

カドミウムの測定値とzスコア

試験所 番号	分析方法		試料1			分析方法		試料2			試験所間		試験所内			
	前処理	測定 方法	報告値 (A _i)	順位	zスコア	前処理	測定 方法	報告値 (B _i)	順位	zスコア	(A _i +B _i) /√2	順位	zスコア (z _B)	(A _i -B _i) /√2	順位	zスコア (z _A)
1	AD	FL-AAS	0.00302	32	0.193	AD	FL-AAS	0.0154	41	0.899	0.0130	40	0.779	0.0088	42	0.946
2	AD	ICP	0.00381	45	4.542 *	AD	ICP	0.0188	49	4.976 *	0.0160	47	5.102 *	0.0106	49	4.805 *
3	AD	ICP-MS	0.00288	17	-0.578	AD	ICP-MS	0.0144	18	-0.300	0.0122	17	-0.397	0.0081	19	-0.325
4	AD	ICP-MS	0.00293	21	-0.303	AD	ICP-MS	0.0146	24	-0.060	0.0124	23	-0.139	0.0083	25	-0.103
5																
6	AD	ICP-MS	0.00301	30	0.138	AD	ICP-MS	0.00151	1	-15.756 *	0.0032	1	-13.562 *	-0.0011	4	-19.573 *
7	AD	ICP	0.00305	36	0.358	AD	ICP	0.0153	38	0.779	0.0130	37	0.707	0.0087	39	0.754
8	AD	ICP	0.00297	24	-0.083	AD	ICP	0.0150	34	0.420	0.0127	31	0.315	0.0085	35	0.429
9	AD	ICP	0.00158	2	-7.736 *	AD	ICP	0.00891	5	-6.883 *	0.0074	4	-7.403 *	0.0052	7	-6.519 *
10	AD	AAS	0.00313	40	0.798	AD	AAS	0.0161	46	1.739	0.0136	44	1.615	0.0092	46	1.818
11	AD	ICP	0.00300	28	0.083	AD	ICP	0.0154	41	0.899	0.0130	39	0.758	0.0088	43	0.976
12	SE	AAS	0.03270	51	163.612 *	SE	AAS	0.0146	24	-0.060	0.0334	49	30.575 *	-0.0128	1	-44.114 *
13	SE	ICP	0.00274	8	-1.349	SE	ICP	0.0129	8	-2.098 *	0.0111	6	-2.089 *	0.0072	9	-2.336 *
14	AD	ICP-MS	0.00272	7	-1.459	AD	ICP-MS	0.0138	10	-1.019	0.0117	10	-1.181	0.0078	12	-0.976
15	SE	ICP	0.00298	26	-0.028	SE	ICP	0.0151	36	0.540	0.0128	33	0.428	0.0086	36	0.562
16	AD	ICP	0.00215	4	-4.598 *	AD	ICP	0.0141	12	-0.660	0.0115	8	-1.460	0.0084	31	0.310
17	AD	ICP-MS	0.00293	21	-0.303	AD	ICP-MS	0.0147	27	0.060	0.0125	25	-0.036	0.0083	27	0.044
18	AD	ICP	0.00303	34	0.248	AD	ICP	0.0155	44	1.019	0.0131	42	0.892	0.0088	44	1.079
19	AD	ICP	0.0166	48	74.965 *	AD	ICP	0.0825	50	81.359 *	0.0701	50	84.019 *	0.0466	50	80.067 *
20	不明	ICP-MS	0.00282	12	-0.908	不明	ICP-MS	0.0143	15	-0.420	0.0121	15	-0.562	0.0081	15	-0.384
21	SE	AAS	0.00281	11	-0.964	SE	AAS	0.0143	15	-0.420	0.0121	14	-0.573	0.0081	17	-0.370
22	AD	ICP-MS	0.0191	49	88.730 *	AD	ICP-MS	0.0974	51	99.225 *	0.0824	51	101.971 *	0.0554	51	98.398 *
23	SE	AAS	0.0232	50	111.305 *	SE	AAS	0.0122	7	-2.938 *	0.0250	48	18.298 *	-0.0078	2	-33.617 *
24	AD	ICP	0.00400	46	5.589 *	AD	ICP	0.0170	47	2.818 *	0.0148	46	3.441 *	0.0092	47	1.863
25	SE	AAS	0.00293	21	-0.303	SE	AAS	0.0149	30	0.300	0.0126	28	0.170	0.0085	33	0.340
26	AD	ICP-MS	0.00288	17	-0.578	AD	ICP-MS	0.0144	18	-0.300	0.0122	17	-0.397	0.0081	19	-0.325
27	AD	FL-AAS	0.00330	43	1.734	AD	FL-AAS	0.00278	2	-14.233 *	0.0043	2	-11.953 *	-0.0004	5	-18.124 *
28	SE	AAS	0.00262	5	-2.010 *	SE	AAS	0.0141	12	-0.660	0.0118	12	-0.975	0.0081	15	-0.384
29	AD	ICP	0.00287	16	-0.633	AD	ICP	0.0145	22	-0.180	0.0123	21	-0.304	0.0082	22	-0.163
30	AD	ICP-MS	0.00286	14	-0.688	AD	ICP-MS	0.0142	14	-0.540	0.0121	13	-0.624	0.0080	13	-0.591
