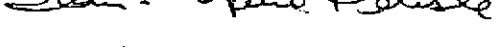
PROGRESS REPORT NO.2

ON THE HAT CREEK DEPOSIT

GEOSTATISTICAL ESTIMATION

Part 1 of 2

Respectfully submitted,
Jean-Marc Belisle eng.
Montreal, July 5th 1979.



FOREWORD

This report gives the results of work performed on the new data file given to MERI by B.C. Hydro Authority using the techniques developed at MERI by Dr. Jean Michel Rendu. This follows a meeting held in Montreal between Mr. Fitzpatrick, Mr. Handelsman and MERI on May 22nd.

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OLD FILE		NEW FILE	
B.C. HYDRO	MINTEC	B.C. HYDRO	MINTEC
A11	111	A1	111
A12	112	A2	112
A13	113	A3	113
A14	114	A4	114
		A5	115
A21	121	A6	121
C11	311	C1	311
C21	321	C2	321
C22	322	C3	322
		C4	323

TABLE 1

Old and new subzone designations

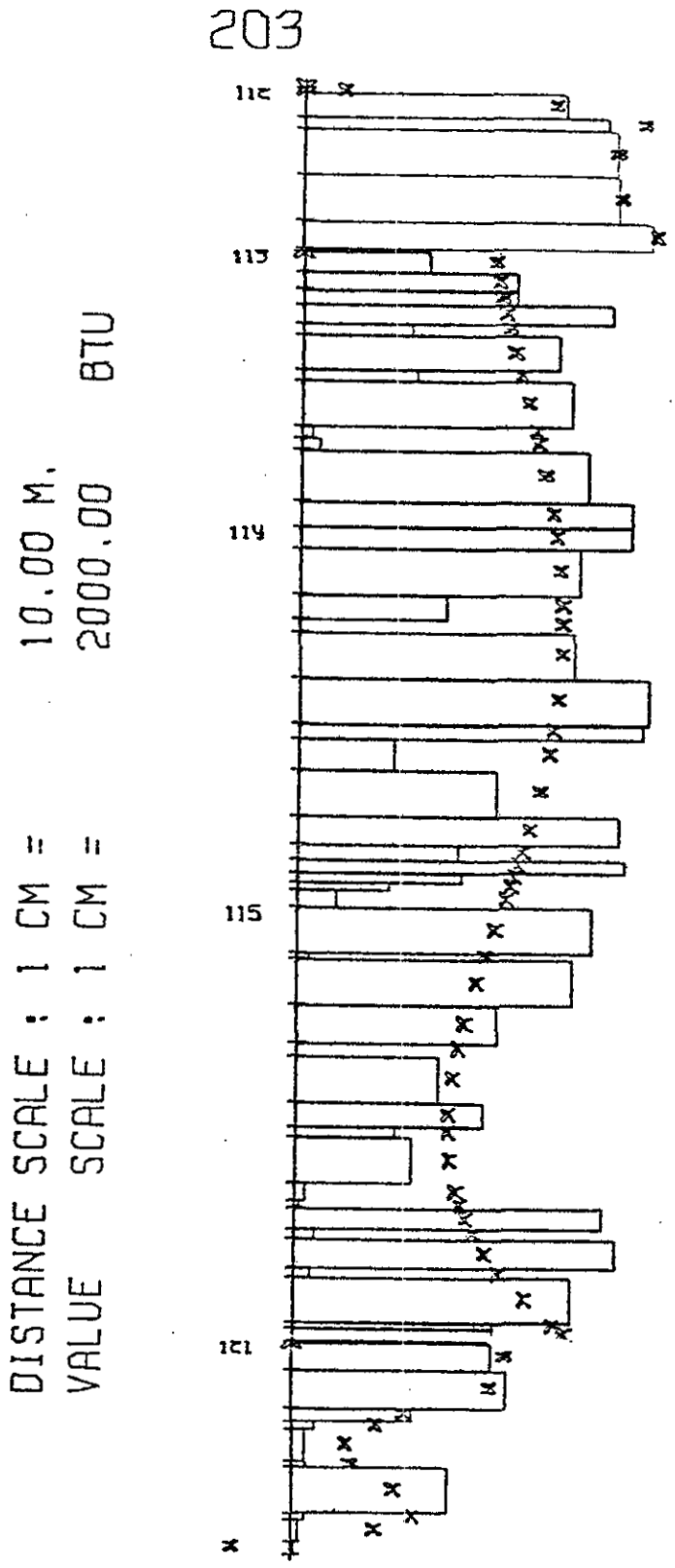


Figure 2 - Hole 203 profile (new data file)

1.3 Redefinition of sample limits

Together with the subzone redesignation sample limits within individual holes were also reevaluated. Samples that were previously grouped together in 6.1 meters "macro samples" have been split up in smaller units while others that were separated have been grouped together.

This reevaluation had little effect on the results of our work.

1.4 Redefinition of zone topography

The new topography data has no effect on the word detailed in this report but will certainly influence the 3-D mining block model we are currently developping.

2 - BOREHOLE PROFILING

As was agreed upon, profiles of all holes contained in the new file were drawn to scale (1 cm = 10 meters). Because in doing so we also adjusted a polynomial, care was taken to examine each zone independantly so as to separate zones into groups of "similar behaviour" subzones. These groups are listed in Table 2 while individual hole profiles are given in Appendix A, B, C and D.

2.1 Zone A

This zone is the most complex of the deposit and indeed contains the most subzones. It is not easy to group subzones together because in particular most subzones are generally preceded by thin low grade layers which apparently give weight to the new subzone designations. Hole 120 on figure 3 shows a good example.

A first attempt was made to separate zone A into three groups of subzones. The first group included subzones A1 and A2 (111 and 112) because of their common, if sometimes erratic, behaviour and because of a definite difference in trend between A2 and A3. The second group grouped together subzones A3, A4 and A5 while the third only included subzone A6 because of its "waste zone" designation.

While profiles computed on the first and third groups showed a good fit, such was not the case for group 2. This was due, as mentioned, to the fact that subzones A3, A4 and A5 often show a low grade area near their beginning (Fig. 4).

Another attempt was made by considering subzone A3, A4 and A5 separately (Fig. 5). The quality of the fit is dramatically improved while a sufficient number of samples remains in each subzone to insure correct polynomial computations. It thus seems that the estimation of zone A will involve far more work than was originally foreseen as it will be divided into five separate subzone groups.

GROUP	B.C. HYDRO	MINTEC
1	A1	111
	A2	112
2	A3	113
3	A4	114
4	A5	115
5	A6	121
6	B1	211
	B2	212
7	C1	311
8	C2	321
	C3	322
	C4	323
9	D1	411
	D2	412
	D3	413
	D4	414

TABLE 2

List of regrouped subzones

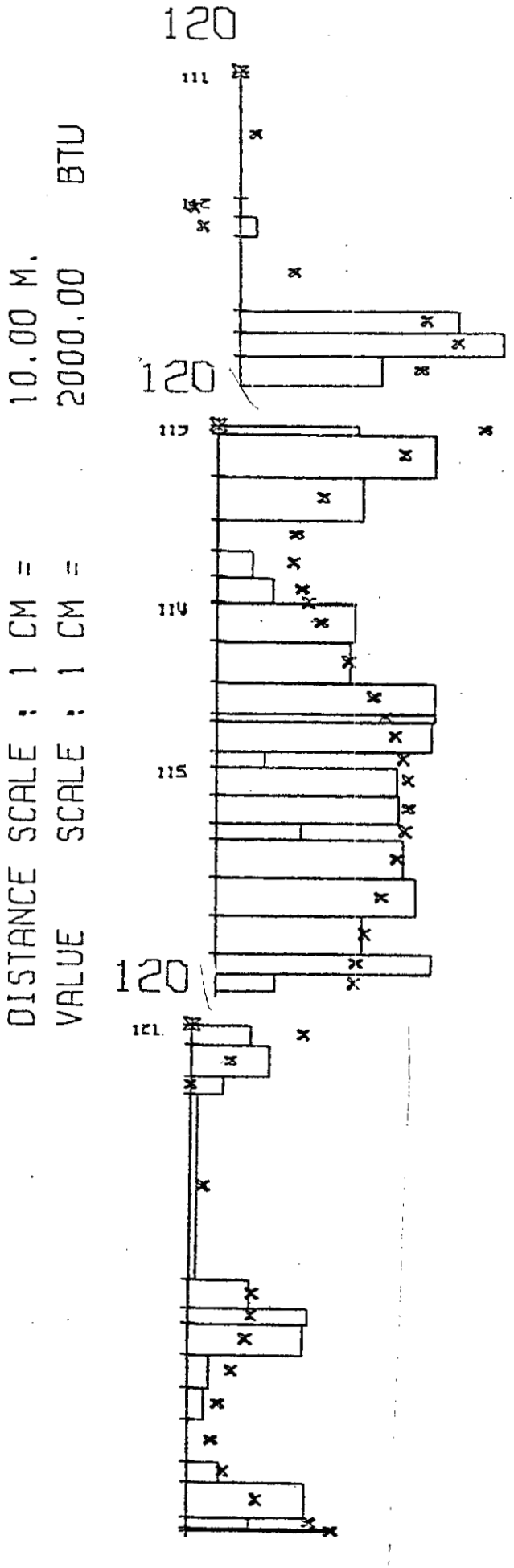


Figure 3 - Profile hole 120

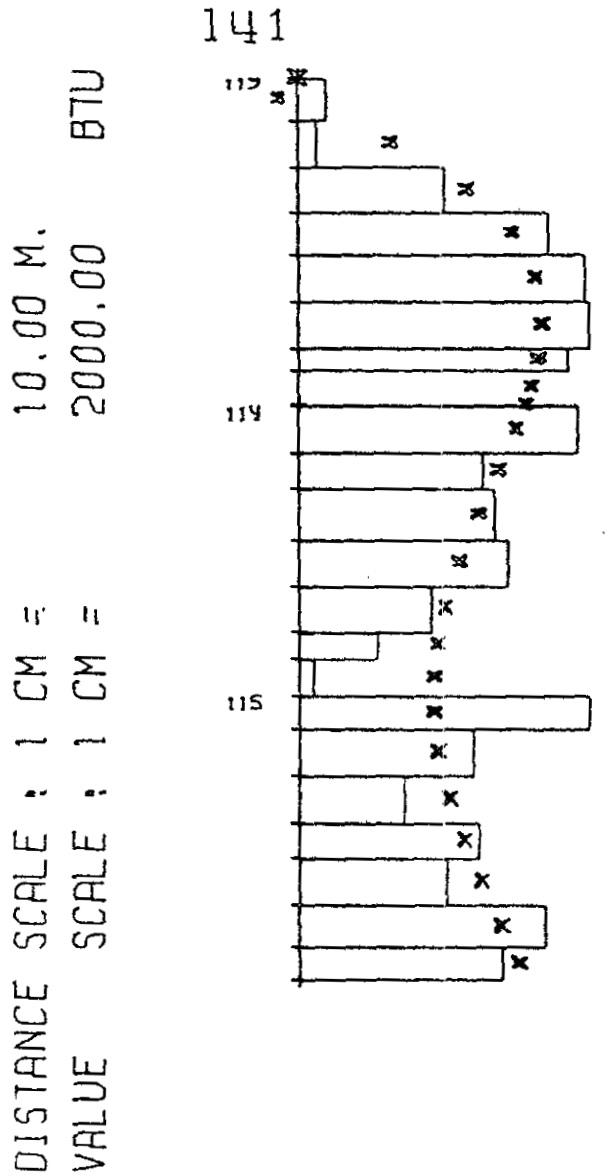


Figure 4 - Hole 141 regrouping subzones A3, A4, A5

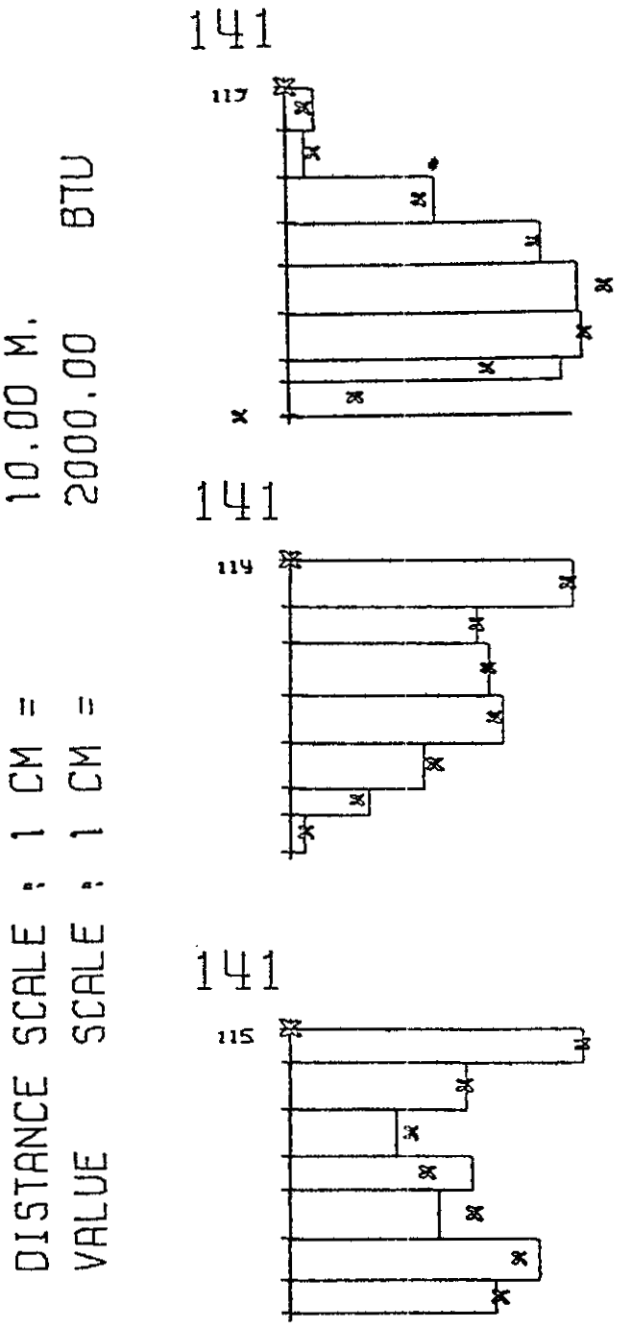


Figure 5 - Hole 141 separate profiles of subzones A3, A4 and A5

2.2 Zone B

This zone was unaffected by subzone limits and sample limits reevaluations. Both subzones B1 and B2 (211 and 212) will be considered together in a single group.

2.3 Zone C

As was the case with zone A, this zone was given a new subzone (C4). This addition is the result of a redefinition of the limits of zone C22 (old designation) which has consequently been split up in two new subzones, C3 and C4.

Because of the low grade of subzone C1 (311) zone C was divided into two groups: one group involving subzones C2, C3 and C4 (321, 322, 323) and the other one with subzone C1 by itself.

2.4 Zone D

This zone is the better defined zone of all four and was not affected by the sample limits redefinitions. As was suggested by Dr. Rendu in his report zone D was considered as one single unit including all four subzones D1, D2, D3 and D4 (411, 412, 413, 414).

3 - VARIOGRAM COMPUTATIONS

We have computed variograms for all but one subzone group, namely group 7 containing subzone C1 because due to the paucity of samples it was impossible to fit a 4th order polynomial on more than half the holes. This left us with too few data points to compute a variogram.

Only holes west of 6100 were considered in the variogram computations and of these only those that intersected completely a group were kept.

The mean of the boreholes for all groups shows an isotropic spherical model in zone A while an anisotropic linear model is better suited for zones B, C and D. As was found by Dr. Rendu in his report the variograms for the polynomial coefficients are proportional to each other with the exception of the first coefficient which generally shows a different behaviour. Fortunately this is of no consequence, as in the block estimation phase this coefficient is computed from the other estimated coefficients.

3.1 Zone A

This zone has been divided into 5 groups. Variograms were computed for each group.

3.1.1 Group 1 (41-A2)

Holes that intersect subzones A1 and A2 are listed in Table 3 while holes that intersect only A2 are given in Table 4. These list should be viewed very carefully as there is generally no sure indication that the first samples belonging to A1 are truly the samples at the beginning of the subzone.

