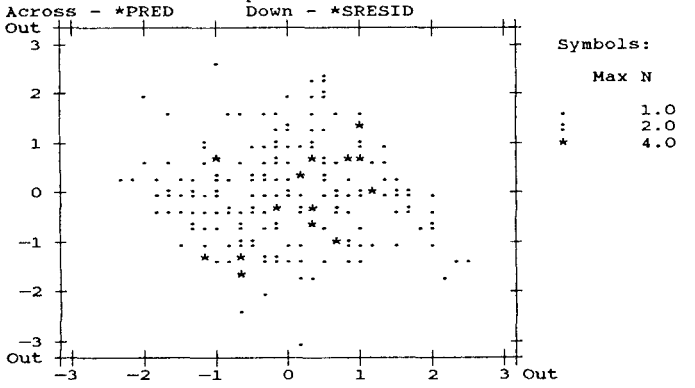
Histograma - Studentized Residual

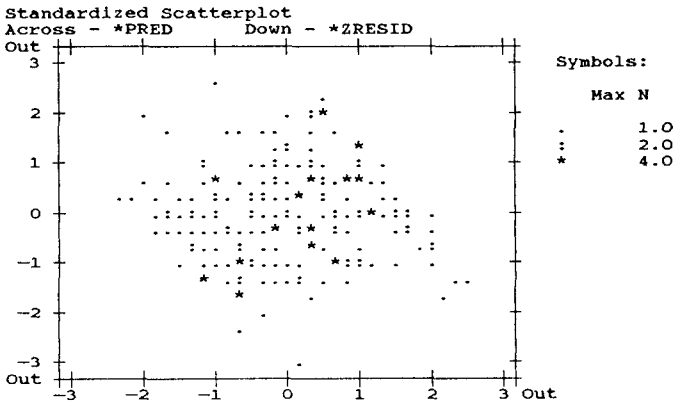
```
NExp N       (* = 1 Casos,     . : = Normal Curve)
0  .16   Out
0  .32  3.00
1  .80  2.67 :
3 1.84  2.33 *:*
5 3.76  2.00 ***:*
8 6.89  1.67 ******:*
8 11.3  1.33 ********  .
* 16.6  1.00 *************    .
* 21.9   .67 **********************:***
* 25.8   .33 ************************  .
* 27.3  0.0  ***************************:***
* 25.8  -.33 ************************:*
* 21.9  -.67 *****************     .
* 16.6 -1.00 ****************:*
* 11.3 -1.33 **********:*********
6 6.89 -1.67 ******.
1 3.76 -2.00 *   .
1 1.84 -2.33 *.
0  .80 -2.67 .
1  .32 -3.00 *
0  .16   Out
```

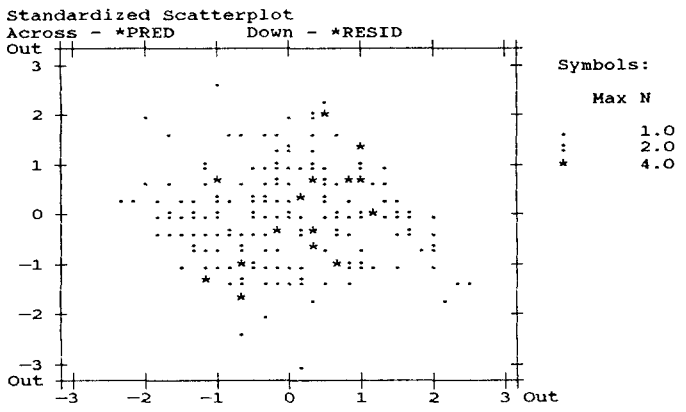
Normal Probability (P-P) Plot
Studentized Residual

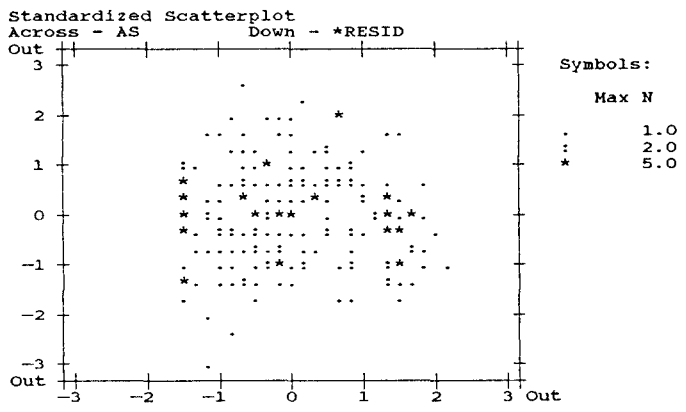


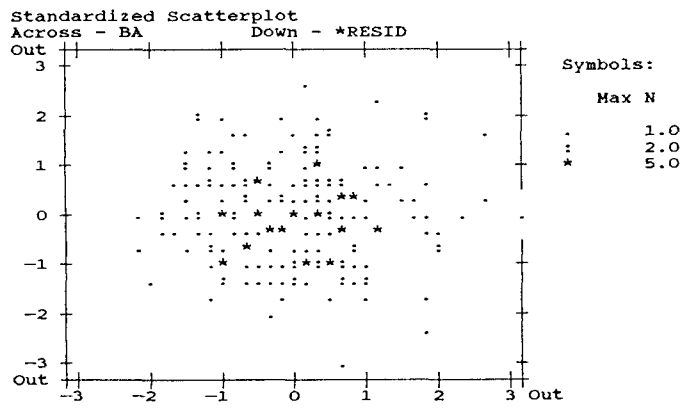
Standardized Scatterplot
Across - *PRED Down - *SRESID

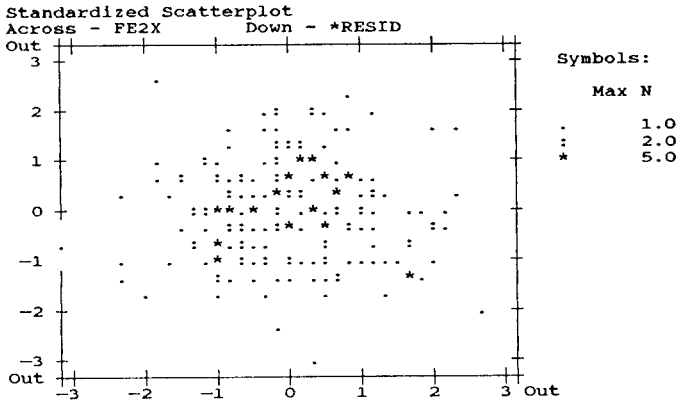


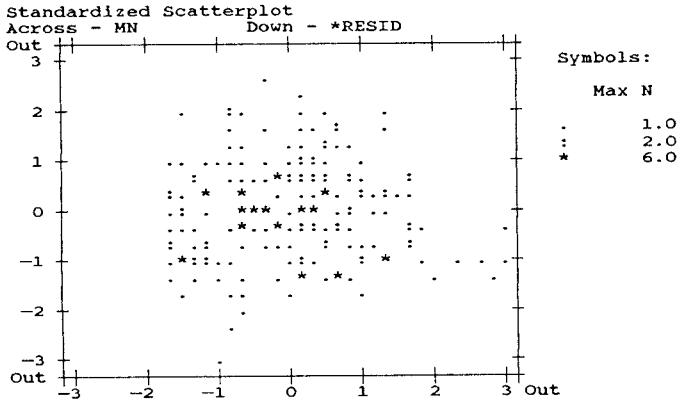

Standardized Scatterplot
Across - *PRED Down - *ZRESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0
* 4.0

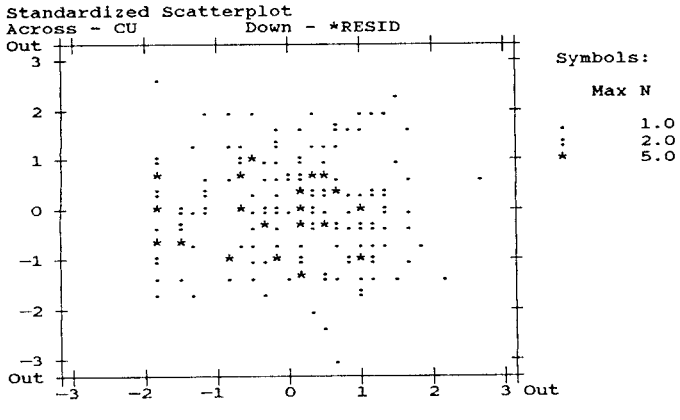

Standardized Scatterplot
Across - *PRED Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0
* 4.0

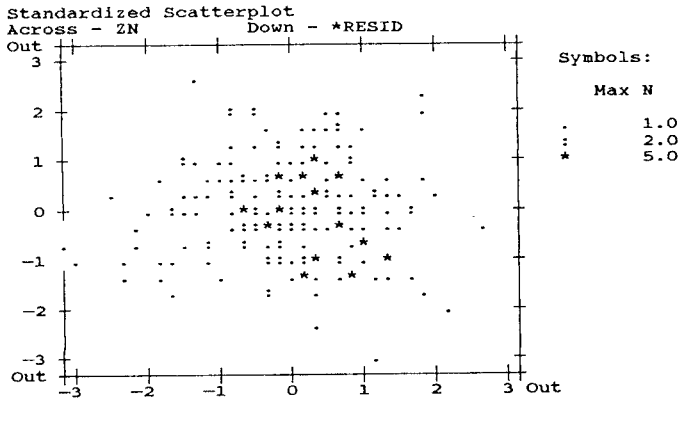

Standardized Scatterplot
Across - AS Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0
* 5.0

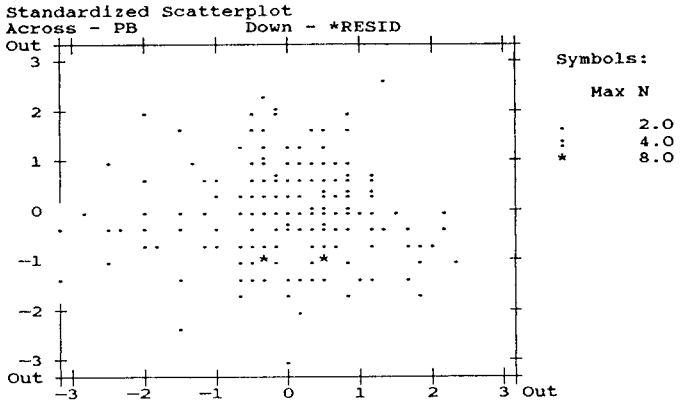

Standardized Scatterplot
Across - BA Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0
* 5.0

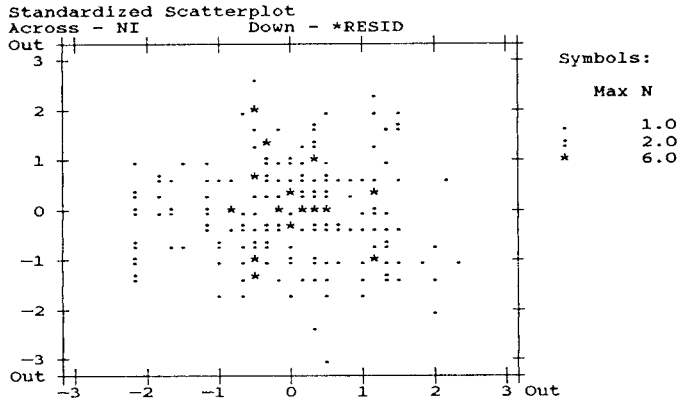

Standardized Scatterplot
Across - FE2X Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0
* 5.0

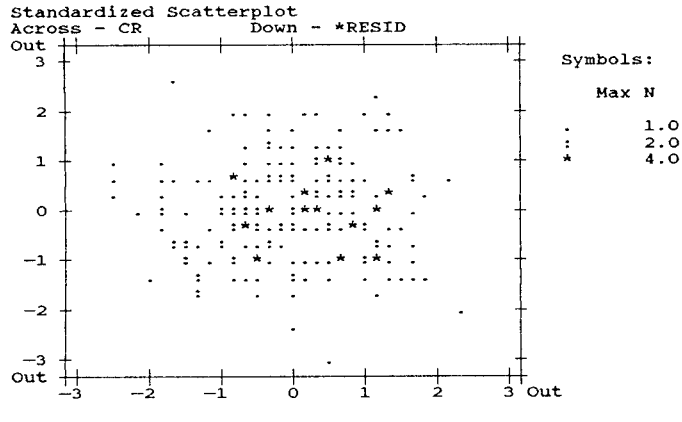

Standardized Scatterplot
Across - MN Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0
* 6.0

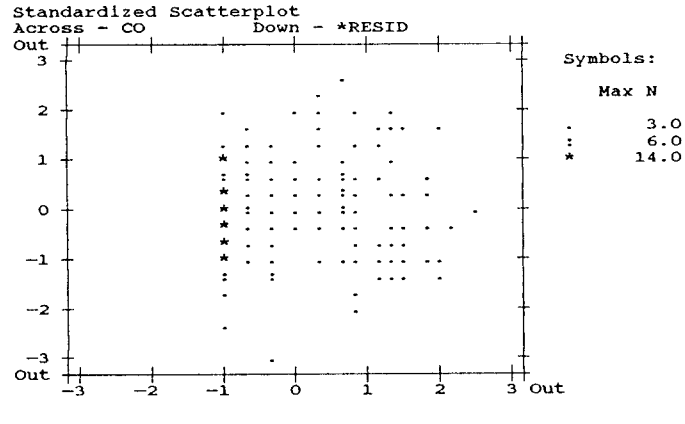

Standardized Scatterplot
Across - CU Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0
* 5.0

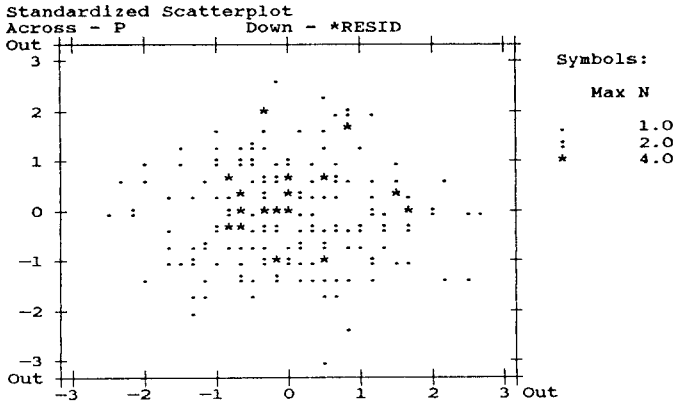

Standardized Scatterplot
Across - ZN Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0
* 5.0

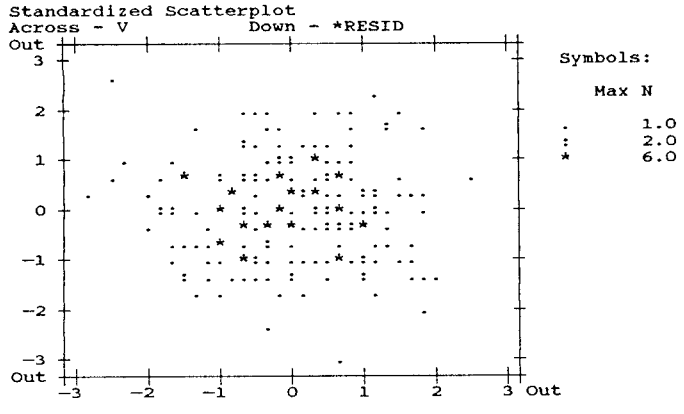

Standardized Scatterplot
Across - PB Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 2.0
: 4.0
* 8.0

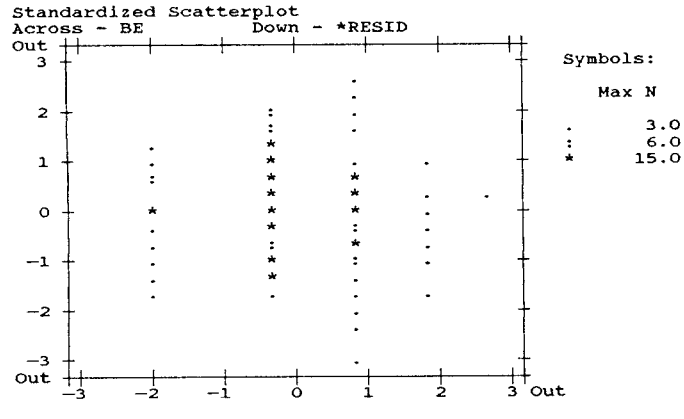

Standardized Scatterplot
Across - NI Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0
* 6.0

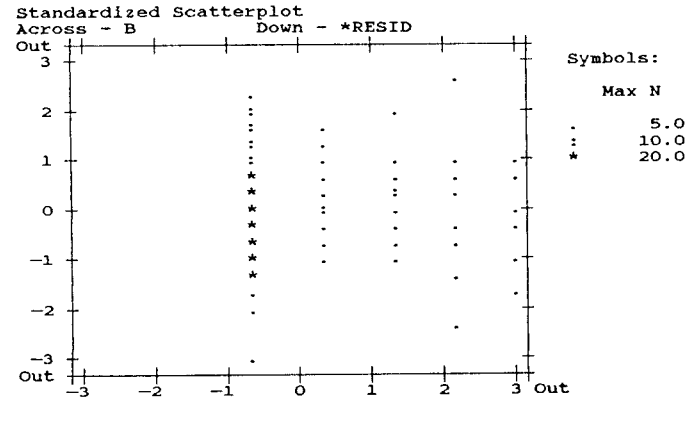

Standardized Scatterplot
Across - CR Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0
* 4.0


Standardized Scatterplot
Across - CO Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 3.0
: 6.0
* 14.0


Standardized Scatterplot
Across - P Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0
* 4.0


Standardized Scatterplot
Across - V Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0
* 6.0


Standardized Scatterplot
Across - BE Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 3.0
: 6.0
* 15.0


Standardized Scatterplot
Across - B Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 5.0
: 10.0
* 20.0

1.1.4.2. Análisis de componentes principales

	Media	Std Dev	Label
AS	1.71104	.26995	LOGppm
BA	304.35922	61.06939	ppm
FE2X	51639.80583	11392.97036	ppm
MN	627.30097	293.17944	ppm
CU	1.28556	.15612	LOGppm
ZN	86.62621	18.91318	ppm
PB	1.39282	.12383	LOGppm
NI	1.35097	.16590	LOGppm
CR	1.63201	.14694	LOGppm
CO	1.10817	.10781	LOGppm
P	2.93163	.09081	LOGppm
V	1.77701	.13365	LOGppm
Y	.87880	.10150	LOGppm
BE	3.30583	.77060	LOGppm
B	1.02532	.04134	LOGppm

Number of Casos = 206

Matriz de correlación:

	AS	BA	FE2X	MN	CU	ZN	PB
AS	1.00000						
BA	-.07030	1.00000					
FE2X	-.16774	.21629	1.00000				
MN	-.09448	-.06350	.54925	1.00000			
CU	.02606	.32773	.71669	.47857	1.00000		
ZN	-.09708	.08839	.81843	.61118	.73408	1.00000	
PB	.03341	-.00619	-.18637	.05058	.06241	-.03052	1.00000
NI	-.01883	.25880	.76980	.52252	.77412	.77441	-.02592
CR	-.07357	.48706	.81395	.39342	.77733	.71419	-.14883
CO	-.02038	.28775	.66912	.59286	.66252	.63147	-.02444
P	.25110	-.01503	.10248	.28818	.32699	.27030	.17185
V	-.08143	.50591	.81554	.37018	.75421	.67467	-.15880
Y	.13688	.31945	.12625	-.07487	.22680	.18362	.02281
BE	-.08893	.38004	.26425	.09192	.36410	.24686	.04959
B	-.17080	.21628	-.21354	-.08786	-.30685	-.28028	.15031

	NI	CR	CO	P	V	Y	BE
NI	1.00000						
CR	.85772	1.00000					
CO	.77505	.71507	1.00000				
P	.10740	.07434	.11438	1.00000			
V	.81553	.97269	.68627	.04956	1.00000		
Y	.19170	.30338	.20734	.22647	.28902	1.00000	
BE	.38027	.37870	.43073	.07100	.34942	.30655	1.00000
B	-.18516	-.20044	-.12923	-.14342	-.19118	-.10371	.09360

Determinant of Correlation Matrix = .0000056

Inversa de la Matriz de correlación:

	AS	BA	FE2X	MN	CU
AS	1.26112				
BA	.07532	2.29429			
FE2X	.35808	.63305	6.01030		
MN	.19119	.26014	-.40487	2.42947	
CU	-.13669	-.54958	-.47659	-.05284	4.33264
ZN	.28231	.40965	-2.54730	-.70984	-.64176
PB	.06671	-.05310	.58013	-.07513	-.55207
NI	-.43658	1.03921	.52279	-.11457	-.92200
CR	.24426	-1.11294	.43725	.50328	-.66656
CO	-.19381	-.22856	-.36495	-1.24517	-.14997
P	-.35516	-.01951	.18159	-.50726	-.80999
V	-.10438	-1.21623	-3.62811	.03975	-.54493
Y	-.13189	-.19308	.35128	.37640	.32336
BE	.19224	-.28273	-.02120	.31830	-.31715
B	.16004	-.66022	-.26715	-.23764	.74086

	ZN	PB	NI	CR	CO
ZN	4.97061				
PB	-.17902	1.26448			
NI	-1.49503	-.33137	6.79296		
CR	-1.55625	.70869	-4.74136	26.52732	
CO	.42170	.00550	-1.40221	-.36807	3.42943
P	-.43399	-.07330	.50261	-.02028	.26188
V	1.87418	-.12089	.65367	-19.70683	.10610
Y	-.43137	-.06902	.32658	-.55709	-.22718
BE	.08094	.00757	-.34494	-.17519	-.56897
B	.28593	-.22957	-.46045	.25258	.09765

	P	V	Y	BE	B
P	1.58676				
V	.37529	22.10667			
Y	-.34019	-.15288	1.44076		
BE	-.05282	.59132	-.26538	1.53548	
B	-.02957	.24390	.13170	-.19663	1.48662

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .84916

Bartlett Test of Sphericity = 2408.7858, Significance = .00000

There are 26 (12.4%) off-diagonal elements of AIC Matrix > 0.09

Anti-Image Covariance Matrix:

	AS	BA	FE2X	MN	CU
AS	.79294				
BA	.02603	.43587			
FE2X	.04724	.04591	.16638		
MN	.06240	.04667	-.02773	.41161	
CU	-.02502	-.05529	-.01830	-.00502	.23081
ZN	.04504	.03592	-.08527	-.05878	-.02980
PB	.04184	-.01830	.07633	-.02446	-.10077
NI	-.05096	.06668	.01280	-.00694	-.03133
CR	.00730	-.01829	.00274	.00781	-.00580
CO	-.04481	-.02905	-.01771	-.14945	-.01009
P	-.17748	-.00536	.01904	-.13159	-.11782
V	-.00374	-.02398	-.02731	.00074	-.00569
Y	-.07259	-.05841	.04057	.10753	.05180
BE	.09928	-.08026	-.00230	.08533	-.04767
B	.08536	-.19357	-.02990	-.06580	.11502

	ZN	PB	NI	CR	CO
ZN	.20118				
PB	-.02848	.79084			
NI	-.04428	-.03858	.14721		
CR	-.01180	.02113	-.02631	.03770	
CO	.02474	.00127	-.06019	-.00405	.29159
P	-.05502	-.03653	.04663	-.00048	.04813
V	.01706	-.00432	.00435	-.03360	.00140
Y	-.06023	-.03788	.03337	-.01458	-.04598
BE	.01061	.00390	-.03307	-.00430	-.10805
B	.03869	-.12213	-.04560	.00640	.01915

	P	V	Y	BE	B
P	.63022				
V	.01070	.04524			
Y	-.14881	-.00480	.69408		
BE	-.02168	.01742	-.11996	.65126	
B	-.01254	.00742	.06149	-.08614	.67267

Anti-Image Correlation Matrix:

	AS	BA	FE2X	MN	CU	ZN	PB
AS	.49559						
BA	.04428	.74625					
FE2X	.13006	.17048	.89793				
MN	.10923	.11019	-.10595	.82210			
CU	-.05848	-.17431	-.09339	-.01629	.91567		
ZN	.11276	.12131	-.46604	-.20427	-.13829	.88414	
PB	.05283	-.03117	.21044	-.04287	-.23586	-.07141	.46046
NI	-.14916	.26324	.08182	-.02820	-.16995	-.25728	-.11307
CR	.04223	-.14266	.03463	.06269	-.06218	-.13553	.12236
CO	-.09319	-.08148	-.08039	-.43138	-.03891	.10214	.00264
P	-.25107	-.01023	.05880	-.25836	-.30892	-.15453	-.05175
V	-.01977	-.17078	-.31475	.00542	-.05568	.17879	-.02286
Y	-.09785	-.10620	.11937	.20119	.12942	-.16119	-.05113
BE	.13815	-.15064	-.00698	.16480	-.12296	.02930	.00543
B	.11688	-.35749	-.08937	-.12504	.29192	.10518	-.16744

	NI	CR	CO	P	V	Y	BE
NI	.89981						
CR	-.35320	.84398					
CO	-.29052	-.03859	.90080				
P	.15309	-.00313	.11226	.57792			
V	.05334	-.81378	.01218	.06336	.83992		
Y	.10439	-.09011	-.10220	-.22499	-.02709	.72568	
BE	-.10681	-.02745	-.24795	-.03384	.10149	-.17842	.83775
B	-.14489	.04022	.04325	-.01926	.04254	.08999	-.13015

	B
B	.59075

Measures of sampling adequacy (MSA) are printed on the diagonal.

Correlation 1-tailed Significance Matrix:
' . ' is printed for diagonal elements.

	AS	BA	FE2X	MN	CU
AS	.				
BA	.15766	.			
FE2X	.00798	.00090	.		
MN	.08838	.18228	.00000	.	
CU	.35504	.00000	.00000	.00000	.
ZN	.08255	.10323	.00000	.00000	.00000
PB	.31675	.46482	.00366	.23516	.18643
NI	.39408	.00009	.00000	.00000	.00000
CR	.14664	.00000	.00000	.00000	.00000
CO	.38562	.00001	.00000	.00000	.00000
P	.00014	.41510	.07136	.00001	.00000
V	.12229	.00000	.00000	.00000	.00000
Y	.02489	.00000	.03528	.14242	.00052
BE	.10183	.00000	.00006	.09442	.00000
B	.00705	.00090	.00103	.10460	.00000

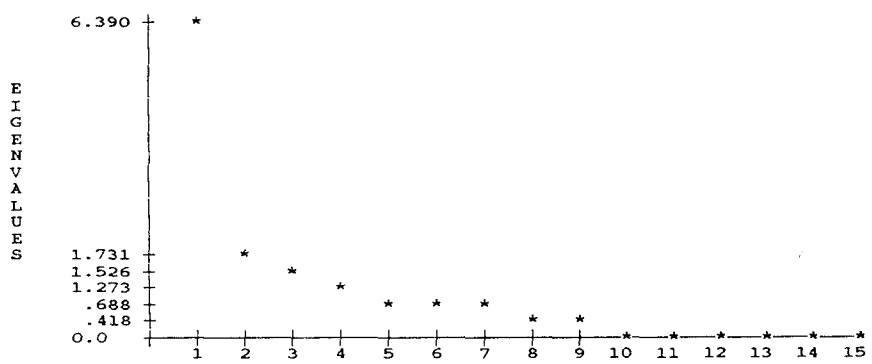
	ZN	PB	NI	CR	CO
ZN	.				
PB	.33163	.			
NI	.00000	.35576	.		
CR	.00000	.01638	.00000	.	
CO	.00000	.36366	.00000	.00000	.
P	.00004	.00676	.06220	.14412	.05082
V	.00000	.01131	.00000	.00000	.00000
Y	.00412	.37242	.00289	.00000	.00139
BE	.00017	.23953	.00000	.00000	.00000
B	.00002	.01552	.00386	.00193	.03207

	P	V	Y	BE	B
P	.				
V	.23963	.			
Y	.00053	.00001	.		
BE	.15528	.00000	.00000	.	
B	.01986	.00296	.06897	.09041	.

Extraction 1 for Analysis 1, Principal-Components Analysis (PC)

Initial Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
AS	1.00000	*	1	6.38996	42.6	42.6
BA	1.00000	*	2	1.73122	11.5	54.1
FE2X	1.00000	*	3	1.52607	10.2	64.3
MN	1.00000	*	4	1.27324	8.5	72.8
CU	1.00000	*	5	.77513	5.2	78.0
ZN	1.00000	*	6	.74243	4.9	82.9
PB	1.00000	*	7	.68808	4.6	87.5
NI	1.00000	*	8	.55760	3.7	91.2
CR	1.00000	*	9	.41805	2.8	94.0
CO	1.00000	*	10	.25029	1.7	95.7
P	1.00000	*	11	.18853	1.3	96.9
V	1.00000	*	12	.18416	1.2	98.2
Y	1.00000	*	13	.16432	1.1	99.3
BE	1.00000	*	14	.08866	.6	99.9
B	1.00000	*	15	.02226	.1	100.0



PC Extracted 4 factors.

Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
AS	-.06892	-.22835	.62909	-.31473
BA	.39358	.73338	.14373	-.01550
FE2X	.88027	-.11542	-.24281	-.04699
MN	.58867	-.46209	-.13850	.40447
CU	.87284	-.10006	.15812	.03075
ZN	.84789	-.29128	-.05555	.06885
PB	-.07561	-.02683	.40013	.68939
NI	.91056	-.04142	-.06239	.03082
CR	.93305	.16412	-.06738	-.15226
CO	.83110	-.00031	-.02725	.12976
P	.21922	-.37327	.65332	.20301
V	.91028	.18574	-.08949	-.17190
Y	.30452	.34601	.58250	-.24383
BE	.45037	.48541	.19931	.18938
B	-.24445	.51088	-.14241	.56581

Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
AS	.55171	*	1	6.38996	42.6	42.6
BA	.71365	*	2	1.73122	11.5	54.1
FE2X	.84935	*	3	1.52607	10.2	64.3
MN	.74284	*	4	1.27324	8.5	72.8
CU	.79780	*				
ZN	.81158	*				
PB	.64180	*				
NI	.83568	*				
CR	.92525	*				
CO	.70831	*				
P	.65542	*				
V	.90067	*				
Y	.61122	*				
BE	.51404	*				
B	.66117	*				

Reproduced Correlation Matrix:

	AS	BA	FE2X	MN	CU
AS	.55171*	.02899	.00453	.05500	-.02643
BA	-.09929	.71365*	-.01135	.06988	.03533
FE2X	-.17227	.22764	.84935*	-.03689	-.02335
MN	-.14949	-.13338	.58614	.74284*	-.07202
CU	.05249	.29240	.74004	.55059	.79780*
ZN	-.04854	.11104	.79024	.66926	.76254
PB	.04608	-.00261	-.19301	.19130	.02115
NI	-.10224	.31856	.82002	.57627	.79000
CR	-.09625	.48027	.82591	.42117	.78264
CO	-.11519	.32095	.73215	.54565	.72513
P	.41723	-.09671	.06788	.29316	.33823
V	-.10734	.48429	.80966	.39290	.75651
Y	.34319	.46111	.09815	-.15992	.31579
BE	-.07610	.55896	.28313	.08981	.38187
B	-.36748	.24922	-.26615	-.13139	-.26960

	ZN	PB	NI	CR	CO
AS	-.04854	-.01267	.08341	.02267	.09481
BA	-.02265	-.00358	-.05976	.00679	-.03320
FE2X	.02819	.00664	-.05022	-.01195	-.06303
MN	-.05809	-.14073	-.05375	-.02774	.04721
CU	-.02847	.04125	-.01588	-.00531	-.06261
ZN	.81158*	.00054	-.01529	-.02239	-.08375
PB	-.03106	.64180*	.04553	.05805	-.04016
NI	.78970	-.07145	.83568*	.01541	.01257
CR	.73657	-.20688	.84231	.92525*	-.04242
CO	.71522	.01572	.76248	.75749	.70831*
P	.27228	.39481	.18057	.06835	.19085
V	.71085	-.22813	.82146	.91203	.73661
Y	.10827	.03268	.21910	.33880	.20547
BE	.24244	.16323	.38339	.45762	.39330
B	-.30920	.33786	-.21742	-.22079	-.12602

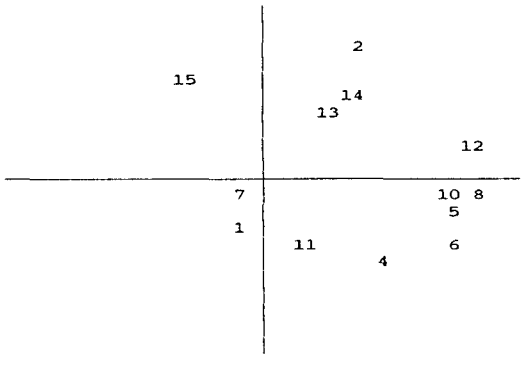
	P	V	Y	BE	B
AS	-.16613	.02591	-.20631	-.01283	.19668
BA	.08168	.02162	-.14166	-.17891	-.03293
FE2X	.03460	.00588	.02810	-.01888	.05261
MN	-.00497	-.02271	.08505	.00210	.04353
CU	-.01124	-.00230	-.08899	-.01777	-.03725
ZN	-.00198	-.03618	.07535	.00442	.02892
PB	-.22296	.06933	-.00987	-.11364	-.18754
NI	-.07317	-.00593	-.02740	-.00312	.03226
CR	.00599	.06066	-.03542	-.07892	.02035
CO	-.07647	-.05034	.00187	.03744	-.00321
P	.65542*	.01271	-.04219	-.01521	.07903
V	.03686	.90067*	-.04223	-.10031	.02097
Y	.26866	.33126	.61122*	-.06848	.01488
BE	.08620	.44973	.37503	.51404*	-.12306
B	-.22245	-.21215	-.11859	.21666	.66117*

The lower left triangle contains the reproduced correlation matrix; The diagonal, communalities; and the upper right triangle, residuals between the observed correlations and the reproduced correlations.