31	AD	ICP	0.00303	34	0.248	AD	ICP	0.0154	41	0.899	0.0130	41	0.789	0.0087	41	0.931
32	NON	FL-AAS	0.00291	19	-0.413	NON	FL-AAS	0.0133	9	-1.619	0.0115	7	-1.501	0.0073	10	-1.996
33	AD	AAS	0.00279	9	-1.074	AD	AAS	0.0144	18	-0.300	0.0122	16	-0.490	0.0082	21	-0.192
34	AD	ICP-MS	0.00306	38	0.413	AD	ICP-MS	0.0149	30	0.300	0.0127	30	0.304	0.0084	29	0.148
35	AD	FL-AAS	0.00309	39	0.578	AD	FL-AAS	0.0153	38	0.779	0.0130	38	0.748	0.0086	38	0.695
36	AD	ICP-MS	0.00113	1	-10.214 *	AD	ICP-MS	0.00712	4	-9.029 *	0.0058	3	-9.714 *	0.0042	6	-8.500 *
37	SE	AAS	0.00324	41	1.404	SE	AAS	0.0143	15	-0.420	0.0124	24	-0.129	0.0078	11	-1.005
38	AD	AAS	0.00380	44	4.487 *	AD	AAS	0.0170	47	2.818 *	0.0147	45	3.234 *	0.0093	48	2.158 *
39	AD	ICP	0.00291	19	-0.413	AD	ICP	0.0144	18	-0.300	0.0122	19	-0.366	0.0081	17	-0.370
40	SE	AAS	0.00301	30	0.138	SE	AAS	0.0153	38	0.779	0.0129	36	0.665	0.0087	40	0.813
41	AD	ICP-MS	0.00284	13	-0.798	AD	ICP-MS	0.0148	29	0.180	0.0125	26	-0.026	0.0085	32	0.325
42	AD	ICP	0.00324	41	1.404	AD	ICP	0.0149	30	0.300	0.0128	34	0.490	0.0082	24	-0.118
43	AD	ICP-MS	0.00305	36	0.358	AD	ICP-MS	0.0152	37	0.660	0.0129	35	0.604	0.0086	37	0.606
44	AD	ICP-MS	0.00280	10	-1.019	AD	ICP-MS	0.0146	24	-0.060	0.0123	22	-0.273	0.0083	28	0.089
45	AD	ICP	0.00265	6	-1.845	AD	ICP	0.0140	11	-0.779	0.0118	11	-1.047	0.0080	14	-0.577
46	SE	ICP	0.00160	3	-7.626 *	SE	ICP	0.0104	6	-5.096 *	0.0085	5	-5.845 *	0.0062	8	-4.346 *
47	AD	ICP-MS	0.00300	28	0.083	AD	ICP-MS	0.0149	30	0.300	0.0127	29	0.242	0.0084	30	0.237
48	AD	ICP-MS	0.00302	32	0.193	AD	ICP-MS	0.0150	34	0.420	0.0127	32	0.366	0.0085	34	0.355
49	AD	ICP	0.0135	47	57.896 *	AD	ICP	0.00297	3	-14.005 *	0.0116	9	-1.233	-0.0074	3	-32.923 *
50	AD	ICP	2.84	52	15620.738 *	AD	ICP	14.9	52	17848.944 *	12.5441	52	18284.591 *	8.5277	52	17811.375 *
51	AD	ICP	0.00286	14	-0.688	AD	ICP	0.0145	22	-0.180	0.0123	20	-0.315	0.0082	23	-0.148
52	NON	FL-AAS	0.00297	24	-0.083	NON	FL-AAS	0.0158	45	1.379	0.0133	43	1.140	0.0091	45	1.611
53	AD	ICP-MS	0.00299	27	0.028	AD	ICP-MS	0.0147	27	0.060	0.0125	27	0.026	0.0083	26	-0.044
n			52					52			52			52		
Σ			3.0781					15.7519			13.3148			8.9617		
			0.0592					0.3029			0.2561			0.1723		
MAX			2.8400					14.9000			12.5441			8.5277		
MIN			0.0011					0.0015			0.0032			-0.0128		
R			2.8389					14.8985			12.5409			8.5405		
S			7.8862					217.2645			153.9649			71.1859		
s ²			0.15463					4.26009			3.01892			1.39580		
s			0.393					2.064			1.738			1.181		
CV			664.31					681.37			678.57			685.53		
b ₁			7.21					7.21			7.21			7.21		
b ₂			52.0					52.0			52.0			52.0		
			0.002985					0.01465			0.01249			0.00830		
Q ₃			0.0031					0.0153			0.0130			0.0087		
Q ₁			0.0029					0.0142			0.0121			0.0080		
IRQ			0.0002					0.0011			0.0009			0.0006		
-			0.0002					0.0008			0.0007			0.0005		
%			6.1					5.7			5.5			5.8		