A single isotropic spherical model may be used to explain the spatial continuity of the borehole mean in group 1. The equation is:

$$\gamma(h) = C\left(1.5\,\frac{h}{300} - 0.5\left(\frac{h}{300}\right)^3\right) \qquad \text{for } h < 300$$

$$= C \qquad \text{for } h \geq 300$$

where $C = 2.2 * 10^6$

For the polynomial coefficients a single spherical model with the following equation may be used.

$$\gamma(h) = 0.2\ C \qquad \text{for } h = 0$$

$$= 0.2\ C + 0.8\ C\left(1.5\,\frac{h}{375} - 0.5\left(\frac{h}{375}\right)^3\right) \qquad \text{for } h < 375$$

$$= C \qquad \text{for } h \geq 375$$

where C = the variance of the polynomial coefficient.

•10025	6124.9	23765.5	897.0	5739.	48.31	0.56	1.56	33.2	0.0	0.	28.8 112
•10037	6033.0	23448.3	786.7	5632.	48.68	0.57	1.55	41.0	0.0	0.	34.4 111
•10044	5800.7	23448.3	799.4	6007.	45.55	0.65	1.54	32.1	0.0	0.	26.1 112
•10048	5805.3	22724.7	837.8	3736.	32.82	0.30	1.67	25.8	0.0	0.	25.7 111
•10106	5858.5	23761.2	853.9	7363.	36.58	0.67	1.47	24.0	0.0	0.	24.0 111
•10135	5929.5	23634.4	820.4	5778.	47.02	0.55	1.54	25.5	0.0	0.	25.5 111
•10136	5949.1	23924.8	836.6	7364.	35.32	0.82	1.47	25.0	0.0	0.	25.0 112
•10141	5643.9	23469.8	948.5	4446.	57.06	0.36	1.62	21.3	0.0	0.	21.3 111
•10144	6249.9	23466.8	877.6	8296.	29.05	0.80	1.42	26.4	0.0	0.	26.4 112
•10145	5945.0	23465.6	792.0	5722.	43.72	0.60	1.51	30.5	0.0	0.	30.5 111
•10149	5795.9	23163.1	776.1	4694.	56.26	0.41	1.61	51.2	0.0	0.	51.1 112
•10155	5939.2	23771.1	838.9	6632.	41.73	0.45	1.51	24.6	0.0	0.	24.6 111
•10236	5635.4	23163.0	962.3	3224.	65.51	0.58	1.67	49.2	0.0	0.	49.2 111
•10238	5643.0	23309.9	904.9	4410.	56.03	0.55	1.61	31.6	0.0	0.	31.6 112
•10239	5651.9	22854.2	962.5	3561.	65.13	0.34	1.66	28.0	0.0	0.	28.0 111
•10242	5779.9	23623.8	831.5	6491.	41.75	0.68	1.52	34.0	0.0	0.	33.9 112
•10246	5789.4	22860.9	816.9	2966.	68.31	0.40	1.70	73.3	0.0	0.	73.3 112
•10247	5939.6	24091.3	907.8	6667.	39.93	0.84	1.49	22.9	0.0	0.	22.9 111
•10250	5797.7	23322.6	786.5	5669.	48.14	0.70	1.55	39.3	0.0	0.	39.1 112
•10251	6189.2	23328.6	796.0	4519.	57.31	0.28	1.61	43.5	0.0	0.	38.0 111
—10253	5637.5	23008.1	976.3	0.	0.00	0.00	2.00	10.2	0.0	0.	10.2 111
•10255	5914.2	23185.7	707.1	5773.	47.19	0.48	1.54	44.7	0.0	0.	44.4 112
•10256	5636.9	22555.2	980.3	5107.	52.65	0.00	1.60	27.1	0.0	0.	27.1 111
—10261	5784.8	23928.3	910.2	5047.	52.24	0.59	1.58	34.7	0.0	0.	34.7 112
•10262	6096.8	23621.6	858.1	4536.	56.64	0.42	1.60	55.4	0.0	0.	55.4 111
•10274	6104.1	23774.6	914.8	4238.	55.30	0.40	1.62	45.8	0.0	0.	45.8 111
•10278	5923.6	23010.5	681.9	4227.	59.78	0.48	1.63	52.8	0.0	0.	52.6 112
•10281	5982.5	23318.7	715.6	6571.	42.04	0.65	1.51	35.8	0.0	0.	35.8 112
10283	6657.0	23997.1	859.6	2662.	43.92	0.56	1.53	26.5	0.0	0.	24.9 111

TABLE 3

List of complete holes intersecting group 1 (A1-A2)

10045	5490.7	22276.5	994.5	0.	0.00	0.00	2.00	0.9	0.0	0.	0.9 112
10052	5519.9	22740.8	990.6	1911.	34.43	0.37	1.80	20.5	0.0	0.	20.5 112
10191	5940.9	24227.9	882.9	2604.	67.62	0.75	1.71	3.7	0.0	0.	3.7 112
10203	6247.1	23583.8	914.9	8091.	28.05	0.73	1.44	21.4	0.0	0.	21.4 112
10258	5923.1	22568.1	719.9	10264.	16.67	0.76	1.33	20.3	0.0	1.	17.9 111
10263	6106.2	23923.0	929.6	8080.	9.99	0.25	1.73	19.2	0.0	0.	17.4 112
10267	6044.7	24071.5	911.9	8122.	31.11	0.71	1.44	25.3	0.0	0.	22.9 112
10285	6648.2	23997.1	857.0	7344.	36.58	0.00	1.48	30.2	0.0	0.	24.8 112
10286	6681.0	23989.2	855.5	0.	0.00	0.00	2.00	10.0	0.0	0.	8.2 111

TABLE 4

List of incomplete holes intersecting group 1 (A1-A2)

3.1.2 Group 2 (A3)

The list of complete holes is given in Table 5 while the incomplete holes are listed in Table 6.

The variograms are not very well defined because of the relatively small number of holes available but a spherical model can be fitted on both the mean and the polynomial coefficients.

For the mean we have:

$$\gamma(h) = C\left(1.5 * \frac{h}{300} - 0.5 * \left(\frac{h}{300}\right)^3\right) \quad \text{for } h < 300$$

$$= C \quad \text{for } h \geq 300$$

where $C = 6.6 * 10^5$

For the coefficients:

$$\gamma(h) = 0.2\ C \quad \text{for } h = 0$$

$$= 0.2\ C + 0.8\ C\left(1.5\ \frac{h}{300} - 0.5\ \left(\frac{h}{300}\right)^3\right) \quad \text{for } h < 300$$

$$= C \quad \text{for } h \geq 300$$

where C is the variance of the polynomial coefficient.

10025	6141.5	23765.5	868.2	5165.	52.87	0.64	1.59	28.1	0.0	0.	24.3 113
10037	6073.5	23448.2	724.1	4395.	58.25	0.51	1.63	49.8	0.0	0.	42.0 113
10044	5782.1	23448.3	773.2	5843.	45.58	0.47	1.55	29.6	0.0	0.	25.0 113
10045	5490.7	22276.5	993.6	2326.	51.96	0.21	1.81	32.3	0.0	0.	32.3 113
10048	5805.5	22733.6	745.4	2275.	70.99	0.30	1.72	44.9	0.0	0.	44.7 113
10052	5519.9	22740.8	970.1	2428.	70.97	0.31	1.73	48.4	0.0	0.	48.4 113
10106	5853.5	23762.7	801.9	4558.	55.94	0.45	1.62	30.8	0.0	0.	30.6 113
10120	5837.6	23768.0	924.9	3238.	65.27	0.37	1.68	28.3	0.0	0.	28.3 113
10135	5928.4	23635.1	768.0	5163.	51.00	0.55	1.58	30.4	0.0	0.	30.4 113
10136	5948.8	23925.0	811.6	4880.	54.85	0.49	1.61	33.5	0.0	0.	33.5 113
10141	5643.1	23470.2	896.7	3905.	61.97	0.26	1.65	42.7	0.0	0.	42.6 113
10144	6249.8	23467.0	851.2	5591.	48.47	0.55	1.56	44.5	0.0	0.	44.5 113
10145	5943.4	23465.1	729.7	4367.	56.44	0.49	1.61	35.2	0.0	0.	35.2 113
10149	5797.9	23165.1	724.9	4130.	59.30	0.67	1.64	36.4	0.0	0.	36.4 113
10155	5941.8	23771.8	788.5	4905.	53.66	0.42	1.60	29.9	0.0	0.	29.9 113
10191	5940.9	24227.9	879.2	4089.	59.79	0.51	1.65	29.9	0.0	0.	29.8 113
10203	6247.1	23583.8	893.5	5940.	46.19	0.60	1.54	36.8	0.0	0.	36.7 113
10236	5631.6	23163.8	860.3	4443.	55.85	0.51	1.61	30.7	0.0	0.	30.7 113
10238	5641.3	23309.8	873.3	4597.	54.37	0.50	1.60	32.1	0.0	0.	32.1 113
10239	5651.4	22855.3	864.4	2917.	67.03	0.39	1.69	38.0	0.0	0.	38.0 113
10242	5778.3	23623.2	797.6	4856.	53.63	0.42	1.60	31.8	0.0	0.	31.7 113
10246	5789.0	22861.1	743.6	3417.	64.98	0.37	1.68	36.7	0.0	0.	36.7 113
10247	5938.5	24090.7	860.7	5857.	46.00	0.46	1.53	34.4	0.0	0.	34.4 113
10250	5796.0	23325.7	747.4	4935.	53.32	0.39	1.59	35.2	0.0	0.	34.9 113
10251	6232.8	23332.4	718.9	2003.	76.16	0.21	1.76	43.7	0.0	0.	37.9 113
10253	5638.6	23010.7	850.3	3230.	65.64	0.30	1.68	32.5	0.0	0.	32.5 113
10255	5910.4	23189.6	662.7	4249.	58.59	0.60	1.62	36.5	0.0	0.	36.2 113
10256	5637.0	22555.3	922.4	1955.	73.10	0.19	1.75	43.8	0.0	0.	43.8 113
10257	5585.2	23166.6	922.1	4192.	58.87	0.35	1.63	32.9	0.0	0.	29.1 113
10261	5785.2	23929.3	875.6	6751.	40.48	0.68	1.50	39.9	0.0	0.	39.9 113
10262	6096.9	23624.8	766.9	4361.	57.84	0.58	1.62	54.7	0.0	0.	54.7 113
10263	6114.3	23923.1	912.2	4169.	59.63	0.66	1.64	38.1	0.0	0.	34.5 113
10267	6055.4	24071.6	889.0	4243.	58.87	0.75	1.63	33.0	0.0	0.	29.9 113
10274	6101.6	23775.6	841.9	3348.	65.21	0.52	1.67	47.3	0.0	0.	47.3 113
10278	5919.4	23012.4	629.3	3944.	61.79	0.41	1.64	36.7	0.0	0.	36.6 113
10281	5982.8	23319.3	679.8	4236.	58.91	0.46	1.62	41.5	0.0	0.	41.5 113
10285	6630.8	23997.1	832.3	7039.	39.09	0.39	1.49	35.0	0.0	0.	27.9 113

TABLE 5

List of complete holes intersecting group 2 (A3)

10038	5962.0	24372.4	879.9	3543.	60.28	0.26	1.64	20.0	0.0	0.	17.3 113
10199	6109.4	24241.3	906.7	5455.	50.79	0.59	1.57	29.3	0.0	0.	29.3 113
10259	5616.7	23459.1	956.1	150.	2.70	0.02	1.98	23.5	0.0	0.	21.3 113
10260	5483.0	22554.5	1005.7	1310.	45.06	0.22	1.83	28.1	0.0	0.	28.1 113
10283	6632.3	23997.1	793.9	2489.	47.19	0.80	1.56	2.5	0.0	1.	2.3 113
10285	6630.8	23997.1	832.3	7039.	39.09	0.39	1.49	35.0	0.0	0.	27.9 113

TABLE 6

List of incomplete holes intersecting group 2 (A3)

3.1.3 Group 3 (A4)

Tables 7 and 8 list the holes that intersect subzone A4. The variograms in this group are better defined than in the preceeding one and can be modeled as follows.

For the mean of boreholes, anisotropic spherical model of equation:

$$\gamma(h) = C\left(1.5\,\frac{h}{375} - 0.5\left(\frac{h}{375}\right)^3\right) \qquad \text{for } h < 375$$

$$= C \qquad \text{for } h \geq 375$$

The variograms for the polynomial coefficients being proportional to each other a single spherical model can be fitted with the following equation:

$$\gamma(h) = 0.2\,C \qquad \text{for } h = 0$$

$$= 0.2\,C + 0.8\,C\left(1.5\,\frac{h}{300} - 0.5\left(\frac{h}{300}\right)^3\right) \qquad \text{for } h < 300$$

$$= C \qquad \text{for } h \geq 300$$

where C is the variance of the coefficient.

10025	6155.5	23765.5	843.9	4380.	58.49	0.59	1.63	46.8	0.0	0.	39.6	114
10037	6100.2	23448.2	682.1	5960.	45.43	0.62	1.53	48.8	0.0	0.	41.2	114
10038	5972.0	24372.4	862.6	5407.	48.64	0.44	1.56	42.5	0.0	0.	36.8	114
10044	5766.2	23448.2	748.3	5004.	51.73	0.34	1.58	41.4	0.0	0.	35.5	114
10045	5490.7	22276.5	961.3	1225.	81.18	0.15	1.80	61.6	0.0	0.	61.6	114
10048	5805.6	22738.0	700.7	3010.	69.55	0.25	1.71	62.4	0.0	0.	62.1	114
10052	5519.9	22740.8	921.5	1706.	77.72	0.26	1.77	65.1	0.0	0.	65.1	114
10106	5858.6	23765.9	771.2	6407.	42.95	0.57	1.53	34.1	0.0	0.	33.9	114
10120	5637.6	23768.0	896.6	5129.	49.72	0.66	1.57	26.2	0.0	0.	26.2	114
10135	5927.7	23635.5	737.6	6413.	43.28	0.58	1.52	37.9	0.0	0.	37.9	114
10136	5948.3	23925.3	778.1	6980.	39.44	0.57	1.50	32.6	0.0	0.	32.6	114
10141	5640.7	23471.3	854.0	4185.	57.74	0.33	1.63	37.8	0.0	0.	37.7	114
10144	6249.7	23467.3	806.7	5167.	52.78	0.45	1.59	61.9	0.0	0.	61.9	114
10145	5942.6	23464.8	694.5	6280.	44.47	0.55	1.52	43.3	0.0	0.	43.3	114
10149	5799.2	23166.5	688.6	3859.	62.97	0.40	1.66	54.4	0.0	0.	54.3	114
10191	5940.2	24226.0	849.4	7065.	37.32	0.60	1.48	33.8	0.0	0.	33.7	114
10199	6109.4	24241.3	877.4	6020.	46.51	0.72	1.53	34.7	0.0	0.	34.7	114
10203	6249.3	23585.3	856.8	6015.	45.99	0.52	1.54	50.6	0.0	0.	50.4	114
10236	5630.0	23164.2	829.7	3371.	62.98	0.35	1.66	55.8	0.0	0.	55.7	114
10238	5639.7	23309.6	841.2	3554.	63.52	0.35	1.66	52.3	0.0	0.	52.3	114
10239	5651.2	22855.9	826.4	2335.	70.72	0.25	1.72	59.0	0.0	0.	59.0	114
10242	5775.7	23622.2	765.9	6140.	44.79	0.45	1.53	39.4	0.0	0.	39.3	114
10246	5788.5	22861.4	706.9	2403.	72.40	0.25	1.73	57.3	0.0	0.	57.3	114
10247	5937.0	24089.8	826.4	6995.	38.79	0.58	1.49	32.0	0.0	0.	32.0	114
10250	5792.3	23328.9	712.6	4569.	56.85	0.38	1.61	46.8	0.0	0.	46.4	114
10251	6254.5	23335.1	681.0	4148.	59.33	0.58	1.64	36.0	0.0	0.	31.3	114
10253	5639.0	23011.7	817.3	2275.	72.80	0.26	1.73	60.0	0.0	0.	60.0	114
10255	5907.2	23192.8	626.5	4775.	55.56	0.48	1.60	50.4	0.0	0.	49.9	114
10256	5637.4	22555.9	878.5	1310.	81.15	0.14	1.80	54.2	0.0	0.	54.2	114
10257	5569.9	23169.3	893.0	3205.	65.18	0.29	1.68	53.6	0.0	0.	47.3	114
10259	5606.7	23459.1	934.8	4580.	56.40	0.54	1.60	45.5	0.0	0.	41.9	114
10260	5483.0	22554.5	977.6	2972.	67.59	0.17	1.71	65.3	0.0	0.	65.3	114
10261	5786.0	23931.2	835.7	6786.	40.06	0.66	1.50	48.0	0.0	0.	47.9	114
10262	6096.9	23626.7	712.2	5714.	47.21	0.70	1.55	49.3	0.0	0.	49.3	114
10263	6130.5	23923.1	877.7	4940.	54.00	0.54	1.59	44.4	0.0	0.	40.3	114
10267	6069.4	24071.6	859.0	5270.	51.01	0.57	1.57	44.0	0.0	0.	40.2	114
10274	6099.6	23776.3	794.6	5286.	51.53	0.49	1.57	83.7	0.0	0.	83.7	114
10278	5916.5	23013.8	592.7	3641.	64.31	0.35	1.66	51.4	0.0	0.	51.2	114
10281	5983.2	23319.9	638.3	6053.	46.95	0.59	1.53	47.1	0.0	0.	47.1	114
10285	6609.7	23996.7	804.4	7020.	39.41	0.73	1.49	24.0	0.0	0.	18.8	114

TABLE 7

List of complete holes intersecting group 3 (A4)

10155	5943.3	23772.2	758.6	5723.	48.30	0.43	1.56	35.6	0.0	1.	35.6	114
10196	5944.2	24541.0	910.6	5678.	48.00	0.48	1.56	5.5	0.0	0.	5.5	114
10205	5804.6	24228.2	912.5	2679.	68.42	0.76	1.72	13.4	0.0	0.	13.4	114
10206	6365.3	23467.2	895.0	7002.	34.96	1.22	1.47	44.4	0.0	1.	35.2	114
10227	6701.3	24536.3	841.0	9985.	17.79	0.90	1.34	8.2	0.0	0.	8.2	114
10243	5484.3	22859.4	908.9	3404.	64.51	0.35	1.67	19.6	0.0	0.	19.6	114
10254	5488.8	23012.3	929.9	2497.	72.58	0.27	1.73	47.8	0.0	0.	47.8	114
10279	5570.5	23316.0	881.1	927.	84.16	0.11	1.83	13.9	0.0	0.	13.4	114
10285	6609.7	23996.7	804.4	7020.	39.41	0.73	1.49	24.0	0.0	0.	18.8	114

TABLE 8

List of incomplete holes intersecting group 3 (A4)

3.1.4 Group 4 (A5)

Complete and incomplete holes are listed in Tables 9 and 10 respectively.