There are 37 (35.0%) residuals (above diagonal) that are > 0.05

Skipping Rotation 1, Extraction 1, Analysis 1

Horizontal Factor 1 Vertical Factor 2



Symbol	Variable	Coordinates	
1	AS	-.069	-.228
2	BA	.394	.733
3	FE2X	.880	-.115
4	MN	.589	-.462
5	CU	.873	-.100
6	ZN	.848	-.291
7	PB	-.076	-.027
8	NI	.911	-.041
9	CR	.933	.164
10	CO	.831	-.000
11	P	.219	-.373
12	V	.910	.186
13	Y	.305	.346
14	BE	.450	.485
15	B	-.244	.511

Factor Score Coefficient Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
AS	-.01079	-.13190	.41223	-.24719
BA	.06159	.42362	.09418	-.01218
FE2X	.13776	-.06667	-.15911	-.03691
MN	.09212	-.26691	-.09076	.31767
CU	.13659	-.05780	.10361	.02415
ZN	.13269	-.16825	-.03640	.05407
PB	-.01183	-.01550	.26220	.54144
NI	.14250	-.02393	-.04088	.02421
CR	.14602	.09480	-.04415	-.11959
CO	.13006	-.00018	-.01786	.10191
P	.03431	-.21561	.42810	.15945
V	.14246	.10729	-.05864	-.13501
Y	.04766	.19986	.38170	-.19150
BE	.07048	.28038	.13061	.14874
B	-.03825	.29510	-.09332	.44439

Covariance Matrix for Estimated Regression Factor Scores:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
FACTOR 1	1.00000			
FACTOR 2	-.00000	1.00000		
FACTOR 3	.00000	.00000	1.00000	
FACTOR 4	-.00000	.00000	-.00000	1.00000

Varimax Rotation 2, Extraction 1, Analysis 1 - Kaiser Normalization.

Varimax converged in 7 iterations.

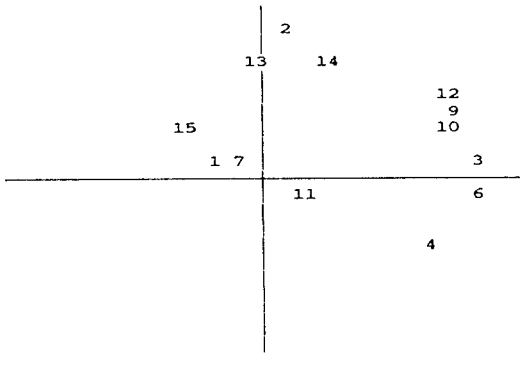
Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
AS	-.13975	.03311	.72746	.04329
BA	.16661	.81499	-.13863	-.04961
FE2X	.90194	.07521	-.05720	-.16411
MN	.73119	-.30499	-.07089	.33189
CU	.83078	.23098	.21605	.08705
ZN	.89334	-.02598	.10330	.04658
PB	-.07437	.06025	-.00101	.79538
NI	.88879	.21151	.02191	-.02273
CR	.84465	.40780	.02401	-.21199
CO	.80544	.23068	-.01873	.07757
P	.20928	-.03048	.58424	.51899
V	.81968	.41288	.00548	-.24144
Y	.08615	.62650	.45966	.00227
BE	.29005	.62280	-.08825	.18506
B	-.28845	.28624	-.59593	.37536

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
FACTOR 1	.95055	.29976	.07593	-.02880
FACTOR 2	-.24854	.87609	-.39415	-.12383
FACTOR 3	-.16652	.37253	.78843	.46029
FACTOR 4	.08336	-.06186	-.46610	.87862

Horizontal Factor 1 Vertical Factor 2



Symbol	Variable	Coordinates	
1	AS	-.140	.033
2	BA	.167	.815
3	FE2X	.902	.075
4	MN	.731	-.305
5	CU	.831	.231
6	ZN	.893	-.026
7	PB	-.074	.060
8	NI	.889	.212
9	CR	.845	.408
10	CO	.805	.231
11	P	.209	-.030
12	V	.820	.413
13	Y	.086	.627
14	BE	.290	.623
15	B	-.288	.286

Factor Score Coefficient Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
AS	-.06672	.05007	.49140	-.01080
BA	-.06344	.42543	-.08236	-.02158
FE2X	.17093	-.07410	-.07150	-.10138
MN	.19550	-.25969	-.10742	.26774
CU	.12897	.02742	.10359	.07213
ZN	.17852	-.12453	.02249	.04777
PB	-.00592	.04706	-.04043	.59867
NI	.15022	.00503	-.02326	.00131
CR	.11262	.11778	-.00535	-.14134
CO	.13515	.02587	-.05163	.07760
P	.02820	-.02899	.35080	.36285
V	.10726	.12320	-.01477	-.16300
Y	-.08390	.34343	.31505	-.01869
BE	-.01204	.30622	-.07152	.15405
B	-.05712	.18481	-.39992	.31205

Covariance Matrix for Estimated Regression Factor Scores:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
FACTOR 1	1.00000			
FACTOR 2	.00000	1.00000		
FACTOR 3	-.00000	-.00000	1.00000	
FACTOR 4	.00000	.00000	.00000	1.00000

Equamax Rotation 3, Extraction 1, Analysis 1 - Kaiser Normalization.

Equamax converged in 7 iterations.

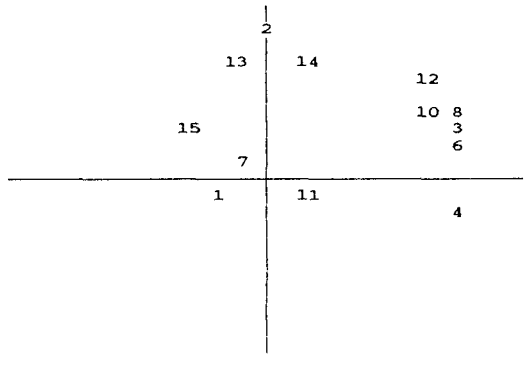
Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
AS	-.16904	.00405	.72277	.02679
BA	.03385	.83263	-.13263	-.04044
FE2X	.86145	.22211	-.02926	-.23887
MN	.79963	-.18451	-.02848	.26187
CU	.77745	.36019	.25206	.00974
ZN	.88134	.11798	.13969	-.03719
PB	-.01195	.04113	.03110	.79937
NI	.83588	.35275	.05565	-.09721
CR	.74403	.54075	.04810	-.27738
CO	.76156	.35768	.01628	.01201
P	.23224	-.00477	.61405	.47372
V	.71684	.54210	.02735	-.30362
Y	-.03517	.62857	.46345	-.01002
BE	.20477	.66076	-.06762	.17589
B	-.27112	.23735	-.58909	.42931

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
FACTOR 1	.87955	.44946	.11187	-.10892
FACTOR 2	-.37965	.82820	-.40692	-.06602
FACTOR 3	-.21540	.33087	.80151	.44913
FACTOR 4	.18938	-.05085	-.42366	.88434

Horizontal Factor 1 Vertical Factor 2



Symbol	Variable	Coordinates	
1	AS	-.169	.004
2	BA	.034	.833
3	FE2X	.861	.222
4	MN	.800	-.185
5	CU	.777	.360
6	ZN	.881	.118
7	PB	-.012	.041
8	NI	.836	.353
9	CR	.744	.541
10	CO	.762	.358
11	P	.232	-.005
12	V	.717	.542
13	Y	-.035	.629
14	BE	.205	.661
15	B	-.271	.237

Factor Score Coefficient Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
AS	-.09502	.03488	.48760	-.02357
BA	-.12925	.41031	-.08484	-.00314
FE2X	.17376	-.04406	-.06935	-.11470
MN	.26207	-.22584	-.08841	.24775
CU	.12434	.04658	.11161	.05683
ZN	.19866	-.09450	.03122	.02813
PB	.04154	.04106	-.01425	.59889
NI	.14781	.02948	-.01735	-.01089
CR	.07930	.13562	-.00697	-.14775
CO	.13761	.04722	-.04287	.06795
P	.05001	-.02961	.36715	.34378
V	.07163	.14035	-.01752	-.16833
Y	-.15245	.32298	.31107	-.01631
BE	-.04442	.29954	-.06454	.16401
B	-.04142	.17373	-.38743	.33576

Covariance Matrix for Estimated Regression Factor Scores:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
FACTOR 1	1.00000			
FACTOR 2	.00000	1.00000		
FACTOR 3	-.00000	-.00000	1.00000	
FACTOR 4	.00000	.00000	.00000	1.00000

Quartimax Rotation 4, Extraction 1, Analysis 1 - Kaiser Normalization.

Quartimax converged in 6 iterations.

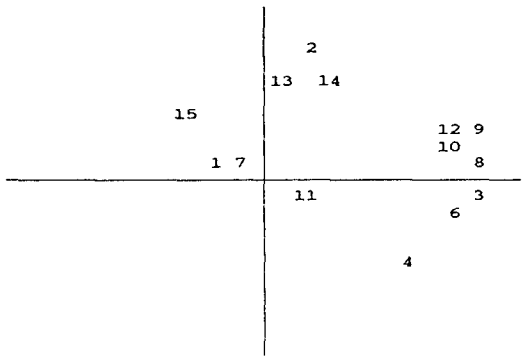
Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
AS	-.11827	.04616	.73076	.03967
BA	.26288	.78917	-.14080	-.04397
FE2X	.90529	-.03550	-.07887	-.14939
MN	.68092	-.39247	-.08816	.34261
CU	.85616	.12606	.19697	.10056
ZN	.88470	-.13599	.08207	.06047
PB	-.07923	.06785	.00283	.79430
NI	.90855	.10078	.00119	-.00795
CR	.89195	.30124	.00433	-.19724
CO	.82565	.13011	-.03717	.09116
P	.20916	-.05967	.58029	.52094
V	.86785	.30949	-.01366	-.22703
Y	.17306	.60879	.45893	.00476
BE	.35914	.58271	-.09324	.19189
B	-.27100	.32206	-.58732	.37291

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
FACTOR 1	.98201	.18051	.05392	-.01285
FACTOR 2	-.14624	.90217	-.38641	-.12405
FACTOR 3	-.10846	.38542	.79415	.45718
FACTOR 4	.05004	-.07038	-.46595	.88059

Horizontal Factor 1 Vertical Factor 2



Symbol	Variable	Coordinates	
1	AS	-.118	.046
2	BA	.263	.789
3	FE2X	.905	-.036
4	MN	.681	-.392
5	CU	.856	.126
6	ZN	.885	-.136
7	PB	-.079	.068
8	NI	.909	.101
9	CR	.892	.301
10	CO	.826	.130
11	P	.209	-.060
12	V	.868	.309
13	Y	.173	.609
14	BE	.359	.583
15	B	-.271	.322

Factor Score Coefficient Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
AS	-.04839	.05533	.49294	-.01271
BA	-.01229	.43045	-.07990	-.02100
FE2X	.16044	-.09400	-.07597	-.09874
MN	.15524	-.28151	-.11199	.27017
CU	.13256	.01075	.10073	.07405
ZN	.16156	-.14567	.01806	.05014
PB	-.01070	.04683	-.03871	.59873
NI	.14908	-.01332	-.02682	.00376
CR	.12833	.10329	-.00810	-.13913
CO	.13479	.00926	-.05459	.07993
P	.02677	-.03455	.35085	.36243
V	.12381	.10941	-.01744	-.16084
Y	-.03341	.34951	.31770	-.01953
BE	.02149	.30555	-.07013	.15500
B	-.04836	.19208	-.39726	.31254

Covariance Matrix for Estimated Regression Factor Scores:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
FACTOR 1	1.00000			
FACTOR 2	.00000	1.00000		
FACTOR 3	.00000	-.00000	1.00000	
FACTOR 4	-.00000	.00000	.00000	1.00000

1.2. SEGUNDA FASE

1.2.1. RESULTADOS DE ANÁLISIS

CMPO	REF	CX	CY	FE	BE	MO	AS	W	NB	CO	Y	MN	CD
0A1	1	0	0	215	3	1	145	5	6	5	7	349	0
0A2	2	25	0	248	3	3	113	0	11	5	7	302	0
0A3	3	50	0	248	3	3	112	0	8	8	6	364	0
0A4	4	75	0	225	3	3	107	0	9	6	6	387	0
0A5	5	100	0	259	3	1	110	13	6	5	5	343	0
0A6	6	125	0	207	3	2	101	3	7	4	6	313	0
0A7	7	150	0	332	3	0	69	14	16	6	7	482	0
0A8	8	175	0	285	3	0	61	21	12	4	9	433	0
0A9	9	200	0	268	3	0	75	0	15	4	7	458	0
A10	10	225	0	277	3	1	87	0	15	6	2	475	0
A11	11	250	0	283	3	0	78	0	13	5	5	450	0
A12	12	275	0	337	3	0	73	21	3	4	7	471	0
A13	13	300	0	229	3	0	56	0	8	5	5	484	0
A14	14	325	0	282	2	3	67	4	9	6	6	579	0
A15	15	350	0	461	4	4	101	21	11	5	6	405	0
A16	16	375	0	388	3	2	82	7	12	13	5	794	0
A17	17	400	0	381	3	2	62	49	10	8	6	492	0
A18	18	425	0	358	3	0	49	0	8	11	4	616	0
0B1	19	0	50	238	3	2	114	18	4	5	6	555	0
0B2	20	25	50	192	2	0	82	14	2	7	6	458	0
0B3	21	50	50	287	3	2	102	37	8	5	6	589	0
0B4	22	75	50	322	2	4	92	43	8	4	5	507	0
0B5	23	100	50	245	2	2	67	13	3	7	4	597	0
0B6	24	125	50	260	2	0	50	6	3	9	4	798	0
0B7	25	150	50	362	2	6	106	11	9	5	5	495	0
0B8	26	175	50	422	3	2	121	8	8	4	4	435	0
0B9	27	200	50	426	3	0	114	24	11	6	4	772	0
B10	28	225	50	422	3	3	90	37	11	5	5	575	0
B11	29	250	50	445	3	2	119	6	11	5	5	452	0
B12	30	275	50	382	3	2	74	18	7	6	4	490	0
B13	31	300	50	413	0	0	88	0	8	6	4	679	0
B14	32	325	50	436	3	1	112	10	13	4	5	577	0
B15	33	350	50	408	3	0	90	23	17	8	5	568	0
B16	34	375	50	366	3	2	71	28	12	4	5	477	0
B17	35	400	50	342	3	1	57	25	14	4	6	417	0
B18	36	425	50	308	3	5	57	25	9	5	6	568	0
0C1	37	0	100	342	3	1	63	14	13	8	6	671	0
0C2	38	25	100	367	3	0	154	16	11	8	5	688	0
0C3	39	50	100	304	2	1	51	14	11	5	4	697	0
0C4	40	75	100	284	2	1	73	0	10	5	3	478	0
0C5	41	100	100	395	3	0	62	8	14	7	4	590	0
0C6	42	125	100	419	3	1	63	10	13	9	4	874	0
0C7	43	150	100	463	3	1	66	21	12	9	5	670	0
0C8	44	175	100	384	3	2	116	0	15	6	5	536	0
0C9	45	200	100	321	2	0	183	0	12	5	6	523	0
C10	46	225	100	360	2	0	154	0	9	7	4	561	0

CMPO	REF	CX	CY	FE	BE	MO	AS	W	NB	CO	Y	MN	CD
C11	47	250	100	414	2	1	94	0	11	6	5	459	0
C12	48	275	100	361	3	0	52	9	15	4	6	457	0
C13	49	300	100	365	2	2	74	13	13	8	5	768	0
C14	50	325	100	406	3	3	90	18	10	5	7	454	0
C15	51	350	100	358	3	2	83	17	13	5	7	647	0
C16	52	375	100	358	3	1	61	1	7	3	8	720	0
C17	53	400	100	342	3	2	92	17	11	7	6	676	0
C18	54	425	100	384	3	1	112	9	12	8	5	903	0
0D1	55	0	150	343	2	0	63	17	14	1	5	443	0
0D2	56	25	150	376	3	1	79	21	12	5	5	904	0
0D3	57	50	150	390	3	1	72	11	16	10	5	711	0
0D4	58	75	150	343	3	2	65	34	9	8	5	773	0
0D5	59	100	150	324	2	1	60	17	13	8	5	774	0
0D6	60	125	150	304	3	1	33	76	6	16	2	1107	0
0D7	61	150	150	335	4	0	53	90	3	22	3	1835	0
0D8	62	175	150	337	3	0	67	24	8	12	3	815	0
0D9	63	200	150	362	3	2	94	20	9	9	4	703	0
D10	64	225	150	353	3	0	80	26	9	7	4	697	0
D11	65	250	150	368	3	3	124	32	10	9	4	658	0
D12	66	275	150	315	3	0	82	16	13	6	4	759	0
D13	67	300	150	377	3	0	115	29	9	10	4	765	0
D14	68	325	150	347	3	2	127	31	8	9	6	728	0
D15	69	350	150	331	3	1	103	6	10	8	4	1103	0
D16	70	375	150	342	3	0	107	33	8	8	5	870	0
D17	71	400	150	378	3	2	115	13	15	7	6	656	0
D18	72	425	150	262	2	0	63	0	10	2	11	533	0
0E1	73	0	200	339	3	0	103	22	9	6	4	777	0
0E2	74	25	200	385	3	1	64	11	10	8	7	674	0
0E3	75	50	200	394	4	0	39	43	13	12	6	1039	0
0E4	76	75	200	429	4	0	73	8	21	13	4	1564	0
0E5	77	100	200	369	3	3	61	21	8	10	5	999	0
0E6	78	125	200	376	3	0	58	0	9	13	4	956	0
0E7	79	150	200	324	3	2	105	17	4	13	4	749	0
0E8	80	175	200	232	3	1	46	15	2	11	4	893	0
0E9	81	200	200	239	3	0	61	0	0	14	5	606	0
E10	82	225	200	360	3	2	73	0	1	17	4	1145	0
E11	83	250	200	309	3	1	50	0	0	12	4	1036	0
E12	84	275	200	359	3	0	74	0	0	14	4	981	0
E13	85	300	200	316	3	0	74	1	0	14	4	1212	0
E14	86	325	200	293	4	0	126	0	10	7	8	423	0
E15	87	350	200	399	4	2	136	18	15	12	8	837	0
E16	88	375	200	329	2	0	122	18	0	19	4	1754	0
E17	89	400	200	391	3	0	142	4	13	13	6	1191	0
E18	90	425	200	406	3	1	156	5	15	13	7	924	0
0F1	91	0	250	319	3	1	105	14	12	10	4	1125	0
0F2	92	25	250	382	3	2	102	8	12	12	5	1069	0
0F3	93	50	250	387	4	0	80	14	12	11	5	1040	0
0F4	94	75	250	347	3	1	119	3	10	10	4	869	0
0F5	95	100	250	292	3	0	135	17	11	9	4	713	0
0F6	96	125	250	329	4	0	105	28	11	15	4	1022	0
0F7	97	150	250	371	4	1	90	28	12	13	5	1005	0
0F8	98	175	250	351	3	1	60	19	15	10	5	1012	0

CMPO	REF	CX	CY	FE	BE	MO	AS	W	NB	CO	Y	MN	CD
0F9	99	200	250	328	3	2	61	24	15	9	5	867	0
F10	100	225	250	367	3	0	100	39	12	9	5	796	0
F11	101	250	250	228	3	0	81	36	0	9	5	694	0
F12	102	275	250	359	3	0	78	18	14	8	5	819	0
F13	103	300	250	358	3	0	61	0	16	9	5	881	0
F14	104	325	250	396	3	2	113	17	17	11	7	881	0
F15	105	350	250	352	3	3	108	0	16	9	5	491	0
F16	106	375	250	349	3	0	199	1	10	15	6	625	0
F17	107	400	250	358	3	0	161	0	9	13	6	1197	0
F18	108	425	250	388	3	2	203	0	10	17	6	1765	0
0H1	109	0	300	348	4	0	77	1	13	14	11	344	0
0H2	110	25	300	396	4	2	71	14	14	11	5	713	0
0H3	111	50	300	389	3	0	71	0	15	13	4	1323	0
0H4	112	75	300	341	3	0	65	0	11	12	3	1335	0
0H5	113	100	300	351	3	0	107	0	8	11	3	889	0
0H6	114	125	300	326	4	1	126	0	11	6	3	403	0
0H7	115	150	300	355	3	2	130	16	14	14	5	974	0
0H8	116	175	300	381	3	0	144	10	16	10	5	1231	0
0H9	117	200	300	365	4	0	68	0	11	11	3	1026	0
H10	118	225	300	340	3	0	65	0	5	11	3	994	0
H11	119	250	300	288	3	0	103	0	0	13	3	1507	0
H12	120	275	300	375	3	0	111	0	12	11	5	905	0
H13	121	300	300	279	3	1	67	9	7	13	4	1684	0
H14	122	325	300	379	2	0	141	6	10	7	6	931	0
H15	123	350	300	381	2	2	146	26	5	9	4	1195	0
H16	124	375	300	404	3	0	142	0	5	9	5	1139	0
H17	125	400	300	317	3	0	236	0	4	7	9	639	0
H18	126	425	300	324	3	4	182	0	0	13	7	907	0
0I1	127	0	350	388	4	0	87	36	14	15	6	1173	0
0I2	128	25	350	487	4	2	126	20	5	14	6	852	0
0I3	129	50	350	334	4	0	65	0	4	16	6	757	0
0I4	130	75	350	335	4	3	110	16	13	13	7	313	0
0I5	131	100	350	328	3	1	93	19	12	11	5	925	0
0I6	132	125	350	388	3	2	197	17	11	14	8	1108	0
0I7	133	150	350	378	3	0	155	4	10	14	6	1217	0
0I8	134	175	350	407	3	2	130	26	14	14	6	878	0
0I9	135	200	350	278	2	1	110	19	13	6	7	574	0
I10	136	225	350	335	2	0	90	10	14	7	5	867	0
I11	137	250	350	251	3	0	43	20	8	7	5	551	0
I12	138	275	350	310	2	0	103	0	10	7	5	861	0
I13	139	300	350	290	3	0	117	7	10	9	5	893	0
I14	140	325	350	347	3	0	326	25	9	18	7	876	0
I15	141	350	350	346	3	0	181	8	11	13	7	310	0
I16	142	375	350	307	3	0	142	10	15	12	5	416	0
I17	143	400	350	346	3	1	122	18	17	11	6	835	0
I18	144	425	350	314	3	0	143	0	0	18	6	1147	0
0J1	145	0	400	318	4	2	125	15	19	5	9	476	0
0J2	146	25	400	330	3	0	213	22	12	11	7	1372	0
0J3	147	50	400	354	4	2	222	22	16	12	7	1150	0
0J4	148	75	400	338	3	0	203	16	14	12	6	1293	0
0J5	149	100	400	360	2	0	173	31	10	9	5	892	0
0J6	150	125	400	376	3	1	145	5	12	12	6	816	0

CMPO	REF	CX	CY	FE	BE	MO	AS	W	NB	CO	Y	MN	CD
0J7	151	150	400	368	3	0	179	31	11	14	5	1183	0
0J8	152	175	400	263	2	0	106	21	9	11	4	846	0
0J9	153	200	400	229	2	3	61	24	9	10	3	1074	0
J10	154	225	400	257	2	2	644	33	6	10	4	763	0
J11	155	250	400	258	3	0	293	33	6	9	5	595	0
J12	156	275	400	231	2	0	30	0	10	4	6	442	0
J13	157	300	400	329	3	0	77	33	16	11	3	685	0
J14	158	325	400	288	3	3	242	32	10	12	4	1035	0
J15	159	350	400	267	2	0	139	31	7	9	4	901	0
0K1	163	0	450	300	3	1	111	0	6	10	6	1168	0
0K2	164	25	450	434	3	0	180	7	9	15	4	1740	0
0K3	165	50	450	404	3	1	275	32	5	16	3	1808	0
0K4	166	75	450	356	3	2	254	18	2	19	4	2323	0
0K5	167	100	450	395	3	3	217	20	6	18	4	1315	0
0K6	168	125	450	284	2	0	163	6	5	12	5	1270	0
0K7	169	150	450	276	2	0	208	2	5	10	4	969	0
0K8	170	175	450	239	2	1	91	1	2	10	3	868	0
0K9	171	200	450	269	3	3	81	17	6	16	4	1092	0
K10	172	225	450	346	3	3	128	22	10	16	4	1328	0
K11	173	250	450	404	3	2	85	6	16	15	5	1229	0
K12	174	275	450	386	3	3	57	20	17	19	4	1431	0
K13	175	300	450	396	2	0	58	0	14	14	5	1153	0
K14	176	325	450	363	2	0	72	10	10	11	4	892	0
K15	177	350	450	287	2	1	81	20	7	10	4	948	0
K16	178	375	450	284	3	1	94	17	3	9	3	1123	0
K17	179	400	450	248	3	0	73	20	0	5	4	481	0
K18	180	425	450	289	3	0	95	0	8	7	5	576	0
0L1	181	0	500	268	2	0	73	16	0	9	4	704	0
0L2	182	25	500	273	2	1	66	36	0	6	4	682	0
0L3	183	50	500	324	3	0	54	12	0	13	3	1247	0
0L4	184	75	500	280	2	2	87	22	0	9	4	688	0
0L5	185	100	500	399	3	0	72	1	15	10	5	806	0
0L6	186	125	500	319	3	0	68	4	15	7	5	749	0
0L7	187	150	500	438	4	1	50	9	24	13	5	1551	0
0L8	188	175	500	411	4	3	53	19	16	12	5	834	0
0L9	189	200	500	385	4	0	52	9	13	9	5	1005	0
L10	190	225	500	257	4	2	62	6	10	5	7	391	0
L11	191	250	500	296	3	0	36	16	10	13	4	1255	0
L12	192	275	500	304	3	1	57	18	11	10	5	1350	0
L13	193	300	500	289	4	2	63	4	10	14	6	326	0
L14	194	325	500	324	3	1	95	20	13	9	6	868	0
L15	195	350	500	411	3	0	121	18	12	9	7	907	0
L16	196	375	500	217	2	0	26	0	5	6	6	553	0
L17	197	400	500	460	4	2	242	22	8	14	5	1767	0
L18	198	425	500	453	3	0	64	26	21	13	7	1181	0
0M1	199	125	550	331	2	0	80	8	12	9	7	877	0
0M2	200	150	550	245	2	0	100	13	5	10	6	814	0
0M3	201	175	550	471	4	1	108	35	20	11	9	941	0
0M4	202	200	550	411	3	0	111	17	17	10	10	658	0
0M5	203	225	550	420	3	0	82	23	17	14	8	1248	0
0M6	204	250	550	393	3	2	68	17	16	15	7	1665	0
0M7	205	275	550	371	3	2	68	6	16	15	10	1102	0

CMPO	REF	CX	CY	FE	BE	MO	AS	W	NB	CO	Y	MN	CD
OM8	206	300	550	390	4	0	45	0	14	10	7	988	0
OM9	207	325	550	474	6	0	52	0	13	12	7	1702	0
M10	208	350	550	387	3	1	58	6	14	11	7	1111	0
M11	209	375	550	404	3	0	44	5	15	11	6	1375	0
M12	210	400	550	392	4	0	40	0	15	11	5	1004	0
ON1	211	125	600	220	2	1	83	0	6	15	8	656	0
ON2	212	150	600	347	3	0	116	7	13	16	13	758	0
ON3	213	175	600	361	3	2	100	15	15	14	10	1094	0
ON4	214	200	600	380	3	1	79	28	15	14	8	1227	0
ON5	215	225	600	379	3	0	111	39	9	18	9	1799	0
ON6	216	250	600	357	3	0	88	50	12	17	8	1522	0
ON7	217	275	600	407	3	0	78	23	17	10	10	1082	0
ON8	218	300	600	224	3	0	39	13	14	4	11	201	0
ON9	219	325	600	323	4	0	51	0	14	9	9	454	0
N10	220	350	600	474	4	0	69	0	20	8	10	897	0
N11	221	375	600	383	5	4	58	33	3	13	5	1214	0
N12	222	400	600	383	4	0	58	11	11	3	5	971	0
OO1	223	125	650	256	2	1	95	38	0	9	7	786	0
OO2	224	150	650	321	3	3	96	16	3	14	9	899	0
OO3	225	175	650	447	4	0	109	20	14	0	10	648	0
OO4	226	200	650	343	3	2	149	56	12	13	8	1043	0
OO5	227	225	650	332	2	0	114	99	0	9	6	888	0
OO6	228	250	650	285	4	0	127	74	9	6	5	790	0
OO7	229	275	650	310	3	0	96	52	0	14	6	1597	0
OO8	230	300	650	451	4	2	128	67	15	12	13	613	0
OO9	231	325	650	413	3	2	116	19	16	13	7	907	0
O10	232	350	650	322	3	2	75	72	5	5	5	510	0
O11	233	375	650	388	4	0	116	4	2	3	4	399	0
O12	234	400	650	300	3	2	79	2	9	8	5	847	0
OP1	235	125	700	361	5	0	71	28	15	14	14	377	0
OP2	236	150	700	410	3	0	104	22	15	13	9	822	0
OP3	237	175	700	389	3	0	102	33	13	14	9	1416	0
OP4	238	200	700	360	3	0	111	30	14	10	9	953	0
OP5	239	225	700	317	3	0	81	98	12	10	11	568	0
OP6	240	250	700	289	3	0	95	85	9	8	10	435	0
OP7	241	275	700	317	3	0	122	198	10	11	9	1183	0
OP8	242	300	700	376	3	0	85	118	7	7	6	561	0
OP9	243	325	700	316	2	1	83	54	5	13	4	1071	0
P10	244	350	700	281	2	0	77	53	1	10	4	763	0
P11	245	375	700	301	2	0	71	89	0	9	4	943	0
P12	246	400	700	214	3	0	29	27	6	5	4	715	0
OQ1	247	125	750	379	3	0	59	0	6	2	4	372	0
OQ2	248	150	750	332	4	0	36	0	6	4	11	238	0
OQ3	249	175	750	421	5	1	76	4	16	3	11	200	0
OQ4	250	200	750	281	4	4	71	57	12	7	11	239	0
OQ5	251	225	750	348	3	0	97	74	11	10	13	402	0
OQ6	252	250	750	261	4	3	91	162	12	4	13	303	0
OQ7	253	275	750	259	4	2	115	155	9	6	11	208	0
OQ8	254	300	750	315	3	0	157	134	8	6	7	411	0
OQ9	255	325	750	347	3	3	123	55	9	8	8	728	0
Q10	256	350	750	353	3	3	66	7	12	7	7	728	0
Q11	257	375	750	344	3	1	65	34	9	5	7	702	0

CMPO	REF	CX	CY	FE	BE	MO	AS	W	NB	CO	Y	MN	CD
Q12	258	400	750	211	3	3	51	27	6	6	4	591	0
OR1	259	125	800	301	3	0	51	33	8	7	4	719	0
OR2	260	150	800	308	2	0	43	26	9	5	5	456	0
OR4	262	200	800	294	3	1	52	9	5	7	6	361	0
OR5	263	225	800	332	3	1	51	28	2	7	8	345	0
OR6	264	250	800	329	3	1	74	3	12	8	10	272	0
OR7	265	275	800	269	3	3	87	34	0	9	8	227	0
OR8	266	300	800	312	2	1	97	51	0	9	5	325	0
OR9	267	325	800	264	2	2	50	4	7	8	6	712	0
R10	268	350	800	275	2	0	52	17	0	9	4	697	0
R11	269	375	800	204	2	1	45	8	0	3	5	395	0
R12	270	400	800	223	3	0	49	0	5	5	5	376	0
OS1	271	125	850	321	3	0	23	0	0	7	4	663	0
OS2	272	150	850	375	3	0	23	0	0	7	5	634	0
OS3	273	175	850	376	3	0	38	17	0	10	6	779	0
OS4	274	200	850	278	2	0	54	0	9	8	5	899	0
OS5	275	225	850	184	3	0	31	24	1	3	6	137	0
OS6	276	250	850	232	3	0	20	38	0	3	6	150	0
OS7	277	275	850	263	3	0	28	0	0	4	5	172	0
OS8	278	300	850	302	2	0	36	0	0	4	6	242	0
OS9	279	325	850	321	2	0	50	0	0	8	4	796	0
S10	280	350	850	279	3	0	38	6	8	8	5	472	0
S11	281	375	850	295	3	0	53	23	7	8	4	551	0
S12	282	400	850	279	2	0	79	0	5	6	4	516	0
OT1	283	125	900	212	2	0	45	7	1	7	4	753	0
OT2	284	150	900	202	3	0	38	0	0	8	3	997	0
OT3	285	175	900	201	3	1	34	0	0	5	4	841	0
OT4	286	200	900	196	3	3	22	38	0	6	4	482	0
OT5	287	225	900	282	3	0	54	0	0	12	4	404	0
OT6	288	250	900	276	3	1	34	29	0	5	4	248	0
OT7	289	275	900	389	3	0	42	3	1	10	13	418	0
OT8	290	300	900	303	3	1	44	0	1	7	11	303	0
OT9	291	325	900	330	2	1	47	20	3	8	13	343	0
T10	292	350	900	332	2	0	46	26	0	8	6	214	0
T11	293	375	900	258	2	0	63	5	0	5	4	186	0
T12	294	400	900	175	3	0	54	0	0	2	5	151	0
OU1	295	125	950	191	2	2	47	10	4	6	4	680	0
OU2	296	150	950	204	2	3	48	0	5	7	5	1051	0
OU3	297	175	950	286	3	2	44	0	5	9	6	554	0
OU4	298	200	950	236	3	0	33	4	1	11	4	1252	0
OU5	299	225	950	209	2	3	36	0	3	17	4	873	0
OU6	300	250	950	293	3	0	44	0	4	8	6	706	0
OU7	301	275	950	313	3	0	29	2	8	23	7	1492	0
OU8	302	300	950	385	4	0	41	0	9	16	7	1209	0
OU9	303	325	950	402	4	2	85	0	8	9	12	619	0
U10	304	350	950	375	4	0	53	10	6	15	9	829	0
U11	305	375	950	393	3	2	59	0	5	10	9	367	0
U12	306	400	950	412	3	0	105	8	14	6	8	500	0
OV1	307	125	1000	422	3	0	98	7	15	13	8	1388	0
OV2	308	150	1000	410	3	0	138	31	13	12	7	1016	0
OV3	309	175	1000	415	3	3	121	60	14	13	8	854	0
OV4	310	200	1000	293	2	2	110	48	8	8	5	574	0