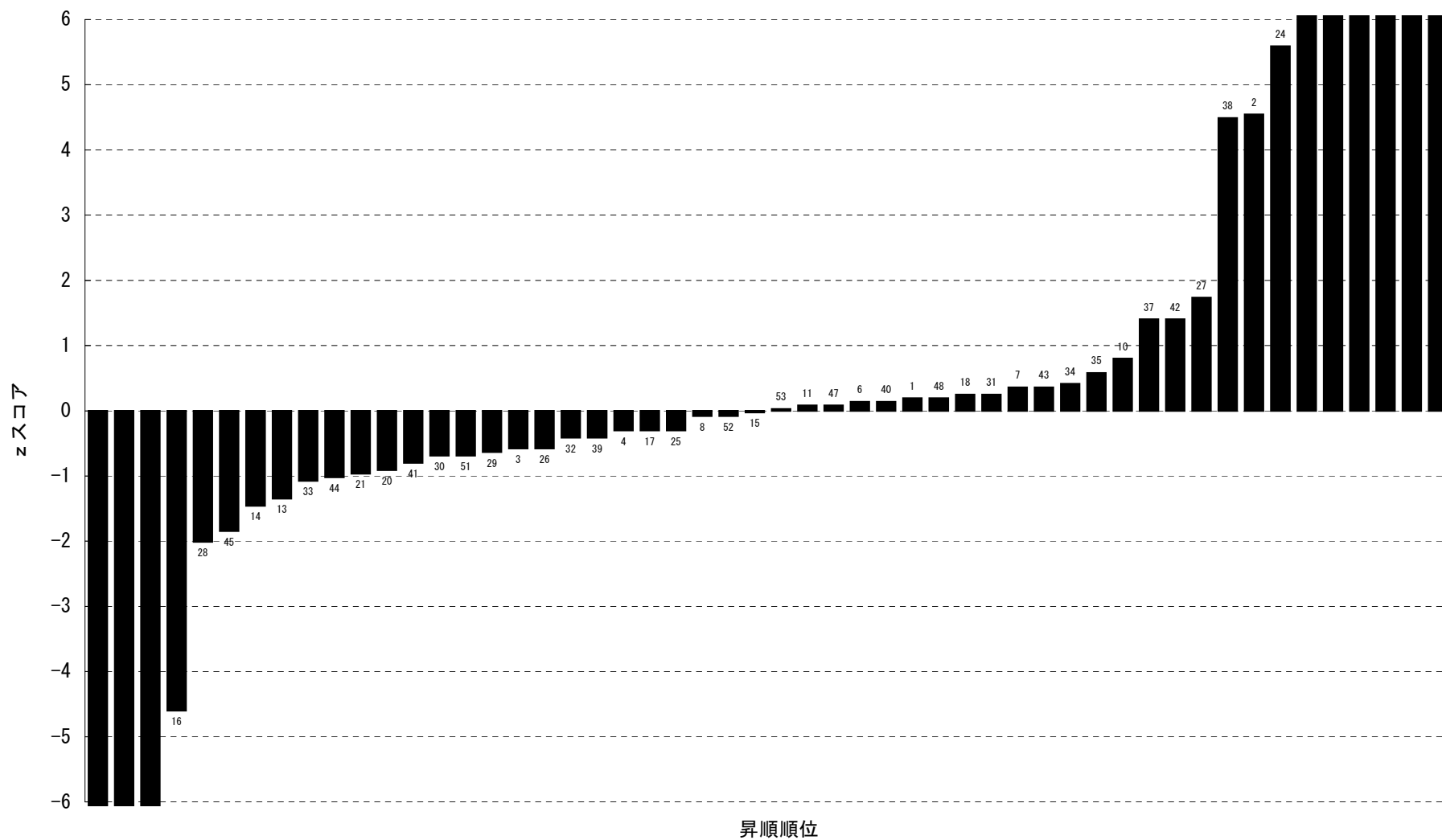


図1.1 カドミウム 試料1のzスコア昇順バーチャート

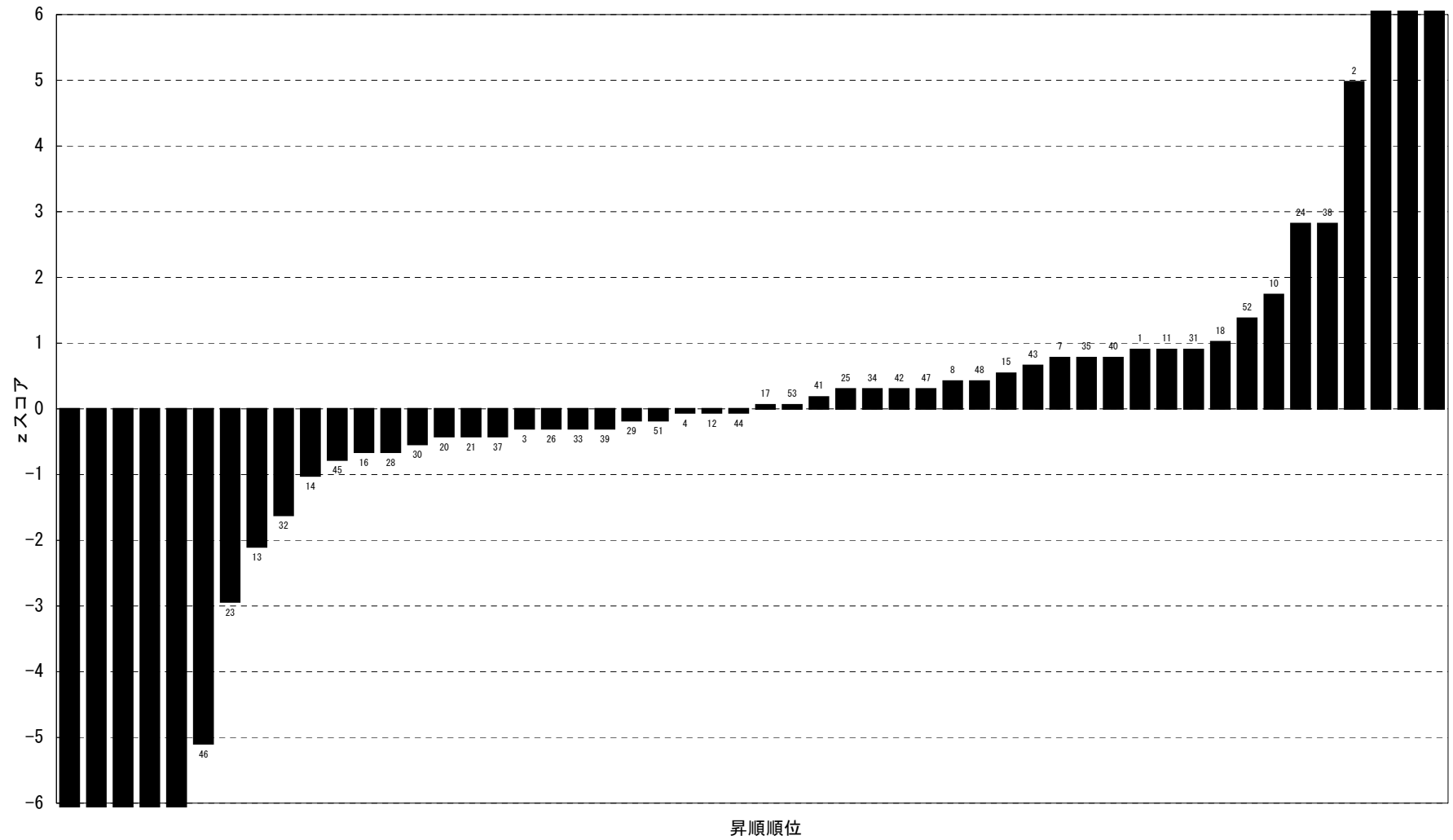


図1.2 がミカ 試料2の zスコア昇順バーチャート

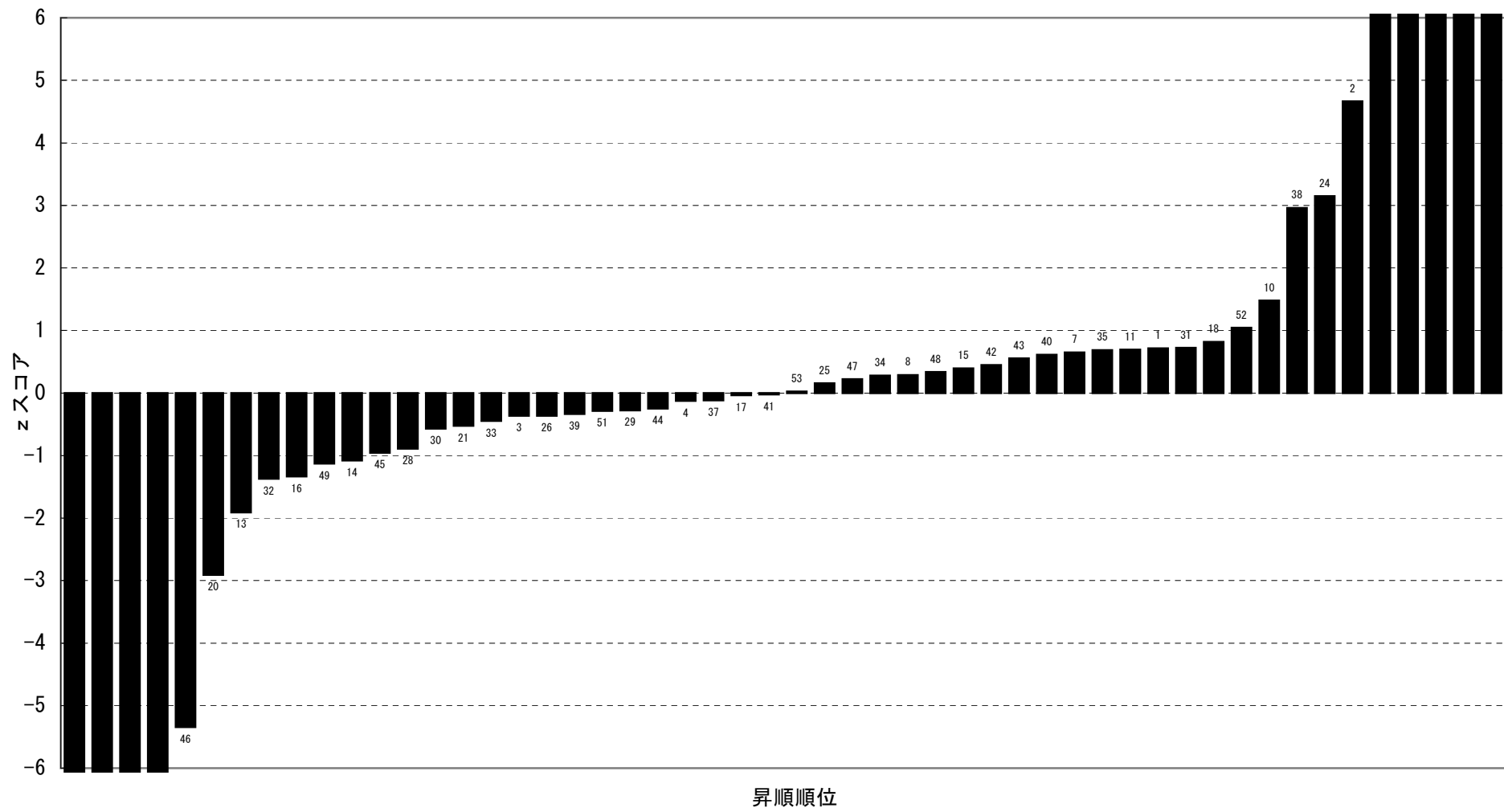


図1.3 かつみやま 試験所間のzスコア昇順バーチャート

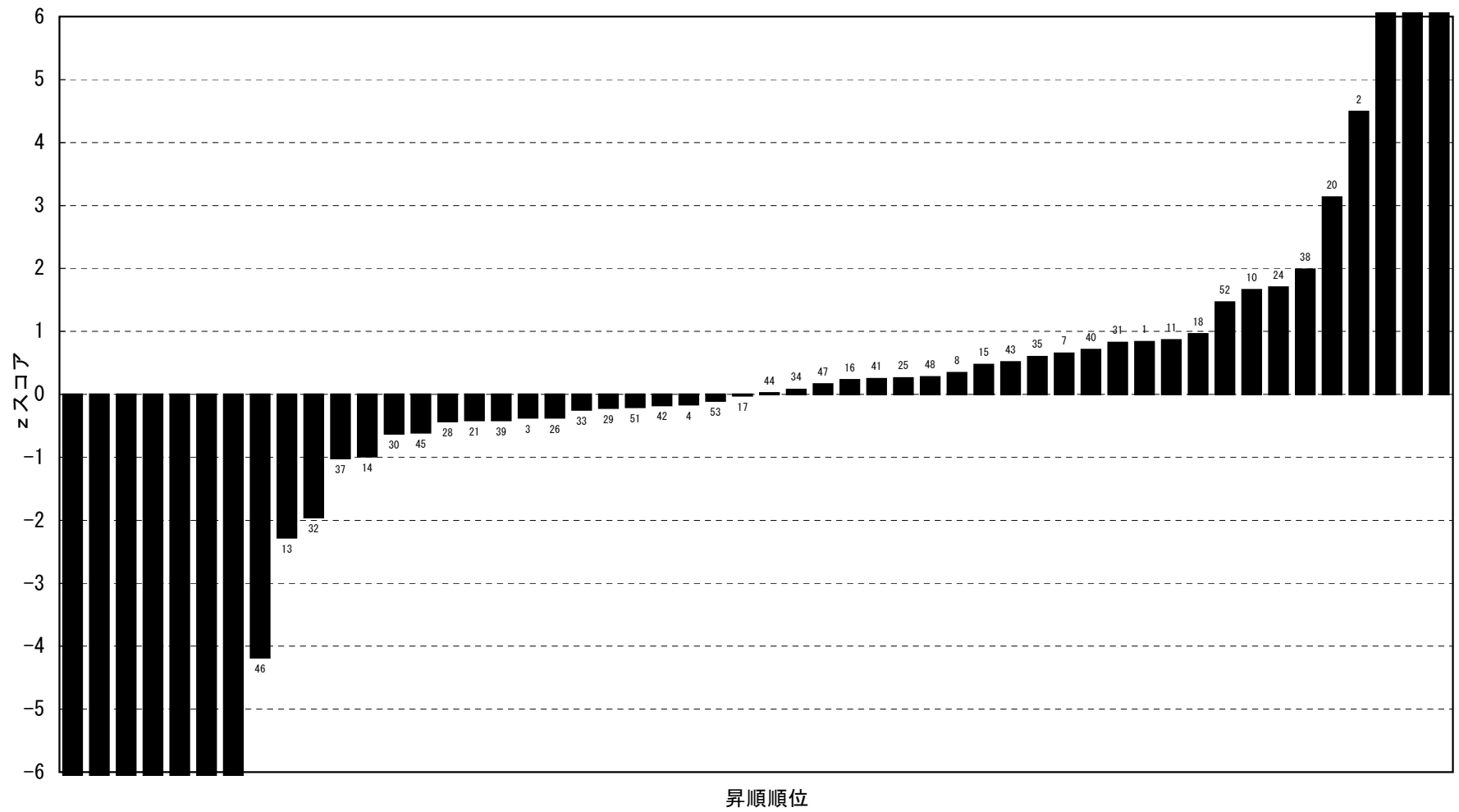


図1.4 カドミム 試験所内のzスコア昇順バーチャート

セレンの測定値とzスコア

試験所 番号	分析方法		試料1			分析方法		試料2			試験所間			試験所内		
	前処理	測定 方法	報告値 (A _i)	順位	zスコア	前処理	測定 方法	報告値 (B _i)	順位	zスコア	(A _i +B _i) /√2	順位	zスコア (z _B)	(A _i -B _i) /√2	順位	zスコア (z _A)
1	AD	AAS	0.00395	25	0.019	AD	AAS	0.0149	25	0.055	0.0133	28	0.066	0.0077	27	0.146
2	AD	ICP	0.00274	4	-4.678 *	AD	ICP	0.0121	7	-3.028 *	0.0105	7	-3.039 *	0.0066	8	-1.962
3	AD	ICP-MS	0.00369	11	-0.990	AD	ICP-MS	0.0140	13	-0.936	0.0125	13	-0.832	0.0073	17	-0.703
4	AD	ICP-MS	0.00394	24	-0.019	AD	ICP-MS	0.0148	21	-0.055	0.0133	24	-0.019	0.0077	26	0.027
5	AD	AAS	0.00468	44	2.853 *	AD	AAS	0.0159	41	1.156	0.0146	42	1.405	0.0079	40	0.504
6	AD	ICP-MS	0.00398	27	0.136	AD	ICP-MS	0.00146	1	-14.745 *	0.0038	1	-10.316 *	-0.0018	1	-17.712 *
7	AD	ICP	0.00406	36	0.446	AD	ICP	0.0151	34	0.275	0.0135	33	0.306	0.0078	31	0.265
8	AD	AAS	0.00378	16	-0.641	AD	AAS	0.0148	21	-0.055	0.0131	20	-0.143	0.0078	29	0.239
9	AD	AAS	0.00265	3	-5.027 *	AD	AAS	0.00858	3	-6.905 *	0.0079	4	-5.833 *	0.0042	3	-6.510 *
10	AD	AAS	0.00393	23	-0.058	AD	AAS	0.0165	43	1.817	0.0144	41	1.289	0.0089	44	2.294 *