For the borehole mean, the equation of the spherical model is:

$$\gamma(h) = C\left(1.5\,\frac{h}{375} - 0.5\left(\frac{h}{375}\right)^3\right) \qquad \text{for } h < 375$$

$$= C \qquad \text{for } h \geq 375$$

where $C = 1.1 * 10^6$

For the polynomial coefficients although, a slight anisotropy exists between N-S and E-W direction, a single isotropic spherical model fits reasonnably well.

$$\gamma(h) = 0.2\ C \qquad \text{for } h = 0$$

$$= 0.2\ C + 0.8\ C\left(1.5\,\frac{h}{300} - 0.5\left(\frac{h}{300}\right)^3\right) \qquad \text{for } h < 300$$

$$= C \qquad \text{for } h \geq 300$$

where C is the variance of the coefficient.

10025	6180.5	23765.4	804.3	4279.	57.29	0.62	1.63	42.0	0.0	0.	35.2 115
10037	6126.5	23448.2	641.0	6018.	45.91	0.65	1.55	43.8	0.0	0.	37.6 115
10038	5993.2	24372.3	825.8	5551.	49.51	0.75	1.57	50.9	0.0	0.	44.1 115
10044	5744.9	23448.3	712.8	5403.	48.19	0.74	1.56	35.9	0.0	0.	30.8 115
10045	5490.7	22276.5	899.6	1211.	83.67	0.15	1.83	52.6	0.0	0.	52.6 115
10048	5805.7	22743.9	638.5	2563.	69.98	0.34	1.72	42.4	0.0	0.	42.2 115
10052	5519.9	22741.2	856.5	2810.	68.98	0.51	1.71	38.2	0.0	0.	38.2 115
10106	5858.6	23769.5	737.3	6511.	42.77	0.66	1.52	38.8	0.0	0.	38.6 115
10120	5638.1	23768.0	870.4	5248.	50.67	0.61	1.58	36.3	0.0	0.	36.2 115
10135	5927.0	23636.0	699.7	6225.	44.40	0.70	1.53	41.3	0.0	0.	41.3 115
10136	5947.9	23925.6	745.5	6775.	40.82	0.72	1.51	40.5	0.0	0.	40.5 115
10141	5639.7	23472.4	816.3	4839.	54.68	0.61	1.61	37.2	0.0	0.	37.1 115
10144	6249.5	23467.8	744.8	4054.	58.66	0.47	1.64	78.6	0.0	0.	78.6 115
10145	5941.1	23465.1	651.2	6033.	45.33	0.81	1.54	45.7	0.0	0.	45.6 115
10149	5801.1	23168.8	634.2	4641.	55.46	0.60	1.61	38.4	0.0	0.	38.4 115
10191	5939.5	24223.9	815.7	5759.	47.81	0.63	1.56	42.3	0.0	0.	42.2 115
10196	5944.2	24541.0	905.1	5882.	46.64	0.66	1.54	49.0	0.0	0.	49.0 115
10199	6109.4	24241.3	842.7	4779.	55.15	0.76	1.61	45.1	0.0	0.	45.1 115
10203	6252.7	23587.8	806.4	4910.	53.57	0.57	1.59	57.8	0.0	0.	57.6 115
10205	5804.6	24228.2	899.1	6025.	45.31	0.77	1.54	40.2	0.0	0.	40.2 115
10236	5627.2	23164.9	773.9	4673.	55.34	0.48	1.61	30.2	0.0	0.	30.2 115
10238	5637.0	23309.2	789.0	4960.	52.89	0.59	1.59	32.0	0.0	0.	32.0 115
10242	5772.5	23620.8	726.6	6044.	45.40	0.53	1.54	38.8	0.0	0.	38.7 115
10243	5484.4	22859.1	889.2	2649.	70.10	0.23	1.72	39.2	0.0	0.	39.2 115
10246	5787.7	22862.0	649.6	3279.	64.57	0.46	1.68	38.5	0.0	0.	38.5 115
10247	5935.6	24088.9	794.4	6021.	45.88	0.65	1.55	40.7	0.0	0.	40.7 115
10250	5787.4	23333.2	666.2	5748.	48.95	0.59	1.56	36.8	0.0	0.	36.4 115
10256	5638.0	22556.7	824.3	2147.	74.29	0.25	1.75	40.7	0.0	0.	40.7 115
10257	5545.1	23173.7	845.7	3668.	62.42	0.40	1.67	26.6	0.0	0.	23.5 115
10259	5539.1	23458.1	892.9	5506.	50.21	0.55	1.56	39.5	0.0	0.	36.6 115
10260	5483.5	22554.8	912.3	2297.	73.61	0.21	1.75	40.8	0.0	0.	40.8 115
10261	5787.0	23933.5	787.7	2299.	74.33	0.25	1.75	27.5	0.0	0.	27.5 115
10262	6097.0	23628.4	662.9	6546.	42.79	0.72	1.52	46.6	0.0	0.	46.6 115
10263	6149.2	23923.0	837.4	4859.	54.49	0.61	1.60	45.2	0.0	0.	41.0 115
10267	6087.0	24074.7	818.8	3669.	62.91	0.49	1.66	78.2	0.0	0.	71.5 115
10274	6096.7	23776.1	710.9	5728.	47.95	0.71	1.55	67.3	0.0	0.	67.3 115
10278	5912.4	23015.7	541.5	4800.	56.58	0.56	1.60	35.2	0.0	0.	35.1 115
10281	5982.6	23322.0	591.3	6218.	44.79	0.69	1.52	49.6	0.0	0.	49.5 115

TABLE 9

List of complete holes intersecting group 4 (A5)

10026	6624.6	24130.9	862.2	6279.	44.15	0.59	1.53	16.1	0.0	0.	13.2 115
10162	6694.6	24687.2	833.2	7202.	38.72	0.58	1.50	15.9	0.0	0.	15.9 115
10174	6529.5	23918.8	863.3	7697.	32.44	0.78	1.45	13.4	0.0	0.	10.3 115
10200	5626.9	23919.5	980.8	9372.	48.39	0.64	1.55	20.7	0.0	0.	20.7 115
10227	6701.3	24536.3	832.8	7237.	36.03	0.65	1.47	34.7	0.0	0.	34.7 115
10235	6520.3	24075.8	863.1	8883.	24.62	1.66	1.39	14.2	0.0	0.	14.2 115
10239	5649.5	22856.3	767.4	2138.	67.47	0.44	1.69	35.3	0.0	1.	35.3 115
10251	6272.2	23337.2	649.8	4700.	55.74	0.40	1.61	37.8	0.0	1.	33.1 115
10253	5639.1	23013.2	757.8	3320.	65.77	0.36	1.68	32.9	0.0	1.	32.9 115
10254	5488.8	23012.3	882.1	2644.	68.74	0.25	1.71	30.6	0.0	1.	30.6 115
10255	5901.6	23196.7	576.6	4498.	56.83	0.53	1.61	37.6	0.0	1.	37.0 115
10266	5711.0	24075.8	935.7	6853.	29.88	0.73	1.51	14.6	0.0	0.	13.7 115
10279	5597.2	23314.8	979.5	2929.	66.39	0.32	1.68	23.5	0.0	0.	22.7 115
10285	6594.7	23996.1	785.6	9421.	22.16	0.70	1.37	23.7	0.0	0.	18.5 115
10289	5779.3	24382.1	935.3	6006.	41.20	1.16	1.51	11.8	0.0	0.	11.8 115

TABLE 10

List of incomplete holes intersecting group 4 (A5)

3.1.5 Group 5 (A6)

Holes completely intersecting subzone A6 are listed in Table 11 while Table 12 gives the incomplete ones.

A spherical model for the borehole mean has the following equation:

$$\gamma(h) = C\left(1.5\,\frac{h}{300} - 0.5\left(\frac{h}{300}\right)^3\right) \qquad \text{for } h < 300$$

$$= C \qquad \text{for } h \geq 300$$

where $C = 2.15 * 10^6$

For the polynomial coefficients the following spherical model is used.

$$\gamma(h) = 0.2\ C \qquad \text{for } h = 0$$

$$= 0.2\ C + 0.8\ C\left(1.5\,\frac{h}{350} - 0.5\left(\frac{h}{350}\right)^3\right) \qquad \text{for } h < 350$$

$$= C \qquad \text{for } h \geq 350$$

where C is the variance of the polynomial coefficient.

10025	6203.4	23765.4	769.1	2858.	68.19	0.38	1.71	12.4	0.0	0.	10.4 121
10037	6149.0	23448.2	603.4	2870.	70.57	0.16	1.73	22.3	0.0	0.	19.5 121
10038	6018.7	24372.4	781.7	4036.	71.46	0.14	1.73	16.6	0.0	0.	14.4 121
10044	5726.4	23448.2	682.0	1365.	83.55	0.00	1.83	41.2	0.0	0.	35.3 121
10045	5490.7	22276.9	847.0	45.	91.17	0.00	1.88	25.3	0.0	0.	25.3 121
10048	5805.7	22748.0	596.3	108.	89.55	0.00	1.87	79.3	0.0	0.	79.0 121
10106	5858.7	23773.5	698.7	1966.	74.05	0.15	1.75	20.3	0.0	0.	20.2 121
10120	5640.5	23768.2	834.2	1174.	81.79	0.18	1.81	81.9	0.0	0.	81.8 121
10135	5926.1	23636.5	658.4	1365.	80.01	0.18	1.80	25.5	0.0	0.	25.5 121
10136	5947.4	23926.0	705.0	2755.	67.93	0.38	1.71	19.2	0.0	0.	19.2 121
10141	5636.6	23473.3	779.1	266.	88.77	0.02	1.86	43.2	0.0	0.	43.1 121
10144	6249.8	23468.1	666.2	1485.	79.89	0.19	1.79	33.0	0.0	0.	33.0 121
10174	6520.9	23918.9	852.9	3596.	64.34	0.44	1.69	5.3	0.0	0.	4.3 121
10191	5938.5	24221.1	773.4	2201.	72.15	0.40	1.74	23.2	0.0	0.	23.2 121
10196	5944.2	24541.0	856.1	2378.	71.99	0.23	1.74	15.6	0.0	0.	15.6 121
10199	6109.3	24241.1	797.6	1008.	84.00	0.11	1.82	21.4	0.0	0.	21.4 121
10200	5626.9	23919.5	960.0	1613.	74.76	0.17	1.76	25.0	0.0	0.	25.0 121
10203	6256.8	23590.6	748.8	2771.	69.57	0.38	1.72	28.4	0.0	0.	28.0 121
10205	5804.6	24228.2	858.9	3059.	68.78	0.20	1.71	18.0	0.0	0.	18.0 121
10236	5625.8	23165.6	743.8	132.	91.86	0.01	1.89	68.3	0.0	0.	68.2 121
10238	5635.2	23309.1	757.0	84.	89.80	0.01	1.87	62.5	0.0	0.	62.4 121
10242	5769.4	23619.6	688.0	1280.	81.48	0.12	1.80	29.5	0.0	0.	29.4 121
10246	5787.1	22862.4	611.1	28.	92.72	0.00	1.90	74.0	0.0	0.	74.0 121
10247	5933.9	24087.8	753.8	2606.	68.80	0.38	1.71	19.6	0.0	0.	19.6 121
10250	5783.5	23336.5	629.7	76.	89.09	0.01	1.87	55.2	0.0	0.	54.7 121
10256	5638.4	22557.3	783.6	0.	93.00	0.00	1.90	60.3	0.0	0.	60.3 121
10257	5532.8	23175.8	822.2	200.	90.00	0.00	1.83	37.1	0.0	0.	33.3 121
10260	5484.2	22555.0	871.4	83.	92.07	0.00	1.89	43.6	0.0	0.	43.6 121
10261	5787.6	23934.8	760.3	6782.	39.63	0.53	1.50	53.7	0.0	0.	53.6 121
10262	6097.0	23630.1	616.3	2328.	73.12	0.26	1.75	23.1	0.0	0.	23.1 121
10263	6168.3	23923.1	796.4	2086.	74.48	0.20	1.75	16.6	0.0	0.	15.0 121
10266	5706.0	24075.8	922.0	1960.	73.99	0.36	1.75	16.0	0.0	0.	15.0 121
10267	6118.3	24080.3	747.4	2859.	68.96	0.29	1.72	16.8	0.0	0.	15.4 121
10274	6094.3	23775.9	643.7	1367.	81.04	0.16	1.80	24.5	0.0	0.	24.5 121
10279	5591.2	23314.7	956.8	250.	88.75	0.07	1.86	78.5	0.0	0.	75.7 121
10289	5779.3	24382.1	923.5	1948.	76.96	0.24	1.77	12.8	0.0	0.	12.8 121

TABLE 11

List of complete holes intersecting group 5 (A6)

10026	6633.9	24131.0	849.1	3712.	62.74	0.24	1.67	5.0	0.0	0.	4.1 121
10052	5519.9	22743.2	818.4	28.	50.98	0.00	1.93	107.6	0.0	1.	107.5 121
10145	5939.0	23466.4	605.6	0.	0.00	0.00	2.00	16.1	0.0	1.	16.1 121
10147	6402.9	23615.2	892.9	0.	0.00	0.00	2.00	7.9	0.0	0.	7.9 121
10149	5802.0	23170.7	595.9	25.	0.11	0.00	2.00	71.3	0.0	1.	71.2 121
10195	5637.8	23622.2	980.8	0.	0.00	0.00	2.00	98.7	0.0	0.	98.4 121
10201	6552.3	24228.8	860.4	7514.	34.56	0.57	1.47	5.2	0.0	0.	5.2 121
10243	5483.6	22859.9	974.6	816.	62.43	0.03	1.81	65.7	0.0	0.	65.7 121
10254	5488.8	23012.3	984.0	154.	0.85	0.01	1.98	54.0	0.0	0.	54.0 121
10259	5628.6	23459.2	981.7	0.	0.00	0.00	2.00	28.2	0.0	0.	25.6 121
10275	6167.9	24073.7	882.7	3219.	64.70	0.47	1.68	13.8	0.0	0.	13.0 121
10278	5909.6	23017.0	506.4	0.	0.00	0.00	2.00	12.2	0.0	1.	12.2 121
10281	5981.8	23324.7	541.7	1313.	80.19	0.14	1.80	20.4	0.0	0.	20.4 121

TABLE 12

List of incomplete holes intersecting group 5 (A6)

3.2 Zone B (group 6)

Complete and incomplete holes are listed in Tables 13 and 14 respectively. The variogram for the mean is not spherical as were the ones for the groups in Zone A. Like the following zones C and D it is an anisotropic linear model.