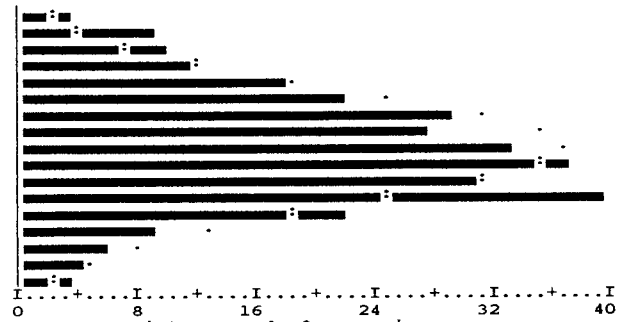
CMPO	REF	CX	CY	FE	BE	MO	AS	W	NB	CO	Y	MN	CD
0V5	311	225	1000	285	3	0	139	104	7	9	9	430	0
0V6	312	250	1000	261	4	1	113	143	11	5	14	306	0
0V7	313	275	1000	276	3	1	65	16	9	7	5	885	0
0V8	314	300	1000	299	3	0	112	15	7	8	6	278	0
0V9	315	325	1000	285	2	0	51	25	7	5	6	208	0
V10	316	350	1000	188	3	0	38	0	0	6	5	482	0
V11	317	375	1000	206	2	1	48	1	2	4	4	654	0
V12	318	400	1000	359	3	0	41	0	9	17	6	1121	0

Número de casos = 314

1.2.2. ANÁLISIS UNIVARIANTE

FE ppm

N°Casos	Centro
3	179
9	198
10	217
12	236
18	255
22	274
29	293
27	312
33	331
37	350
31	369
39	388
22	407
9	426
6	445
4	464
3	483



Histograma de frecuencias

Media	331.439	Std Err	3.621	Mediana	335.000
Moda	324.000	Std Dev	64.161	Varianza	4116.637
Angulos.	-.454	S E Ang.	.274	Asim.	-.194
S E Asim.	.138	Rango	312.000	Mínimo	175.000
Máximo	487.000	Suma	104072.000		
Casos válidos	314	Casos eliminados	0		

Gráfico de probabilidad

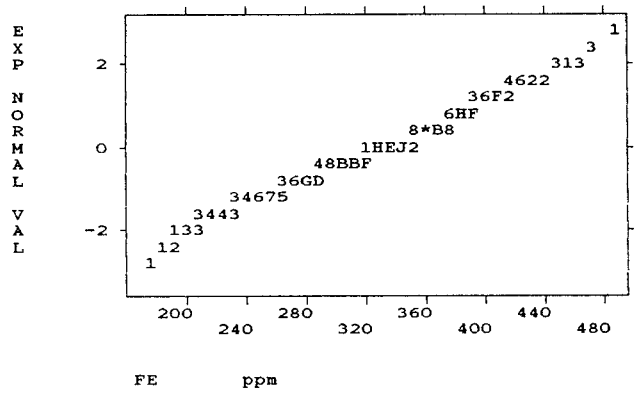


Gráfico de dispersión

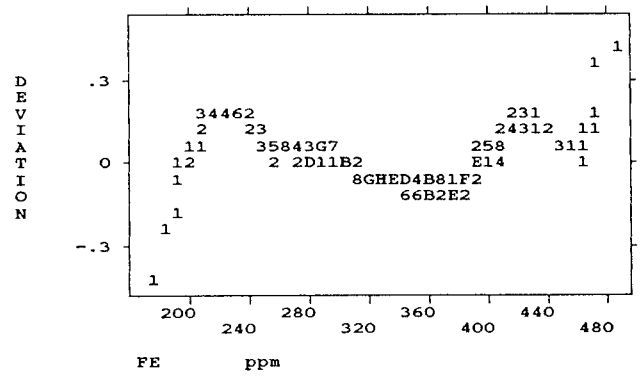
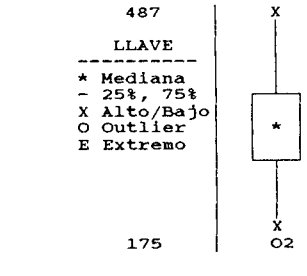
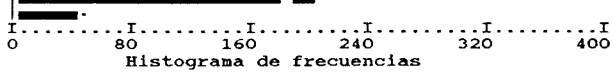


Gráfico de caja para la variable .. FE ppm



BE ppm

N°Casos	Valor
64	2.00
202	3.00
43	4.00



Histograma de frecuencias

Media	2.932	Std Err	.033	Mediana	3.000
Moda	3.000	Std Dev	.585	Varianza	.343
Angulos.	-.092	S E Ang.	.276	Asim.	.010
S E Asim.	.139	Rango	2.000	Mínimo	2.000
Máximo	4.000	Suma	906.000		
Casos válidos	309	Casos eliminados	5		

Gráfico de probabilidad

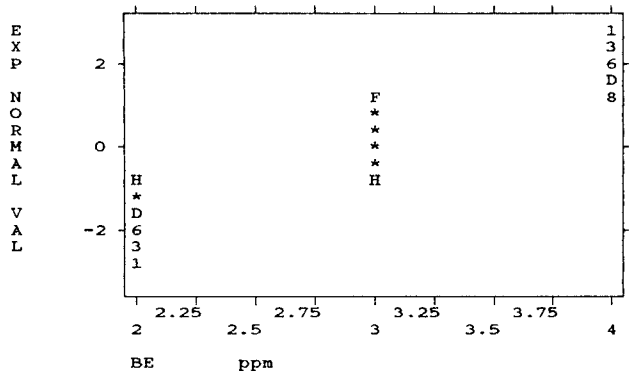


Gráfico de dispersión

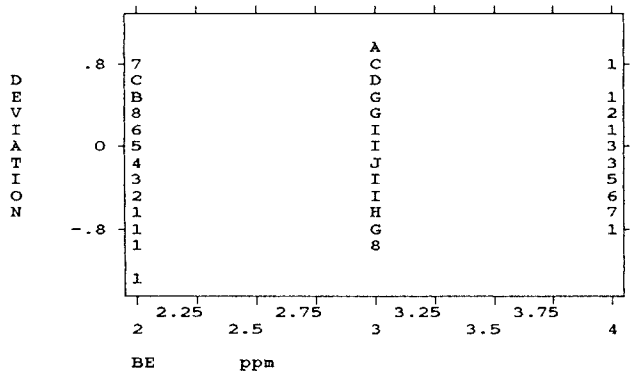
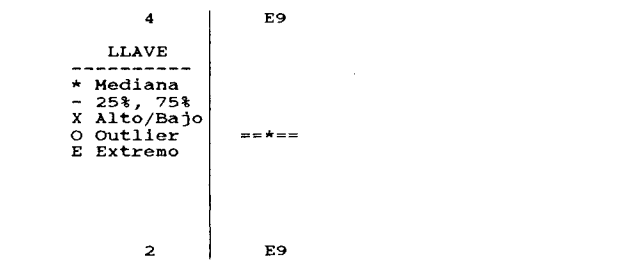
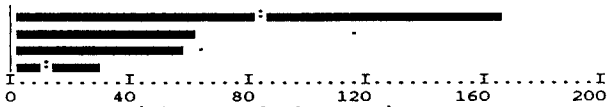


Gráfico de caja para la variable .. BE ppm



MO ppm

N°Casos	Valor
164	0.0
61	1.00
55	2.00
27	3.00



Histograma de frecuencias

Media	.821	Std Err	.058	Mediana	0.0
Moda	0.0	Std Dev	1.018	Varianza	1.036
Angulos.	-.580	S E Ang.	.277	Asim.	.870
S E Asim.	.139	Rango	3.000	Mínimo	0.0
Máximo	3.000	Suma	252.000		
Casos válidos	307	Casos eliminados	7		

Gráfico de probabilidad

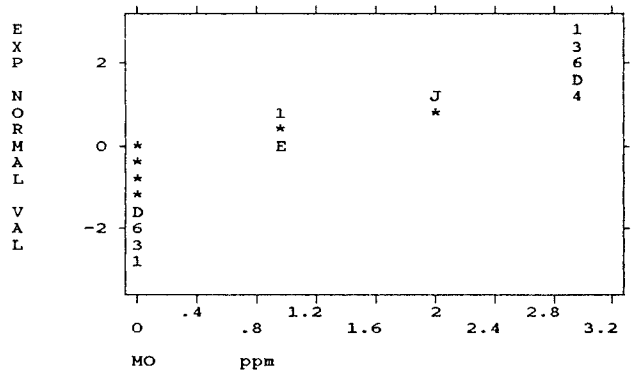


Gráfico de dispersión

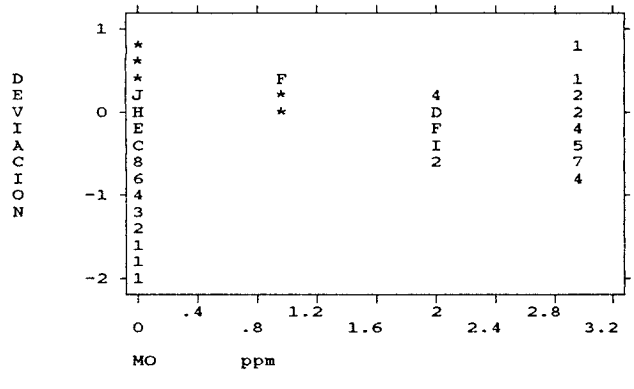
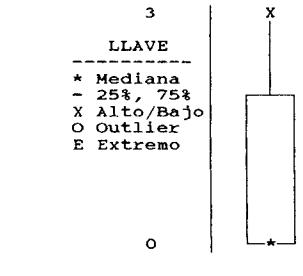
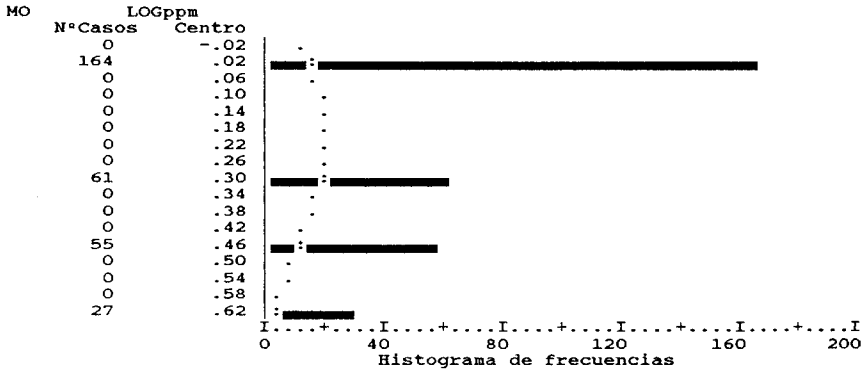
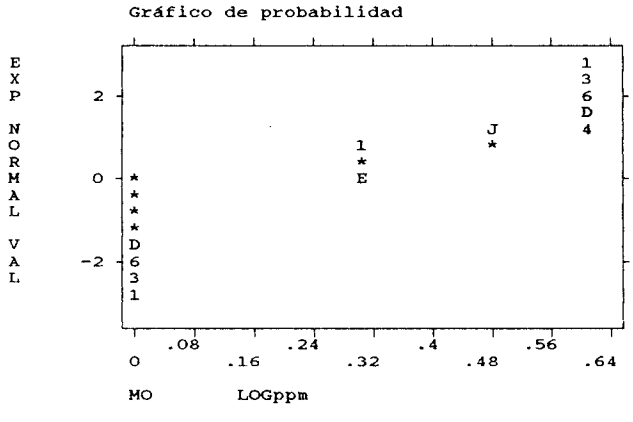


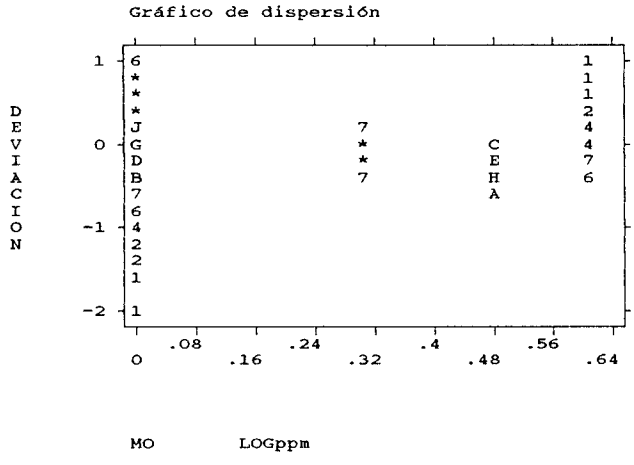
Gráfico de caja para la variable .. MO ppm

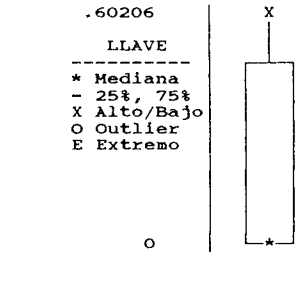


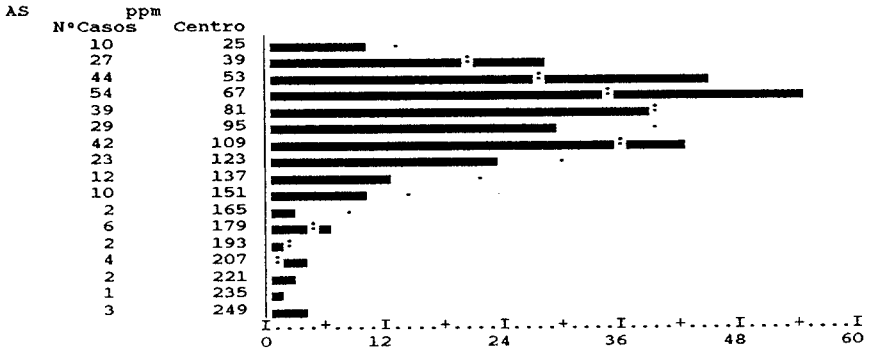


Media	.198	Std Err	.013	Mediana	0.0
Moda	0.0	Std Dev	.227	Varianza	.052
Angulos.	-1.385	S E Ang.	.277	Asim.	.495
S E Asim.	.139	Rango	.602	Mínimo	0.0
Máximo	.602	Suma	60.860		
Casos válidos	307	Casos eliminados	7		









Histograma de frecuencias

Media	89.232	Std Err	2.455	Mediana	80.000
Moda	61.000	Std Dev	43.222	Varianza	1868.166
Angulos.	1.760	S E Ang.	.276	Asim.	1.195
S E Asim.	.138	Rango	234.000	Mínimo	20.000
Máximo	254.000	Suma	27662.000		
Casos válidos	310	Casos eliminados	4		

Gráfico de probabilidad

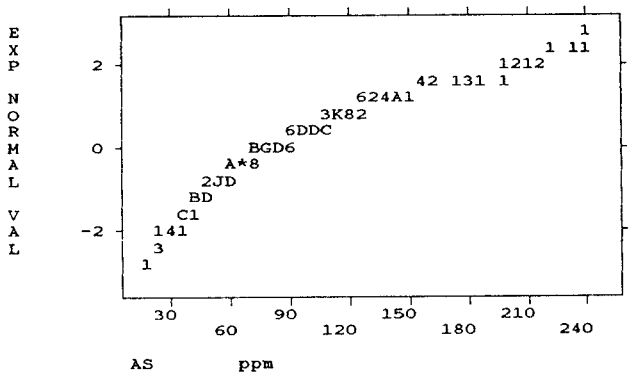


Gráfico de dispersión

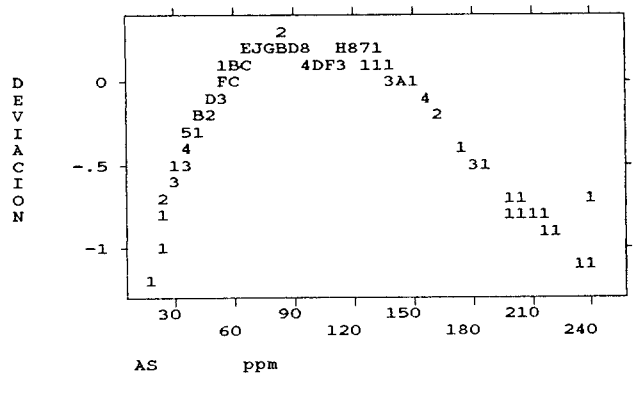
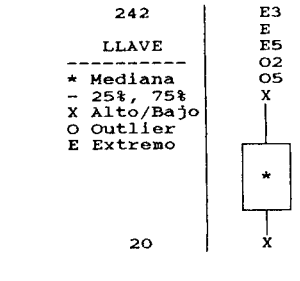
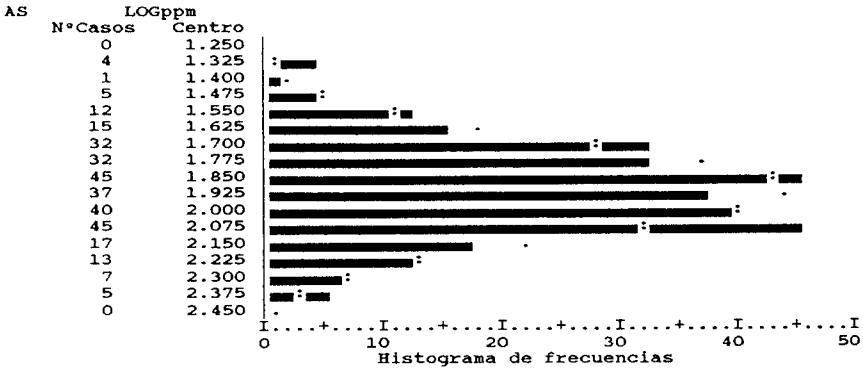
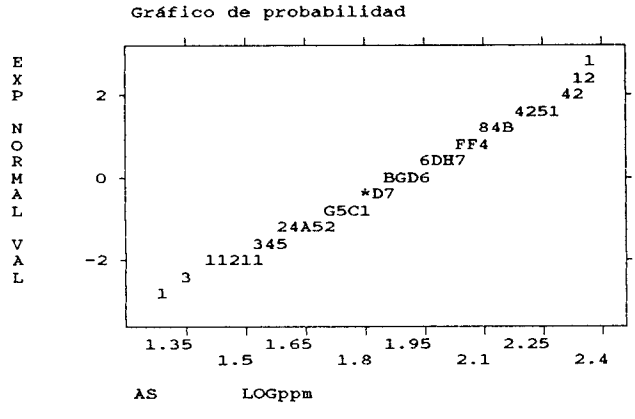


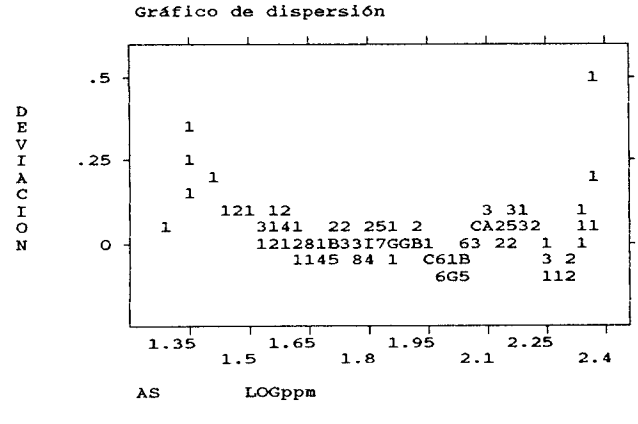
Gráfico de caja para la variable .. AS ppm

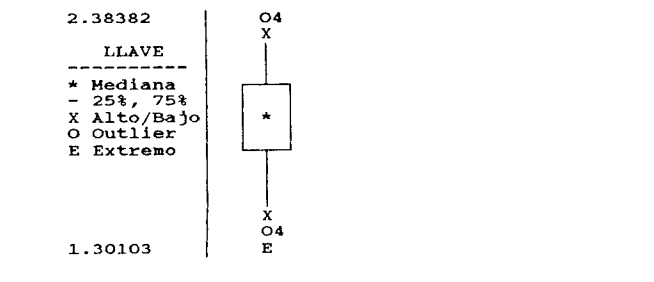


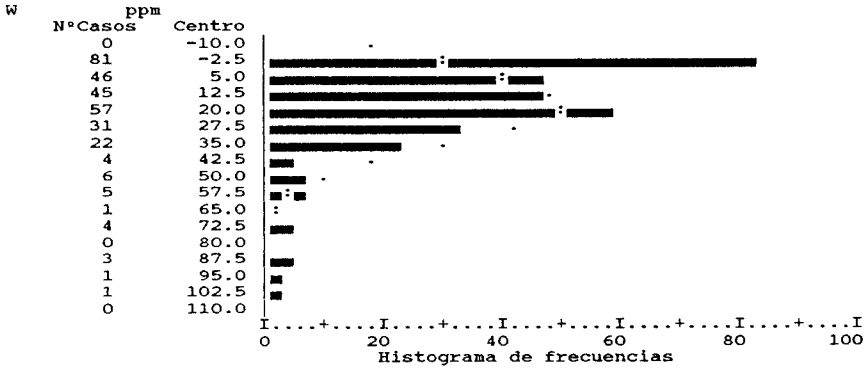


Media	1.902	Std Err	.012	Mediana	1.903
Moda	1.785	Std Dev	.208	Varianza	.043
Angulos.	-.065	S E Ang.	.276	Asim.	-.145
S E Asim.	.138	Rango	1.104	Mínimo	1.301
Máximo	2.405	Suma	589.676		
Casos válidos	310	Casos eliminados	4		

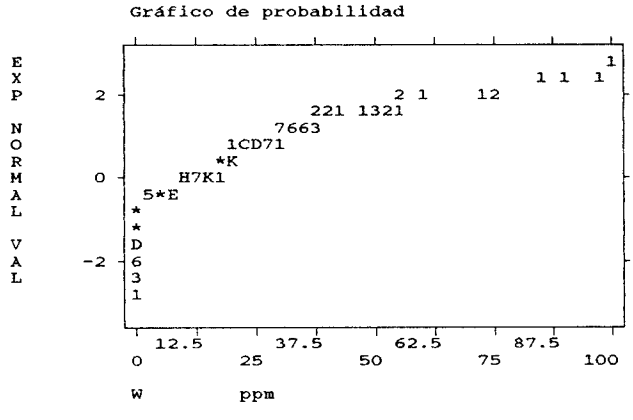


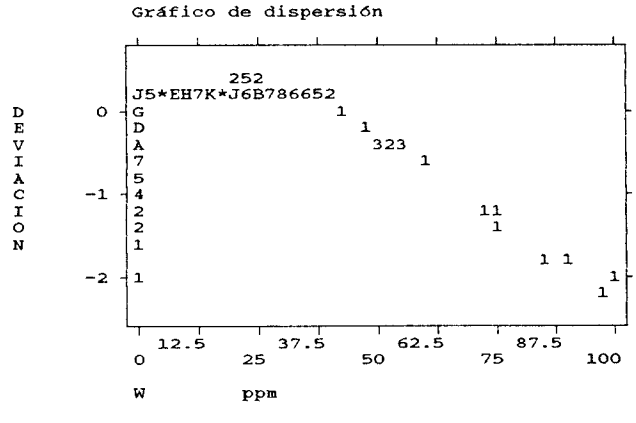


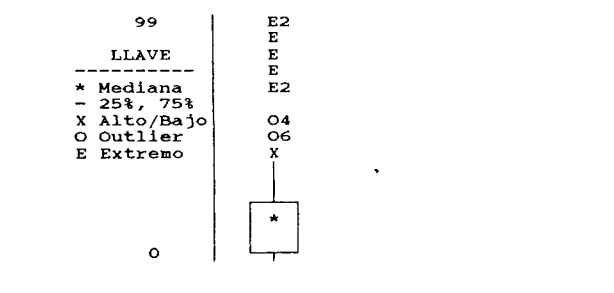


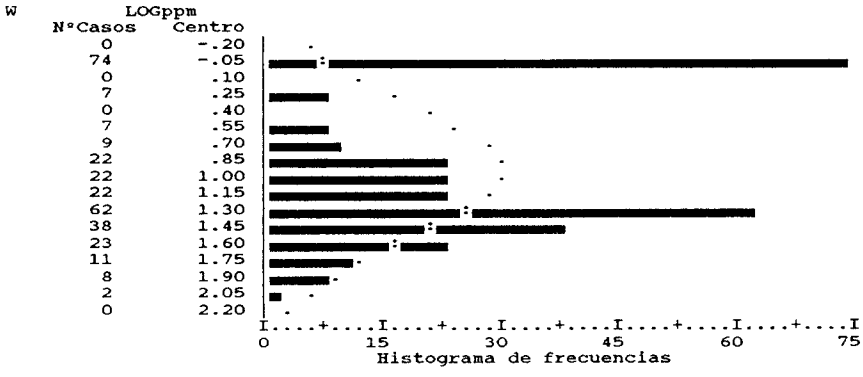


Media	16.642	Std Err	1.042	Mediana	14.000
Moda	0.0	Std Dev	18.264	Varianza	333.564
Angulos.	4.459	S E Ang.	.277	Asim.	1.845
S E Asim.	.139	Rango	99.000	Mínimo	0.0
Máximo	99.000	Suma	5109.000		
Casos válidos	307	Casos eliminados	7		

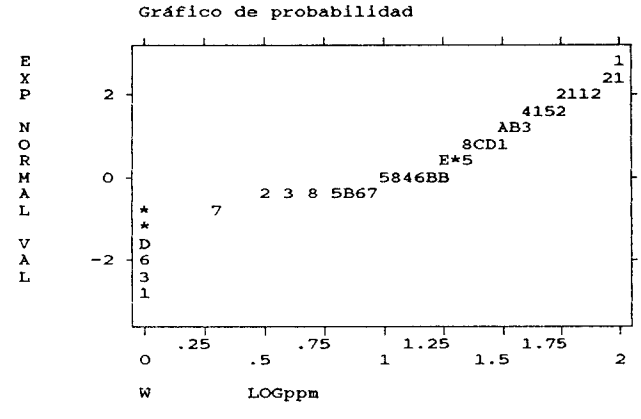


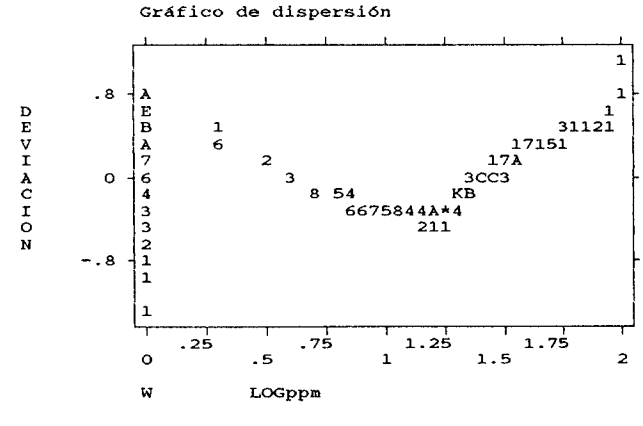


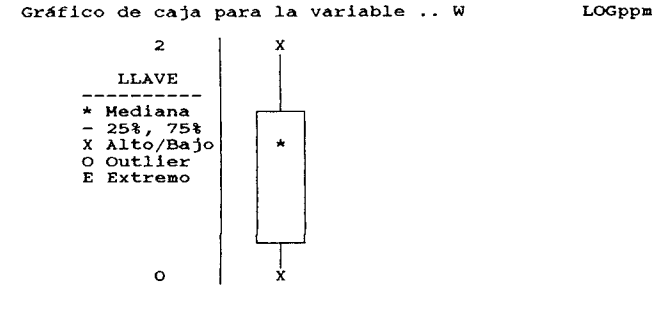


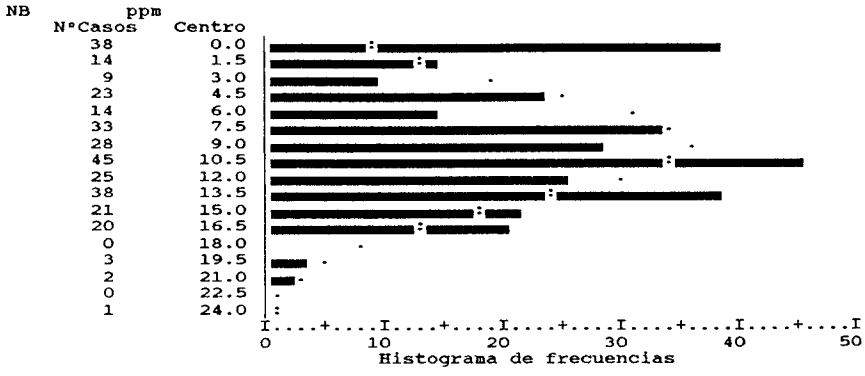


Media	.937	Std Err	.035	Mediana	1.176
Moda	0.0	Std Dev	.611	Varianza	.374
Angulos.	-1.129	S E Ang.	.277	Asim.	-.489
S E Asim.	.139	Rango	2.000	Mínimo	0.0
Máximo	2.000	Suma	287.544		
Casos válidos	307	Casos eliminados	7		

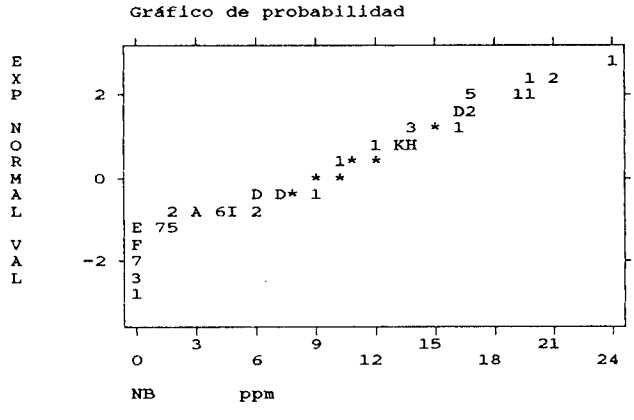


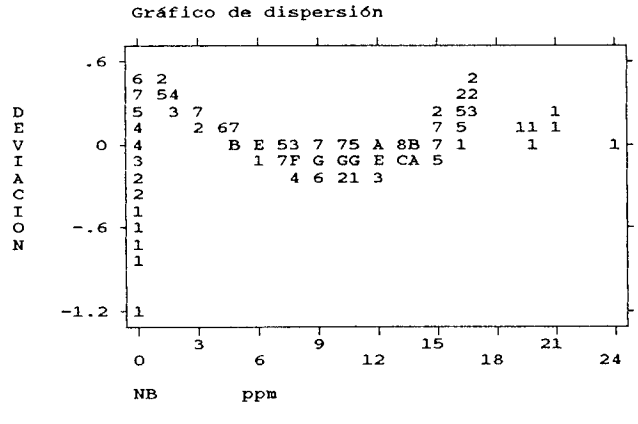


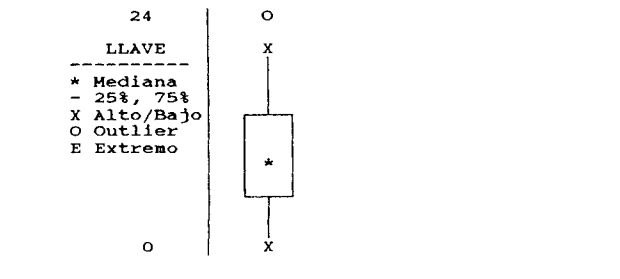


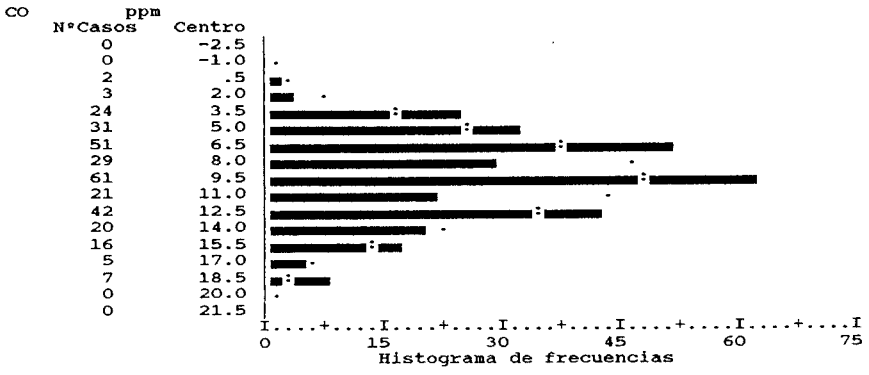


Media	8.904	Std Err	.296	Mediana	9.000
Moda	0.0	Std Dev	5.246	Varianza	27.524
Angulos.	-.665	S E Ang.	.274	Asim.	-.177
S E Asim.	.138	Rango	24.000	Mínimo	0.0
Máximo	24.000	Suma	2796.000		
Casos válidos	314	Casos eliminados	0		