11	AD	SP	0.00341	8	-2.077 *	AD	SP	0.0136	12	-1.377	0.0120	12	-1.359	0.0072	13	-0.862
12	AD	AAS	0.00372	13	-0.873	AD	AAS	0.0149	25	0.055	0.0132	21	-0.112	0.0079	36	0.451
13	AD	ICP	0.00402	31	0.291	AD	ICP	0.0141	15	-0.826	0.0128	16	-0.499	0.0071	12	-1.008
14	AD	ICP-MS	0.00443	40	1.883	AD	ICP-MS	0.0177	46	3.138 *	0.0156	47	2.605 *	0.0094	47	3.222 *
15	AD	AAS	0.00379	17	-0.602	AD	AAS	0.0150	31	0.165	0.0133	25	0.019	0.0079	39	0.491
16	AD	AAS	0.00453	43	2.271 *	AD	AAS	0.0156	40	0.826	0.0142	40	1.057	0.0078	33	0.305
17	AD	AAS	0.00404	32	0.369	AD	AAS	0.0149	25	0.055	0.0134	29	0.135	0.0077	25	0.027
18	AD	AAS	0.00404	32	0.369	AD	AAS	0.0153	39	0.496	0.0137	38	0.445	0.0080	41	0.557
19	AD	ICP	0.00108	1	-11.122 *	AD	ICP	0.00458	2	-11.309 *	0.0040	2	-10.145 *	0.0025	2	-9.731 *
20	AD	AAS	0.00408	39	0.524	AD	AAS	0.0149	25	0.055	0.0134	30	0.166	0.0077	24	-0.027
21	AD	AAS	0.00370	12	-0.951	AD	AAS	0.0141	15	-0.826	0.0126	15	-0.747	0.0074	19	-0.583
22																
23																
24																
25	AD	AAS	0.00397	26	0.097	AD	AAS	0.0147	20	-0.165	0.0132	23	-0.074	0.0076	22	-0.146
26	AD	ICP-MS	0.00390	21	-0.175	AD	ICP-MS	0.0145	19	-0.385	0.0130	18	-0.283	0.0075	21	-0.318
27	AD	AAS	0.00447	41	2.038 *	AD	AAS	0.0173	45	2.698 *	0.0154	45	2.326 *	0.0091	45	2.638 *
28																
29	AD	ICP	0.00385	20	-0.369	AD	ICP	0.0143	17	-0.606	0.0128	17	-0.476	0.0074	20	-0.517