For the borehole mean the linear model is

$$\gamma(h) = C \frac{h}{200}$$

$$\text{where } h = \left((x_1 - x_0)^2 + (y_1 - y_0)^2 \left(\frac{200}{700}\right)^2 \right)^{1/2}$$

$$C = 1.85 * 10^6$$

For the polynomial coefficients a single spherical model is best suited:

$$\gamma(h) = 0.2\ C \qquad \text{for } h = 0$$

$$= 0.2\ C + 0.8\ C \left(1.5 \frac{h}{450} - 0.5 \left(\frac{h}{450}\right)^3 \right) \qquad \text{for } h < 450$$

$$= C \qquad \text{for } h \geq 450$$

where C is the variance of the coefficient.

10025	6223.6	23765.4	738.0	7775.	33.80	0.61	1.46	32.3	0.0	0.
10026	6636.7	24131.0	845.0	5255.	50.37	0.20	1.58	33.2	0.0	0.
10037	6173.3	23448.2	559.5	7046.	38.13	0.66	1.49	37.5	0.0	0.
10038	6027.0	24372.4	767.3	7919.	31.38	0.54	1.44	34.9	0.0	0.
10044	5691.0	23448.3	623.0	4034.	59.83	0.53	1.65	21.0	0.0	0.
10045	5490.7	22277.3	821.7	1402.	79.80	0.00	1.80	31.2	0.0	0.
10048	5805.9	22755.6	517.3	3077.	66.70	0.35	1.70	38.6	0.0	0.
10106	5858.7	23775.7	678.5	7440.	35.07	0.77	1.47	47.0	0.0	0.
10120	5646.3	23768.5	743.9	4984.	54.48	0.77	1.60	39.0	0.0	0.
10128	6709.8	24381.6	840.2	1635.	5.42	0.09	1.86	27.1	0.0	0.
10134	5483.8	23157.2	807.2	4028.	59.66	0.93	1.65	27.0	0.0	0.
10135	5925.6	23636.8	632.9	7802.	33.87	0.80	1.46	44.2	0.0	0.
10136	5946.2	23926.7	644.6	7193.	37.36	0.84	1.48	31.1	0.0	0.
10138	5931.6	24681.8	898.1	0.	0.00	0.00	2.00	38.1	0.0	0.
10140	5936.2	24681.1	856.4	8724.	26.76	0.82	1.41	8.5	0.0	1.
10141	5634.2	23474.4	736.0	5607.	49.90	0.60	1.58	37.8	0.0	0.
10147	6403.6	23615.9	842.5	8577.	28.24	1.16	1.42	27.5	0.0	0.
10153	6558.9	24691.2	853.9	9224.	24.97	0.66	1.40	0.6	0.0	0.
10162	6694.6	24687.3	817.3	8198.	28.76	0.37	1.42	25.0	0.0	0.
10168	6543.7	24382.1	843.2	8416.	29.13	0.46	1.42	44.6	0.0	0.
10174	6517.9	23919.6	848.7	9232.	22.10	0.71	1.37	47.7	0.0	0.
10181	6555.3	24535.4	848.1	7866.	32.34	0.47	1.45	35.3	0.0	0.
10183	6251.1	23922.7	904.6	8106.	29.53	1.52	1.43	35.1	0.0	0.
10190	5646.4	24234.0	954.2	6915.	37.59	1.39	1.48	36.2	0.0	0.
10191	5938.0	24219.5	750.3	7984.	31.40	0.85	1.44	32.9	0.0	0.
10193	5794.5	24537.0	903.0	6635.	41.99	0.67	1.51	23.7	0.0	0.
10196	5943.0	24542.3	803.6	7330.	36.67	0.63	1.48	28.8	0.0	0.
10199	6108.8	24240.2	776.2	8499.	28.98	0.79	1.42	53.6	0.0	0.
10200	5626.9	23919.5	913.6	4169.	57.62	0.70	1.63	36.1	0.0	0.
10201	6552.3	24228.8	855.2	9379.	22.37	0.41	1.38	42.7	0.0	0.
10205	5804.5	24226.9	809.9	6785.	39.31	0.65	1.50	35.4	0.0	0.
10226	6850.4	24690.7	812.5	5180.	53.47	0.27	1.60	9.1	0.0	0.
10227	6701.3	24536.3	764.7	8087.	31.49	0.47	1.44	35.4	0.0	0.
10233	6755.0	24536.4	831.9	8822.	25.89	0.63	1.40	25.2	0.0	0.
10235	6520.3	24075.8	802.7	8632.	27.30	0.70	1.41	45.1	0.0	0.
10242	5762.4	23618.2	622.3	5133.	51.76	0.67	1.59	35.5	0.0	1.
10246	5786.0	22862.3	537.1	3989.	60.85	0.44	1.65	39.2	0.0	0.
10247	5930.2	24086.1	699.3	7952.	33.11	0.71	1.45	27.8	0.0	0.
10250	5777.7	23340.9	575.0	5737.	47.26	0.56	1.56	30.3	0.0	0.
10259	5555.9	23455.2	810.5	4247.	57.93	0.46	1.63	29.2	0.0	0.
10260	5485.5	22555.6	789.1	2770.	71.07	0.15	1.73	21.8	0.0	0.
10262	6097.0	23631.9	548.5	7006.	39.43	0.77	1.50	35.6	0.0	0.
10263	6175.3	23923.0	781.4	8158.	29.84	0.53	1.43	38.4	0.0	0.
10265	6114.5	24384.2	875.8	7972.	30.75	0.65	1.44	32.1	0.0	0.
10266	5700.5	24075.8	906.9	6751.	39.07	0.60	1.50	18.7	0.0	0.
10267	6139.3	24084.7	701.1	7779.	36.51	0.64	1.48	26.0	0.0	0.
10274	6093.9	23776.0	619.2	7544.	35.15	0.81	1.46	39.4	0.0	0.
10275	6186.1	24073.7	833.9	7722.	33.10	0.60	1.44	36.0	0.0	0.
10279	5547.1	23318.0	795.5	4814.	54.30	0.56	1.60	29.5	0.0	0.
10289	5779.3	24382.1	874.5	6822.	40.79	0.58	1.50	24.8	0.0	0.
10290	6708.0	24836.5	841.5	8905.	25.92	0.19	1.40	26.5	0.0	0.

TABLE 13

List of complete holes intersecting group 6 (zone B)

10046	5572.6	24110.6	965.3	4897.	43.77	0.95	1.61	20.1	0.0	0.	17.4 212
10051	5476.6	23440.3	960.7	1563.	78.72	0.00	1.85	34.6	0.0	0.	34.6 212
10124	5485.5	23772.2	979.6	3597.	63.61	0.36	1.68	18.1	0.0	0.	18.1 212
10144	6250.2	23468.1	633.2	7983.	32.40	0.73	1.45	9.4	0.0	1.	9.4 211
10157	6560.2	24836.5	847.9	6993.	33.14	0.40	1.49	29.1	0.0	0.	29.1 212
10159	6712.5	24692.4	826.2	0.	0.00	0.00	2.00	8.8	0.0	1.	8.8 211
10161	5646.6	24387.6	939.1	4448.	53.05	0.99	1.60	6.5	0.0	0.	6.5 212
10195	5638.4	23627.7	882.3	0.	0.00	0.00	2.00	23.5	0.0	0.	23.4 211
10198	6104.5	24536.6	860.6	7877.	32.78	0.43	1.45	10.4	0.0	0.	10.4 212
10203	6261.2	23592.8	720.8	7438.	35.86	1.16	1.47	46.0	0.0	1.	45.3 211
10236	5622.8	23167.6	675.5	9874.	16.99	0.57	1.34	1.1	0.0	1.	1.1 211
10238	5630.9	23309.3	694.7	6576.	41.25	0.78	1.51	16.3	0.0	1.	16.3 211
10256	5637.3	22555.9	723.3	4855.	54.02	0.52	1.60	9.4	0.0	1.	9.4 211
10257	5516.5	23177.5	783.9	3638.	63.33	0.52	1.67	27.4	0.0	0.	24.8 212
10261	5789.1	23937.6	705.7	6627.	41.31	0.63	1.51	41.3	0.0	1.	41.2 211
10271	6695.9	24088.0	855.2	0.	0.00	0.00	2.00	6.3	0.0	0.	6.1 212
10292	6522.1	25000.3	843.0	7517.	35.50	0.28	1.47	13.3	0.0	0.	13.3 212

TABLE 14

List of incomplete holes intersecting group 6 (zone B)

3.3 Zone C (groups 7-8)

Because too few samples remained in group 7 (subzone C1) variograms could not be computed. The list of complete and incomplete holes intersecting group 8 are given in Tables 15 and 16 respectively.

An anisotropic linear model was fitted on the borehole mean with the following equation:

$$\gamma(h) = C \frac{h}{400}$$

$$\text{where } h = \left((x_1 - x_0)^2 + (y_0 - y_0)^2 \left(\frac{400}{1100}\right)^2 \right)^{1/2}$$

$$C = 1.66 * 10^6$$

Again the polynomial coefficients have proportional variogram that can be modeled as follows:

$$\gamma(h) = 0.2\ C \qquad \text{for } h = 0$$

$$= 0.2\ C + 0.8\ C \left(1.5 \frac{h}{750} - 0.5 \left(\frac{h}{750}\right)^3\right) \qquad \text{for } h < 750$$

$$= C \qquad \text{for } h \geq 750$$

where C = the variance of the polynomial coefficient.

10025	6262.5	23765.4	678.1	6621.	40.49	0.28	1.51	17.0	0.0	0.
10026	6690.3	24131.0	768.5	3165.	65.08	0.67	1.69	14.7	0.0	0.
10037	6216.9	23448.3	481.7	3541.	61.87	0.20	1.67	4.6	0.0	0.
10038	6065.0	24372.4	701.4	4645.	49.17	0.54	1.57	11.6	0.0	0.
10046	5643.3	24110.6	844.5	4159.	57.09	0.41	1.63	41.7	0.0	0.
10050	5496.4	24355.2	907.8	3888.	57.56	0.22	1.63	20.2	0.0	0.
10053	5357.1	23777.1	971.1	834.	84.95	0.12	1.83	29.9	0.0	0.
10106	5859.1	23791.9	523.7	5603.	48.14	0.26	1.57	7.1	0.0	0.
10120	5655.2	23769.3	617.8	2169.	73.39	0.38	1.75	31.0	0.0	0.
10124	5488.9	23773.5	836.7	6458.	43.06	0.19	1.53	18.7	0.0	0.
10128	6709.4	24383.0	732.6	5748.	47.59	1.31	1.56	13.4	0.0	0.
10135	5921.7	23639.1	517.8	3287.	64.62	0.39	1.68	26.0	0.0	0.
10136	5944.1	23927.9	566.9	4705.	52.10	0.26	1.60	12.3	0.0	0.
10138	5932.7	24680.4	821.5	6116.	46.17	0.64	1.55	18.9	0.0	0.
10147	6406.9	23619.4	781.8	6300.	44.76	0.33	1.54	9.3	0.0	0.
10153	6558.9	24691.2	807.0	7553.	36.28	0.56	1.48	4.6	0.0	0.
10157	6559.7	24836.3	798.5	7513.	33.49	0.20	1.46	4.8	0.0	0.
10158	5458.0	24080.3	937.7	1983.	72.73	0.18	1.75	27.4	0.0	0.
10161	5646.9	24386.8	852.1	4396.	57.14	0.53	1.63	20.0	0.0	0.
10162	6694.7	24690.8	751.4	7378.	35.57	0.26	1.47	4.1	0.0	0.
10164	6708.6	24232.7	802.7	3829.	61.65	0.35	1.66	26.7	0.0	1.
10168	6543.7	24382.1	791.0	7454.	35.70	0.41	1.47	4.9	0.0	0.
10172	6400.1	24229.4	839.7	7639.	34.68	0.24	1.47	10.2	0.0	0.
10174	6461.1	23930.8	769.7	7254.	34.82	0.36	1.47	2.2	0.0	0.
10181	6555.3	24535.4	803.5	7037.	39.60	0.26	1.50	4.7	0.0	0.
10183	6250.1	23920.4	745.5	5526.	48.78	0.26	1.57	35.3	0.0	1.
10190	5646.4	24234.0	859.8	3134.	65.01	0.37	1.68	25.9	0.0	0.
10191	5935.4	24210.6	644.6	5493.	47.80	0.53	1.56	17.6	0.0	0.
10193	5793.6	24537.6	862.3	4275.	57.47	0.69	1.63	18.9	0.0	0.
10196	5941.7	24543.8	744.9	5644.	46.71	0.29	1.55	13.5	0.0	0.
10198	6104.5	24536.6	841.9	6455.	41.77	0.43	1.51	29.7	0.0	0.
10199	6105.7	24234.5	638.0	6267.	43.94	0.30	1.53	18.3	0.0	0.
10200	5629.9	23917.4	804.9	1677.	77.64	0.12	1.78	17.3	0.0	0.
10201	6549.0	24235.9	741.9	6684.	39.57	0.30	1.50	11.9	0.0	0.
10202	5484.2	24234.0	938.7	2863.	69.20	0.31	1.72	24.4	0.0	0.
10205	5804.3	24225.0	737.0	5172.	51.38	0.67	1.59	16.8	0.0	0.
10208	5477.9	23923.7	864.9	1483.	78.74	0.07	1.79	16.4	0.0	0.
10226	6850.4	24691.6	764.4	3356.	66.21	0.14	1.70	11.6	0.0	0.
10227	6701.3	24536.3	712.1	8274.	29.68	0.30	1.43	5.3	0.0	0.
10235	6520.2	24075.8	750.5	5804.	47.31	0.30	1.56	10.4	0.0	0.
10247	5926.4	24084.5	652.6	4985.	53.28	0.46	1.60	19.6	0.0	0.
10263	6212.2	23923.0	710.5	6253.	43.27	0.49	1.53	16.3	0.0	0.
10265	6150.5	24390.9	807.1	6320.	41.00	0.31	1.51	25.0	0.0	0.
10266	5676.0	24075.8	797.4	3264.	63.16	0.33	1.67	19.1	0.0	0.
10267	6166.8	24091.5	643.0	6456.	42.70	0.27	1.52	17.1	0.0	0.
10271	6686.0	24088.6	814.2	3754.	62.39	0.30	1.66	156.2	0.0	0.
10274	6094.0	23778.1	501.1	5802.	46.78	0.23	1.55	19.1	0.0	0.
10275	6202.3	24073.7	790.5	6171.	44.56	0.70	1.53	18.6	0.0	0.
10276	5339.1	23930.5	924.0	2869.	67.21	0.25	1.70	19.0	0.0	0.
10282	6393.8	24232.4	860.3	7021.	37.39	0.23	1.48	2.5	0.0	0.
10289	5779.3	24382.1	792.4	4849.	54.37	0.23	1.60	22.0	0.0	0.
10290	6708.1	24837.3	781.0	5652.	47.59	0.22	1.56	4.3	0.0	0.
10292	6522.1	25000.3	813.8	7352.	35.57	0.23	1.47	7.1	0.0	0.