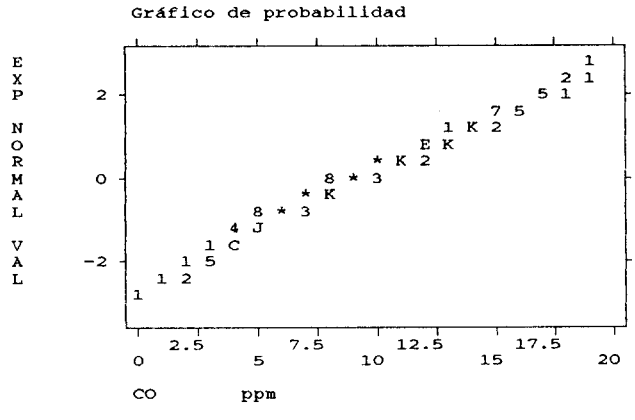


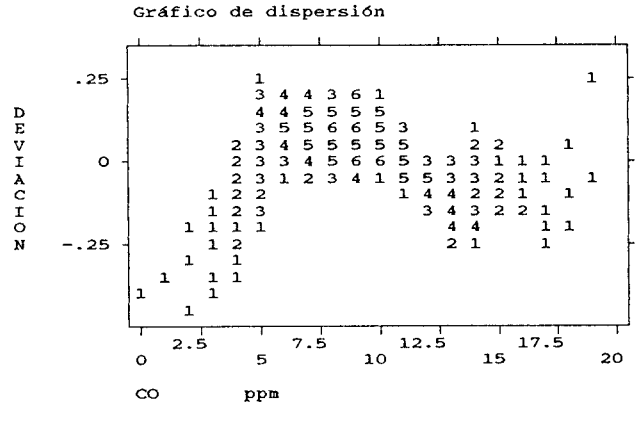


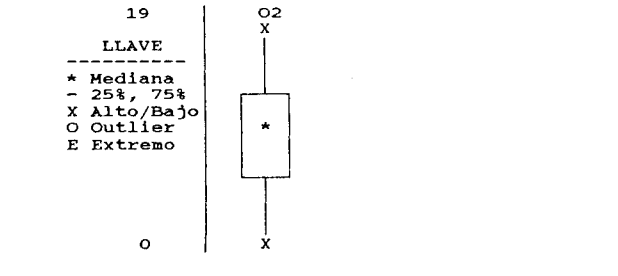




Media	9.269	Std Err	.217	Mediana	9.000
Moda	9.000	Std Dev	3.833	Varianza	14.693
Angulos.	-.504	S E Ang.	.275	Asim.	.293
S E Asim.	.138	Rango	19.000	Mínimo	0.0
Máximo	19.000	Suma	2892.000		
Casos válidos	312	Casos eliminados	2		

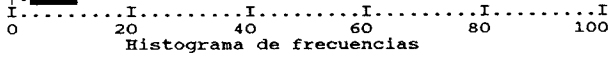






Y ppm

N°Casos	Valor
2	2.00
16	3.00
75	4.00
79	5.00
54	6.00
33	7.00
15	8.00
14	9.00
8	10.00
9	11.00



Histograma de frecuencias

Media	5.662	Std Err	.109	Mediana	5.000
Moda	5.000	Std Dev	1.895	Varianza	3.593
Angulos.	.656	S E Ang.	.278	Asim.	.995
S E Asim.	.140	Rango	9.000	Mínimo	2.000
Máximo	11.000	Suma	1727.000		
Casos válidos	305	Casos eliminados	9		

Gráfico de probabilidad

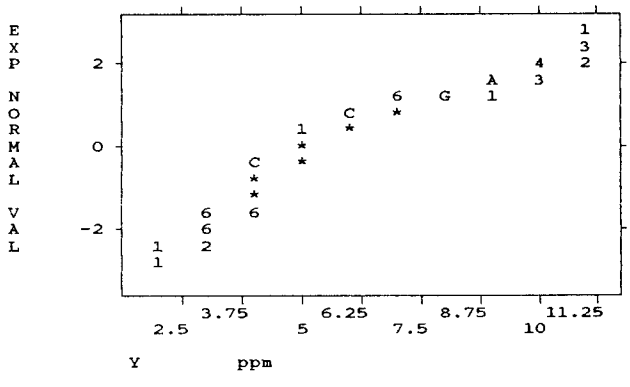


Gráfico de dispersión

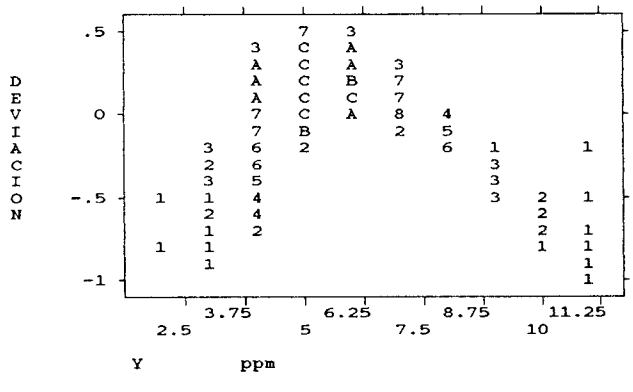
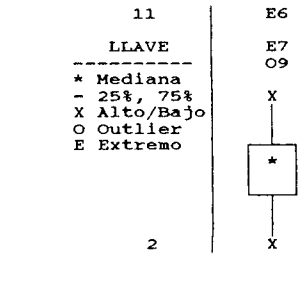
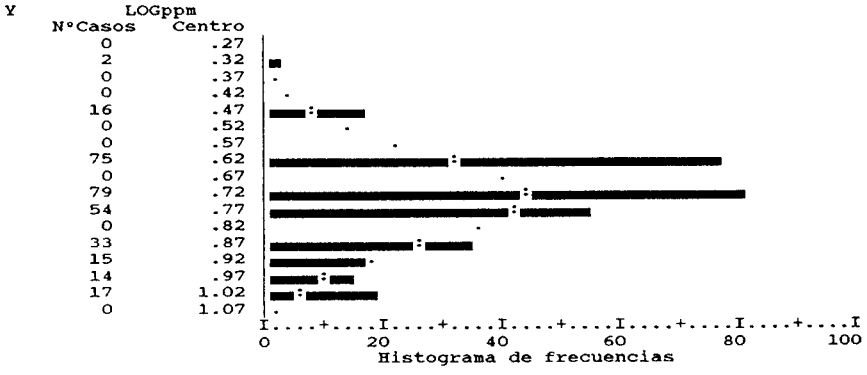
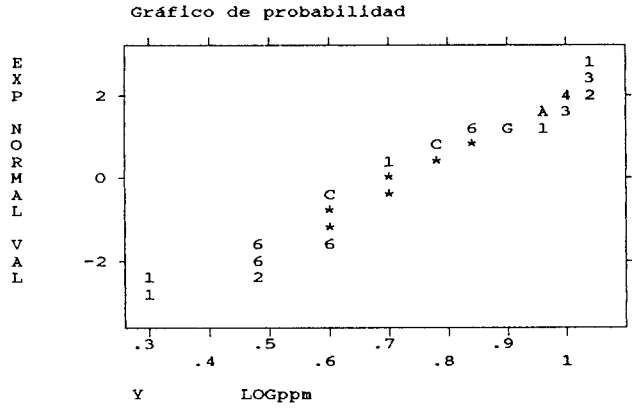


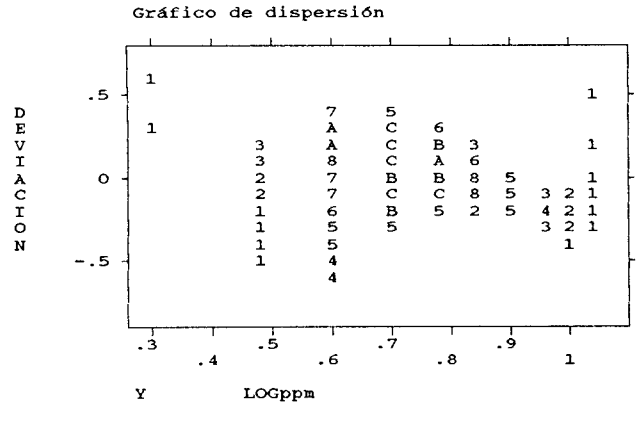
Gráfico de caja para la variable .. Y ppm

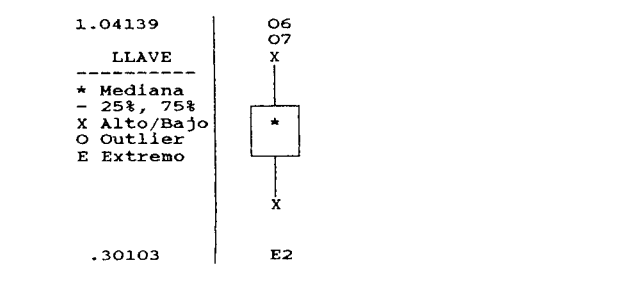




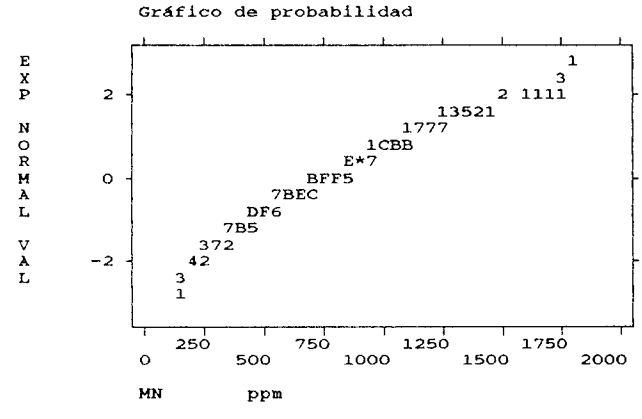
Media	.730	Std Err	.008	Mediana	.699
Moda	.699	Std Dev	.139	Varianza	.019
Angulos.	-.011	S E Ang.	.278	Asim.	.169
S E Asim.	.140	Rango	.740	Mínimo	.301
Máximo	1.041	Suma	222.796		
Casos válidos	305	Casos eliminados	9		

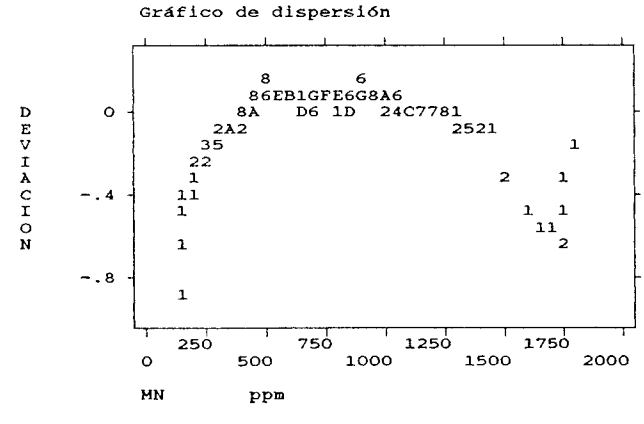


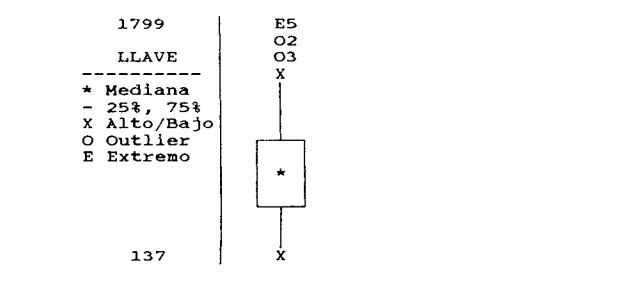




Media	786.879	Std Err	20.343	Mediana	759.000
Moda	482.000	Std Dev	359.899	Varianza	129526.992
Angulos.	.166	S E Ang.	.275	Asim.	.619
S E Asim.	.138	Rango	1698.000	Mínimo	137.000
Máximo	1835.000	Suma	246293.000		
Casos válidos	313	Casos eliminados	1		







1.2.3. ANÁLISIS BIVARIANTE

FE	-	ppm
BE	-	ppm
MO	-	ppm
AS	-	ppm
W	-	ppm
NB	-	ppm
CO	-	ppm
Y	-	ppm
MN	-	ppm
CD	-	ppm

Correlations:	FE	BE	MO	AS	W	NB	CO	Y	MN
FE	1.0000	.3727**	.0308	.3150**	.0573	.5606**	.3254**	.1788*	.3516**
BE	.3727**	1.0000	.0441	.0607	-.0312	.3014**	.1841*	.2177**	.0728
MO	.0308	.0441	1.0000	.1092	.0932	.0901	.0824	.0057	-.0243
AS	.3150**	.0607	.1092	1.0000	.0798	.2371**	.2789**	.0894	.2955**
W	.0573	-.0312	.0932	.0798	1.0000	-.0237	.0572	.0943	.0653
NB	.5606**	.3014**	.0901	.2371**	-.0237	1.0000	.1204	.2832**	.1734*
CO	.3254**	.1841*	.0824	.2789**	.0572	.1204	1.0000	.0058	.7039**
Y	.1788*	.2177**	.0057	.0894	.0943	.2832**	.0058	1.0000	-.1397
MN	.3516**	.0728	-.0243	.2955**	.0653	.1734*	.7039**	-.1397	1.0000

N of cases: 277 1-tailed Signif: * - .01 ** - .001

" . " is printed if a coefficient cannot be computed

1.2.4. ANÁLISIS MULTIVARIANTE

1.2.4.1. Test de adecuación multivariante

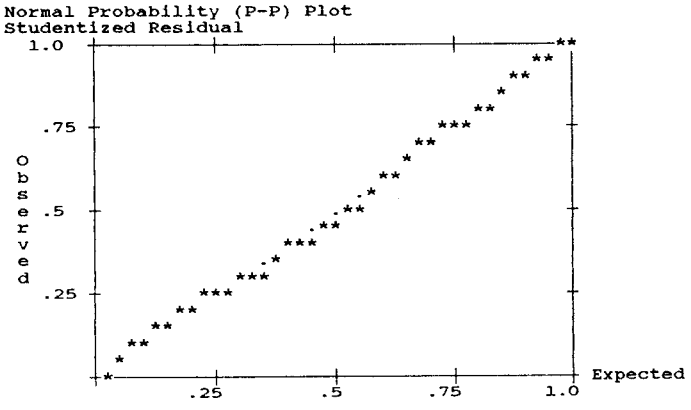
REF	-	* No label *
FE	-	ppm
BE	-	ppm
MO	-	LOGppm
AS	-	LOGppm
W	-	LOGppm
NB	-	ppm
CO	-	ppm
Y	-	LOGppm
MN	-	ppm
CD	-	ppm

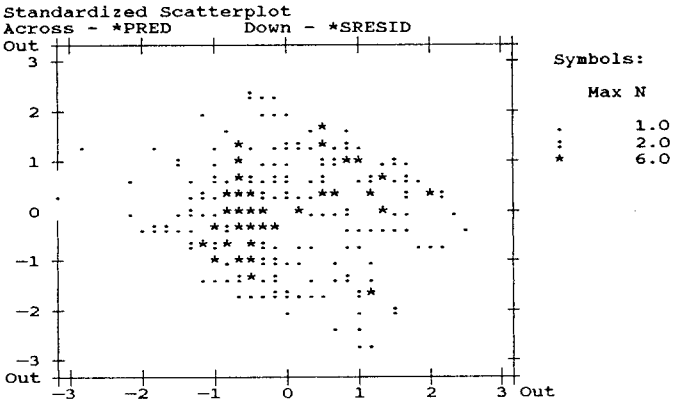
Outliers - Mahalanobis' Distance

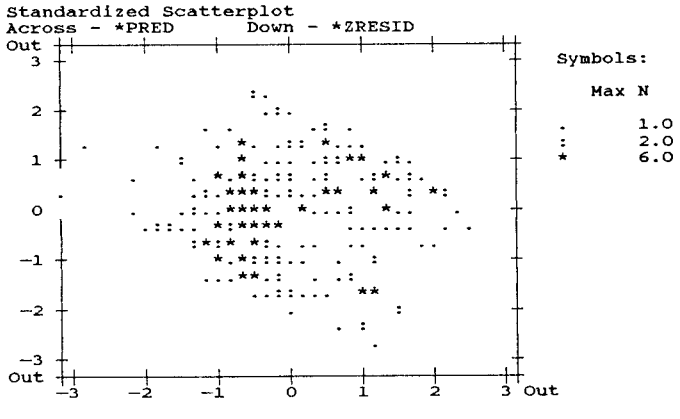
Case #	*MAHAL
222	23.64950
60	23.22846
295	22.85175
194	22.68710
10	22.66171
230	20.41965
109	18.34667
128	18.32959
208	18.10596
72	17.83231

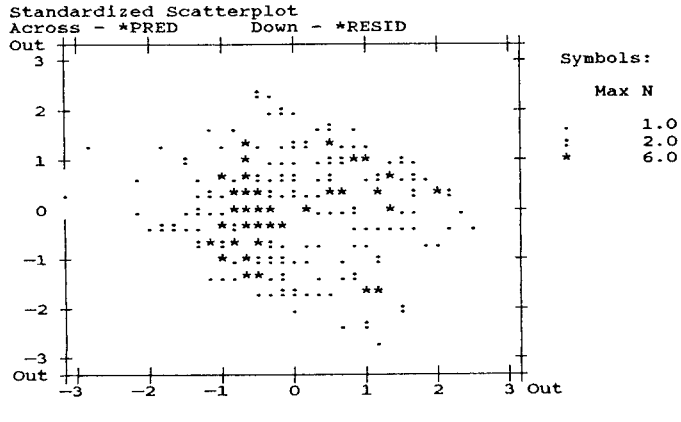
Histograma - Studentized Residual

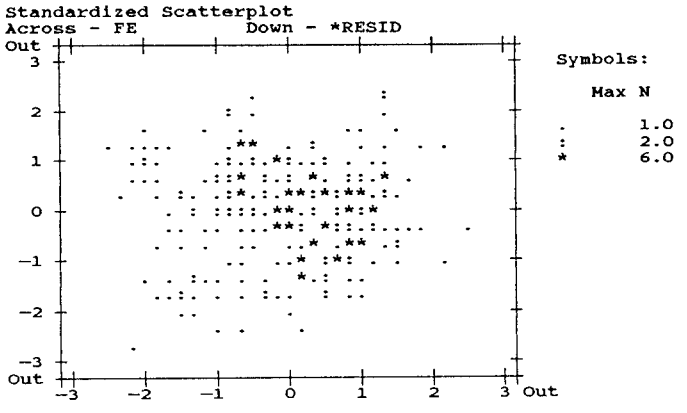
```
NExp N      (* = 1 Casos,     . : = Normal Curve)
0   .21   Out
0   .42  3.00
0 1.08   2.67 .
4 2.47   2.33 *:**
4 5.05   2.00 ****.
6 9.26   1.67 ******  .
* 15.2   1.33 ***************:*****
* 22.3   1.00 **********************:*
* 29.4    .67 ****************************.
* 34.7    .33 ************************************:********
* 36.7   0.0  ************************************.
* 34.7   -.33 ********************************* .
* 29.4   -.67 ************************      .
* 22.3  -1.00 ******************    .
* 15.2  -1.33 ***************:*
* 9.26  -1.67 ********:******
4 5.05  -2.00 ****.
2 2.47  -2.33 *:
2 1.08  -2.67 :*
0   .42 -3.00
0   .21   Out
```

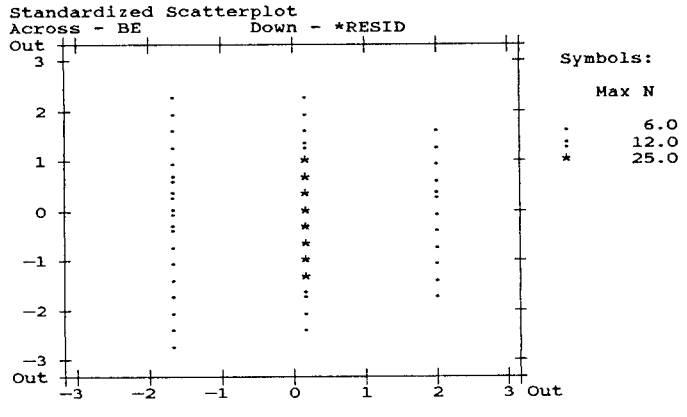

Normal Probability (P-P) Plot
Studentized Residual
Observed
Expected
1.0
.75
.5
.25

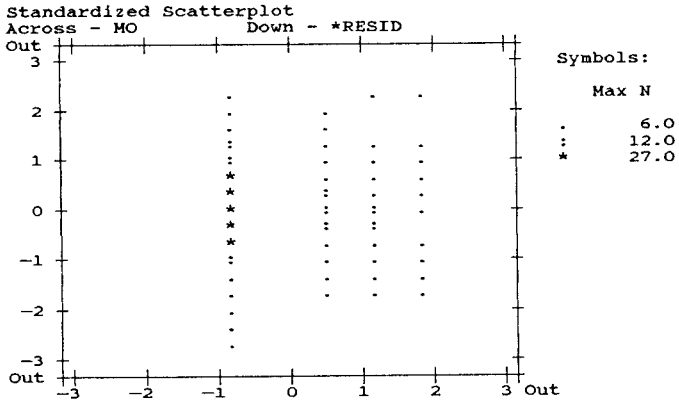

Standardized Scatterplot
Across - *PRED Down - *SRESID
Out
Symbols:
Max N
1.0
2.0
6.0

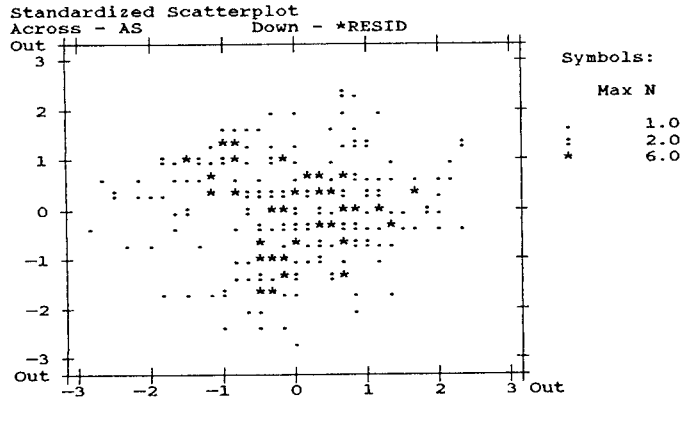

Standardized Scatterplot
Across - *PRED Down - *ZRESID
Out
Symbols:
Max N
1.0
2.0
6.0

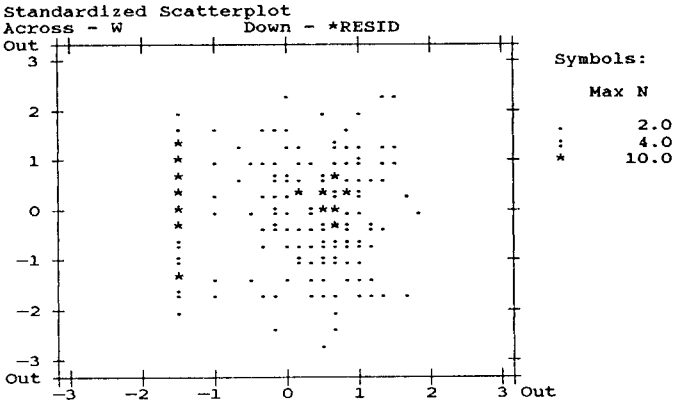

Standardized Scatterplot
Across - *PRED Down - *RESID
Out
Symbols:
Max N
1.0
2.0
6.0

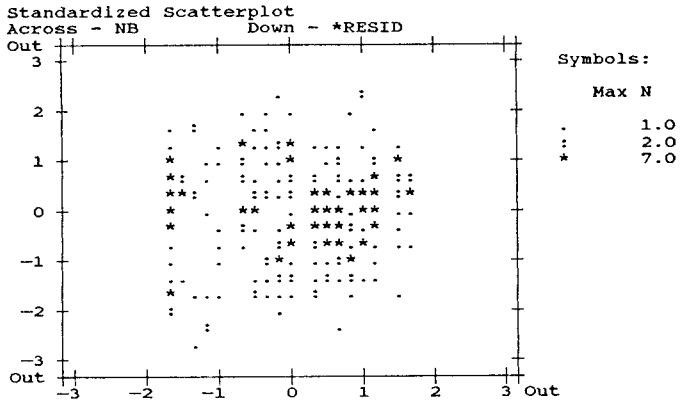

Standardized Scatterplot
Across - FE Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0
* 6.0

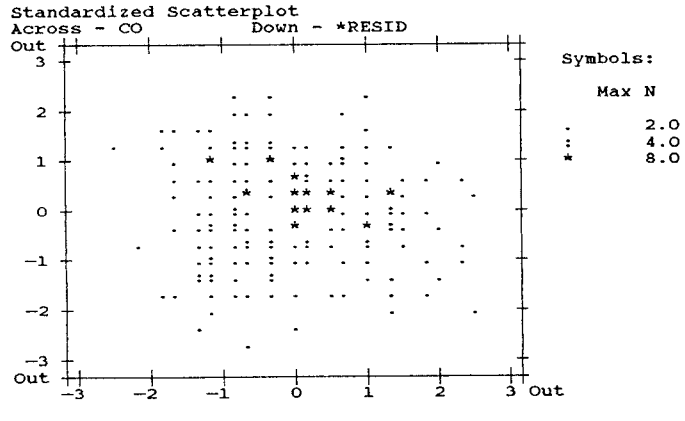

Standardized Scatterplot
Across - BE Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 6.0
: 12.0
* 25.0

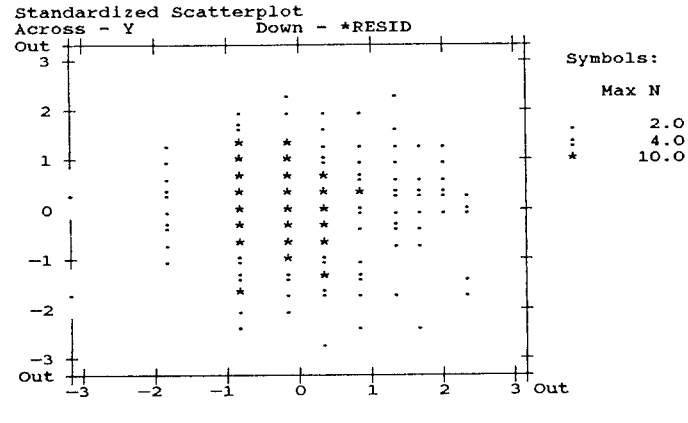

Standardized Scatterplot
Across - MO Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 6.0
: 12.0
* 27.0

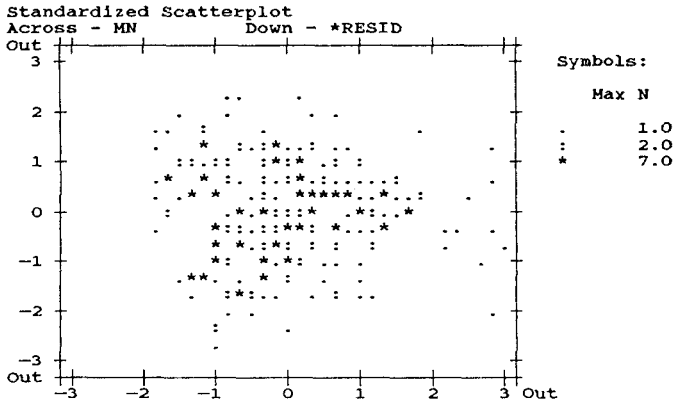

Standardized Scatterplot
Across - AS Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0
* 6.0


Standardized Scatterplot
Across - W
Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 2.0
: 4.0
* 10.0


Standardized Scatterplot
Across - NB
Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0
* 7.0


Standardized Scatterplot
Across - CO
Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 2.0
: 4.0
* 8.0


Standardized Scatterplot
Across - Y
Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 2.0
: 4.0
* 10.0


Standardized Scatterplot
Across - MN
Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3
−2
−1
0
1
2
3
Out
Symbols:
Max N
. 1.0
: 2.0
* 7.0

1.2.4.2. Análisis de componentes principales

```
FE      -       ppm
BE      -       ppm
MO      -       LOGppm
AS      -       LOGppm
W       -       LOGppm
NB      -       ppm
CO      -       ppm
Y       -       LOGppm
MN      -       ppm
CD      -       ppm
```

	Media	Std Dev	Label
FE	327.68231	62.81973	ppm
BE	2.89170	.56064	ppm
MO	.20068	.22847	LOGppm
AS	1.89863	.20913	LOGppm
W	.91775	.60893	LOGppm
NB	8.71119	5.10998	ppm
CO	9.23105	3.78843	ppm
Y	.72416	.13470	LOGppm
MN	788.68592	341.66436	ppm

Number of Casos = 277

Correlation Matrix:

	FE	BE	MO	AS	W	NB	CO
FE	1.00000						
BE	.37266	1.00000					
MO	.03712	.03406	1.00000				
AS	.36619	.05050	.13313	1.00000			
W	.15716	-.00520	.18163	.17891	1.00000		
NB	.56056	.30142	.09342	.30996	.13241	1.00000	
CO	.32538	.18412	.06445	.27478	.05406	.12043	1.00000
Y	.19505	.20643	.01789	.12029	.08135	.29215	-.00831
MN	.35161	.07282	-.02510	.28218	.10910	.17339	.70390

	Y	MN
Y	1.00000	
MN	-.14336	1.00000

Determinant of Correlation Matrix = .1446226

Inverse of Correlation Matrix:

	FE	BE	MO	AS	W
FE	1.84087				
BE	-.39246	1.25457			
MO	.07379	-.02154	1.07422		
AS	-.28445	.16002	-.11932	1.28248	
W	-.11075	.07108	-.18970	-.10681	1.09011
NB	-.72699	-.17869	-.10561	-.19458	-.01737
CO	-.14456	-.26403	-.18253	-.16241	.10919
Y	-.06890	-.12963	.06040	-.08397	-.08033
MN	-.30655	.19143	.21241	-.12885	-.14515

	NB	CO	Y	MN
NB	1.61964			
CO	.26387	2.16639		
Y	-.29221	-.17704	1.19912	
MN	-.18569	-1.49667	.41483	2.29654

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .64716
Bartlett Test of Sphericity = 526.26896, Significance = .00000
There are 20 (27.8%) off-diagonal elements of AIC Matrix > 0.09

Anti-Image Covariance Matrix:

	FE	BE	MO	AS	W
FE	.54322				
BE	-.16993	.79709			
MO	.03732	-.01598	.93091		
AS	-.12049	.09946	-.08661	.77974	
W	-.05519	.05197	-.16200	-.07640	.91734
NB	-.24383	-.08794	-.06070	-.09368	-.00984
CO	-.03625	-.09714	-.07843	-.05846	.04624
Y	-.03121	-.08617	.04689	-.05460	-.06146
MN	-.07251	.06644	.08610	-.04375	-.05798

	NB	CO	Y	MN
NB	.61742			
CO	.07520	.46160		
Y	-.15046	-.06815	.83395	
MN	-.04992	-.30083	.15064	.43544

Anti-Image Correlation Matrix:

	FE	BE	MO	AS	W	NB	CO
FE	.73553						
BE	-.25825	.67487					
MO	.05247	-.01855	.43817				
AS	-.18513	.12616	-.10166	.80915			
W	-.07818	.06078	-.17530	-.09033	.65673		
NB	-.42102	-.12535	-.08007	-.13501	-.01307	.69325	
CO	-.07239	-.16015	-.11965	-.09744	.07105	.14087	.57475
Y	-.04638	-.10569	.05322	-.06771	-.07026	-.20968	-.10984
MN	-.14909	.11278	.13523	-.07508	-.09174	-.09628	-.67100

	Y	MN
Y	.59063	
MN	.24998	.56557

Measures of sampling adequacy (MSA) are printed on the diagonal.

Correlation 1-tailed Significance Matrix:
' . ' is printed for diagonal elements.

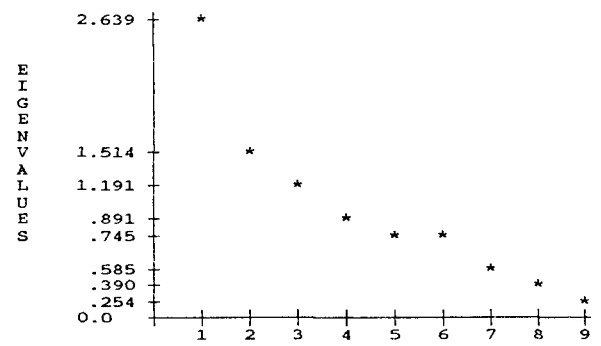
	FE	BE	MO	AS	W
FE	.				
BE	.00000	.			
MO	.26922	.28624	.		
AS	.00000	.20125	.01336	.	
W	.00439	.46565	.00120	.00140	.
NB	.00000	.00000	.06044	.00000	.01378
CO	.00000	.00105	.14255	.00000	.18506
Y	.00055	.00027	.38343	.02274	.08851
MN	.00000	.11352	.33873	.00000	.03492

	NB	CO	Y	MN
NB	.			
CO	.02261	.		
Y	.00000	.44527	.	
MN	.00190	.00000	.00848	.

Extraction 1 for Analysis 1, Principal-Components Analysis (PC)

Initial Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
FE	1.00000	*	1	2.63906	29.3	29.3
BE	1.00000	*	2	1.51370	16.8	46.1
MO	1.00000	*	3	1.19091	13.2	59.4
AS	1.00000	*	4	.89143	9.9	69.3
W	1.00000	*	5	.79199	8.8	78.1
NB	1.00000	*	6	.74461	8.3	86.4
CO	1.00000	*	7	.58499	6.5	92.9
Y	1.00000	*	8	.38955	4.3	97.2
MN	1.00000	*	9	.25376	2.8	100.0



PC Extracted 3 factors.

Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FE	.79269	.16921	-.14026
BE	.45810	.34178	-.41021
MO	.16456	.12056	.67147
AS	.59877	-.03303	.29535
W	.28871	.09402	.66108
NB	.66411	.42676	-.05856
CO	.64468	-.56551	-.10766
Y	.27179	.64650	-.08433
MN	.63352	-.65107	-.07558

Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
		*				
FE	.67667	*	1	2.63906	29.3	29.3
BE	.49495	*	2	1.51370	16.8	46.1
MO	.49248	*	3	1.19091	13.2	59.4
AS	.44685	*				
W	.52922	*				
NB	.62660	*				
CO	.74701	*				
Y	.49894	*				
MN	.83096	*				

Reproduced Correlation Matrix:

	FE	BE	MO	AS	W
FE	.67667*	-.10584	-.01955	-.06143	.00512
BE	.47851	.49495*	.19291	-.09136	.10158
MO	.05666	-.15885	.49248*	-.15974	-.32111
AS	.42763	.14185	.29287	.44685*	-.18610
W	.15205	-.10679	.50274	.36501	.52922*
NB	.60686	.47411	.12142	.36626	.19315
CO	.43044	.14621	-.03438	.37290	.06178
Y	.33667	.38006	.06604	.11648	.08351
MN	.40262	.09870	-.02499	.37852	.07172

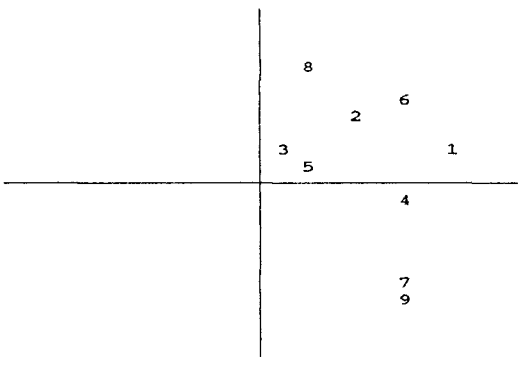
	NB	CO	Y	MN
FE	-.04630	-.10506	-.14162	-.05101
BE	-.17269	.03791	-.17363	-.02588
MO	-.02800	.09883	-.04815	-.00011
AS	-.05630	-.09812	.00381	-.09634
W	-.06075	-.00773	-.00216	.03737
NB	.62660*	-.07267	-.16919	.02609
CO	.19311	.74701*	.17300	-.08084
Y	.46134	-.18130	.49894*	.09900
MN	.14730	.78474	-.24236	.83096*

The lower left triangle contains the reproduced correlation matrix; The diagonal, communalities; and the upper right triangle, residuals between the observed correlations and the reproduced correlations.

There are 23 (63.0%) residuals (above diagonal) that are > 0.05

Skipping Rotation 1, Extraction 1, Analysis 1

Horizontal Factor 1 Vertical Factor 2



Symbol	Variable	Coordinates	
1	FE	.793	.169
2	BE	.458	.342
3	MO	.165	.121
4	AS	.599	-.033
5	W	.289	.094
6	NB	.664	.427
7	CO	.645	-.566
8	Y	.272	.646
9	MN	.634	-.651

Factor Score Coefficient Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FE	.30037	.11179	-.11778
BE	.17359	.22579	-.34445
MO	.06236	.07964	.56383
AS	.22689	-.02182	.24800
W	.10940	.06212	.55510
NB	.25165	.28193	-.04917
CO	.24428	-.37360	-.09040
Y	.10299	.42710	-.07081
MN	.24006	-.43012	-.06347

Covariance Matrix for Estimated Regression Factor Scores:

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	1.00000		
FACTOR 2	-.00000	1.00000	
FACTOR 3	.00000	-.00000	1.00000

Varimax Rotation 2, Extraction 1, Analysis 1 - Kaiser Normalization.

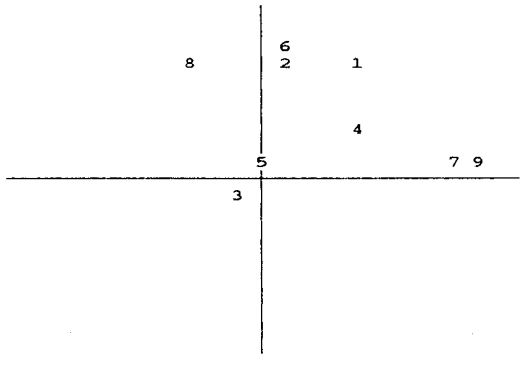
Varimax converged in 4 iterations.

Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FE	.42633	.69116	.13115
BE	.10353	.66645	-.20019
MO	-.04905	-.02054	.69975
AS	.39644	.28787	.45477
W	.05521	.04859	.72375
NB	.14274	.75098	.20557
CO	.85949	.09001	.01376
Y	-.27966	.64185	.09362
MN	.91099	.01516	.02859

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	.67472	.67335	.30224
FACTOR 2	-.73023	.66855	.14073
FACTOR 3	-.10730	-.31565	.94279



Symbol	Variable	Coordinates	
1	FE	.426	.691
2	BE	.104	.666
3	MO	-.049	-.021
4	AS	.396	.288
5	W	.055	.049
6	NB	.143	.751
7	CO	.859	.090
8	Y	-.280	.642
9	MN	.911	.015

Factor Score Coefficient Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FE	.13367	.31417	-.00453
BE	-.01080	.37657	-.24051
MO	-.07658	-.08274	.56162
AS	.14241	.05990	.29931
W	-.03111	-.06003	.56515
NB	-.03081	.37345	.06938
CO	.44734	-.05674	-.06398
Y	-.23479	.37724	.02447
MN	.48287	-.10588	-.04781

Covariance Matrix for Estimated Regression Factor Scores:

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	1.00000		
FACTOR 2	.00000	1.00000	
FACTOR 3	.00000	.00000	1.00000

Equamax Rotation 3, Extraction 1, Analysis 1 - Kaiser Normalization.

Equamax converged in 5 iterations.

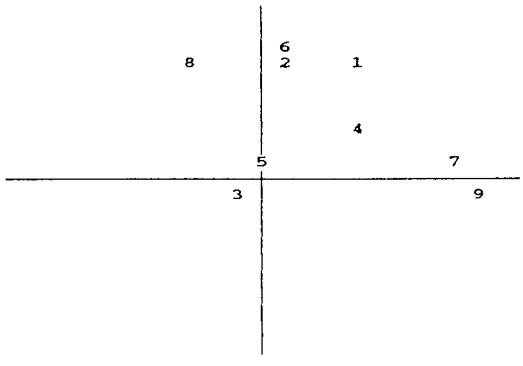
Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FE	.43356	.68554	.13683
BE	.11093	.66678	-.19507
MO	-.05015	-.02525	.69952
AS	.39893	.28019	.45738
W	.05481	.04258	.72415
NB	.15054	.74784	.21136
CO	.86038	.08066	.01545
Y	-.27287	.64410	.09810
MN	.91107	.00516	.02978

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	.68153	.66378	.30807
FACTOR 2	-.72319	.67529	.14487
FACTOR 3	-.11187	-.32153	.94027

Horizontal Factor 1 Vertical Factor 2



Symbol	Variable	Coordinates	
1	FE	.434	.686
2	BE	.111	.667
3	MO	-.050	-.025
4	AS	.399	.280
5	W	.055	.043
6	NB	.151	.748
7	CO	.860	.081
8	Y	-.273	.644
9	MN	.911	.005

Factor Score Coefficient Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FE	.13704	.31274	-.00202
BE	-.00645	.37845	-.23769
MO	-.07818	-.08611	.56090
AS	.14267	.05613	.29992
W	-.03246	-.06391	.56465
NB	-.02688	.37323	.07214
CO	.44678	-.06107	-.06387
Y	-.23076	.37954	.02702
MN	.48176	-.11071	-.04803

Covariance Matrix for Estimated Regression Factor Scores:

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	1.00000		
FACTOR 2	-.00000	1.00000	
FACTOR 3	-.00000	-.00000	1.00000

Quartimax Rotation 4, Extraction 1, Analysis 1 - Kaiser Normalization.

Quartimax converged in 4 iterations.

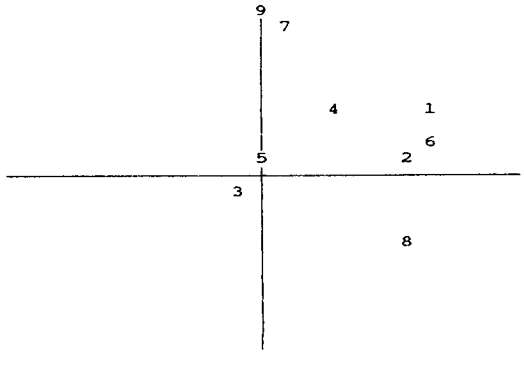
Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FE	.70406	.40851	.11870
BE	.66543	.08597	-.21156
MO	-.01001	-.04747	.70009
AS	.30564	.38953	.44911
W	.06220	.05500	.72272
NB	.75777	.12358	.19264
CO	.11240	.85689	.01061
Y	.63589	-.29603	.08335
MN	.03917	.91034	.02660

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	.69555	.65753	.28959
FACTOR 2	.65174	-.74707	.13086
FACTOR 3	-.30239	-.09772	.94816

Horizontal Factor 1 Vertical Factor 2



Symbol	Variable	Coordinates	
1	FE	.704	.409
2	BE	.665	.086
3	MO	-.010	-.047
4	AS	.306	.390
5	W	.062	.055
6	NB	.758	.124
7	CO	.112	.857
8	Y	.636	-.296
9	MN	.039	.910

Factor Score Coefficient Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FE	.31739	.12550	-.01006
BE	.37206	-.02089	-.24678
MO	-.07521	-.07359	.56308
AS	.06860	.14125	.29799
W	-.05128	-.02871	.56614
NB	.37365	-.04035	.06315
CO	-.04624	.44856	-.06387
Y	.37140	-.24443	.01857
MN	-.09417	.48537	-.04694

Covariance Matrix for Estimated Regression Factor Scores:

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	1.00000		
FACTOR 2	.00000	1.00000	
FACTOR 3	.00000	.00000	1.00000

2. ZONA AGUIONCHA

2.1. RESULTADOS DE ANÁLISIS

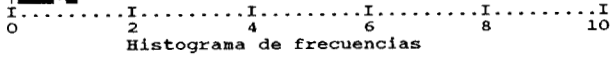
REF	N	CX	CY	B	AS	P	SB	SN	PB	NI	CU	AG	V	BA	CR	MN	MO	ZN	FE	CD	W	CO	NB	BE	Y
B011	1	280	370	11	42	124	0	28	30	7	7	2	11	23	1	273	0	81	138	0	0	0	19	13	25
B012	2	250	345	20	64	447	1	45	36	4	15	0	14	50	2	387	0	89	151	0	1	1	9	10	21
B013	3	315	405	23	50	270	1	36	17	3	0	1	19	50	2	312	0	85	203	0	0	0	5	8	19
B014	4	220	310	22	64	335	0	24	38	0	12	0	9	69	2	211	0	50	101	0	13	1	5	8	17
B015	5	350	440	19	70	634	0	27	31	13	5	1	35	130	13	377	0	74	204	0	10	1	12	8	21
B016	6	190	285	13	68	581	0	26	34	3	19	1	16	66	4	284	2	56	119	0	47	0	8	12	20
B017	7	390	470	16	49	590	0	23	24	10	11	0	40	141	19	511	0	74	246	0	2	2	10	8	12
B022	8	180	145	13	114	464	0	35	25	4	15	2	20	37	3	276	0	63	142	0	0	1	5	9	22
B023	9	210	170	14	31	644	8	35	29	5	25	0	27	79	8	484	0	84	178	0	3	0	13	5	10
B024	10	245	195	20	64	768	5	40	41	6	16	1	35	84	14	338	4	69	184	1	46	0	10	13	20
B025	11	270	220	17	52	459	6	47	35	5	9	0	32	85	10	454	0	76	189	0	16	0	20	11	19
B026	12	300	245	15	172	521	0	23	19	4	19	0	24	46	3	270	0	53	215	0	2	0	6	9	10
B027	13	330	270	18	59	802	0	22	33	12	12	0	16	52	4	344	0	53	117	0	0	1	5	6	24
B028	14	365	295	17	29	490	0	18	23	7	8	3	21	104	8	349	0	67	161	0	0	0	19	6	17
B029	15	410	330	13	38	891	0	5	20	54	27	1	119	479	69	448	0	139	472	0	0	17	6	3	7
B210	16	450	360	15	33	1043	0	0	39	31	28	0	34	183	18	219	1	66	240	0	0	18	5	4	4
B031	17	580	365	18	61	1035	0	0	21	38	37	0	73	307	42	298	0	102	359	0	1	14	22	4	7
B032	18	550	340	19	56	835	0	0	26	41	20	2	67	202	38	287	6	72	316	0	0	11	14	5	3
B033	19	520	310	14	95	867	0	25	32	22	24	2	61	130	30	379	3	89	298	0	9	6	22	7	10
B034	20	490	285	24	78	410	0	25	31	9	13	0	21	85	5	444	5	96	184	0	0	4	8	11	11
B035	21	450	250	18	35	340	0	19	22	12	10	1	37	101	16	303	0	82	195	0	5	3	11	7	19
B036	22	415	235	19	98	549	0	20	28	12	6	1	34	95	14	291	3	69	233	0	17	1	21	6	14
B037	23	250	85	10	36	214	5	23	27	9	34	1	8	75	2	349	0	36	62	0	725	2	12	7	19
B039	24	345	160	18	35	589	0	9	41	7	34	0	2	70	0	219	2	33	60	0	12	2	0	7	7
B310	25	390	205	10	1	242	4	24	32	8	13	0	9	69	3	254	1	29	49	0	324	0	22	8	9
B041	26	500	175	9	8	167	5	34	20	0	11	0	8	69	3	217	0	23	43	0	390	0	19	6	14
B043	27	560	220	23	71	294	3	31	39	6	4	0	18	41	4	410	2	74	165	0	0	4	36	7	17
B044	28	585	250	21	96	451	7	36	33	25	14	2	52	182	34	396	7	86	257	0	3	4	15	6	12
B045	29	605	270	18	78	1312	5	4	27	35	32	0	61	162	35	261	2	68	300	0	0	13	28	4	4
B046	30	635	290	17	66	692	0	9	25	36	19	1	65	168	58	392	0	104	344	0	0	10	28	5	11
B049	31	400	85	22	51	363	0	27	33	3	7	0	13	37	1	317	0	40	110	0	0	1	6	8	10
B411	32	470	150	20	43	622	7	41	40	14	12	0	22	56	7	503	0	67	158	0	9	3	21	8	15
B051	33	685	230	13	154	315	0	18	45	9	16	4	17	82	7	273	0	69	162	0	6	4	9	6	12
B052	24	660	200	16	52	357	0	41	32	4	7	0	25	77	8	340	1	75	207	0	4	0	13	9	16
B053	35	640	180	17	64	344	0	34	29	13	8	1	39	88	13	423	0	81	218	0	2	2	10	7	13
B054	36	620	160	19	46	332	2	33	24	8	7	2	26	78	7	446	0	78	196	0	4	0	10	8	14
B055	37	595	130	8	12	211	0	18	24	8	36	3	9	70	2	365	0	34	56	0	561	0	13	7	14
B056	38	565	105	16	45	993	7	43	34	5	9	0	12	32	3	397	0	84	169	1	3	0	10	9	18
B057	39	540	75	18	36	1087	1	34	35	9	16	0	29	56	10	690	0	83	199	0	8	0	16	8	13

Número de casos = 39

2.2. ANÁLISIS UNIVARIANTE

B ppm

N°Casos	Valor
1	8.00
1	9.00
2	10.00
1	11.00
0	12.00
4	13.00
2	14.00
2	15.00
3	16.00
4	17.00
6	18.00
4	19.00
3	20.00
1	21.00
2	22.00
2	23.00
1	24.00



Histograma de frecuencias

Media	16.744	Std Err	.639	Mediana	17.000
Moda	18.000	Std Dev	3.992	Varianza	15.933
Angulosidad	-.371	S E Ang.	.741	Asim.	-.348
S E Asim.	.378	Rango	16.000	Mínimo	8.000
Máximo	24.000	Suma	653.000		
Casos válidos	39	Casos eliminados	0		

Gráfico de probabilidad

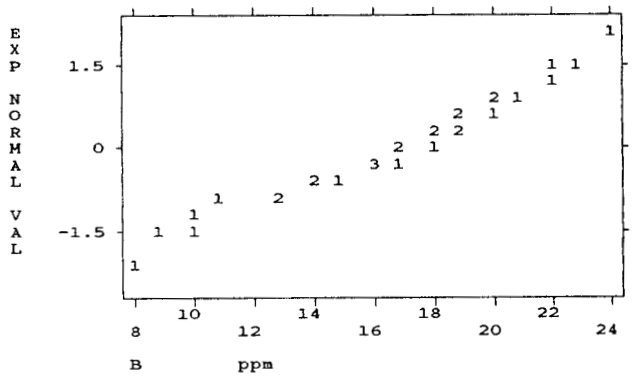


Gráfico de dispersión

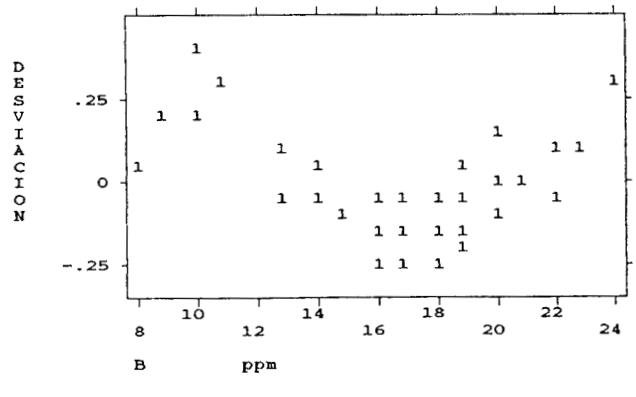
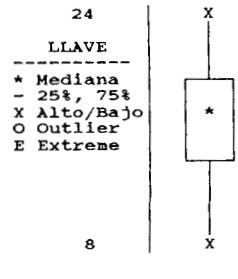
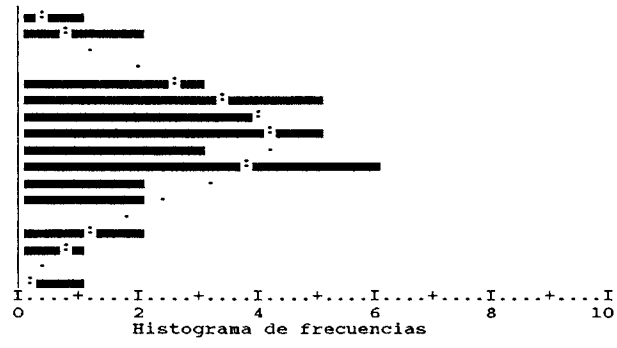


Gráfico de caja para la variable.. B ppm



AS ppm

Nº Casos	Centro
1	2
2	9
0	16
0	23
3	30
5	37
4	44
5	51
3	58
6	65
2	72
2	79
0	86
2	93
1	100
0	107
1	114



Histograma de frecuencias

Media	53.784	Std Err	4.052	Mediana	52.000
Moda	64.000	Std Dev	24.649	Varianza	607.563
Angulosidad	.341	S E Ang.	.759	Asim.	.221
S E Asim.	.388	Rango	113.000	Mínimo	1.000
Máximo	114.000	Suma	1990.000		
Casos válidos	37	Casos eliminados	2		

Gráfico de probabilidad

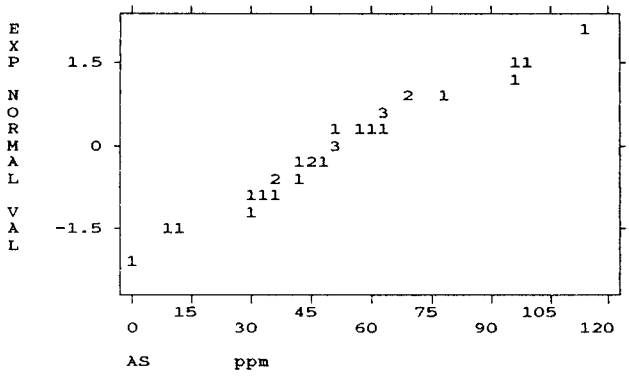


Gráfico de dispersión

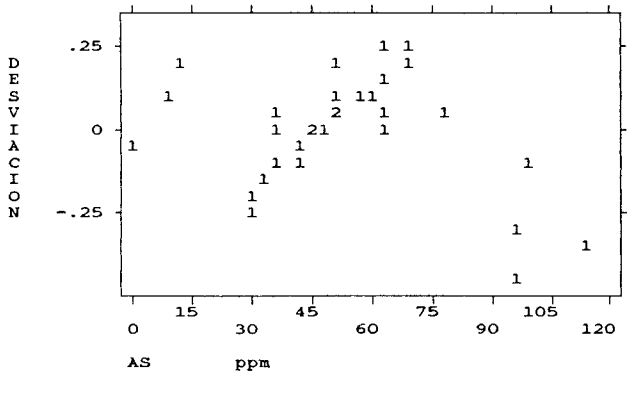
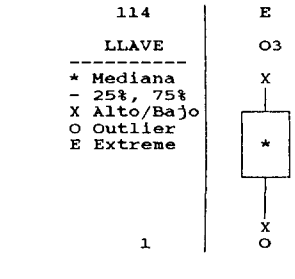


Gráfico de caja para la variable .. AS ppm



P LOGppm

N°Casos	Centro
0	1.950
0	2.025
1	2.100
0	2.175
1	2.250
2	2.325
2	2.400
2	2.475
6	2.550
4	2.625
3	2.700
7	2.775
2	2.850
4	2.925
4	3.000
0	3.075
0	3.150

Histograma de frecuencias

Media	2.673	Std Err	.038	Mediana	2.678
Moda	2.093	Std Dev	.232	Varianza	.054
Angulosidad	-.258	S E Ang.	.750	Asim.	-.418
S E Asim.	.383	Rango	.943	Mínimo	2.093
Máximo	3.036	Suma	101.587		
Casos válidos	38	Casos eliminados	1		

Gráfico de probabilidad

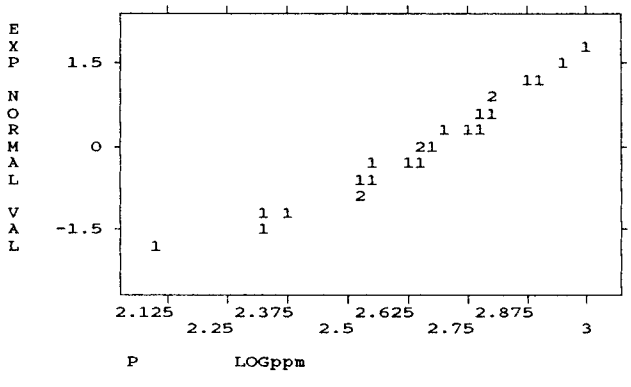


Gráfico de dispersión

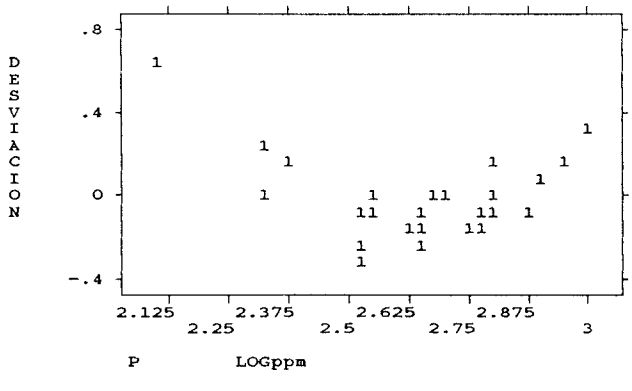
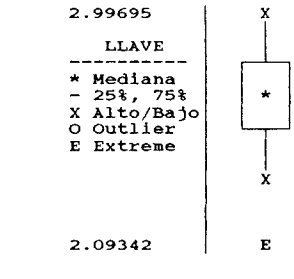
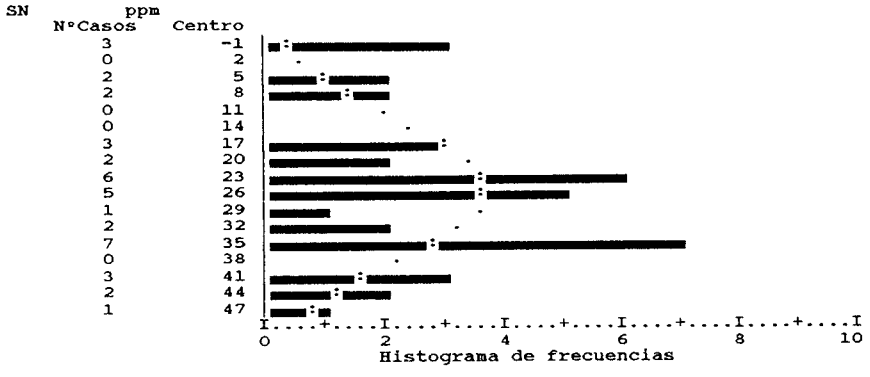
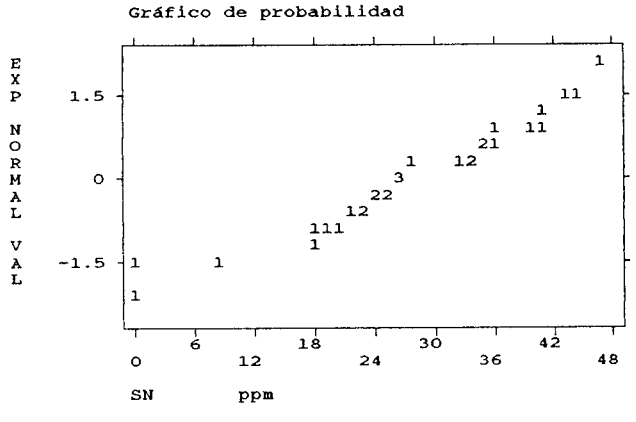


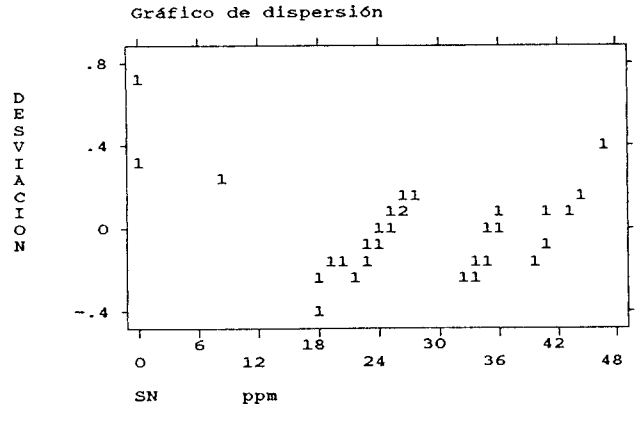
Gráfico de caja para la variable .. P LOGppm

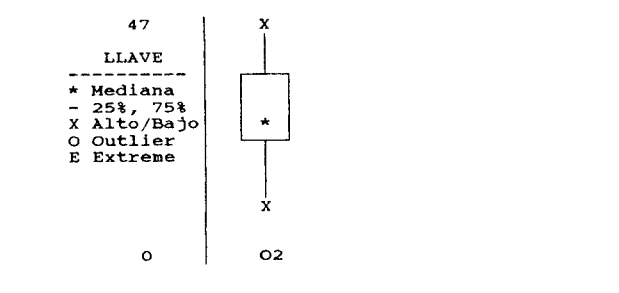




Media	25.179	Std Err	2.046	Mediana	25.000
Moda	0.0	Std Dev	12.779	Varianza	163.309
Angulosidad	-.427	S E Ang.	.741	Asim.	-.444
S E Asim.	.378	Rango	47.000	Mínimo	0.0
Máximo	47.000	Suma	982.000		
Casos válidos	39	Casos eliminados	0		

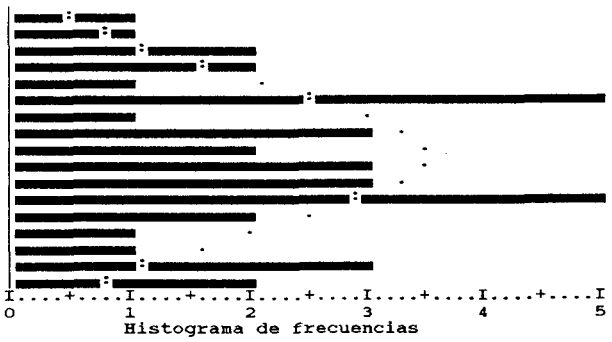






PB ppm

N°Casos	Centro
1	17.0
1	18.5
2	20.0
2	21.5
1	23.0
5	24.5
1	26.0
3	27.5
2	29.0
3	30.5
3	32.0
5	33.5
2	35.0
1	36.5
1	38.0
3	39.5
2	41.0



Histograma de frecuencias

Media	29.711	Std Err	1.069	Mediana	30.500
Moda	24.000	Std Dev	6.588	Varianza	43.400
Angulosidad	-.890	S E Ang.	.750	Asim.	-.041
S E Asim.	.383	Rango	24.000	Mínimo	17.000
Máximo	41.000	Suma	1129.000		
Casos válidos	38	Casos eliminados	1		

Gráfico de probabilidad

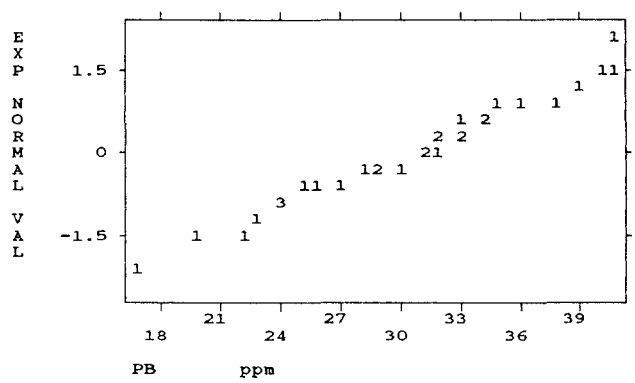


Gráfico de dispersión

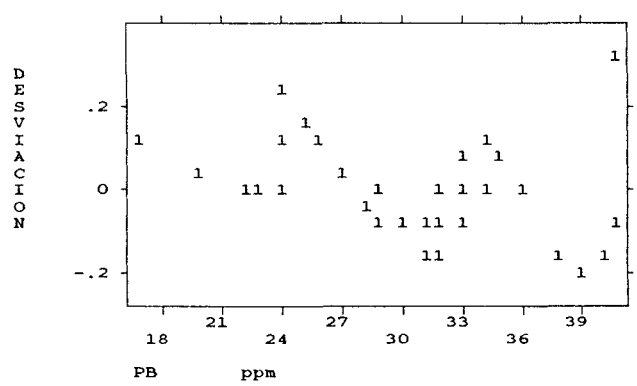
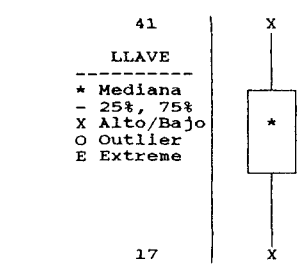
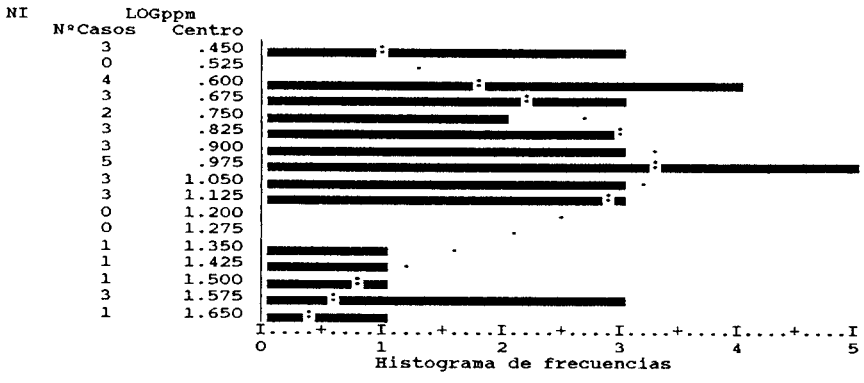
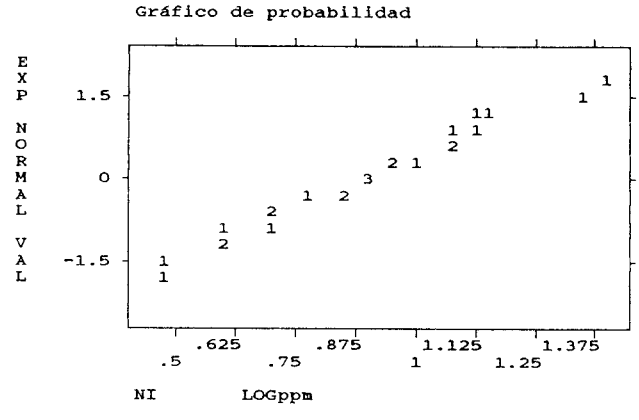


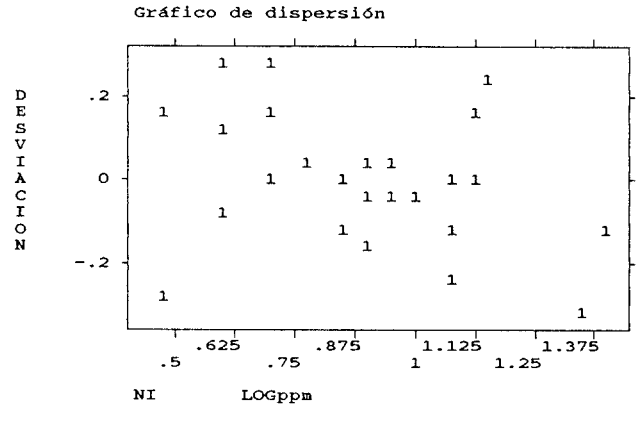
Gráfico de caja para la variable .. PB ppm