30	AD	ICP-MS	0.00407	37	0.485	AD	ICP-MS	0.0144	18	-0.496	0.0131	19	-0.228	0.0073	18	-0.676
31	AD	AAS	0.00289	5	-4.095 *	AD	AAS	0.0127	10	-2.368 *	0.0110	8	-2.458 *	0.0069	11	-1.366
32	AD	AAS	0.00384	19	-0.408	AD	AAS	0.0108	6	-4.460 *	0.0104	6	-3.193 *	0.0049	5	-5.144 *
33	AD	AAS	0.00363	10	-1.223	AD	AAS	0.0130	11	-2.037 *	0.0118	11	-1.653	0.0066	9	-1.949
34	AD	ICP-MS	0.00391	22	-0.136	AD	ICP-MS	0.0180	47	3.469 *	0.0155	46	2.435 *	0.0100	48	4.309 *
35	AD	AAS	0.00373	14	-0.835	AD	AAS	0.0149	25	0.055	0.0132	22	-0.105	0.0079	35	0.438
36	AD	ICP-MS	0.00194	2	-7.783 *	AD	ICP-MS	0.00899	4	-6.453 *	0.0077	3	-6.066 *	0.0050	6	-5.025 *
37	AD	AAS	0.00450	42	2.154 *	AD	AAS	0.0148	21	-0.055	0.0136	37	0.414	0.0073	16	-0.716
38	AD	AAS	0.00510	48	4.484 *	AD	AAS	0.0182	48	3.689 *	0.0165	48	3.511 *	0.0093	46	2.996 *
39	AD	AAS	0.00309	7	-3.319 *	AD	AAS	0.0126	9	-2.478 *	0.0111	10	-2.381 *	0.0067	10	-1.763
40	AD	AAS	0.00382	18	-0.485	AD	AAS	0.0150	31	0.165	0.0133	27	0.043	0.0079	36	0.451
41																
42	AD	AAS	0.00405	35	0.408	AD	AAS	0.0152	37	0.385	0.0136	36	0.375	0.0079	34	0.411
43	AD	ICP-MS	0.00404	32	0.369	AD	ICP-MS	0.0151	34	0.275	0.0135	32	0.290	0.0078	32	0.292
44	AD	AAS	0.00289	5	-4.095 *	AD	AAS	0.00906	5	-6.376 *	0.0084	5	-5.276 *	0.0044	4	-6.191 *
45	AD	ICP	0.00376	15	-0.718	AD	ICP	0.0140	13	-0.936	0.0126	14	-0.778	0.0072	15	-0.795
46	AD	ICP	0.00357	9	-1.456	AD	ICP	0.0121	7	-3.028 *	0.0111	9	-2.396 *	0.0060	7	-3.063 *