TABLE 15

List of complete holes intersecting group 8 (C2, C3, C4)

10039	5893.3	24857.0	862.7	3719.	57.00	0.54	1.63	20.1	0.0	0.	17.4	323
10043	5304.4	24055.7	983.0	863.	55.49	0.08	1.83	25.0	0.0	0.	25.0	311
10044	5680.1	23448.2	605.0	633.	86.05	0.04	1.84	84.9	0.0	0.	72.8	311
10045	5490.7	22278.4	755.4	186.	86.16	0.02	1.87	88.3	0.0	1.	88.3	311
10051	5476.6	23440.3	926.0	539.	86.76	0.01	1.85	211.7	0.0	0.	211.6	311
10127	5183.4	23774.0	1028.1	0.	0.00	0.00	2.00	78.7	0.0	0.	78.7	311
10129	5175.5	23480.2	949.7	0.	0.00	0.00	2.00	10.7	0.0	0.	10.7	311
10132	5187.9	23469.6	950.6	0.	0.00	0.00	2.00	12.2	0.0	0.	12.2	311
10133	6390.7	24075.5	863.0	7146.	37.51	0.27	1.50	6.1	0.0	0.	6.1	322
10134	5483.9	23156.2	780.2	244.	47.70	0.01	1.92	151.4	0.0	1.	151.4	311
10137	5337.6	23477.8	975.2	0.	0.00	0.00	2.00	37.3	0.0	0.	37.3	311
10141	5629.8	23475.4	674.0	0.	0.00	0.00	2.00	38.1	0.0	1.	38.0	311
10151	6399.6	23921.9	881.7	7200.	33.00	0.00	1.45	7.3	0.0	0.	7.3	323
10171	5183.4	23617.7	1010.7	307.	29.97	0.02	1.94	77.4	0.0	0.	77.3	311
10173	5181.2	23164.4	976.0	0.	0.00	0.00	2.00	6.2	0.0	0.	6.2	311
10179	5332.4	23160.4	995.6	544.	77.83	0.03	1.86	132.9	0.0	0.	132.9	311
10180	6402.3	23769.5	891.1	5186.	48.72	0.30	1.57	33.5	0.0	0.	33.5	323
10188	5336.4	24229.7	961.3	0.	78.48	0.00	1.79	4.3	0.0	0.	4.3	322
10204	5650.6	24533.4	860.3	3717.	61.13	0.83	1.66	5.9	0.0	0.	5.9	323
10237	5336.7	23014.2	990.2	181.	34.02	0.02	1.95	114.1	0.0	0.	114.1	311
10240	5481.5	23630.2	983.0	664.	40.42	0.05	1.88	153.4	0.0	0.	153.3	311
10241	5182.2	22863.0	982.8	0.	0.00	0.00	2.00	84.3	0.0	0.	84.2	311
10248	5334.0	23615.9	986.7	276.	12.33	0.02	1.96	81.9	0.0	0.	81.9	311
10249	5433.2	23316.6	958.6	435.	53.03	0.03	1.90	153.2	0.0	0.	132.7	311
10257	5505.0	23177.9	764.1	687.	86.58	0.02	1.85	131.3	0.0	0.	119.0	311
10259	5537.3	23453.5	764.2	638.	86.42	0.03	1.85	74.0	0.0	0.	68.1	311
10260	5485.7	22555.6	767.3	0.	92.00	0.00	1.89	80.9	0.0	1.	80.9	311
10262	6097.0	23632.5	512.9	1984.	76.64	0.29	1.76	8.3	0.0	1.	8.3	311
10270	6733.7	24089.0	845.5	5527.	27.43	0.54	1.58	15.5	0.0	0.	14.7	323
10279	5533.1	23319.5	740.2	0.	0.00	0.00	2.00	118.8	0.0	1.	115.1	311
10292	6522.1	25000.3	813.8	7352.	35.57	0.23	1.47	7.1	0.0	0.	7.1	323

TABLE 16

List of incomplete holes intersecting group 8 (C2, C3, C4)

3.4 Zone D (groupe 9)

The list of complete holes is given in Table A, while incomplete holes are listed in Table 18.

The mean of boreholes shows an anisotropic linear variogram of equation.

$$\gamma(h) = C \frac{h}{333}$$

$$\text{where } h = \left((x_1 - x_0)^2 + (y_1 - y_0)^2 \left(\frac{333}{1000}\right)^2\right)^{1/2}$$

$$C = 6.0 * 10^5$$

The polynomial coefficients, with the exception of the first, show variograms that are proportional to each other. A single anisotripic spherical model would be:

$$\gamma(h) = 0.2 \quad C \qquad \text{for } h = 0$$

$$= 0.2 \quad C + 0.8\ C \left(1.5 \frac{h}{300} - 0.5 \left(\frac{h}{300}\right)^3\right) \qquad \text{for } h < 300$$

$$= C \qquad \text{for } h \geq 300$$

where C is the variance of the polynomial coefficient.

$$h = \left((x_1 - x_0)^2 + (y_1 - y_0)^2 \left(\frac{300}{450}\right)^2\right)^{1/2}$$

10025	6317.0	23765.4	595.2	9597.	22.24	0.41	1.37	21.2	0.0	0.
10037	6251.2	23448.2	422.3	9728.	23.96	0.39	1.39	14.0	0.0	0.
10038	6088.1	24372.4	661.5	8859.	26.06	0.27	1.40	21.3	0.0	0.
10039	5943.0	24857.0	776.6	9922.	20.28	0.31	1.36	23.9	0.0	0.
10043	5304.4	24055.7	941.4	6286.	42.71	0.26	1.52	20.7	0.0	0.
10044	5594.0	23448.3	459.8	9703.	23.50	0.33	1.38	11.8	0.0	0.
10046	5713.2	24110.6	728.1	7618.	33.78	0.25	1.46	57.1	0.0	0.
10050	5496.4	24355.2	819.5	9148.	24.00	0.31	1.39	14.6	0.0	0.
10051	5476.7	23447.7	691.9	5167.	51.60	0.25	1.59	27.1	0.0	0.
10053	5357.2	23779.0	840.0	8729.	24.16	0.33	1.39	20.0	0.0	0.
10106	5859.1	23792.7	516.7	7830.	33.61	0.22	1.46	24.6	0.0	0.
10124	5489.6	23773.7	818.0	7748.	34.31	0.22	1.46	26.1	0.0	0.
10127	5184.0	23776.6	905.5	8880.	28.02	0.35	1.42	12.8	0.0	0.
10133	6390.7	24075.5	845.8	8773.	27.74	0.21	1.41	32.7	0.0	0.
10135	5906.4	23647.4	393.7	10107.	20.73	0.40	1.36	15.0	0.0	0.
10136	5943.8	23928.1	554.6	8458.	29.71	0.30	1.43	29.2	0.0	0.
10137	5333.4	23473.8	825.0	8942.	27.14	0.32	1.41	12.6	0.0	0.
10138	5933.9	24678.7	775.2	8363.	28.45	0.30	1.42	20.4	0.0	0.
10142	6406.6	24689.6	779.1	9141.	26.01	0.41	1.40	20.8	0.0	0.
10151	6394.2	23922.4	656.5	8733.	26.95	0.47	1.41	55.5	0.0	0.
10152	6013.0	24999.7	852.8	9443.	22.16	0.25	1.37	16.9	0.0	0.
10153	6556.4	24692.7	716.2	9283.	25.37	0.35	1.40	20.6	0.0	0.
10156	6409.6	24836.3	858.8	9131.	24.73	0.25	1.39	13.7	0.0	0.
10157	6556.1	24835.1	725.8	8874.	28.04	0.41	1.41	21.2	0.0	0.
10158	5457.1	24079.3	973.4	6918.	37.65	0.34	1.49	32.1	0.0	0.
10160	6407.3	24993.1	799.1	8964.	25.67	0.47	1.40	17.9	0.0	0.
10161	5647.0	24386.4	832.1	8017.	31.93	0.27	1.45	23.9	0.0	0.
10165	6716.5	24988.1	835.0	1921.	4.00	0.13	1.83	10.2	0.0	0.
10166	5341.0	24387.0	883.8	9930.	18.46	0.36	1.35	14.1	0.0	0.
10168	6543.7	24382.1	767.0	9107.	23.97	0.29	1.39	21.0	0.0	0.
10172	6400.1	24229.4	829.5	8997.	24.64	0.37	1.39	34.9	0.0	0.
10179	5329.3	23158.3	833.0	4134.	60.33	0.16	1.65	22.0	0.0	0.
10180	6403.7	23769.9	761.7	8569.	27.54	0.36	1.41	66.5	0.0	1.
10181	6555.4	24535.5	784.1	8820.	25.67	0.18	1.40	22.5	0.0	0.
10187	6245.9	24228.2	872.3	10167.	14.30	0.32	1.34	59.2	0.0	0.
10188	5334.7	24228.6	875.4	9374.	21.42	0.27	1.37	12.8	0.0	0.
10190	5646.5	24233.2	799.8	8066.	30.65	0.30	1.44	33.1	0.0	0.
10191	5930.4	24202.7	560.4	9299.	24.02	0.32	1.38	21.0	0.0	0.
10193	5791.7	24538.9	812.9	8852.	26.69	0.23	1.41	20.1	0.0	0.
10196	5941.3	24544.2	731.4	8656.	28.37	0.36	1.42	16.1	0.0	0.
10198	6107.4	24536.2	720.6	9195.	24.32	0.28	1.39	24.6	0.0	0.
10199	6102.7	24233.4	547.8	9510.	22.54	0.34	1.38	15.5	0.0	0.
10200	5631.5	23916.3	751.1	7090.	37.84	0.26	1.49	34.0	0.0	0.
10201	6544.7	24250.9	628.5	9360.	25.78	0.51	1.40	28.1	0.0	0.
10202	5484.2	24234.0	882.3	7510.	35.02	0.27	1.47	21.0	0.0	0.
10204	5654.1	24533.3	783.3	9599.	23.20	0.23	1.38	19.2	0.0	0.
10205	5804.1	24223.4	674.8	8891.	26.85	0.59	1.41	28.1	0.0	0.
10208	5478.0	23923.0	848.5	7189.	38.10	0.24	1.49	28.4	0.0	0.
10219	6861.8	24940.4	756.3	7741.	35.40	0.76	1.47	14.5	0.0	1.
10227	6701.3	24536.3	706.8	8797.	27.67	0.22	1.41	18.0	0.0	0.
10240	5470.9	23634.1	758.8	9505.	22.23	0.38	1.37	12.4	0.0	1.
10247	5922.4	24083.0	603.4	8633.	28.65	0.27	1.42	16.3	0.0	0.
10248	5327.5	23609.0	828.8	9065.	25.17	0.32	1.39	12.5	0.0	1.
10259	5503.2	23456.0	684.2	5595.	49.14	0.17	1.57	22.8	0.0	0.
10263	6278.3	23923.1	602.8	9634.	23.00	0.37	1.38	18.1	0.0	0.
10265	6161.0	24395.2	784.8	9085.	24.60	0.23	1.39	39.0	0.0	0.
10266	5644.3	24075.9	678.1	9803.	20.35	0.24	1.36	15.2	0.0	1.
10267	6174.1	24093.3	627.6	9132.	24.71	0.19	1.39	26.8	0.0	0.
10274	6097.8	23778.9	405.7	10210.	19.67	0.31	1.35	15.5	0.0	0.
10275	6222.4	24073.7	740.4	9223.	23.99	0.20	1.39	33.3	0.0	0.
10276	5337.7	23929.9	840.5	9339.	23.03	0.35	1.38	12.1	0.0	0.
10282	6384.9	24232.5	847.6	8700.	25.67	0.19	1.40	32.4	0.0	0.
10289	5779.3	24382.1	686.4	10228.	17.85	0.21	1.34	18.4	0.0	0.
10290	6708.1	24837.7	765.0	8654.	26.90	0.34	1.41	17.2	0.0	0.
10292	6522.1	25000.3	746.2	9420.	24.26	0.34	1.39	18.2	0.0	0.
10817	6091.4	24839.9	851.9	9865.	19.99	0.33	1.36	25.2	0.0	0.

TABLE 17

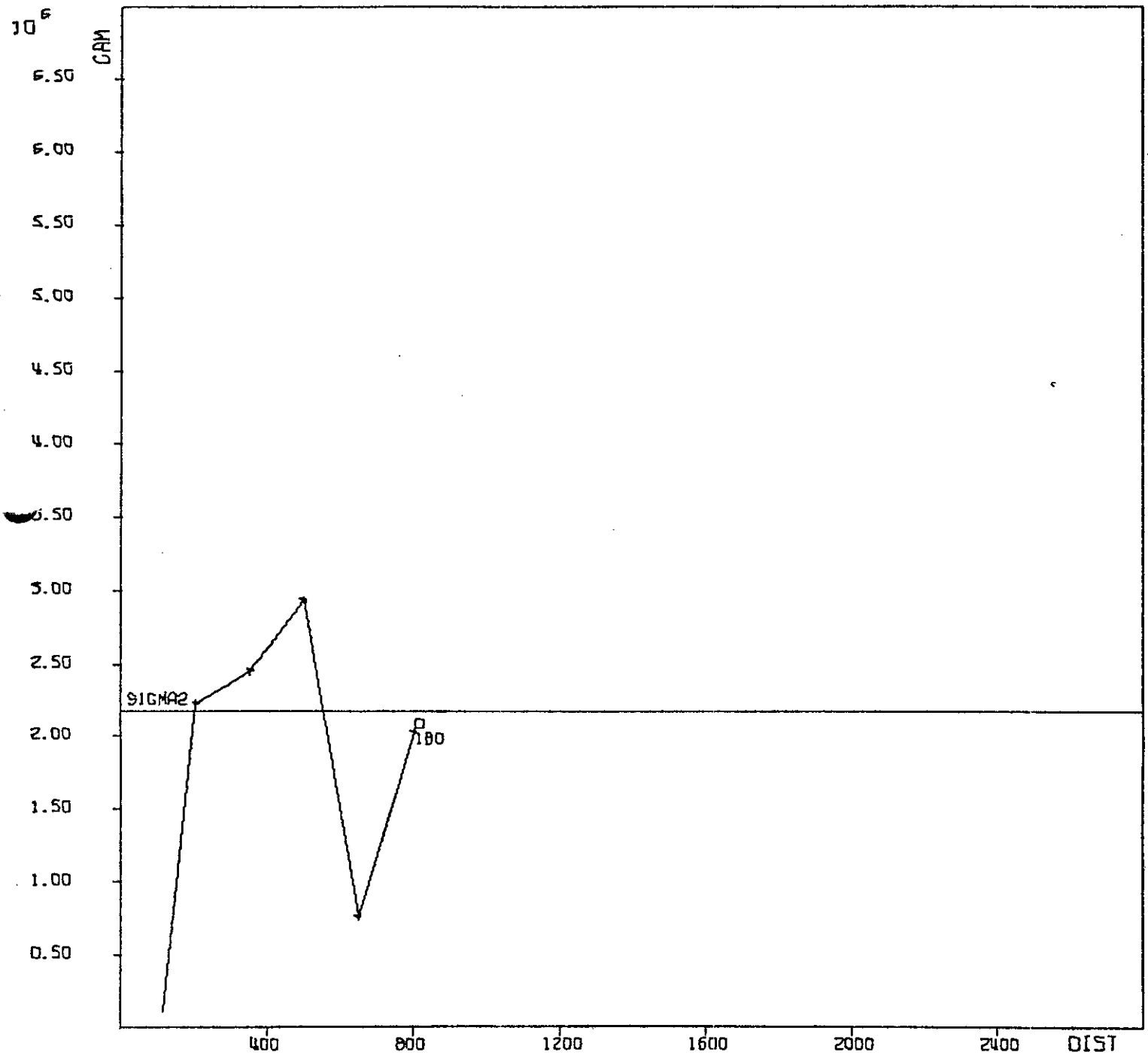
List of complete holes intersecting group 9 (D1, D2, D3, D4)