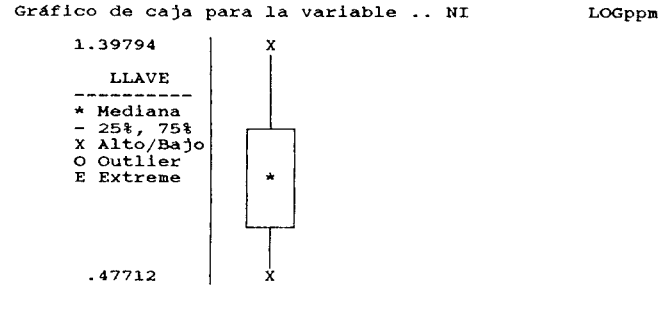




Media	.964	Std Err	.055	Mediana	.929
Moda	.602	Std Dev	.329	Varianza	.108
Angulosidad	-.523	S E Ang.	.768	Asim.	.513
S E Asim.	.393	Rango	1.136	Mínimo	.477
Máximo	1.613	Suma	34.691		
Casos válidos	36	Casos eliminados	3		

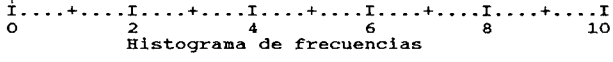






CU LOGppm

N°Casos	Centro
0	.500
1	.575
0	.650
1	.725
1	.800
6	.875
2	.950
3	1.025
5	1.100
6	1.175
3	1.250
1	1.325
3	1.400
2	1.475
4	1.550
0	1.625
0	1.700



Histograma de frecuencias

Media	1.140	Std Err	.041	Mediana	1.130
Moda	.845	Std Dev	.254	Varianza	.065
Angulosidad	-.736	S E Asg.	.750	Asim.	-.033
S E Asim.	.383	Rango	.966	Mínimo	.602
Máximo	1.568	Suma	43.320		
Casos válidos	38	Casos eliminados	1		

Gráfico de probabilidad

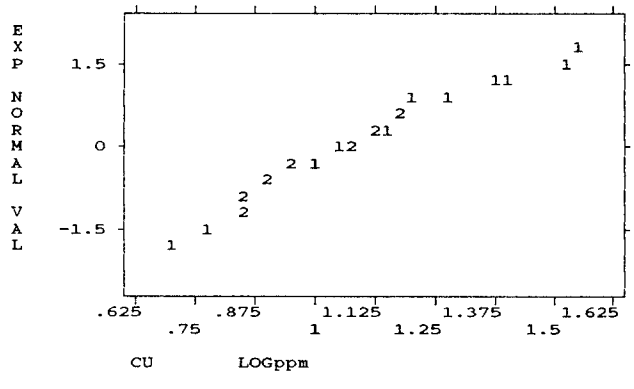


Gráfico de dispersión

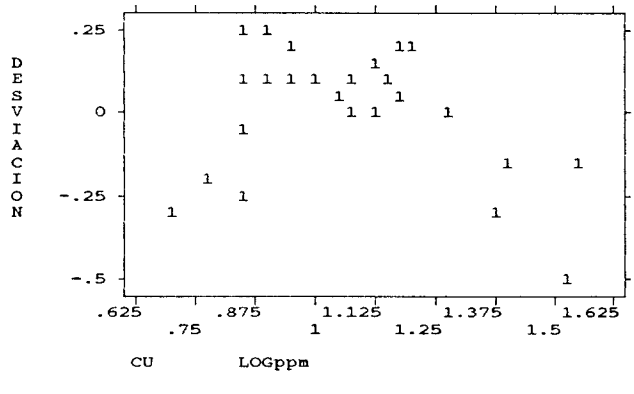
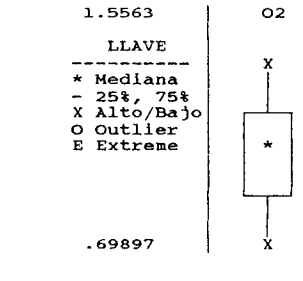
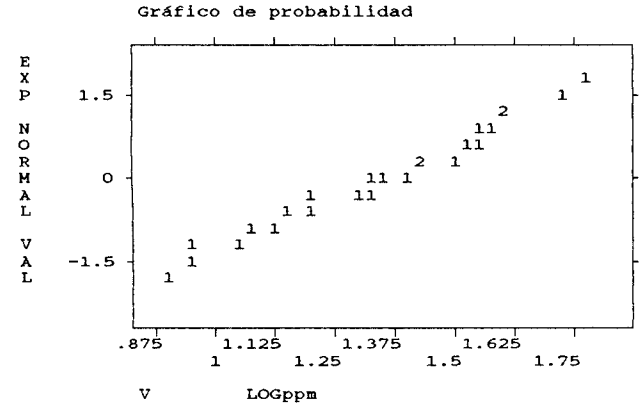
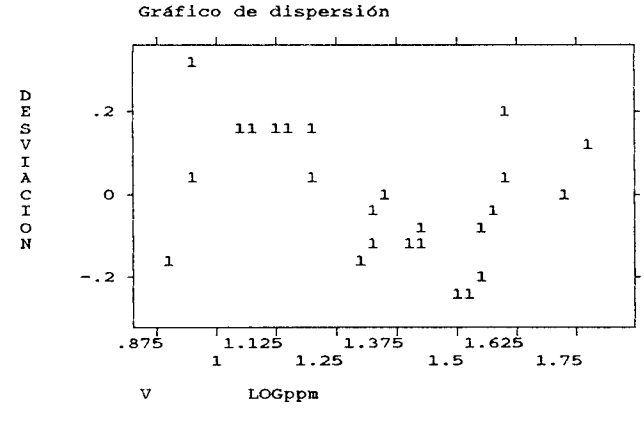


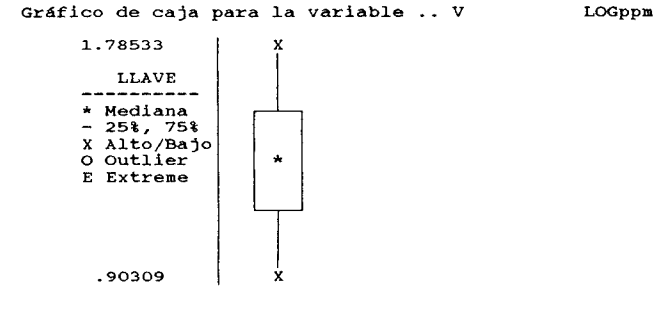
Gráfico de caja para la variable .. CU LOGppm



Media	1.345	Std Err	.053	Mediana	1.361
Moda	.954	Std Dev	.324	Varianza	.105
Angulosidad	1.454	S E Ang.	.750	Asim.	-.762
S E Asim.	.383	Rango	1.562	Mínimo	.301
Máximo	1.863	Suma	51.105		
Casos válidos	38	Casos eliminados	1		

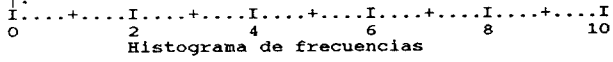






BA LOGppm

N°Casos	Centro
0	1.250
1	1.325
0	1.400
1	1.475
2	1.550
1	1.625
4	1.700
2	1.775
8	1.850
7	1.925
3	2.000
0	2.075
3	2.150
4	2.225
1	2.300
0	2.375
0	2.450



Histograma de frecuencias

Media	1.885	Std Err	.037	Mediana	1.886
Moda	1.839	Std Dev	.223	Varianza	.050
Angulosidad	-.179	S E Ang.	.759	Asim.	-.038
S E Asim.	.388	Rango	.944	Mínimo	1.362
Máximo	2.305	Suma	69.747		
Casos válidos	37	Casos eliminados	2		

Gráfico de probabilidad

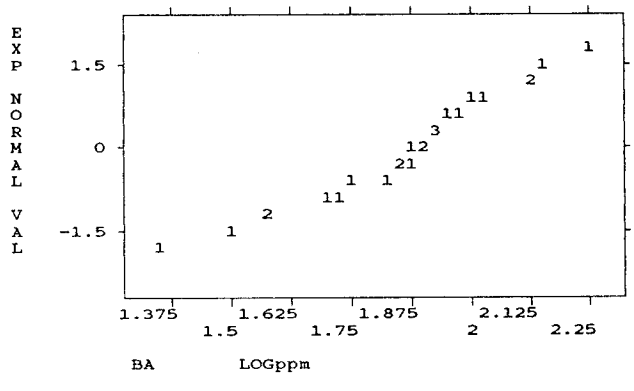


Gráfico de dispersión

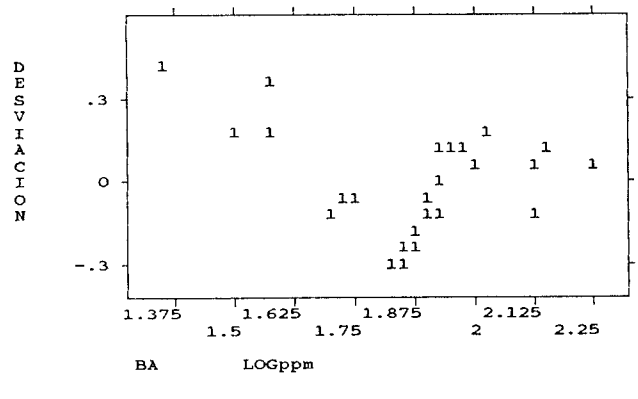
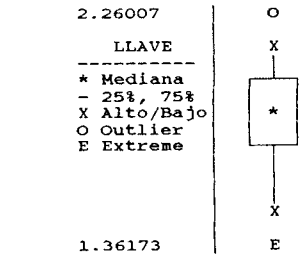
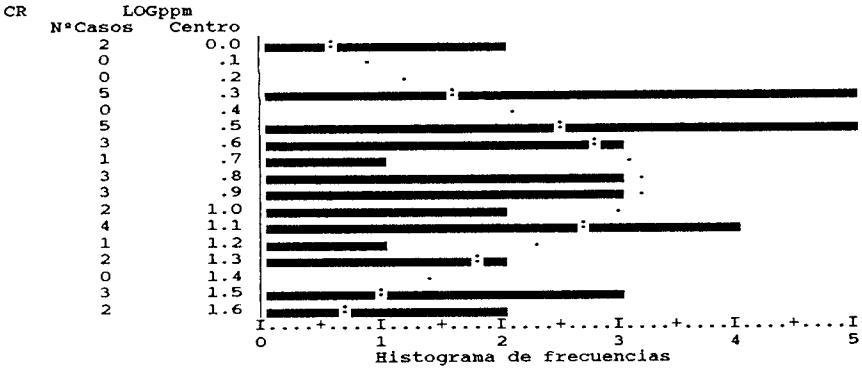
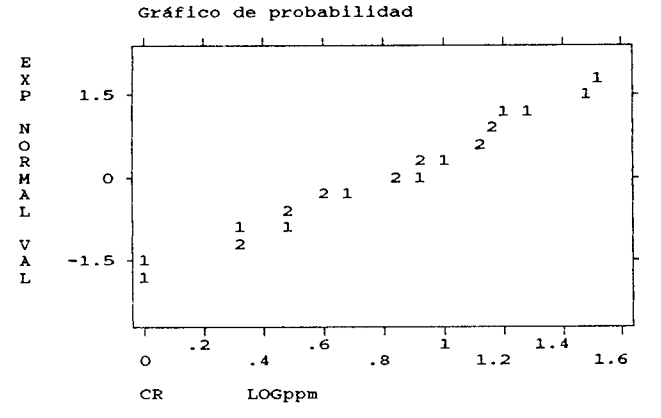


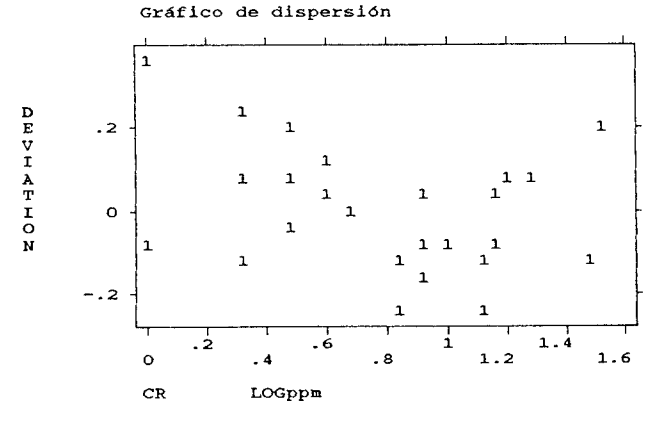
Gráfico de caja para la variable .. BA LOGppm

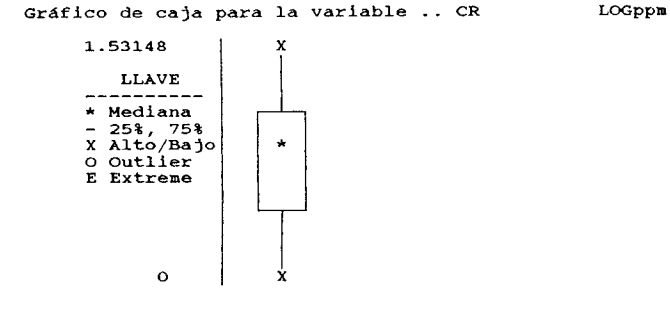


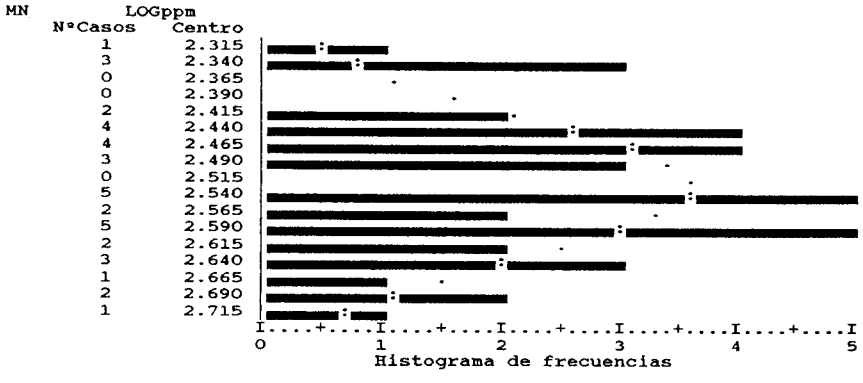


Media	.824	Std Err	.075	Mediana	.845
Moda	.301	Std Dev	.452	Varianza	.204
Angulosidad	-.874	S E Ang.	.768	Asim.	.077
S E Asim.	.393	Rango	1.623	Mínimo	0.0
Máximo	1.623	Suma	29.654		
Casos válidos	36	Casos eliminados	3		

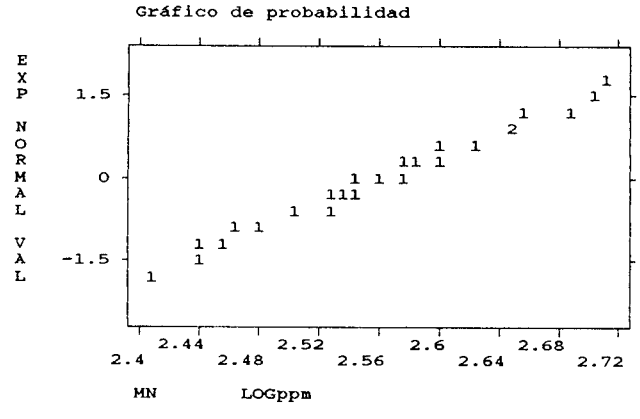


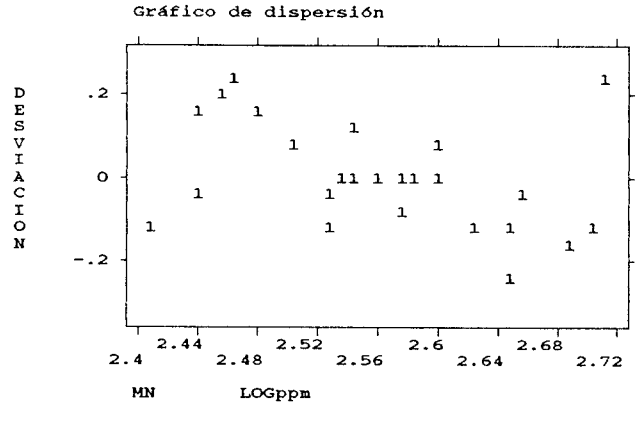


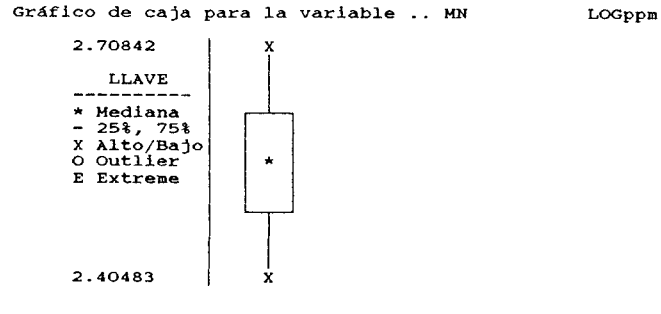


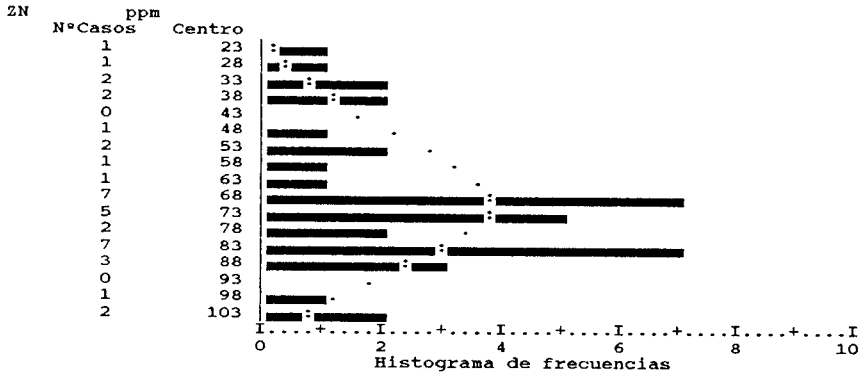


Media	2.525	Std Err	.017	Mediana	2.534
Moda	2.340	Std Dev	.107	Varianza	.011
Angulosidad	-.813	S E Ang.	.750	Asim.	-.167
S E Asim.	.383	Rango	.384	Mínimo	2.324
Máximo	2.708	Suma	95.950		
Casos válidos	38	Casos eliminados	1		

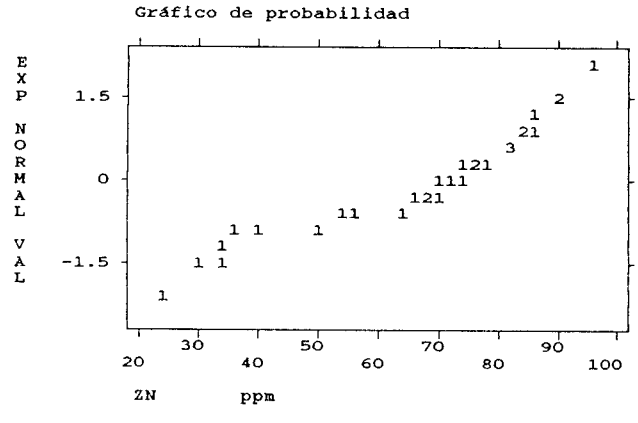


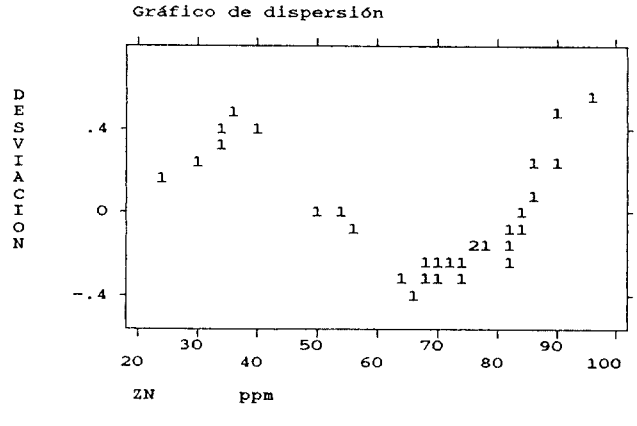


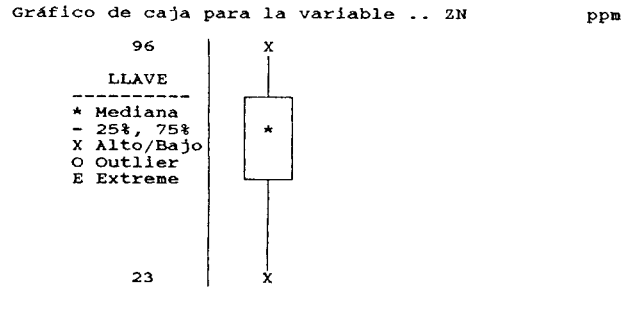


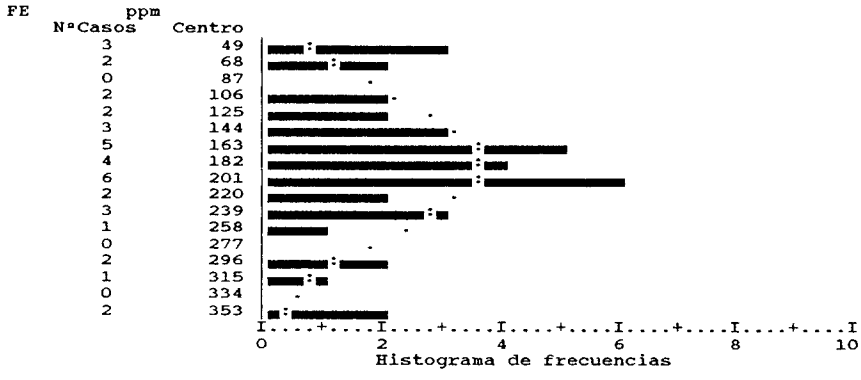


Media	68.789	Std Err	3.267	Mediana	73.000
Moda	69.000	Std Dev	20.136	Varianza	405.468
Angulosidad	-.136	S E Ang.	.750	Asim.	-.625
S E Asim.	.383	Rango	81.000	Mínimo	23.000
Máximo	104.000	Suma	2614.000		
Casos válidos	38	Casos eliminados	1		



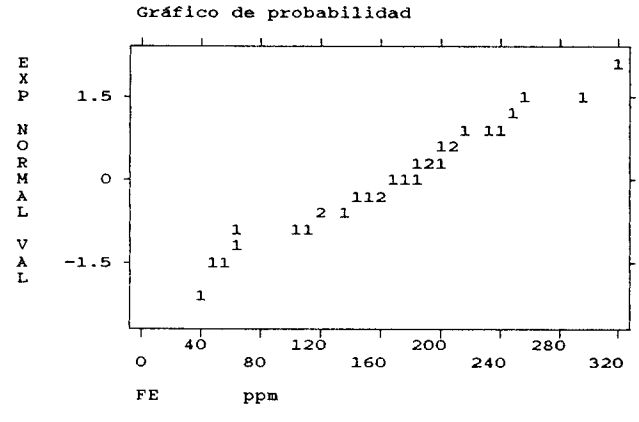


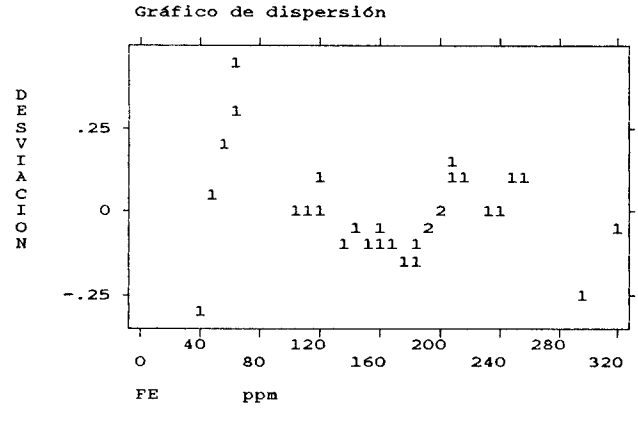


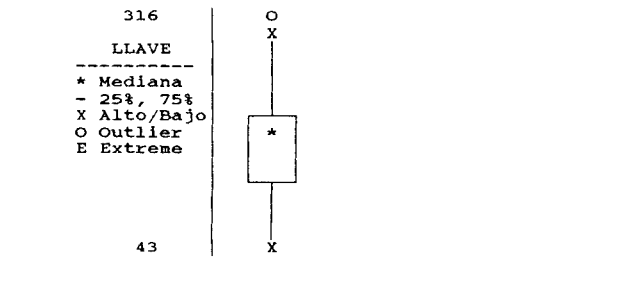


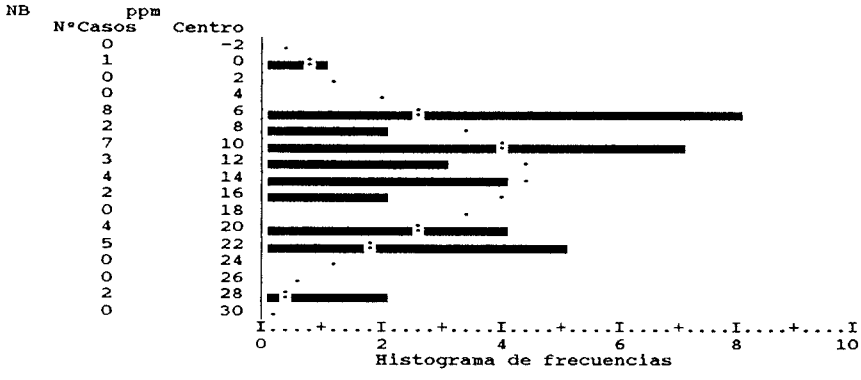
FE ppm

Media	182.316	Std Err	12.838	Mediana	184.000
Moda	184.000	Std Dev	79.140	Varianza	6263.087
Angulosidad	-.090	S E Ang.	.750	Asim.	.236
S E Asim.	.383	Rango	316.000	Mínimo	43.000
Máximo	359.000	Suma	6928.000		
Casos válidos	38	Casos eliminados	1		

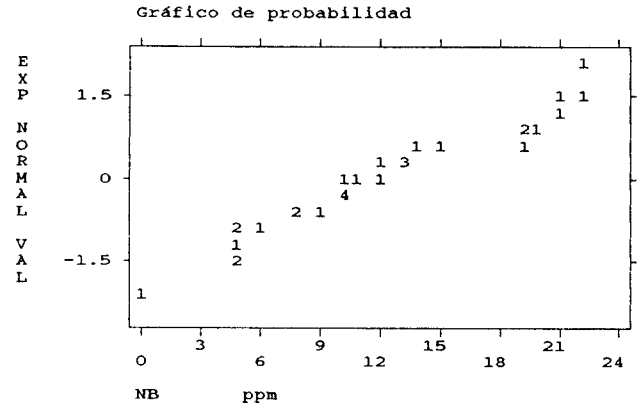


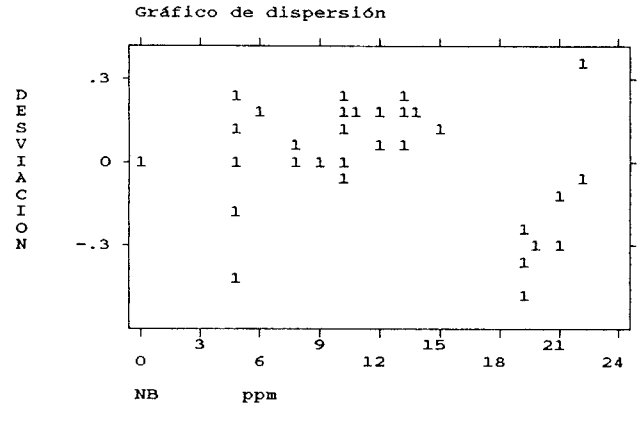


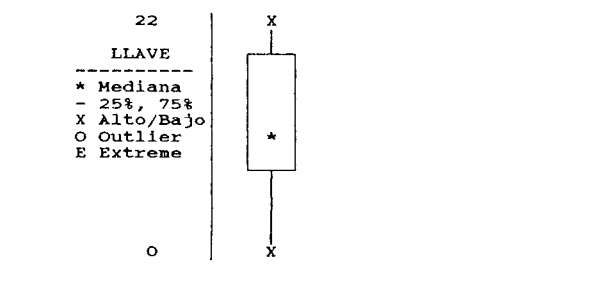


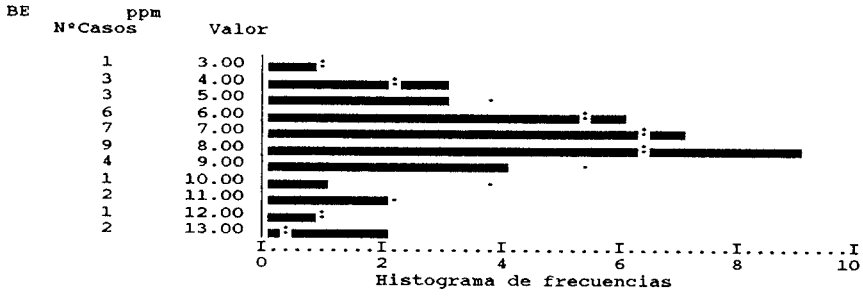


Media	12.816	Std Err	1.119	Mediana	11.500
Moda	5.000	Std Dev	6.896	Varianza	47.560
Angulosidad	-.480	S E Ang.	.750	Asim.	.492
S E Asim.	.383	Rango	28.000	Mínimo	0.0
Máximo	28.000	Suma	487.000		
Casos válidos	38	Casos eliminados	1		

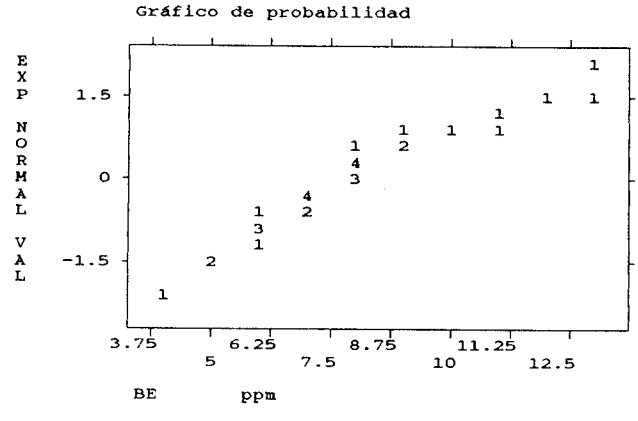


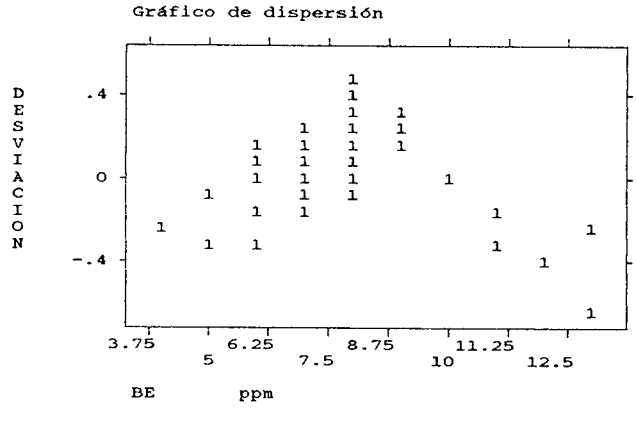


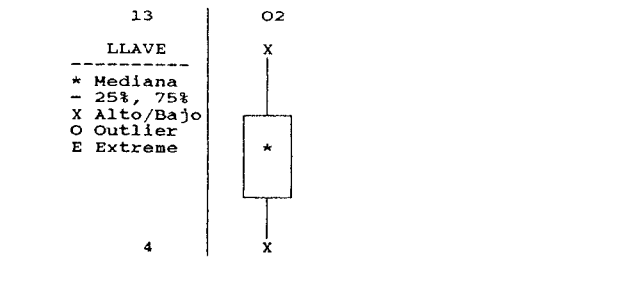


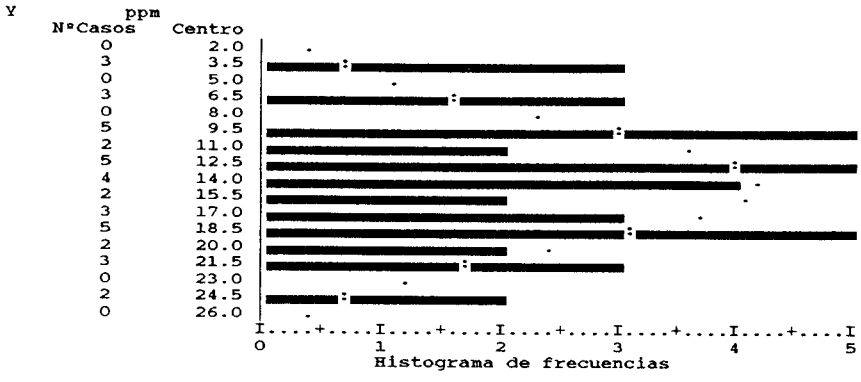


Media	7.513	Std Err	.380	Mediana	7.000
Moda	8.000	Std Dev	2.372	Varianza	5.625
Angulosidad	.250	S E Ang.	.741	Asim.	.507
S E Asim.	.378	Rango	10.000	Mínimo	3.000
Máximo	13.000	Suma	293.000		
Casos válidos	39	Casos eliminados	0		