47	AD	AAS	0.00401	29	0.252	AD	AAS	0.0150	31	0.165	0.0134	31	0.190	0.0078	28	0.199
48	AD	ICP-MS	0.00407	37	0.485	AD	ICP-MS	0.0151	34	0.275	0.0136	34	0.314	0.0078	30	0.252
49	AD	ICP	0.00478	46	3.241 *	AD	ICP	0.0164	42	1.707	0.0150	43	1.870	0.0082	42	1.034
50	AD	AAS	0.00469	45	2.892 *	AD	AAS	0.0149	25	0.055	0.0139	39	0.639	0.0072	14	-0.835
51	NON	AAS	0.00500	47	4.095 *	NON	AAS	0.0167	44	2.037 *	0.0153	44	2.272 *	0.0083	43	1.140
52	AD	AAS	0.00401	29	0.252	AD	AAS	0.0152	37	0.385	0.0136	35	0.345	0.0079	38	0.464
53	AD	ICP-MS	0.00400	28	0.214	AD	ICP-MS	0.0148	21	-0.055	0.0133	26	0.027	0.0076	23	-0.053
n			48					48			48			48		
Σ			0.1838					0.6706			0.6041			0.3442		
			0.00383					0.0140			0.0126			0.00717		
MAX			0.0051					0.0182			0.0165			0.0100		
MIN			0.0011					0.0015			0.0038			-0.0018		
R			0.0040					0.0167			0.0126			0.0117		
S			0.0000					0.0005			0.0003			0.0002		
s ²			0.00000					0.00001			0.00001			0.00000		
s			0.001					0.003			0.003			0.002		
CV			18.69					22.16			20.37			26.17		
b ₁			-1.55					-2.19			-1.86			-2.80		
b ₂			4.4					6.1			4.2			10.9		
			0.003945					0.01485			0.013269			0.007665		
Q ₃			0.0041					0.0151			0.0136			0.0079		
Q ₁			0.0037					0.0139			0.0124			0.0072		
IRQ			0.0003					0.0012			0.0012			0.0007		
-			0.0003					0.0009			0.0009			0.0005		
%			6.5					6.1			6.9			7.0		