10026	6726.9	24130.9	716.1	9378.	22.98	1.00	1.38	30.5	0.0	0.	25.0 411
10041	6416.9	23756.7	886.6	5567.	49.71	0.26	1.58	15.1	0.0	0.	13.1 413
10107	6473.1	23933.8	660.4	7610.	32.23	0.73	1.45	2.7	0.0	0.	2.1 412
10120	5661.2	23768.9	536.2	9139.	26.00	0.33	1.40	20.6	0.0	0.	20.5 411
10122	5799.3	24690.9	795.1	9913.	21.11	0.34	1.37	9.1	0.0	0.	9.1 413
10126	6539.0	23759.6	657.5	7835.	33.05	1.24	1.45	17.1	0.0	0.	17.1 411
10128	6709.2	24383.6	698.5	9558.	19.17	0.69	1.37	11.9	0.0	0.	11.9 411
10129	5175.5	23480.2	939.0	7409.	36.80	0.18	1.48	7.6	0.0	0.	7.6 412
10132	5188.1	23469.8	938.5	8065.	31.34	0.20	1.44	11.0	0.0	0.	11.0 412
10143	5799.6	25001.8	870.4	5858.	47.03	0.46	1.56	4.9	0.0	0.	4.9 414
10147	6407.4	23619.9	772.6	8835.	26.88	0.36	1.41	7.9	0.0	1.	7.9 411
10162	6694.7	24691.7	733.4	9810.	26.64	0.42	1.41	24.2	0.0	0.	24.2 411
10163	6411.4	25146.2	843.3	10198.	17.47	0.27	1.34	19.0	0.0	0.	19.0 412
10169	5177.6	23940.3	953.0	7820.	33.53	0.36	1.46	10.1	0.0	0.	10.1 412
10171	5180.7	23616.5	933.4	6908.	38.29	0.27	1.49	3.8	0.0	0.	3.8 412
10173	5181.2	23164.4	969.8	7705.	32.08	0.41	1.45	8.7	0.0	0.	8.7 413
10175	6272.3	24995.4	849.7	2464.	5.70	0.07	1.79	1.8	0.0	0.	1.8 413
10176	5181.3	23317.8	949.1	7905.	31.37	0.35	1.44	19.2	0.0	0.	19.2 413
10177	6251.7	24852.1	851.2	8858.	26.82	0.45	1.41	6.2	0.0	0.	6.2 414
10186	5341.1	24547.5	897.8	3348.	55.17	0.71	1.62	4.2	0.0	0.	4.2 414
10192	6275.5	24694.8	853.0	9507.	20.35	0.58	1.37	15.2	0.0	0.	15.2 413
10194	5985.6	25100.0	851.7	10169.	15.69	0.31	1.34	7.9	0.0	0.	7.9 412
10197	6105.4	24999.3	812.5	5601.	43.84	0.34	1.52	4.4	0.0	0.	4.4 413
10207	6243.8	24555.6	855.0	9028.	23.62	0.43	1.40	10.4	0.0	0.	10.4 414
10222	6548.7	25154.3	837.8	9898.	19.29	0.24	1.35	23.1	0.0	0.	23.1 412
10235	6519.7	24075.8	720.0	9329.	22.47	0.21	1.38	28.0	0.0	0.	28.0 411
10249	5357.4	23325.9	825.9	5976.	46.59	0.21	1.55	17.2	0.0	1.	14.9 411
10257	5449.5	23179.8	645.1	6777.	41.18	0.32	1.51	12.5	0.0	1.	11.3 414
10269	6242.7	24537.0	856.4	9546.	22.31	0.35	1.37	9.2	0.0	0.	8.3 414
10270	6738.8	24089.6	830.9	8322.	28.74	0.64	1.42	11.0	0.0	0.	10.4 411
10271	6643.5	24098.4	578.6	6300.	44.73	0.50	1.53	15.9	0.0	1.	15.6 411
10273	6400.1	23619.2	683.9	10066.	18.49	0.39	1.35	17.4	0.0	1.	16.3 413
10817	6091.4	24839.9	851.9	9865.	19.99	0.33	1.36	25.2	0.0	0.	25.2 411

TABLE 18

List of incomplete holes intersecting group 9 (D1, D2, D3, D4)