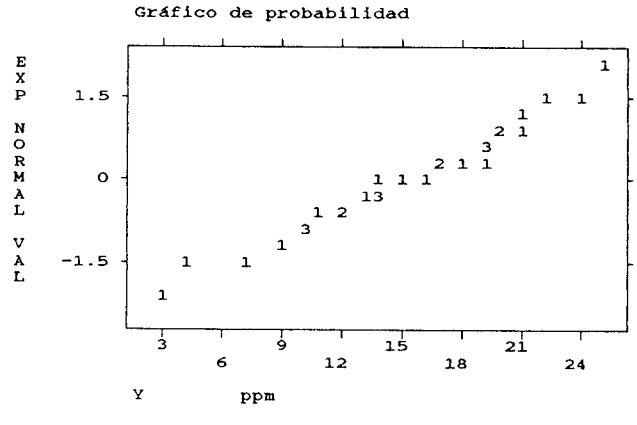


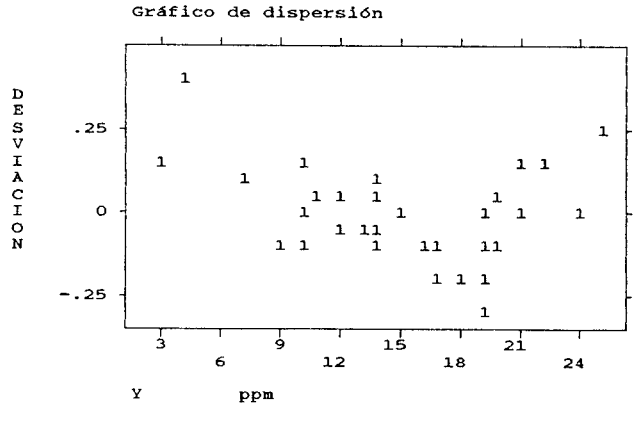


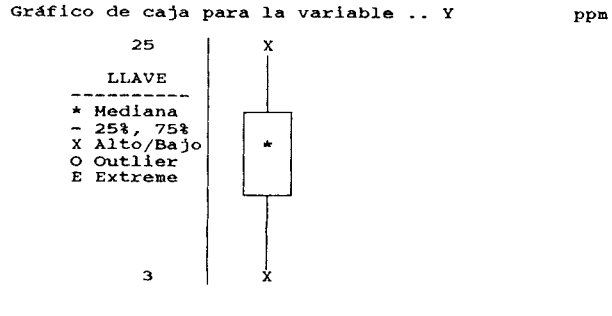




Media	14.103	Std Err	.897	Mediana	14.000
Moda	10.000	Std Dev	5.600	Varianza	31.358
Angulosidad	-.650	S E Ang.	.741	Asim.	-.090
S E Asim.	.378	Rango	22.000	Mínimo	3.000
Máximo	25.000	Suma	550.000		
Casos válidos	39	Casos eliminados	0		

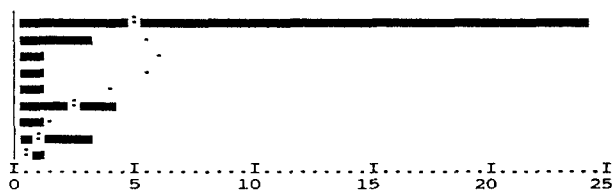






SB ppm

N°Casos	Valor
24	0.0
3	1.00
1	2.00
1	3.00
1	4.00
4	5.00
1	6.00
3	7.00
1	8.00

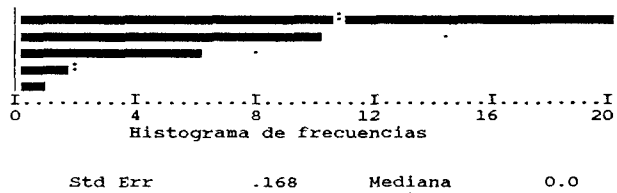


Histograma de frecuencias

Media	1.718	Std Err	.422	Mediana	0.0
Moda	0.0	Std Dev	2.635	Varianza	6.945
Angulosidad	-.100	S E Ang.	.741	Asim.	1.214
S E Asim.	.378	Rango	8.000	Mínimo	0.0
Máximo	8.000	Suma	67.000		
Casos válidos	39	Casos eliminados	0		

AG ppm

N°Casos	Valor
20	0.0
10	1.00
6	2.00
2	3.00
1	4.00

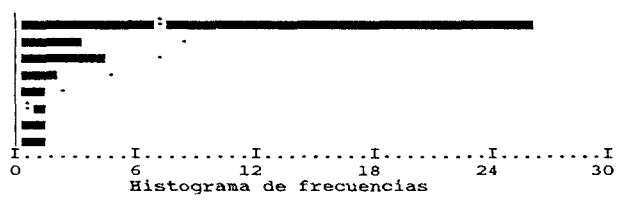


Histograma de frecuencias

Media	.821	Std Err	.168	Mediana	0.0
Moda	0.0	Std Dev	1.048	Varianza	1.099
Angulosidad	1.039	S E Ang.	.741	Asim.	1.246
S E Asim.	.378	Rango	4.000	Mínimo	0.0
Máximo	4.000	Suma	32.000		
Casos válidos	39	Casos eliminados	0		

MO ppm

N°Casos	Valor
26	0.0
3	1.00
4	2.00
2	3.00
1	4.00
1	5.00
1	6.00
1	7.00

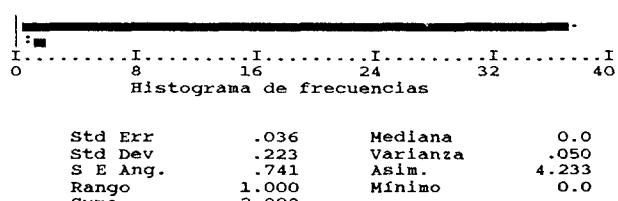


Histograma de frecuencias

Media	1.000	Std Err	.289	Mediana	0.0
Moda	0.0	Std Dev	1.806	Varianza	3.263
Angulosidad	3.463	S E Ang.	.741	Asim.	2.005
S E Asim.	.378	Rango	7.000	Mínimo	0.0
Máximo	7.000	Suma	39.000		
Casos válidos	39	Casos eliminados	0		

CD ppm

N°Casos	Valor
37	0.0
2	1.00

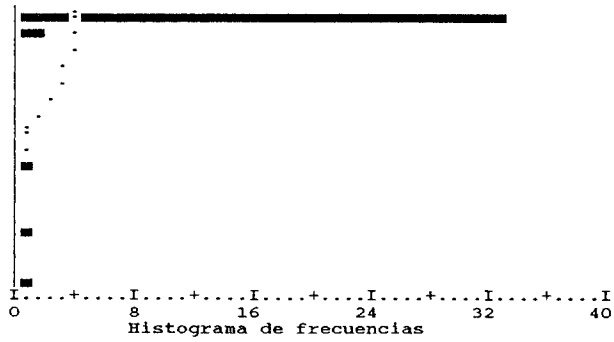


Histograma de frecuencias

Media	.051	Std Err	.036	Mediana	0.0
Moda	0.0	Std Dev	.223	Varianza	.050
Angulosidad	16.779	S E Ang.	.741	Asim.	4.233
S E Asim.	.378	Rango	1.000	Mínimo	0.0
Máximo	1.000	Suma	2.000		
Casos válidos	39	Casos eliminados	0		

W ppm

N°Casos	Centro
33	19
2	62
0	105
0	148
0	191
0	234
0	277
1	320
0	363
1	406
0	449
0	492
0	535
1	578
0	621
0	664
1	707

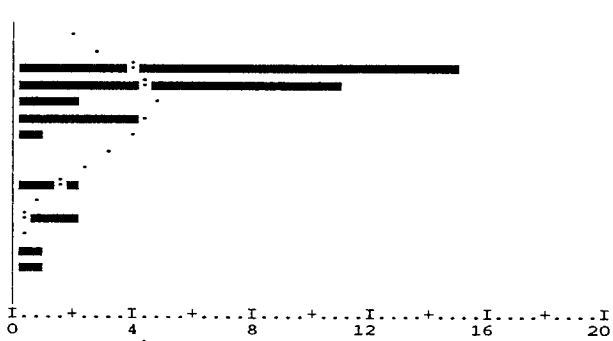


Histograma de frecuencias

Media	57.000	Std Err	25.667	Mediana	3.000
Moda	0.0	Std Dev	160.292	Varianza	25693.526
Angulosidad	9.880	S E Ang.	.741	Asim.	3.213
S E Asim.	.378	Rango	725.000	Mínimo	0.0
Máximo	725.000	Suma	2223.000		
Casos válidos	39	Casos eliminados	0		

CO ppm

N°Casos	Centro
0	-3.0
0	-1.5
15	0.0
11	1.5
2	3.0
4	4.5
1	6.0
0	7.5
0	9.0
2	10.5
0	12.0
2	13.5
0	15.0
1	16.5
1	18.0
0	19.5
0	21.0



Histograma de frecuencias

Media	3.231	Std Err	.793	Mediana	1.000
Moda	0.0	Std Dev	4.955	Varianza	24.551
Angulosidad	2.562	S E Ang.	.741	Asim.	1.875
S E Asim.	.378	Rango	18.000	Mínimo	0.0
Máximo	18.000	Suma	126.000		
Casos válidos	39	Casos eliminados	0		

2.3. ANÁLISIS BIVARIANTE

Matriz de correlación

	B	AS	P	SB	SN	PB	NI	CU	AG	V
B	1.0000	.4467*	.2092	-.1136	.1121	.2405	.1010	-.4511*	-.2163	.2564
AS	.4467*	1.0000	.2666	-.2157	.1811	.1549	.1777	-.2102	.1730	.4550*
P	.2092	.2666	1.0000	.0691	-.2255	.4531*	.5169*	.1951	-.1552	.4515*
SB	-.1136	-.2157	.0691	1.0000	.5345**	.1829	-.0957	.0638	-.2411	-.0466
SN	.1121	.1811	-.2255	.5345**	1.0000	.0762	-.5636**	-.4532*	-.2138	-.1601
PB	.2405	.1549	.4531*	.1829	.0762	1.0000	.0778	.2424	-.4471*	-.0745
NI	.1010	.1777	.5169*	-.0957	-.5636**	.0778	1.0000	.2586	.2689	.7547**
CU	-.4511*	-.2102	.1951	.0638	-.4532*	.2424	.2586	1.0000	.1103	-.0768
AG	-.2163	.1730	-.1552	-.2411	-.2138	-.4471*	.2689	.1103	1.0000	.2990
V	.2564	.4550*	.4515*	-.0466	-.1601	-.0745	.7547**	-.0768	.2990	1.0000
BA	.1348	.1503	.4171*	-.0783	-.5102*	-.0188	.8324**	.2034	.2161	.7939**
CR	.1821	.3626	.4551*	.0084	-.2842	-.0242	.8365**	.0564	.3064	.9553**
MN	.2125	.1230	.1146	.3751	.4766*	-.0331	.0048	-.1413	-.0332	.2896
MO	.3158	.4409*	.2818	.0456	-.2352	.2029	.5789**	.1616	.2041	.5639**
ZN	.4802*	.5031*	.2887	.0101	.3153	-.0271	.2428	-.3845	.1107	.5625**
FE	.4258*	.5222*	.5040*	-.1116	-.0624	-.0571	.6526**	-.2507	.2009	.9094**
CD	.0819	.0164	.4223*	.3934	.3159	.3038	-.1342	-.0565	-.0933	-.0247
W	-.6599**	-.4863*	-.4424*	.2149	-.1112	-.2616	-.1458	.5101*	.1388	-.3869
CO	.0900	.0727	.5370**	-.1895	-.6236**	.2017	.8351**	.3578	-.0062	.5075*
NB	-.3468	-.1330	-.1472	.3516	.1830	-.1512	.1480	-.1644	.2469	.2711
BE	.0697	.1912	-.2164	.0046	.5136*	.2685	-.4897*	-.2663	-.0638	-.2559
Y	-.0486	.1910	-.2690	.0011	.5307*	-.0899	-.5527**	-.3822	.1036	-.3501

	BA	CR	MN	MO	ZN	FE	CD	W	CO	NB
B	.1348	.1821	.2125	.3158	.4802*	.4258*	.0819	-.6599**	.0900	-.3468
AS	.1503	.3626	.1230	.4409*	.5031*	.5222*	.0164	-.4863*	.0727	-.1330
P	.4171*	.4551*	.1146	.2818	.2887	.5040*	.4223*	-.4424*	.5370**	-.1472
SB	-.0783	.0084	.3751	.0456	.0101	-.1116	.3934	.2149	-.1895	.3516
SN	-.5102*	-.2842	.4766*	-.2352	.3153	-.0624	.3159	-.1112	-.6236**	.1830
PB	-.0188	-.0242	-.0331	.2029	-.0271	-.0571	.3038	-.2616	.2017	-.1512
NI	.8324**	.8365**	.0048	.5789**	.2428	.6526**	-.1342	-.1458	.8351**	.1480
CU	.2034	.0564	-.1413	.1616	-.3845	-.2507	-.0565	.5101*	.3578	-.1644
AG	.2161	.3064	-.0332	.2041	.1107	.2009	-.0933	.1388	-.0062	.2469
V	.7939**	.9553**	.2896	.5639**	.5625**	.9094**	-.0247	-.3869	.5075*	.2711
BA	1.0000	.8847**	.0488	.5831**	.2268	.6702**	-.1705	-.1274	.7159**	.1363
CR	.8847**	1.0000	.1625	.6651**	.4145	.8208**	-.0268	-.2707	.5862**	.2837
MN	.0488	.1625	1.0000	-.0481	.5358**	.3551	.0651	-.1571	-.1914	.2133
MO	.5831**	.6651**	-.0481	1.0000	.2420	.4652*	.1185	-.1685	.3839	.0965
ZN	.2268	.4145	.5358**	.2420	1.0000	.7809**	.1336	-.6524**	.1421	.0612
FE	.6702**	.8208**	.3551	.4652*	.7809**	1.0000	.0348	-.5950**	.4923*	.1451
CD	-.1705	-.0268	.0651	.1185	.1336	.0348	1.0000	-.0701	-.1470	-.0891
W	-.1274	-.2707	-.1571	-.1685	-.6524**	-.5950**	-.0701	1.0000	-.1463	.2023
CO	.7159**	.5862**	-.1914	.3839	.1421	.4923*	-.1470	-.1463	1.0000	-.1143
NB	.1363	.2837	.2133	.0965	.0612	.1451	-.0891	.2023	-.1143	1.0000
BE	-.4972*	-.3567	.1043	-.0142	.2031	-.1591	.3608	-.1336	-.4554*	-.0198
Y	-.5806**	-.4502*	.0494	-.4229*	.1264	-.2640	.1871	.0061	-.6087**	-.0292

	BE	Y
B	.0697	-.0486
AS	.1912	.1910
P	-.2164	-.2690
SB	.0046	.0011
SN	.5136*	.5307*
PB	.2685	-.0899
NI	-.4897*	-.5527**
CU	-.2663	-.3822
AG	-.0638	.1036
V	-.2559	-.3501
BA	-.4972*	-.5806**
CR	-.3567	-.4502*
MN	.1043	.0494
MO	-.0142	-.4229*
ZN	.2031	.1264
FE	-.1591	-.2640
CD	.3608	.1871
W	-.1336	.0061
CO	-.4554*	-.6087**
NB	-.0198	-.0292
BE	1.0000	.5625**
Y	.5625**	1.0000

N of cases: 31 1-tailed Signif: * - .01 ** - .001

" . " is printed if a coefficient cannot be computed

2.4. ANÁLISIS MULTIVARIANTE

2.4.1. TEST DE ADECUACIÓN MULTIVARIANTE

Variable dependiente = N

Beginning Block Number 1. Method: Enter

B	AS	P	SN	PB	NI	CU	V
BA	MN	ZN	NB	BE	Y		

Variable(s) Entered on Step Number

1..	Y	ppm
2..	NB	ppm
3..	AS	ppm
4..	PB	ppm
5..	MN	LOGppm
6..	CU	LOGppm
7..	P	LOGppm
8..	NI	LOGppm
9..	ZN	ppm
10..	B	ppm
11..	BA	LOGppm
12..	BE	ppm
13..	V	LOGppm
14..	SN	ppm

Multiple R	.73709
R Square	.54330
Adjusted R Square	.08661
Standard Error	10.55196

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	14	1854.42682	132.45906
Residual	14	1558.81456	111.34390

F = 1.18964 Signif F = .3749

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
Y	-1.24740	.55868	-.64413	-2.233	.0424
NB	.08173	.42546	.04779	.192	.8504
AS	-.05231	.11600	-.12058	-.451	.6590
PB	-1.12979	.85040	-.56072	-1.329	.2053
MN	-8.81379	39.83136	-.07963	-.221	.8281
CU	-.93533	13.73571	-.02055	-.068	.9467
P	6.82559	16.92306	.13398	.403	.6928
NI	30.08882	16.09421	.84089	1.870	.0826
ZN	-.19256	.17519	-.34097	-1.099	.2903
B	.75997	.96700	.26115	.786	.4450
BA	-17.68992	17.45692	-.37077	-1.013	.3281
BE	-.15468	1.60927	-.03305	-.096	.9248
V	-13.18269	15.13108	-.39322	-.871	.3983
SN	.80325	.47884	.90037	1.677	.1156
(Constant)	82.85611	87.78193		.944	.3612

End Block Number 1 All requested variables entered.

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	-2.9401	33.3759	19.4828	8.1382	29
*ZPRED	-2.7553	1.7072	-.0000	1.0000	29
*SEPRED	5.4713	9.5935	7.5144	1.0794	29
*ADJPRED	-10.5192	52.9750	20.7077	13.7922	29
*RESID	-12.6585	12.0290	.0000	7.4614	29
*ZRESID	-1.1996	1.1400	.0000	.7071	29
*SRESID	-2.0512	2.0099	-.0342	1.0690	29
*DRESID	-51.9750	38.8506	-1.2249	18.5707	29
*SDRESID	-2.3634	2.2961	-.0451	1.1432	29
*MAHAL	6.5625	22.1787	13.5172	4.0792	29
*COOK D	.0000	1.3370	.1266	.2671	29
*LEVER	.2344	.7921	.4828	.1457	29

Total Cases = 39

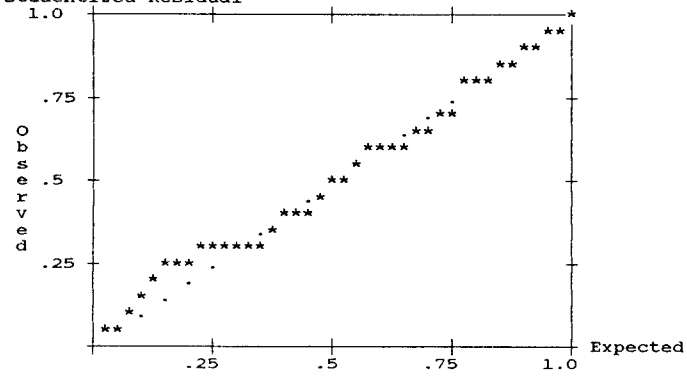
Outliers - Mahalanobis' Distance

Case #	*MAHAL
1	22.17869
24	20.29145
31	19.63444
16	19.17775
38	18.69069
8	17.72666
25	15.82389
9	15.47911
10	15.23320
13	15.17917

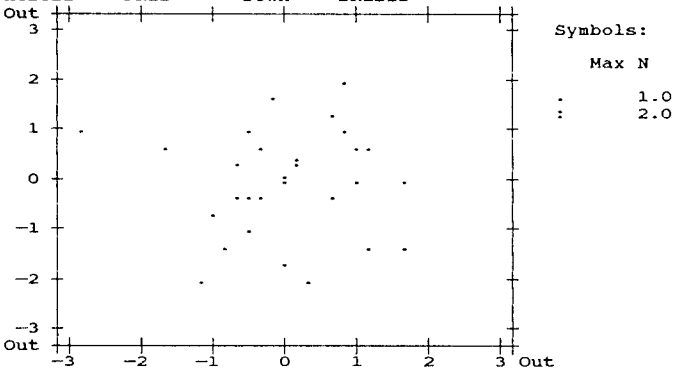
```
Histogram - Studentized Residual

NExp N      (* = 1 Cases,     . : = Normal Curve)
0  .02   Out
0  .04  3.00
0  .11  2.67
0  .26  2.33
1  .53  2.00 :
1  .97  1.67 :
1 1.59  1.33 *.
3 2.34  1.00 *:*
4 3.08   .67 **:*
3 3.63   .33 ***.
4 3.84  0.0  ***:
4 3.63  -.33 ***:
1 3.08  -.67 * .
1 2.34 -1.00 *.
3 1.59 -1.33 *:*
1  .97 -1.67 :
2  .53 -2.00 :*
0  .26 -2.33
0  .11 -2.67
0  .04 -3.00
0  .02   Out
```

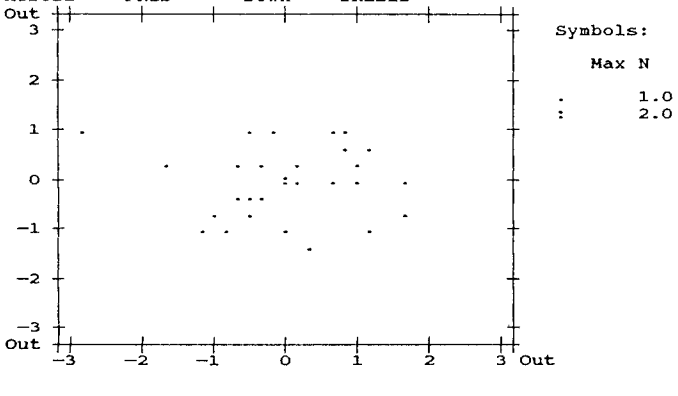
Normal Probability (P-P) Plot
Studentized Residual

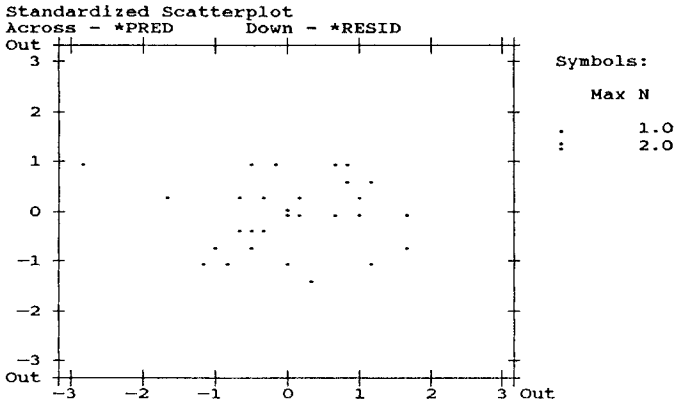


Standardized Scatterplot
Across - *PRED Down - *SRESID



Standardized Scatterplot
Across - *PRED Down - *ZRESID




Standardized Scatterplot
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Out
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−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
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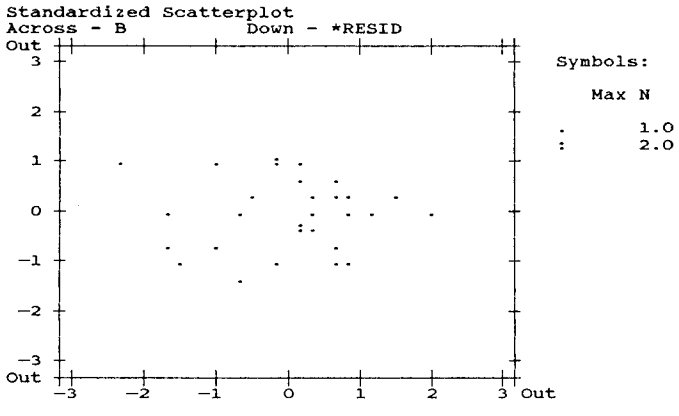
: 2.0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Across - B Down - *RESID
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−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
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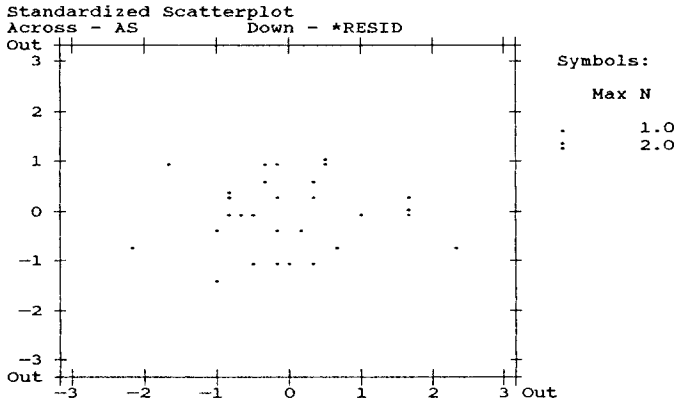
. 1.0
: 2.0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Across - AS Down - *RESID
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−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
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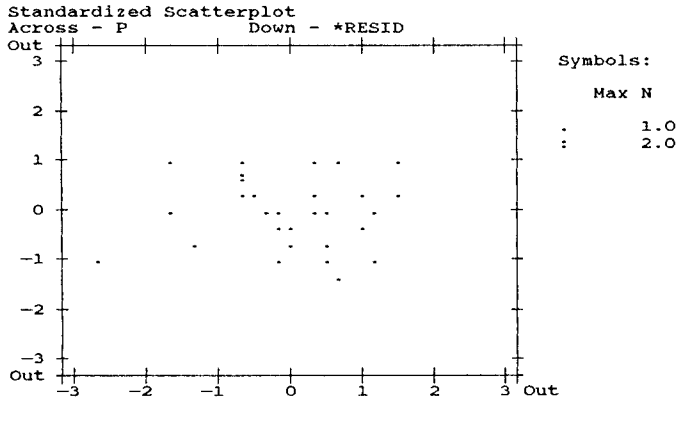
: 2.0


Standardized Scatterplot
Across - P Down - *RESID
Out
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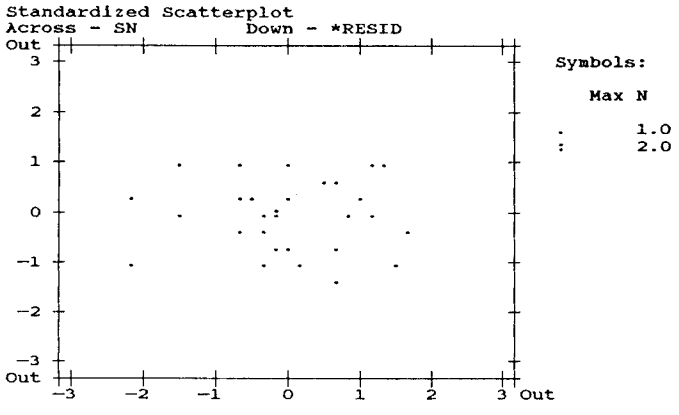
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0


Standardized Scatterplot
Across - SN Down - *RESID
Out
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1
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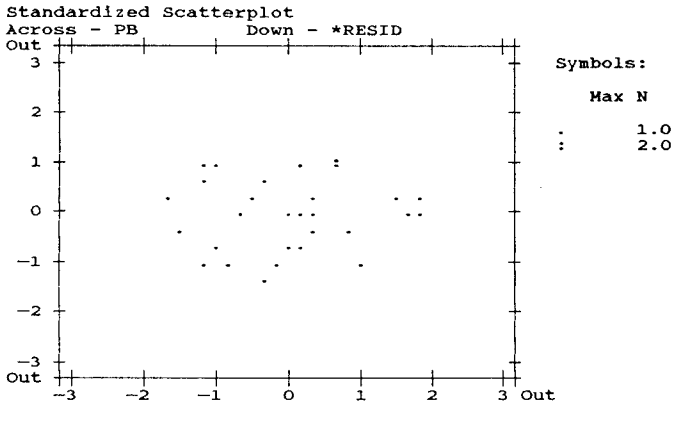
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0


Standardized Scatterplot
Across - PB Down - *RESID
Out
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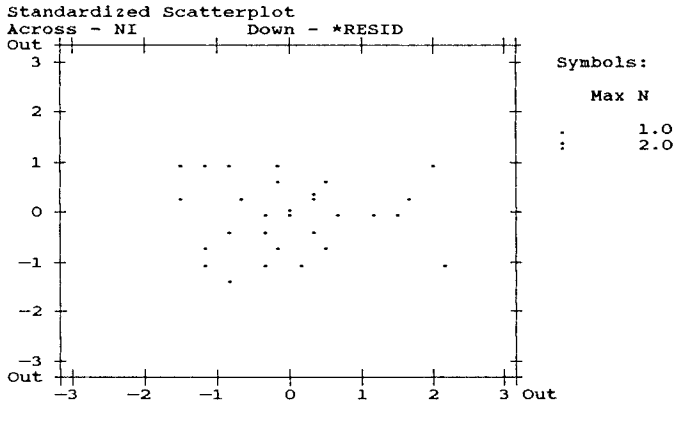
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0


Standardized Scatterplot
Across - NI Down - *RESID
Out
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1
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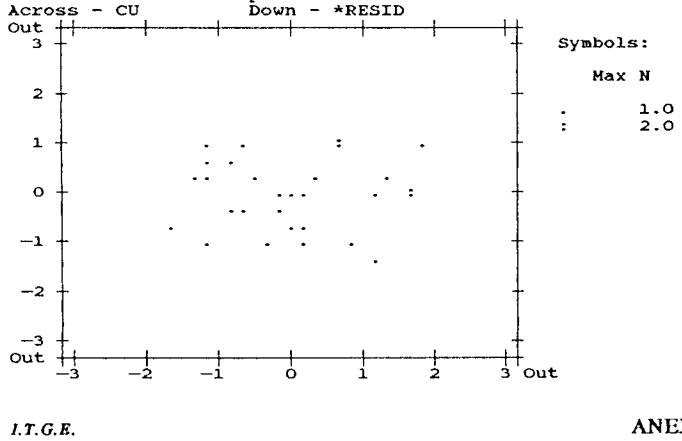
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0


Standardized Scatterplot
Across - CU Down - *RESID
Out
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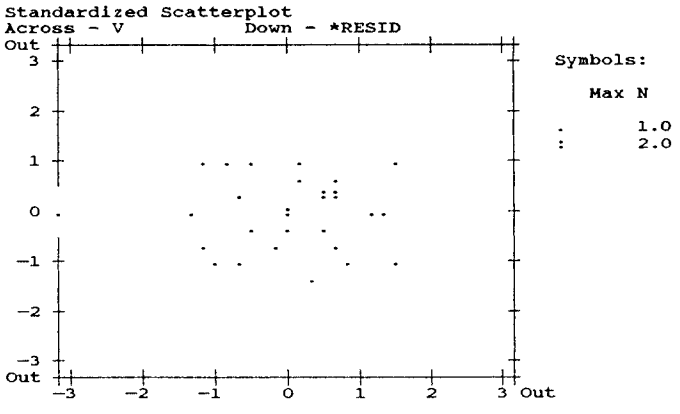
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0


Standardized Scatterplot
Across - V Down - *RESID
Out
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−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
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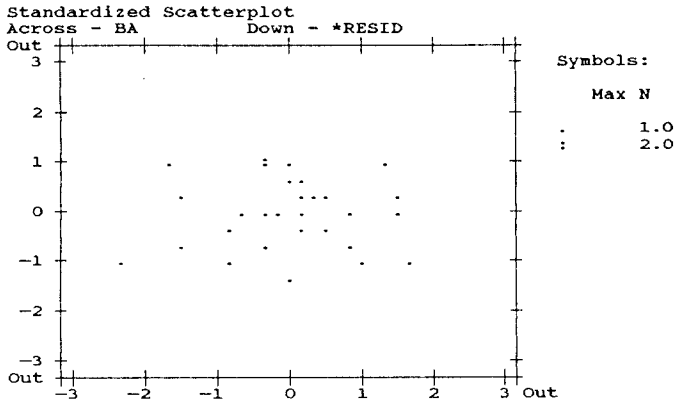
. 1.0
: 2.0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Across - BA Down - *RESID
Out
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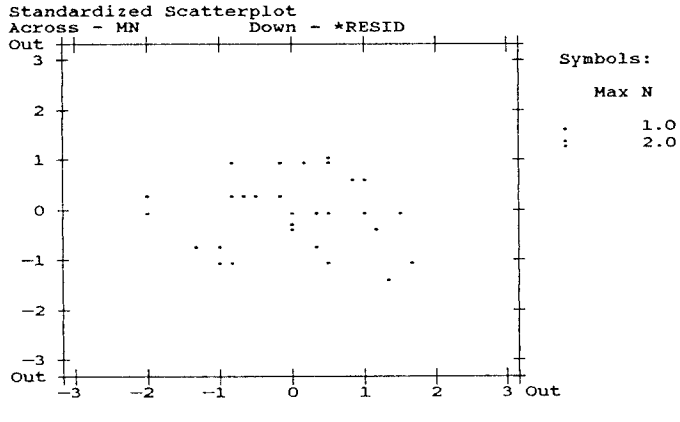
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0


Standardized Scatterplot
Across - MN Down - *RESID
Out
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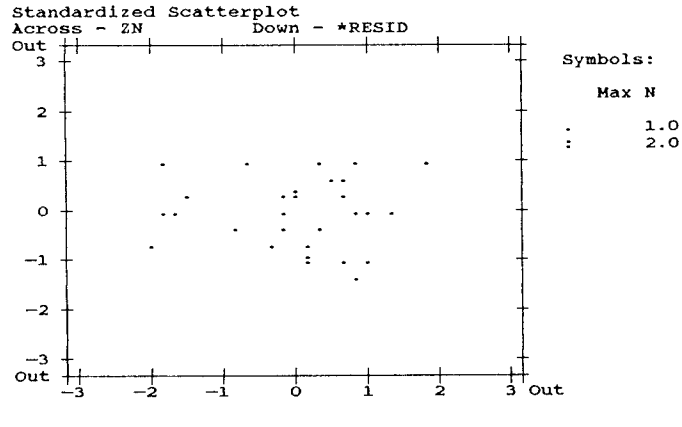
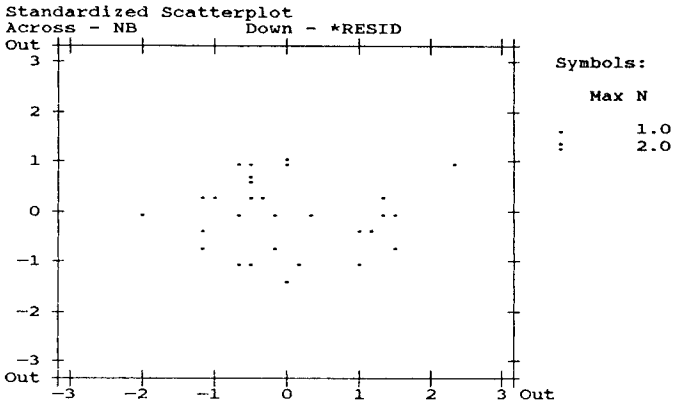
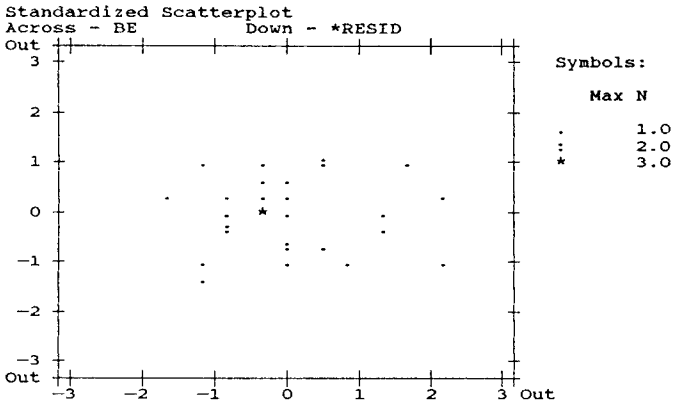
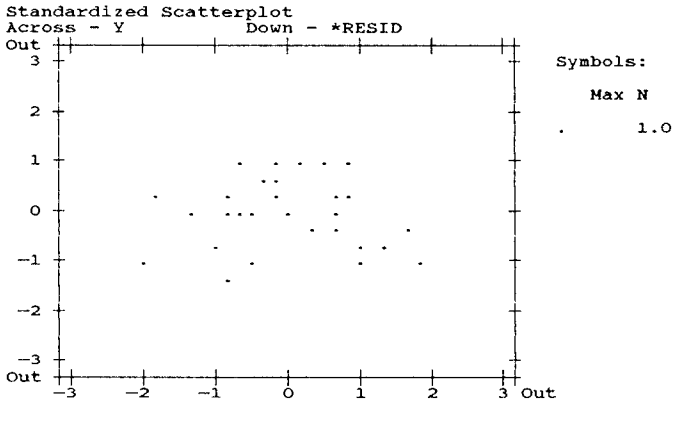
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0


Standardized Scatterplot
Across - ZN Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0


Standardized Scatterplot
Across - NB Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0


Standardized Scatterplot
Across - BE Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0
: 2.0
* 3.0


Standardized Scatterplot
Across - Y Down - *RESID
Out
3
2
1
0
−1
−2
−3
Out
−3 −2 −1 0 1 2 3 Out
Symbols:
Max N
. 1.0

2.4.2. ANÁLISIS DE COMPONENTES PRINCIPALES

PASO 1

Se utilizan todas las variables que pueden ser incluidas en el análisis. Este análisis, con 16 variables, es poco consistente dado la existencia de muy pocos casos por cada variable.