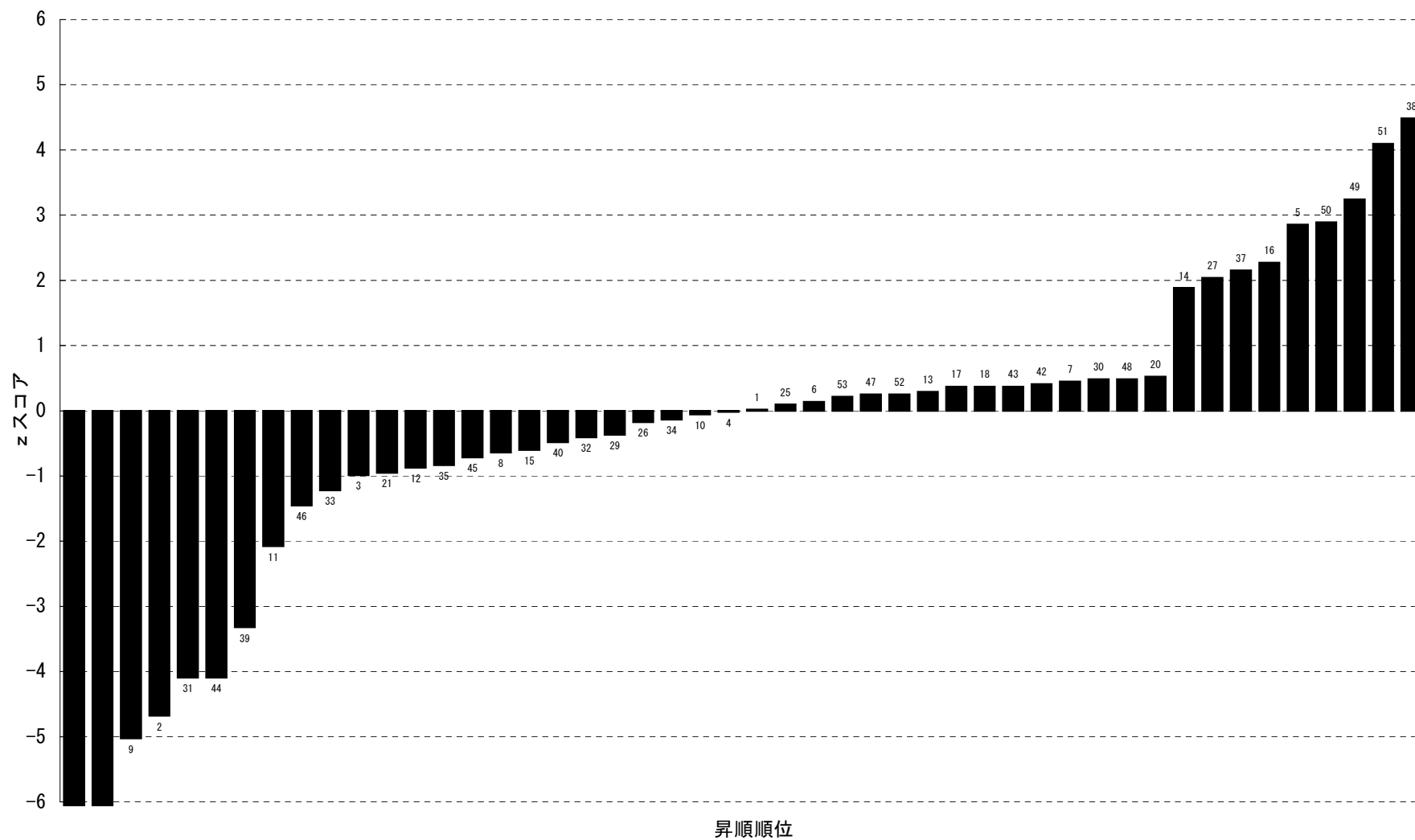


図2.1 セレン 試料1のzスコア昇順バーチャート

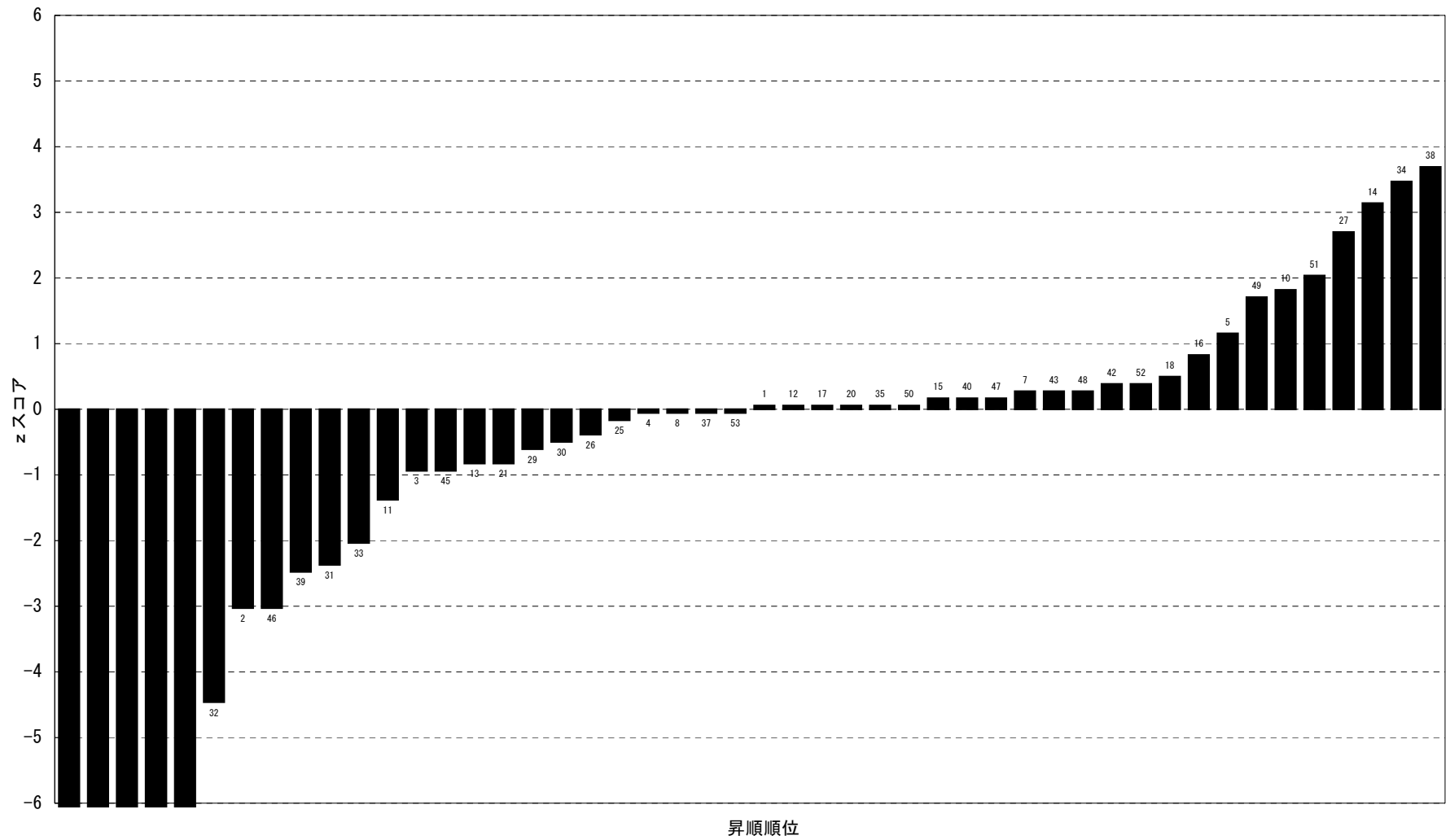


図2.2 セレン 試料2のzスコア昇順バーチャート