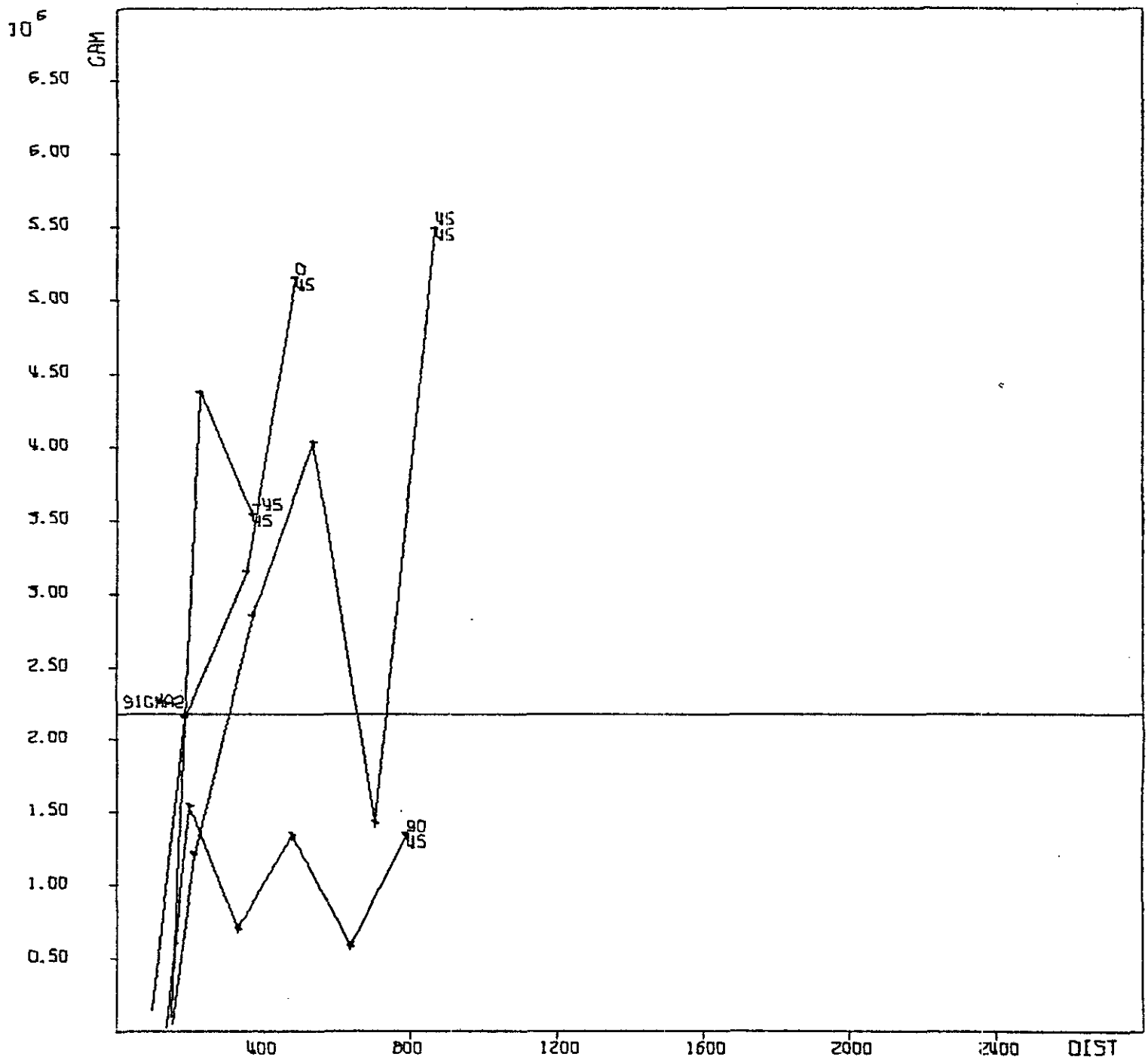
APPENDIX-1



VARIABLE MEAN ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A12 -----

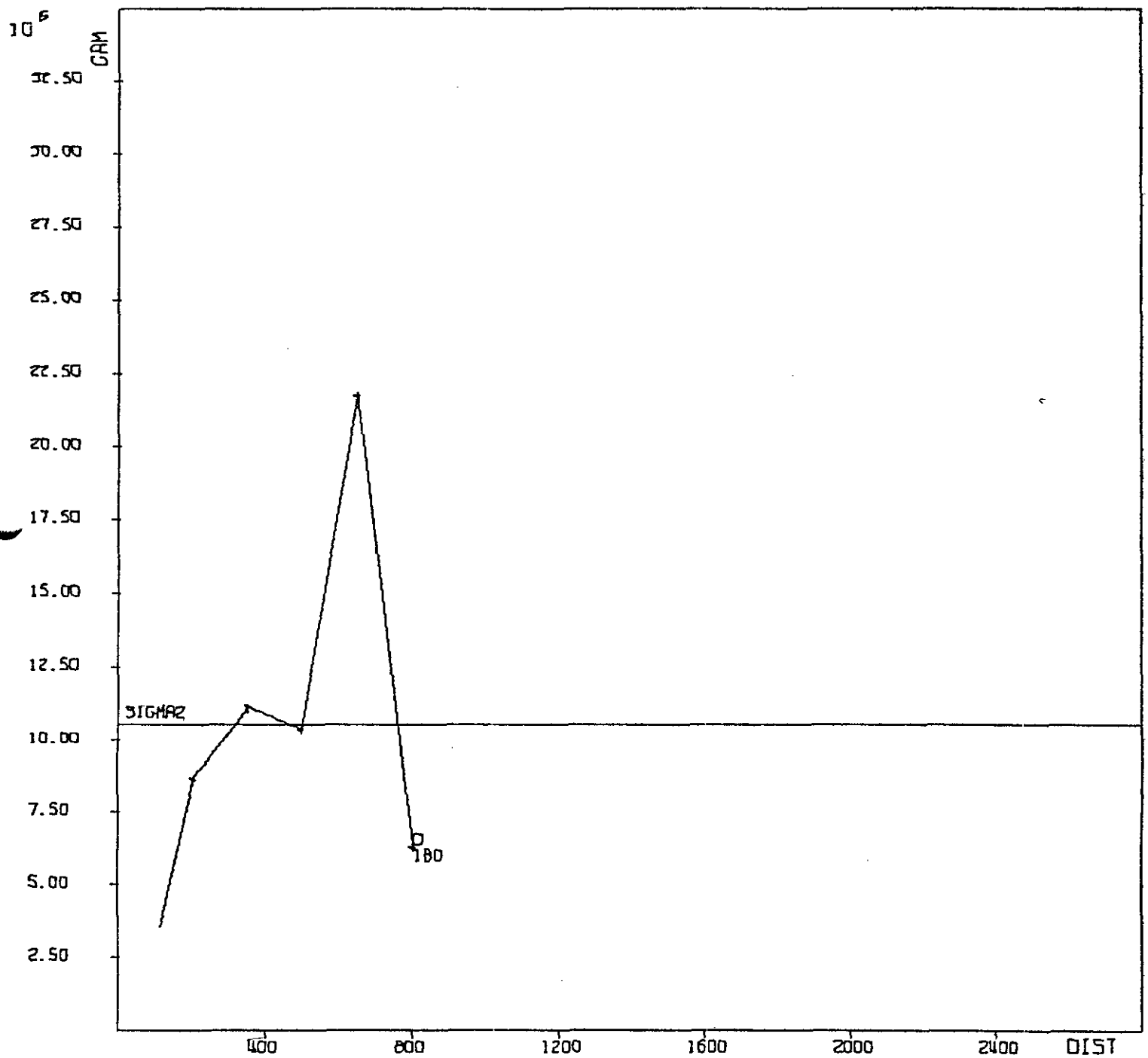
00000120



VARIABLE MEAN ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A12 -----

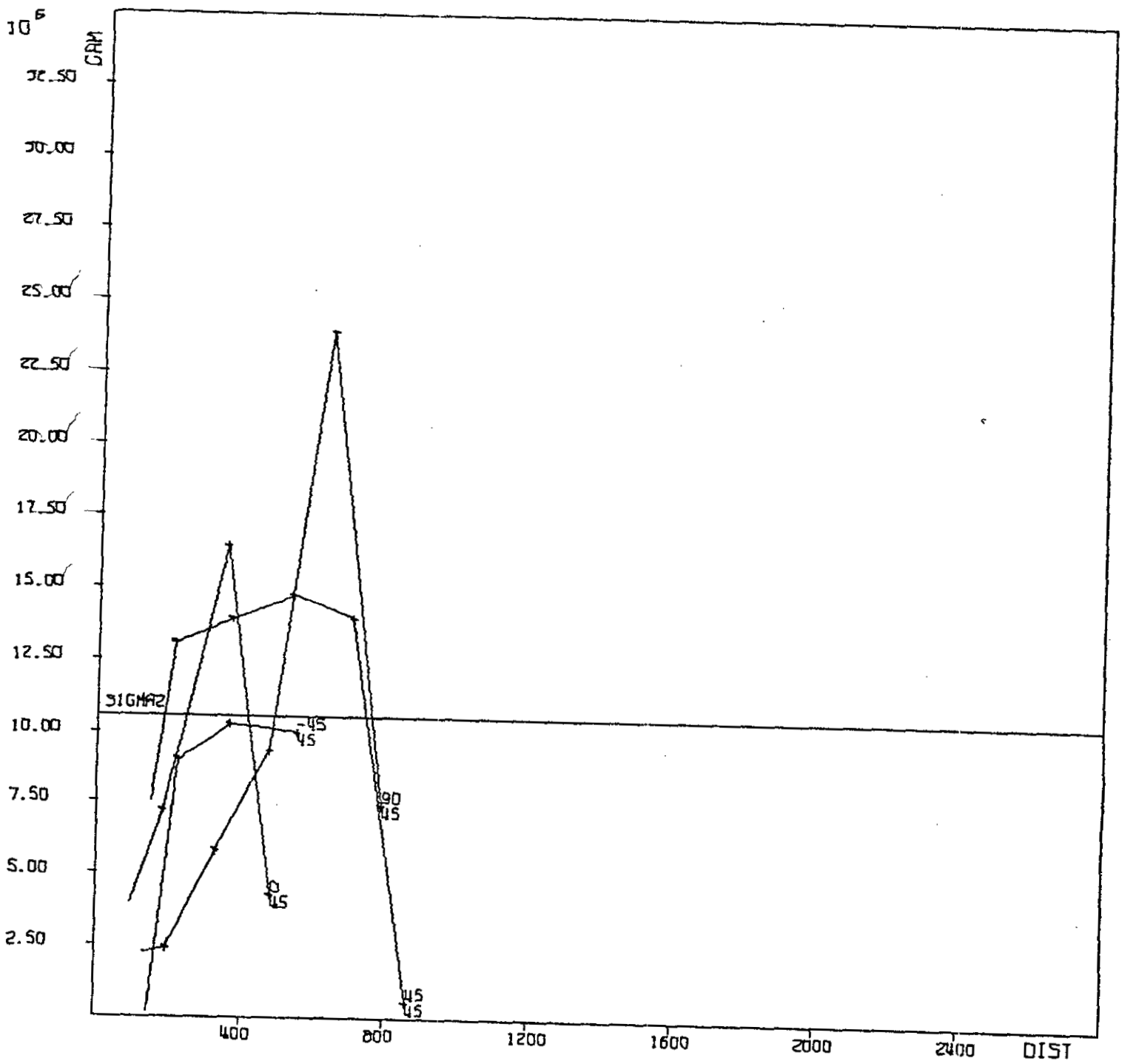
00000120



VARIABLE CO.O ABSOLUTE VARIOGRAM

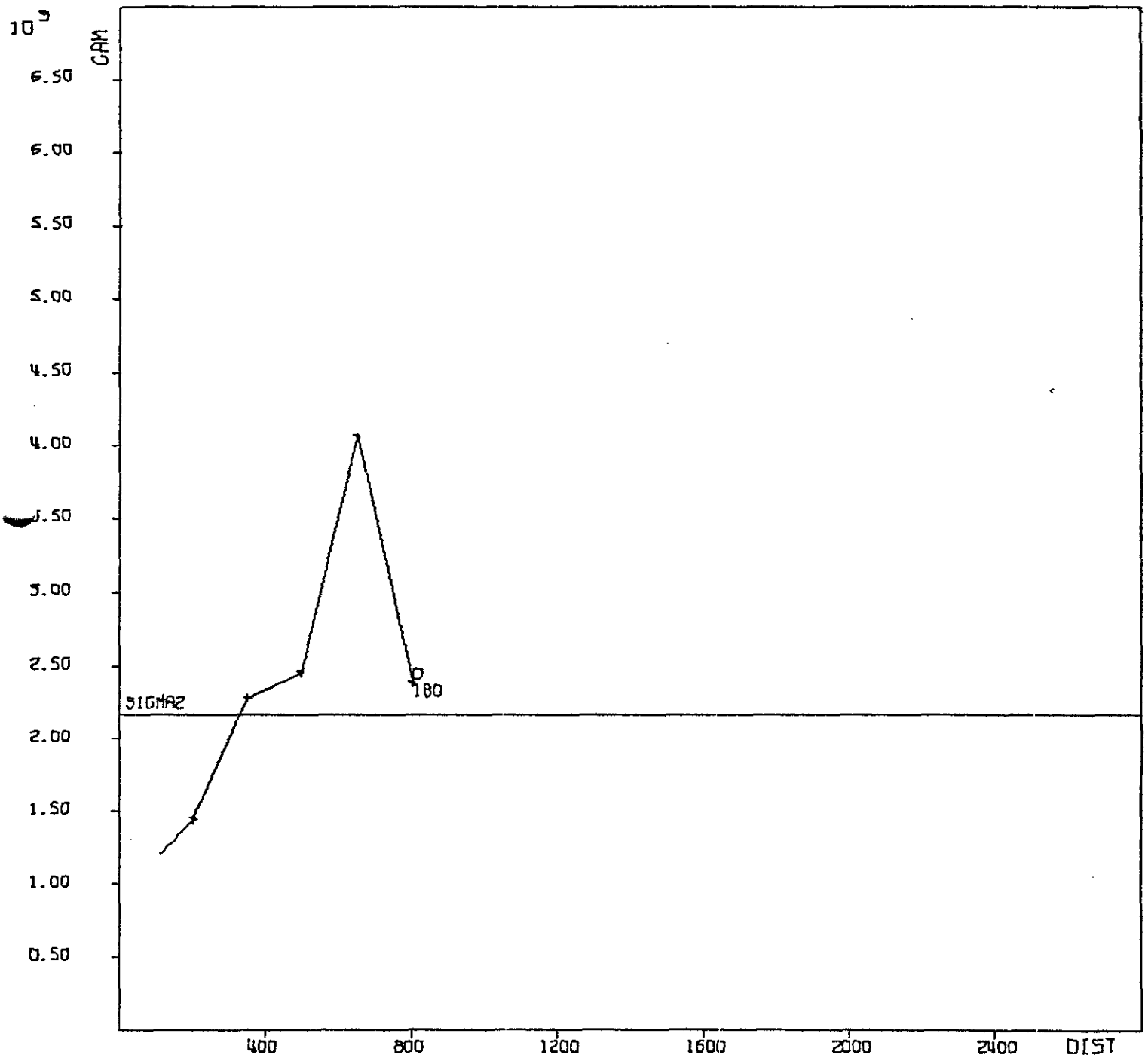
HAT CREEK ----- ZONE A12-----

00000120



VARIABLE C0.0 ABSOLUTE VARIOGRAM

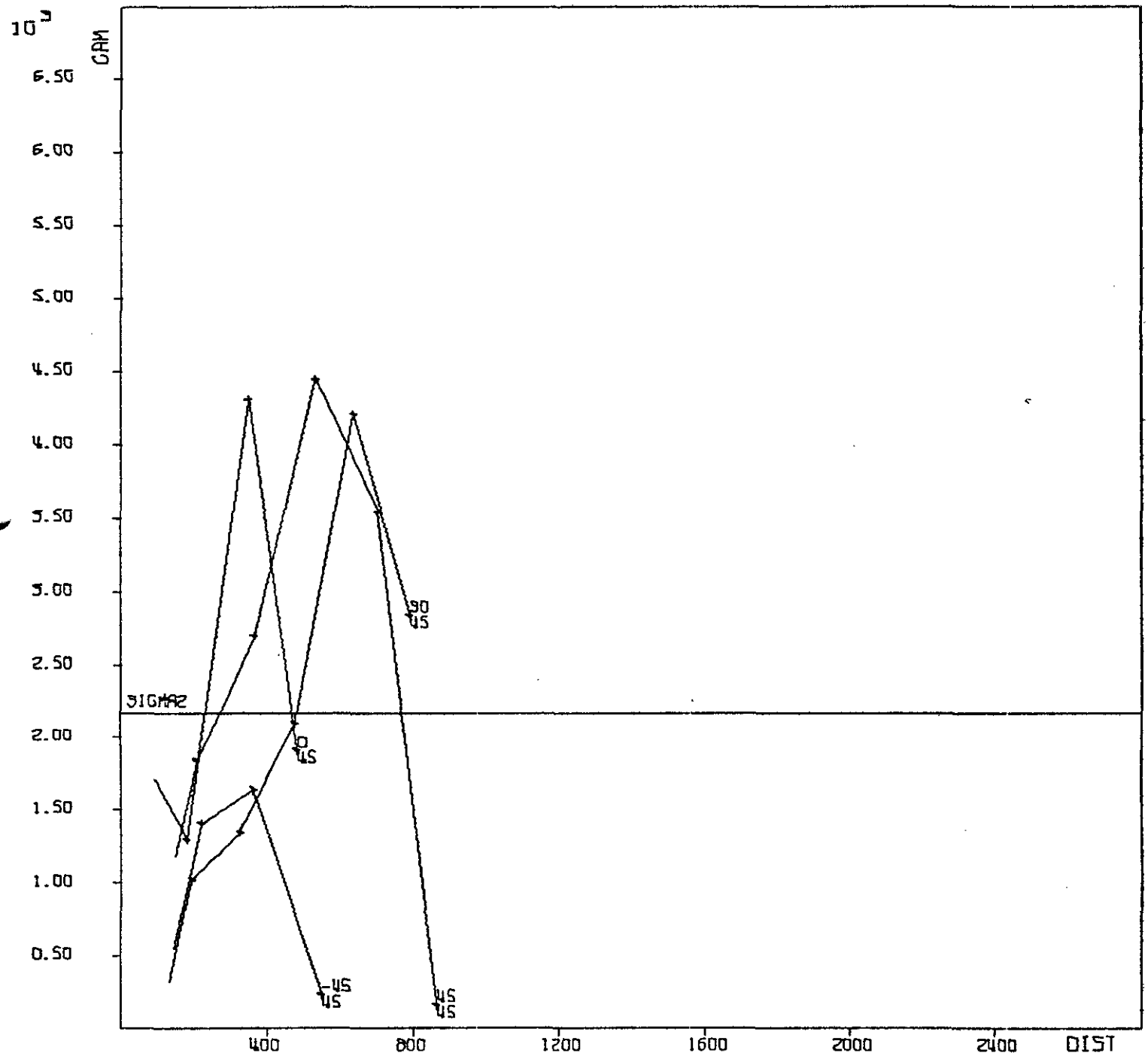
HAT CREEK ----- ZONE A12 -----



VARIABLE C0.1 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A12-----

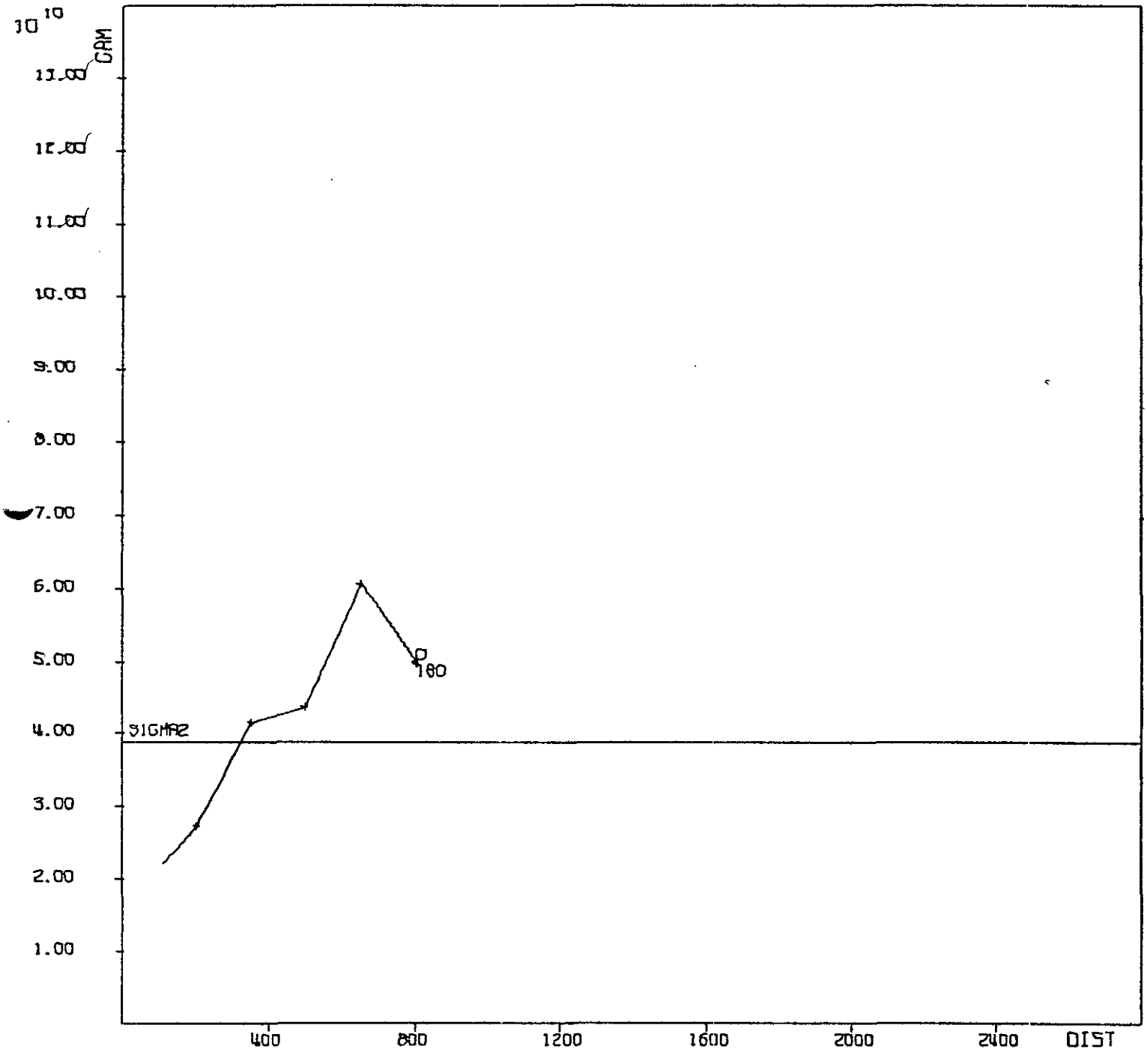
00000120



VARIABLE C0.1 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A12-----