	Mean	Std Dev	Label
B	16.58621	3.79395	ppm
AS	54.62069	25.45081	ppm
P	2.68012	.21672	LOGppm
SN	26.65517	12.37589	ppm
PB	30.79310	5.47970	ppm
NI	.95865	.30856	LOGppm
CU	1.11743	.24257	LOGppm
V	1.34454	.32934	LOGppm
BA	1.90425	.23141	LOGppm
MN	2.54389	.09975	LOGppm
ZN	69.20690	19.55099	ppm
NB	12.79310	6.45523	ppm
BE	7.93103	2.35934	ppm
Y	14.82759	5.70131	ppm

Number of Cases = 29

Correlation Matrix:

	B	AS	P	SN	PB	NI	CU
B	1.00000						
AS	.40147	1.00000					
P	.40095	.31591	1.00000				
SN	.13072	.20435	-.14839	1.00000			
PB	.26201	.01786	.34967	.25485	1.00000		
NI	.12926	.12005	.31607	-.58661	-.13382	1.00000	
CU	-.39709	-.18789	.15491	-.39532	.15479	.20983	1.00000
V	.31377	.46033	.39062	-.00812	-.27585	.54489	-.23893
BA	.20628	.11426	.40833	-.48319	-.17124	.73028	.22057
MN	.27029	.10225	.06532	.54289	-.17829	-.01616	-.21715
ZN	.41816	.46498	.28312	.24370	-.13793	.28811	-.28994
NB	-.17424	-.01702	-.12883	.04333	-.23448	.35090	-.16496
BE	.01266	.12386	-.31716	.57525	.29996	-.61821	-.26893
Y	-.13055	.17773	-.28572	.54528	-.04691	-.48352	-.37696

	V	BA	MN	ZN	NB	BE	Y
V	1.00000						
BA	.63437	1.00000					
MN	.37851	.08867	1.00000				
ZN	.68905	.26321	.49362	1.00000			
NB	.40967	.23120	.26156	.30456	1.00000		
BE	-.22992	-.55296	.06110	.06149	-.09477	1.00000	
Y	-.15169	-.56485	.12602	.06345	-.03885	.58055	1.00000

Determinant of Correlation Matrix = .0000759

Inverse of Correlation Matrix:

	B	AS	P	SN	PB
B	3.38478				
AS	-1.07889	2.19201			
P	.16852	-.68805	3.38272		
SN	1.53790	-1.59397	2.57695	8.83119	
PB	-1.76728	1.14753	-2.91487	-5.12265	5.46079
NI	.38010	-.86144	2.07369	4.80014	-3.39131
CU	2.04019	-.72550	-.14440	1.12385	-1.08846
V	.53149	-.69101	-1.93220	-2.44316	2.18630
BA	-.68107	.34071	.01564	.83106	.00196
MN	-1.57541	1.29254	-1.18943	-4.41139	2.79000
ZN	-.85299	-.02057	-.64565	-.87102	.97670
NB	.97074	.09468	.35540	-.17181	-.27006
BE	.23158	-.51675	1.88165	1.73604	-2.51651
Y	.56501	-.26433	-.65481	-1.39525	1.10145

	NI	CU	V	BA	MN
NI	6.20170				
CU	-.08283	2.79159			
V	-2.20320	1.23154	6.24469		
BA	-.69142	-.88152	-2.61958	4.10396	
MN	-1.64213	-1.11540	.56034	-.29499	3.96976
ZN	-1.12695	-.36201	-1.20122	.69671	-.13201
NB	-.83049	.63481	-.39491	-.02474	-.37412
BE	2.61636	.01146	-1.18567	.13852	-.62122
Y	-1.01131	.57287	.62000	.56768	.31917

	ZN	NB	BE	Y
ZN	2.95013			
NB	-.24654	1.89680		
BE	-.93559	-.10978	3.62518	
Y	.12156	.25654	-1.20838	2.55133

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .51913

Bartlett Test of Sphericity = 213.44435, Significance = .00000

There are 46 (25.3%) off-diagonal elements of AIC Matrix > 0.09

Anti-Image Covariance Matrix:

	B	AS	P	SN	PB
B	.29544				
AS	-.14541	.45620			
P	.01472	-.09279	.29562		
SN	.05145	-.08234	.08626	.11323	
PB	-.09561	.09587	-.15780	-.10622	.18312
NI	.01811	-.06337	.09885	.08764	-.10014
CU	.21592	-.11856	-.01529	.04559	-.07140
V	.02515	-.05048	-.09147	-.04430	.06411
BA	-.04903	.03787	.00113	.02293	.00009
MN	-.11725	.14854	-.08857	-.12583	.12870
ZN	-.08542	-.00318	-.06470	-.03343	.06063
NB	.15120	.02277	.05539	-.01026	-.02607
BE	.01887	-.06503	.15344	.05423	-.12712
Y	.06543	-.04727	-.07587	-.06193	.07906

	NI	CU	V	BA	MN
NI	.16125				
CU	-.00478	.35822			
V	-.05689	.07065	.16014		
BA	-.02717	-.07694	-.10222	.24367	
MN	-.06670	-.10065	.02260	-.01811	.25190
ZN	-.06160	-.04396	-.06520	.05754	-.01127
NB	-.07060	.11989	-.03334	-.00318	-.04968
BE	.11637	.00113	-.05237	.00931	-.04317
Y	-.06392	.08043	.03891	.05422	.03151

	ZN	NB	BE	Y
ZN	.33897			
NB	-.04406	.52720		
BE	-.08748	-.01597	.27585	
Y	.01615	.05301	-.13065	.39195

Anti-Image Correlation Matrix:

	B	AS	P	SN	PB	NI	CU
B	.43052						
AS	-.39609	.48878					
P	.04980	-.25268	.40856				
SN	.28129	-.36228	.47148	.44312			
PB	-.41107	.33168	-.67820	-.73766	.18369		
NI	.08296	-.23364	.45275	.64862	-.58275	.55188	
CU	.66371	-.29328	-.04699	.22635	-.27878	-.01991	.46383
V	.11560	-.18677	-.42040	-.32899	.37439	-.35403	.29496
BA	-.18274	.11360	.00420	.13805	.00041	-.13705	-.26044
MN	-.42978	.43817	-.32458	-.74505	.59923	-.33096	-.33506
ZN	-.26993	-.00809	-.20438	-.17065	.24334	-.26347	-.12615
NB	.38311	.04643	.14031	-.04198	-.08391	-.24214	.27587
BE	.06611	-.18331	.53733	.30682	-.56560	.55179	.00360
Y	.19227	-.11178	-.22289	-.29394	.29509	-.25424	.21466

	V	BA	MN	ZN	NB	BE	Y
V	.65349						
BA	-.51746	.81731					
MN	.11254	-.07308	.35812				
ZN	-.27986	.20023	-.03857	.76141			
NB	-.11474	-.00887	-.13634	-.10422	.63620		
BE	-.24920	.03591	-.16376	-.28609	-.04187	.55303	
Y	.15533	.17544	.10029	.04431	.11662	-.39733	.70782

Measures of sampling adequacy (MSA) are printed on the diagonal.

Correlation 1-tailed Significance Matrix:
' . ' is printed for diagonal elements.

	B	AS	P	SN	PB
B	.				
AS	.01544	.			
P	.01556	.04751	.		
SN	.24955	.14382	.22118	.	
PB	.08487	.46338	.03149	.09107	.
NI	.25198	.26753	.04743	.00041	.24445
CU	.01647	.16453	.21116	.01690	.21135
V	.04871	.00599	.01808	.48332	.07375
BA	.14150	.27754	.01394	.00396	.18722
MN	.07808	.29882	.36819	.00117	.17739
ZN	.01199	.00552	.06834	.10134	.23776
NB	.18301	.46509	.25269	.41169	.11041
BE	.47402	.26105	.04683	.00055	.05694
Y	.24983	.17816	.06648	.00111	.40453

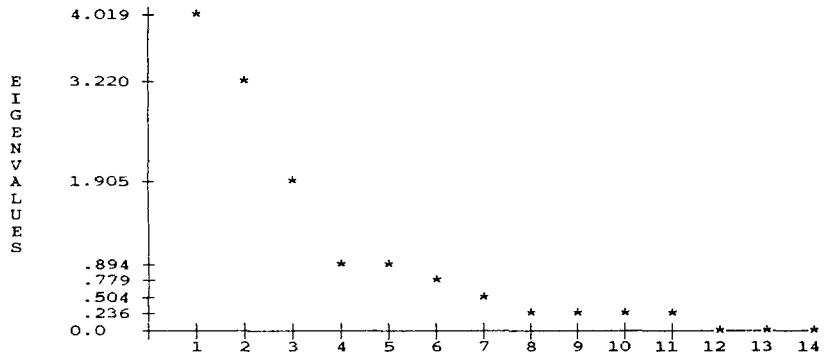
	NI	CU	V	BA	MN
NI	.				
CU	.13731	.			
V	.00112	.10597	.		
BA	.00000	.12512	.00011	.	
MN	.46685	.12892	.02145	.32369	.
ZN	.06481	.06354	.00002	.08386	.00325
NB	.03099	.19623	.01366	.11377	.08525
BE	.00018	.07917	.11510	.00093	.37644
Y	.00394	.02191	.21608	.00071	.25739

	ZN	NB	BE	Y
ZN	.			
NB	.05409	.		
BE	.37568	.31242	.	
Y	.37184	.42071	.00048	.

Extraction 1 for Analysis 1, Principal-Components Analysis (PC)

Initial Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
		*				
B	1.00000	*	1	4.01869	28.7	28.7
AS	1.00000	*	2	3.22040	23.0	51.7
P	1.00000	*	3	1.90462	13.6	65.3
SN	1.00000	*	4	1.02229	7.3	72.6
PB	1.00000	*	5	.89387	6.4	79.0
NI	1.00000	*	6	.77947	5.6	84.6
CU	1.00000	*	7	.50433	3.6	88.2
V	1.00000	*	8	.40895	2.9	91.1
BA	1.00000	*	9	.36448	2.6	93.7
MN	1.00000	*	10	.34436	2.5	96.2
ZN	1.00000	*	11	.23555	1.7	97.8
NB	1.00000	*	12	.15531	1.1	98.9
BE	1.00000	*	13	.10367	.7	99.7
Y	1.00000	*	14	.04402	.3	100.0



PC Extracted 4 factors.

Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
B	.28198	.52547	.54156	-.13329
AS	.22217	.57879	.29088	-.42411
P	.53790	.14041	.62903	.12559
SN	-.54329	.68712	.03152	.34525
PB	-.21212	-.01176	.76439	.38203
NI	.86856	-.12122	-.09522	-.02824
CU	.18193	-.63523	.17015	.36556
V	.71804	.55344	-.15477	-.06369
BA	.88413	-.06162	-.01349	.05306
MN	.11165	.64857	-.22560	.51759
ZN	.41752	.74645	-.05674	.02644
NB	.30638	.23849	-.62487	.29026
BE	-.70229	.40320	.09913	.01275
Y	-.63379	.43785	-.17091	-.22231

Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
		*				
B	.66669	*	1	4.01869	28.7	28.7
AS	.64884	*	2	3.22040	23.0	51.7
P	.72050	*	3	1.90462	13.6	65.3
SN	.88749	*	4	1.02229	7.3	72.6
PB	.77537	*				
NI	.77895	*				
CU	.59920	*				
V	.84989	*				
BA	.78848	*				
MN	.75191	*				
ZN	.73543	*				
NB	.62545	*				
BE	.66577	*				
Y	.67204	*				

Reproduced Correlation Matrix:

	B	AS	P	SN	PB
B	.66669*	-.17937	-.14842	-.04819	-.03504
AS	.58084	.64884*	-.01457	.06461	.01147
P	.54938	.33048	.72050*	-.01582	-.06338
SN	.17892	.13974	-.13257	.88749*	-.00830
PB	.29705	.00638	.41305	.26316	.77537*
NI	.13342	.10709	.38674	-.56792	-.26638
CU	-.23907	-.43279	.16161	-.40375	.23859
V	.41796	.46185	.35858	-.03669	-.30146
BA	.20255	.13434	.46510	-.50479	-.17686
MN	.18112	.11506	.07421	.55657	-.00602
ZN	.47572	.49708	.29702	.29341	-.13061
NB	-.16538	-.09876	-.15832	.07793	-.43455
BE	.06582	.10076	-.25720	.66612	.22487
Y	-.01157	.15718	-.41487	.56305	-.08628

	NI	CU	V	BA	MN
B	-.00416	-.15802	-.10419	.00373	.08917
AS	.01296	.24490	-.00152	-.02008	-.01281
P	-.07067	-.00669	.03204	-.05677	-.00889
SN	-.01869	.00843	.02857	.02160	-.01368
PB	.13257	-.08380	.02561	.00561	-.17227
NI	.77895*	.00134	-.02822	-.04490	-.04138
CU	.20850	.59920*	.03162	.00347	.02370
V	.57310	-.27055	.84989*	.03493	-.06255
BA	.77517	.21710	.59944	.78848*	-.00058
MN	.02522	-.24085	.44107	.08925	.75191*
ZN	.27681	-.39820	.72001	.32531	.55723
NB	.28850	-.09596	.43021	.28001	.48009
BE	-.66866	-.36236	-.29728	-.64643	.16733
Y	-.58101	-.50379	-.17215	-.59683	.13671

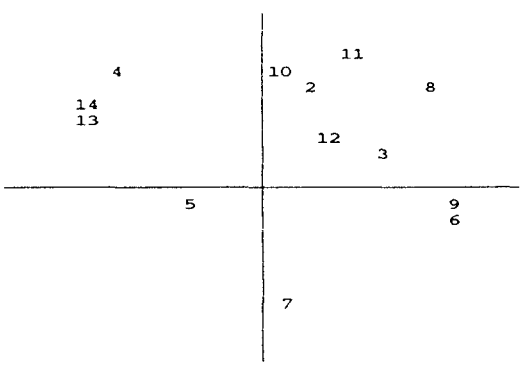
	ZN	NB	BE	Y
B	-.05756	-.00886	-.05316	-.11898
AS	-.03211	.08174	.02309	.02055
P	-.01390	.02949	-.05997	.12915
SN	-.04970	-.03459	-.09087	-.01777
PB	-.00732	.20006	.07509	.03937
NI	.01130	.06240	.05045	.09749
CU	.10825	-.06900	.09344	.12683
V	-.03096	-.02053	.06736	.02046
BA	-.06210	-.04881	.09347	.03198
MN	-.06360	-.21852	-.10623	-.01068
ZN	.73543*	-.04451	.05903	-.00258
NB	.34907	.62545*	.08248	.00864
BE	.00246	-.17725	.66577*	-.02133
Y	.06604	-.04749	.60187	.67204*

The lower left triangle contains the reproduced correlation matrix; The diagonal, communalities; and the upper right triangle, residuals between the observed correlations and the reproduced correlations.

There are 38 (41.0%) residuals (above diagonal) that are > 0.05

Skipping Rotation 1, Extraction 1, Analysis 1

Horizontal Factor 1 Vertical Factor 2



Symbol	Variable	Coordinates	
1	B	.282	.525
2	AS	.222	.579
3	P	.538	.140
4	SN	-.543	.687
5	PB	-.212	-.012
6	NI	.869	-.121
7	CU	.182	-.635
8	V	.718	.553
9	BA	.884	-.062
10	MN	.112	.649
11	ZN	.418	.746
12	NB	.306	.238
13	BE	-.702	.403
14	Y	-.634	.438

Factor Score Coefficient Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
B	.07017	.16317	.28434	-.13038
AS	.05529	.17973	.15272	-.41487
P	.13385	.04360	.33026	.12285
SN	-.13519	.21336	.01655	.33772
PB	-.05278	-.00365	.40133	.37370
NI	.21613	-.03764	-.04999	-.02762
CU	.04527	-.19725	.08933	.35759
V	.17867	.17186	-.08126	-.06230
BA	.22000	-.01914	-.00708	.05190
MN	.02778	.20140	-.11845	.50631
ZN	.10389	.23179	-.02979	.02586
NB	.07624	.07405	-.32808	.28393
BE	-.17476	.12520	.05205	.01247
Y	-.15771	.13596	-.08973	-.21747

Covariance Matrix for Estimated Regression Factor Scores:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
FACTOR 1	1.00000			
FACTOR 2	.00000	1.00000		
FACTOR 3	.00000	.00000	1.00000	
FACTOR 4	.00000	-.00000	.00000	1.00000

Varimax Rotation 2, Extraction 1, Analysis 1 - Kaiser Normalization.

Varimax converged in 7 iterations.

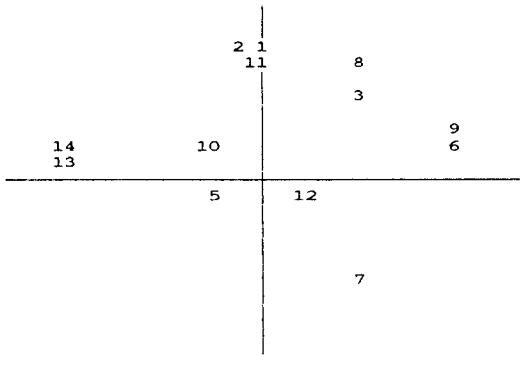
Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
B	.03976	.71648	.05802	.38523
AS	-.04586	.80372	-.01862	.02050
P	.43792	.42186	.03308	.59133
SN	-.76249	.13622	.49087	.21585
PB	-.17773	-.02653	-.10865	.85514
NI	.84218	.18759	.14832	-.11180
CU	.43507	-.52561	-.14785	.33434
V	.43094	.61547	.50298	-.17996
BA	.83494	.21960	.20768	-.00008
MN	-.14178	.15258	.83841	.07475
ZN	.08112	.63735	.56629	-.04415
NB	.19499	-.08668	.65586	-.38699
BE	-.80465	.07775	.04015	.10324
Y	-.76349	.15905	.02740	-.25116

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
FACTOR 1	.91412	.33436	.22856	-.01865
FACTOR 2	-.40400	.71050	.57617	-.00247
FACTOR 3	-.00215	.33065	-.40559	.85215
FACTOR 4	.03419	-.52351	.67178	.52296

Horizontal Factor 1 Vertical Factor 2



Symbol	Variable	Coordinates	
1	B	.040	.716
2	AS	-.046	.804
3	P	.438	.422
4	SN	-.762	.136
5	PB	-.178	-.027
6	NI	.842	.188
7	CU	.435	-.526
8	V	.431	.615
9	BA	.835	.220
10	MN	-.142	.153
11	ZN	.081	.637
12	NB	.195	-.087
13	BE	-.805	.078
14	Y	-.763	.159

Factor Score Coefficient Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
B	-.00685	.30167	-.09286	.17241
AS	-.03658	.41386	-.22445	-.08829
P	.10823	.12062	.00429	.34308
SN	-.19827	-.06494	.31219	.19271
PB	-.03486	-.08318	.07410	.53842
NI	.21194	.04345	.02943	-.06098
CU	.13311	-.28267	.10068	.26277
V	.09194	.18759	.13096	-.10559
BA	.21063	.03045	.07700	.01705
MN	-.03840	-.15184	.51055	.16282
ZN	.00228	.17603	.18675	-.01437
NB	.05019	-.17901	.38390	-.13269
BE	-.21001	.04120	.01946	.05382
Y	-.20634	.12804	-.06740	-.18759

Covariance Matrix for Estimated Regression Factor Scores:

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
FACTOR 1	1.00000			
FACTOR 2	-.00000	1.00000		
FACTOR 3	-.00000	-.00000	1.00000	
FACTOR 4	.00000	-.00000	.00000	1.00000

PASO 2

Para mejorar la consistencia del análisis se utilizan solo 8 variables, las más adecuadas para la búsqueda de mineralizaciones en el ámbito geológico considerado.

	Mean	Std Dev	Label
B	16.79412	4.02100	ppm
AS	53.02941	25.05810	ppm
P	2.67511	.23667	LOGppm
SN	26.50000	12.55352	ppm
ZN	69.11765	21.12124	ppm
NB	12.88235	6.56328	ppm
BE	7.76471	2.29702	ppm
Y	14.70588	5.49672	ppm

Number of Cases = 34

Correlation Matrix:

	B	AS	P	SN	ZN	NB	BE	Y
B	1.00000							
AS	.43735	1.00000						
P	.35914	.33236	1.00000					
SN	.08134	.10370	-.23206	1.00000				
ZN	.45772	.47676	.42224	.08423	1.00000			
NB	-.27767	-.07386	-.00973	-.04818	.25411	1.00000		
BE	.04709	.13859	-.27901	.58955	.02495	-.17877	1.00000	
Y	-.06452	.16265	-.33017	.57046	-.00570	-.14462	.60156	1.00000

Determinant of Correlation Matrix = .0821463

Inverse of Correlation Matrix:

	B	AS	P	SN	ZN
B	1.78527				
AS	-.36542	1.55505			
P	-.13844	-.31550	1.59800		
SN	-.25424	.11375	.09845	1.79645	
ZN	-.73768	-.46553	-.52225	-.07439	1.98996
NB	.69583	.06099	.19238	-.16993	-.79340
BE	-.00340	-.10429	.25299	-.67538	-.11064
Y	.37242	-.37665	.38649	-.64592	-.13872

	NB	BE	Y
NB	1.47342		
BE	.23947	1.90621	
Y	.25995	-.62715	1.99545

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .64666

Bartlett Test of Sphericity = 73.72797, Significance = .00001

There are 26 (46.4%) off-diagonal elements of AIC Matrix > 0.09

Anti-Image Covariance Matrix:

	B	AS	P	SN	ZN
B	.56014				
AS	-.13163	.64307			
P	-.04853	-.12696	.62578		
SN	-.07927	.04072	.03429	.55665	
ZN	-.20764	-.15044	-.16423	-.02081	.50252
NB	.26453	.02662	.08171	-.06420	-.27060
BE	-.00100	-.03518	.08305	-.19722	-.02917
Y	.10454	-.12138	.12120	-.18019	-.03493

	NB	BE	Y
NB	.67869		
BE	.08526	.52460	
Y	.08841	-.16488	.50114

Anti-Image Correlation Matrix:

	B	AS	P	SN	ZN	NB	BE	Y
B	.57876							
AS	-.21932	.73428						
P	-.08196	-.20014	.75002					
SN	-.14197	.06806	.05811	.72198				
ZN	-.39137	-.26464	-.29286	-.03935	.56313			
NB	.42903	.04029	.12537	-.10445	-.46335	.30085		
BE	-.00184	-.06057	.14495	-.36497	-.05681	.14289	.74700	
Y	.19732	-.21382	.21643	-.34116	-.06961	.15160	-.32157	.69102

Measures of sampling adequacy (MSA) are printed on the diagonal.

Correlation 1-tailed Significance Matrix:
' . ' is printed for diagonal elements.

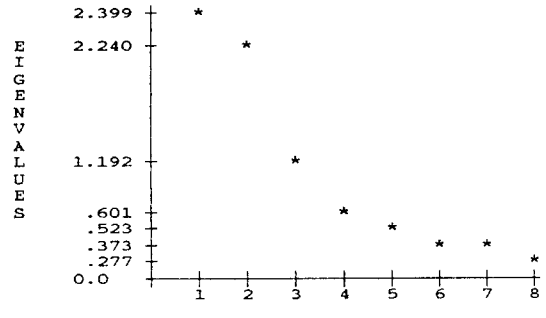
	B	AS	P	SN	ZN
B	.				
AS	.00485	.			
P	.01849	.02740	.		
SN	.32372	.27973	.09331	.	
ZN	.00325	.00218	.00643	.31789	.
NB	.05592	.33901	.47823	.39335	.07350
BE	.39571	.21721	.05502	.00012	.44431
Y	.35848	.17903	.02826	.00021	.48725

	NB	BE	Y
NB	.		
BE	.15586	.	
Y	.20724	.00008	.

Extraction 1 for Analysis 1, Principal-Components Analysis (PC)

Initial Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
		*				
B	1.00000	*	1	2.39913	30.0	30.0
AS	1.00000	*	2	2.24034	28.0	58.0
P	1.00000	*	3	1.19213	14.9	72.9
SN	1.00000	*	4	.60081	7.5	80.4
ZN	1.00000	*	5	.52252	6.5	86.9
NB	1.00000	*	6	.39440	4.9	91.9
BE	1.00000	*	7	.37330	4.7	96.5
Y	1.00000	*	8	.27737	3.5	100.0



PC Extracted 3 factors.

Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
B	-.14819	.75853	-.33200
AS	-.01382	.78469	.02052
P	-.58926	.53164	-.05997
SN	.76418	.27685	.17622
ZN	-.21396	.75812	.42850
NB	-.22074	-.13389	.92543
BE	.81425	.25208	.01143
Y	.82963	.18364	.08164

Final Statistics:

Variable	Communality	*	Factor	Eigenvalue	Pct of Var	Cum Pct
		*				
B	.70756	*	1	2.39913	30.0	30.0
AS	.61635	*	2	2.24034	28.0	58.0
P	.63346	*	3	1.19213	14.9	72.9
SN	.69166	*				
ZN	.80414	*				
NB	.92307	*				
BE	.72667	*				
Y	.72868	*				

Reproduced Correlation Matrix:

	B	AS	P	SN	ZN
B	.70756*	-.15310	-.15136	.04309	-.00678
AS	.59045	.61635*	-.09173	-.10660	-.12988
P	.51050	.42408	.63346*	.08162	-.08118
SN	.03825	.21030	-.31368	.69166*	-.03766
ZN	.46450	.60664	.50343	.12189	.80414*
NB	-.37609	-.08302	.00339	-.04267	.34227
BE	.06676	.18679	-.34647	.69403	.02179
Y	-.01075	.13432	-.39613	.69921	-.00330

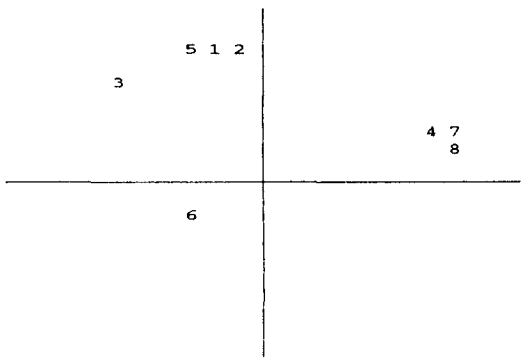
	NB	BE	Y
B	.09842	-.01967	-.05377
AS	.00916	-.04821	.02833
P	-.01312	.06746	.06596
SN	-.00551	-.10448	-.12875
ZN	-.08816	.00316	-.00239
NB	.92307*	.02413	-.01246
BE	-.20291	.72667*	-.12119
Y	-.13216	.72275	.72868*

The lower left triangle contains the reproduced correlation matrix; The diagonal, communalities; and the upper right triangle, residuals between the observed correlations and the reproduced correlations.

There are 15 (53.0%) residuals (above diagonal) that are > 0.05

Skipping Rotation 1, Extraction 1, Analysis 1

Horizontal Factor 1 Vertical Factor 2



Symbol	Variable	Coordinates	
1	B	-.148	.759
2	AS	-.014	.785
3	P	-.589	.532
4	SN	.764	.277
5	ZN	-.214	.758
6	NB	-.221	-.134
7	BE	.814	.252
8	Y	.830	.184

Factor Score Coefficient Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
B	-.06177	.33858	-.27849
AS	-.00576	.35026	.01722
P	-.24561	.23730	-.05031
SN	.31852	.12357	.14782
ZN	-.08918	.33839	.35944
NB	-.09201	-.05976	.77628
BE	.33939	.11252	.00959
Y	.34581	.08197	.06848

Covariance Matrix for Estimated Regression Factor Scores:

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	1.00000		
FACTOR 2	.00000	1.00000	
FACTOR 3	-.00000	-.00000	1.00000

Varimax Rotation 2, Extraction 1, Analysis 1 - Kaiser Normalization.

Varimax converged in 4 iterations.

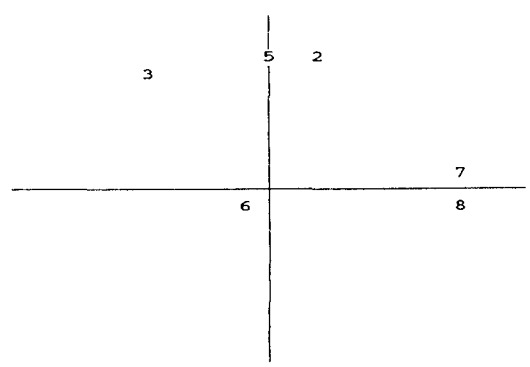
Rotated Factor Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
B	-.00016	.75798	-.36472
AS	.19087	.76056	-.03836
P	-.43538	.66609	-.01520
SN	.82756	.07095	.04221
ZN	.05830	.80292	.39505
NB	-.09713	-.03661	.95514
BE	.84268	.02778	-.12567
Y	.85103	-.03966	-.05334

Factor Transformation Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	.95347	-.26473	-.14428
FACTOR 2	.25586	.96362	-.07723
FACTOR 3	.15948	.03672	.98652

Horizontal Factor 1 Vertical Factor 2



Symbol	Variable	Coordinates	
1	B	-.000	.758
2	AS	.191	.761
3	P	-.435	.666
4	SN	.828	.071
5	ZN	.058	.803
6	NB	-.097	-.037
7	BE	.843	.028
8	Y	.851	-.040

Factor Score Coefficient Matrix:

	FACTOR 1	FACTOR 2	FACTOR 3
B	-.01668	.33239	-.29197
AS	.08687	.33967	-.00923
P	-.18149	.29184	-.03252
SN	.35889	.04019	.09033
ZN	.05887	.36289	.34133
NB	.02078	-.00473	.78371
BE	.35392	.01893	-.04820
Y	.36161	-.01004	.01134

Covariance Matrix for Estimated Regression Factor Scores:

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	1.00000		
FACTOR 2	-.00000	1.00000	
FACTOR 3	.00000	-.00000	1.00000