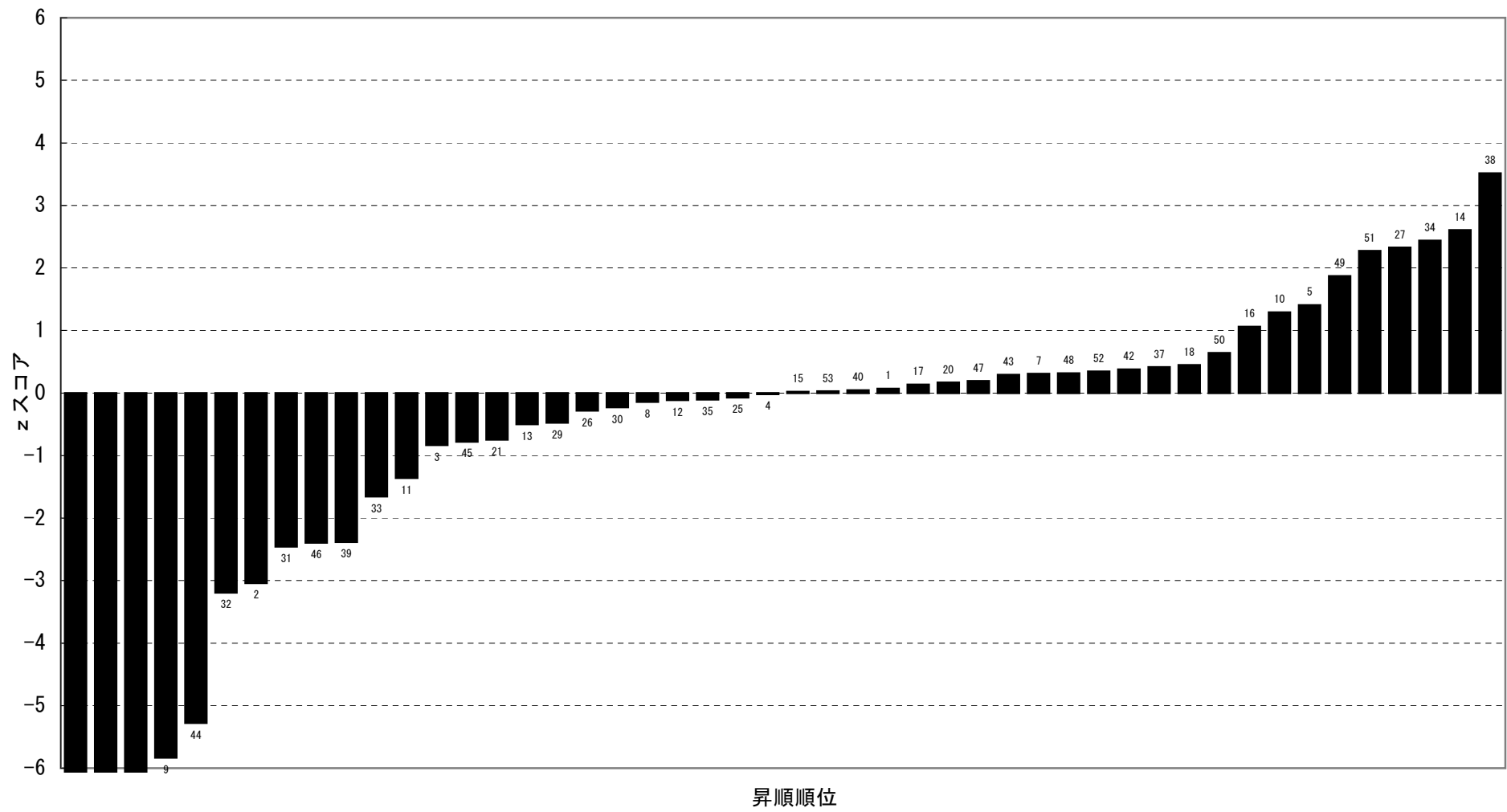


図2.3 セレン 試験所間のzスコア昇順バーチャート

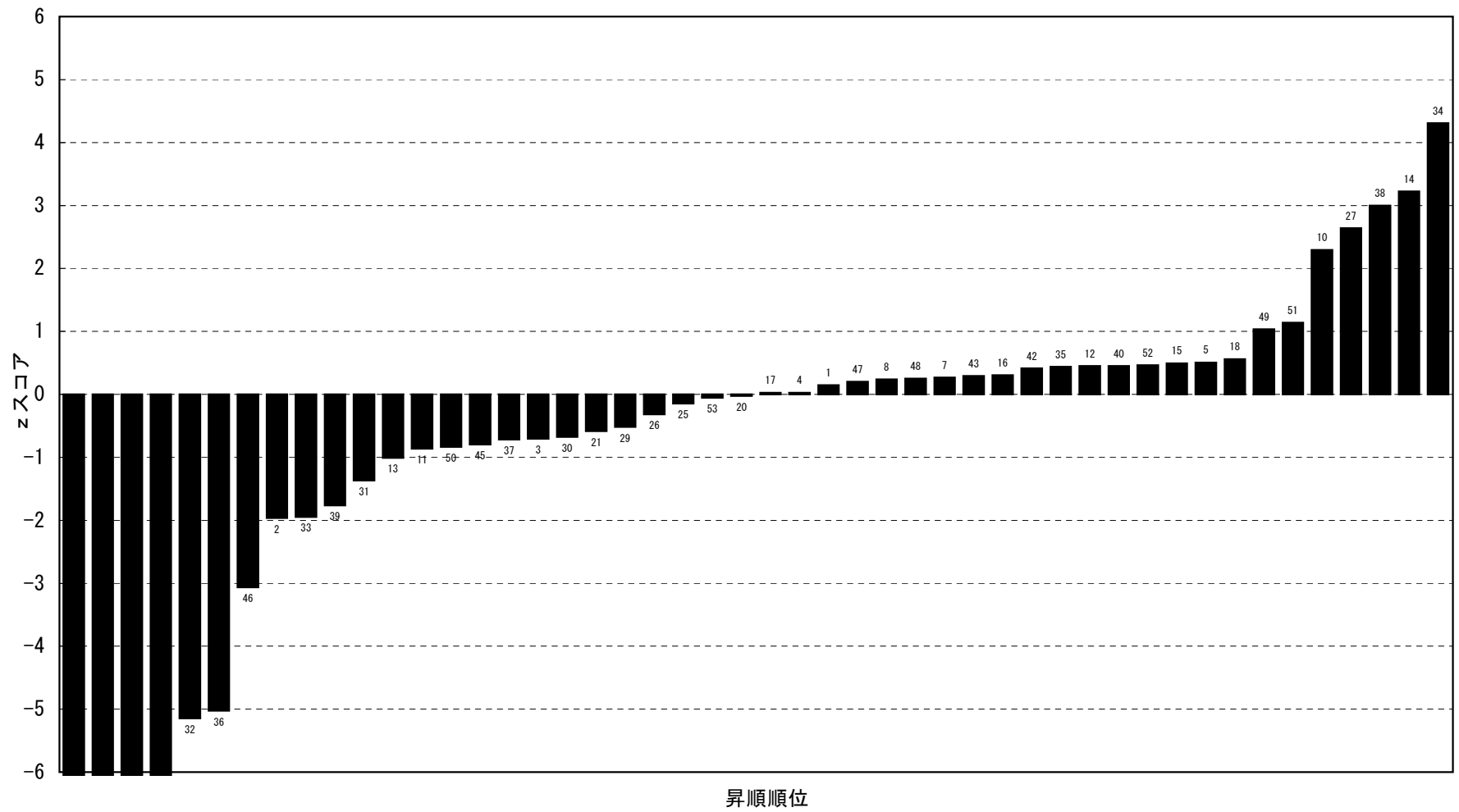


図2.4 セレン 試験所内のzスコア昇順バーチャート