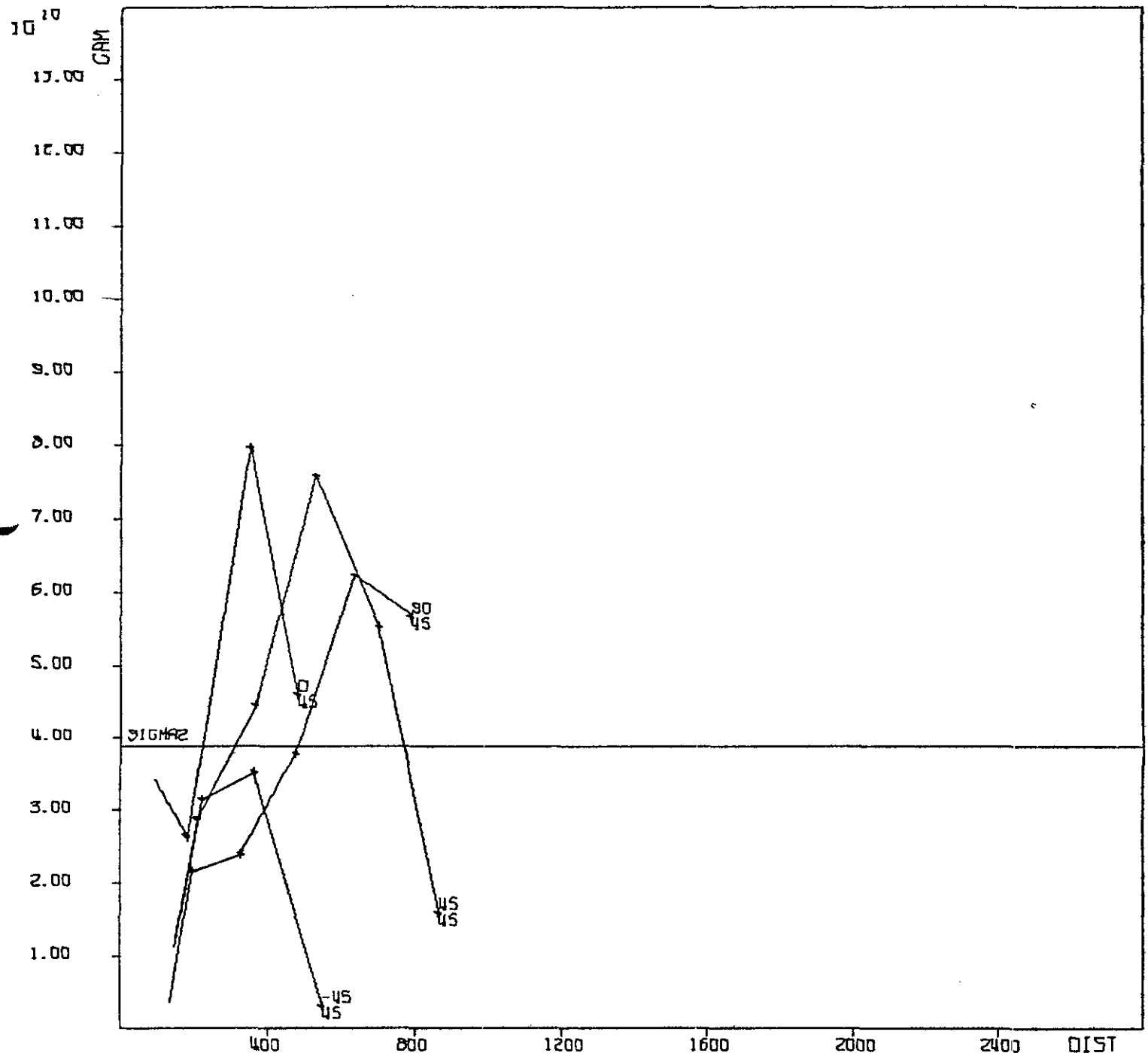
00000120



VARIABLE C0.2 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A12-----

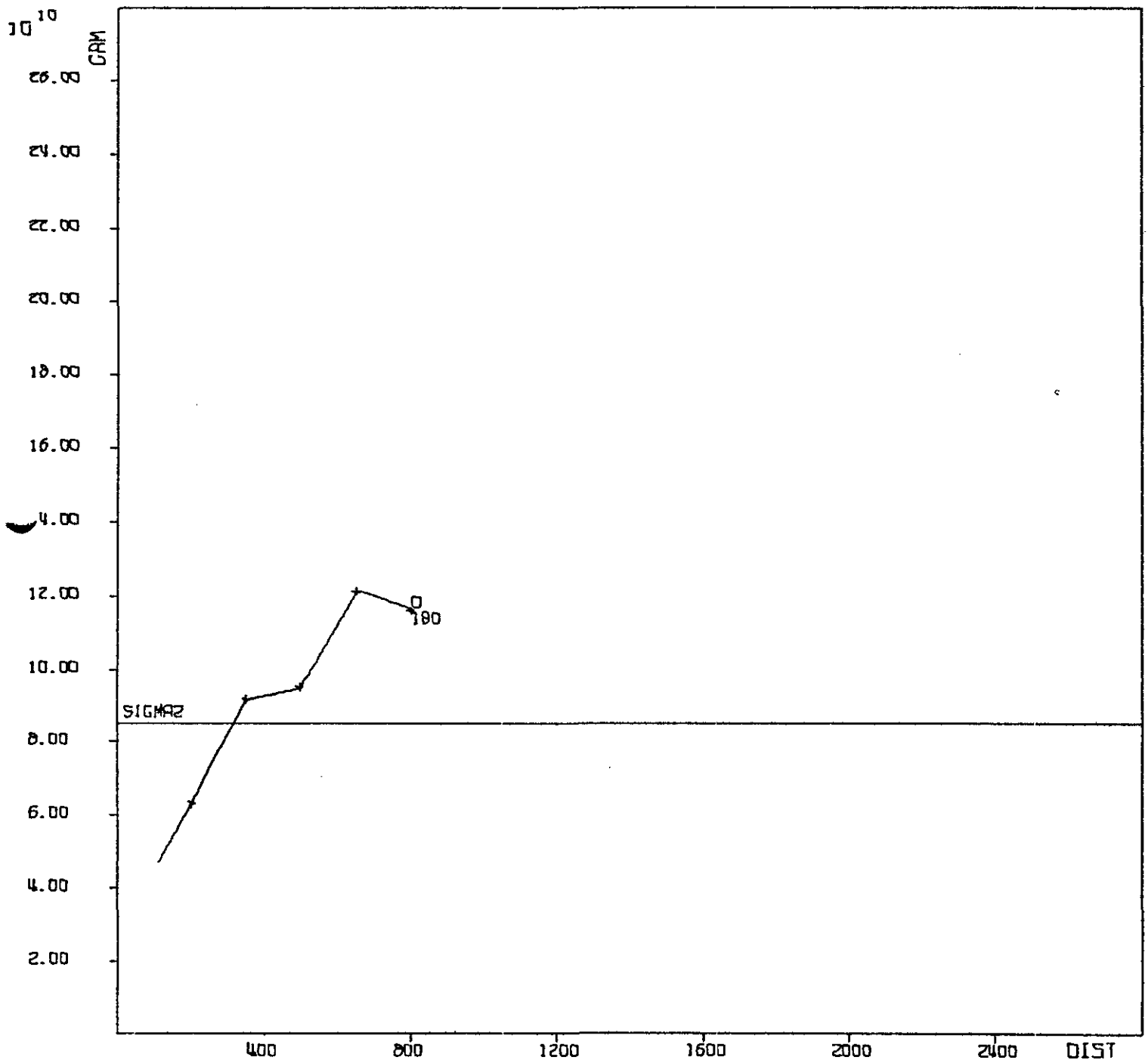
00000120



VARIABLE C0.2 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A12-----

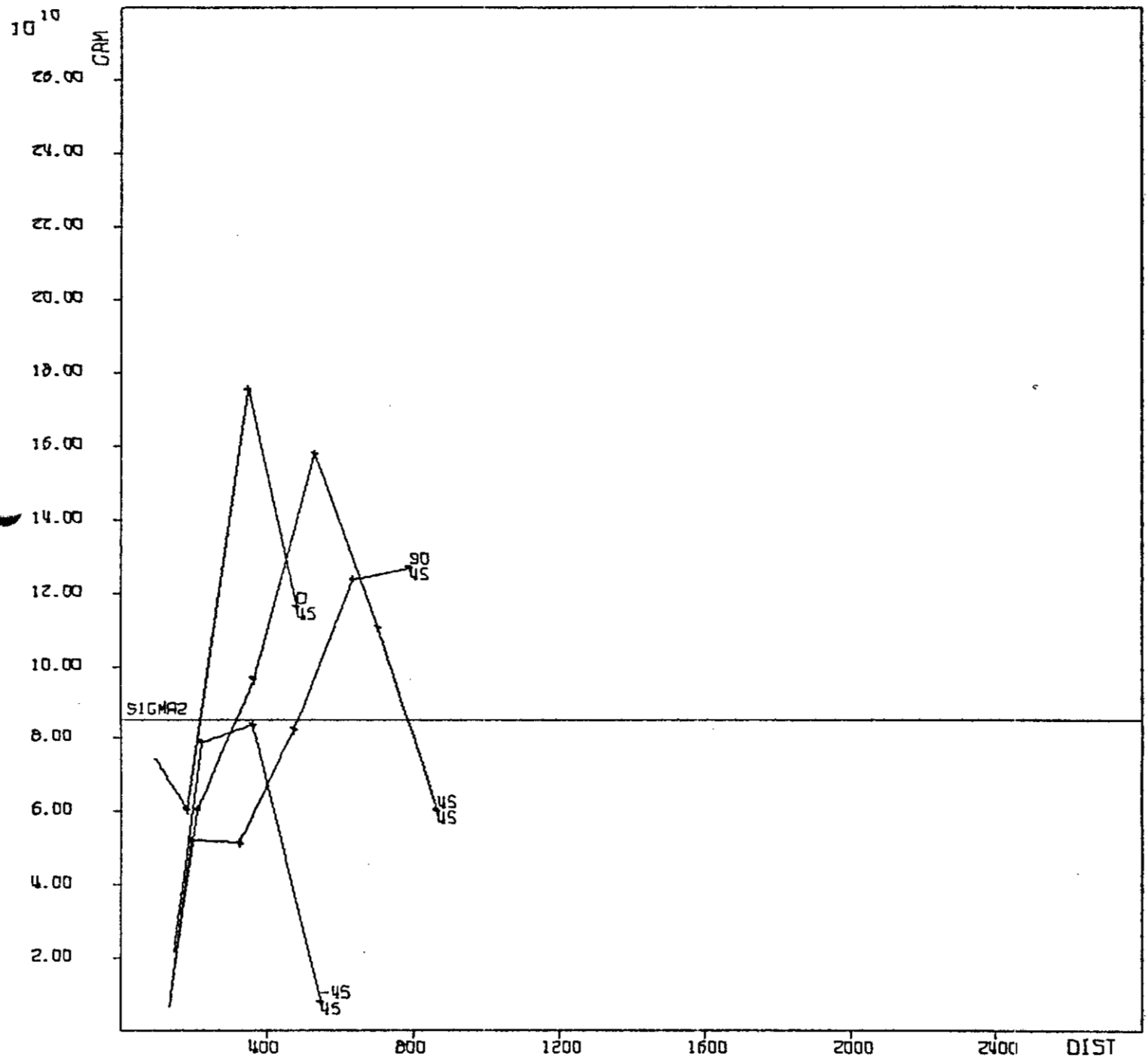
00000120



VARIABLE C0.3 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A12-----

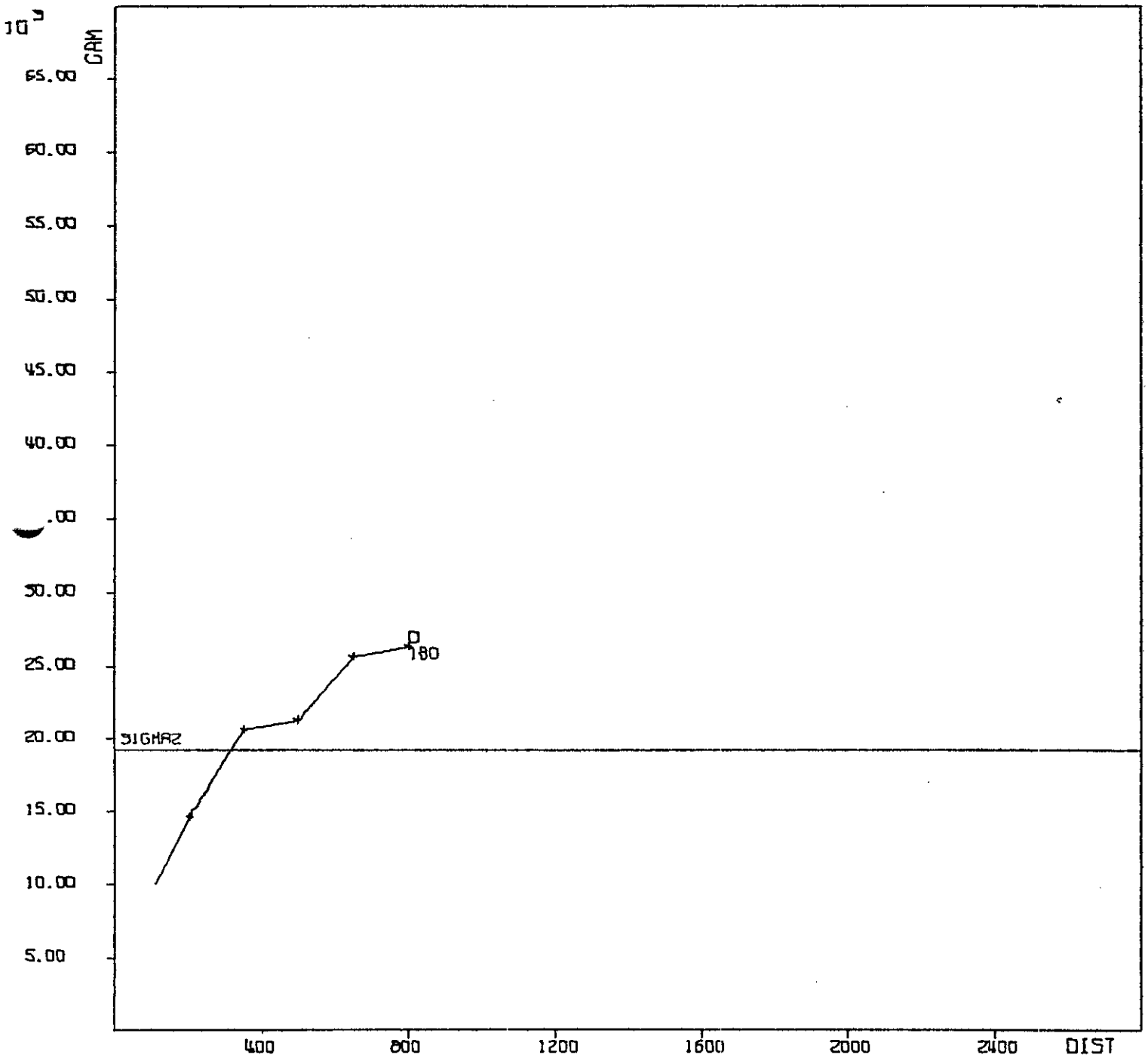
00000120



VARIABLE C0.3 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A12 -----

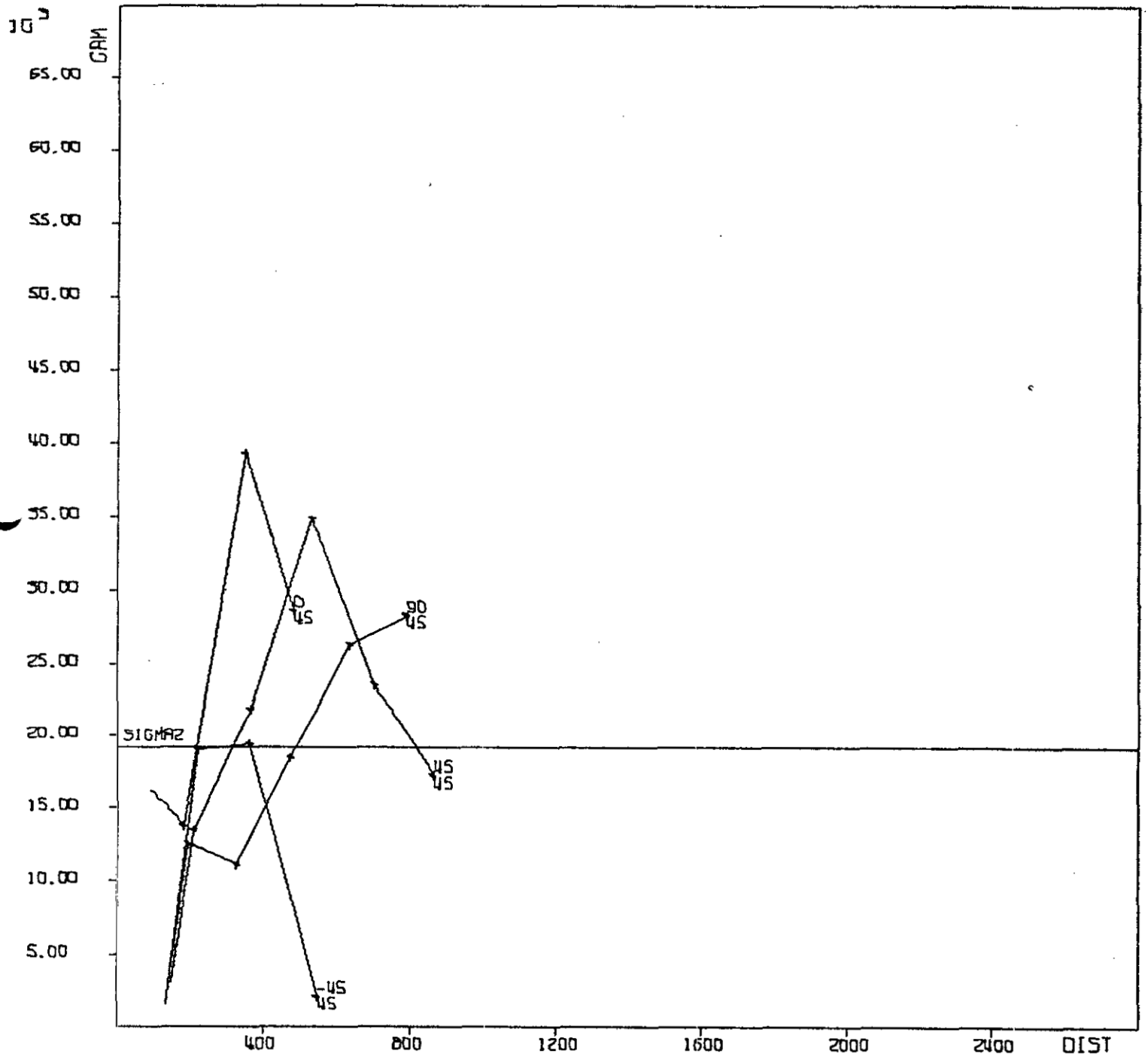
00000120



VARIABLE C0.4 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A12-----

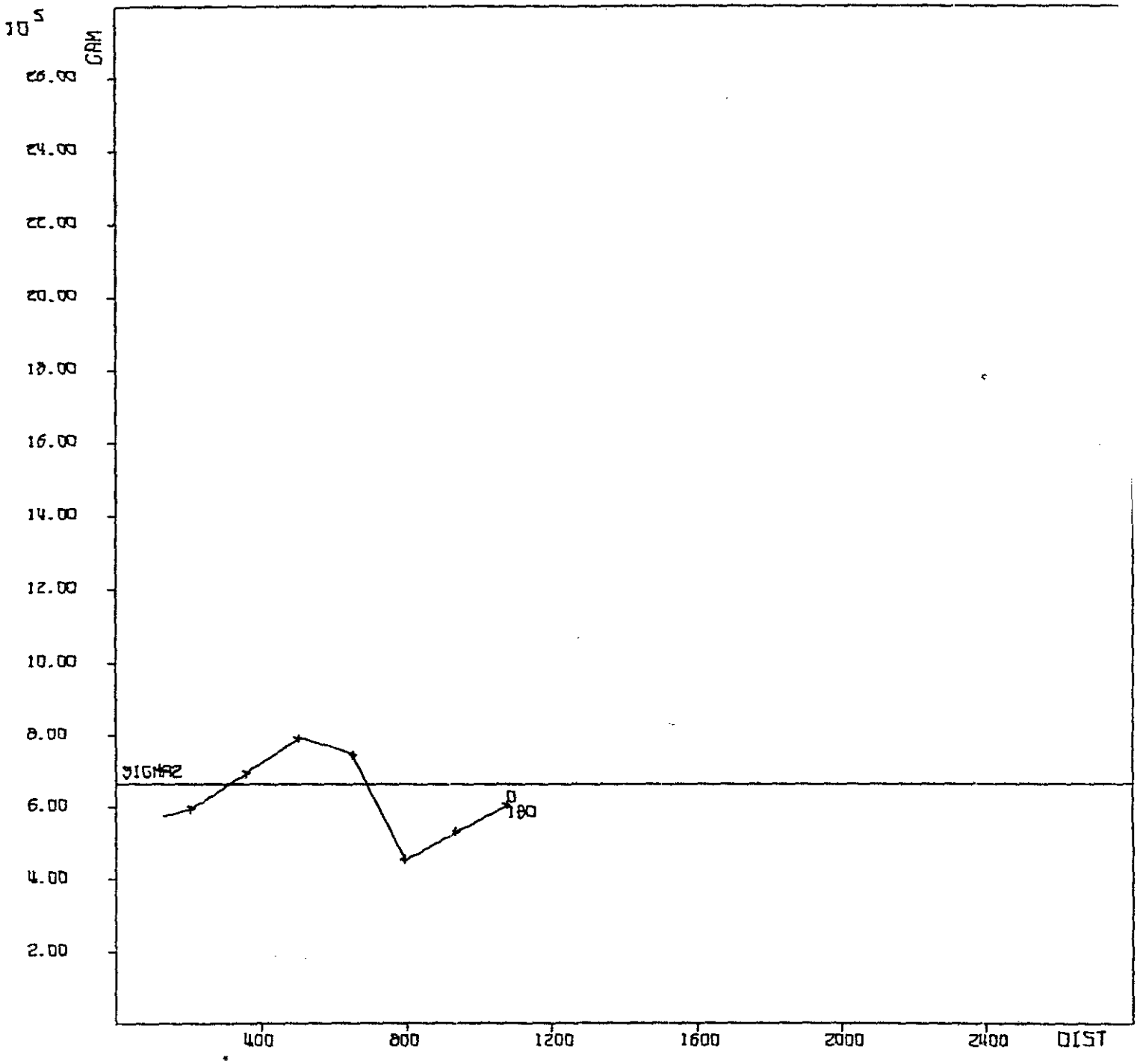
00000120



VARIABLE C0.4 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A12 -----

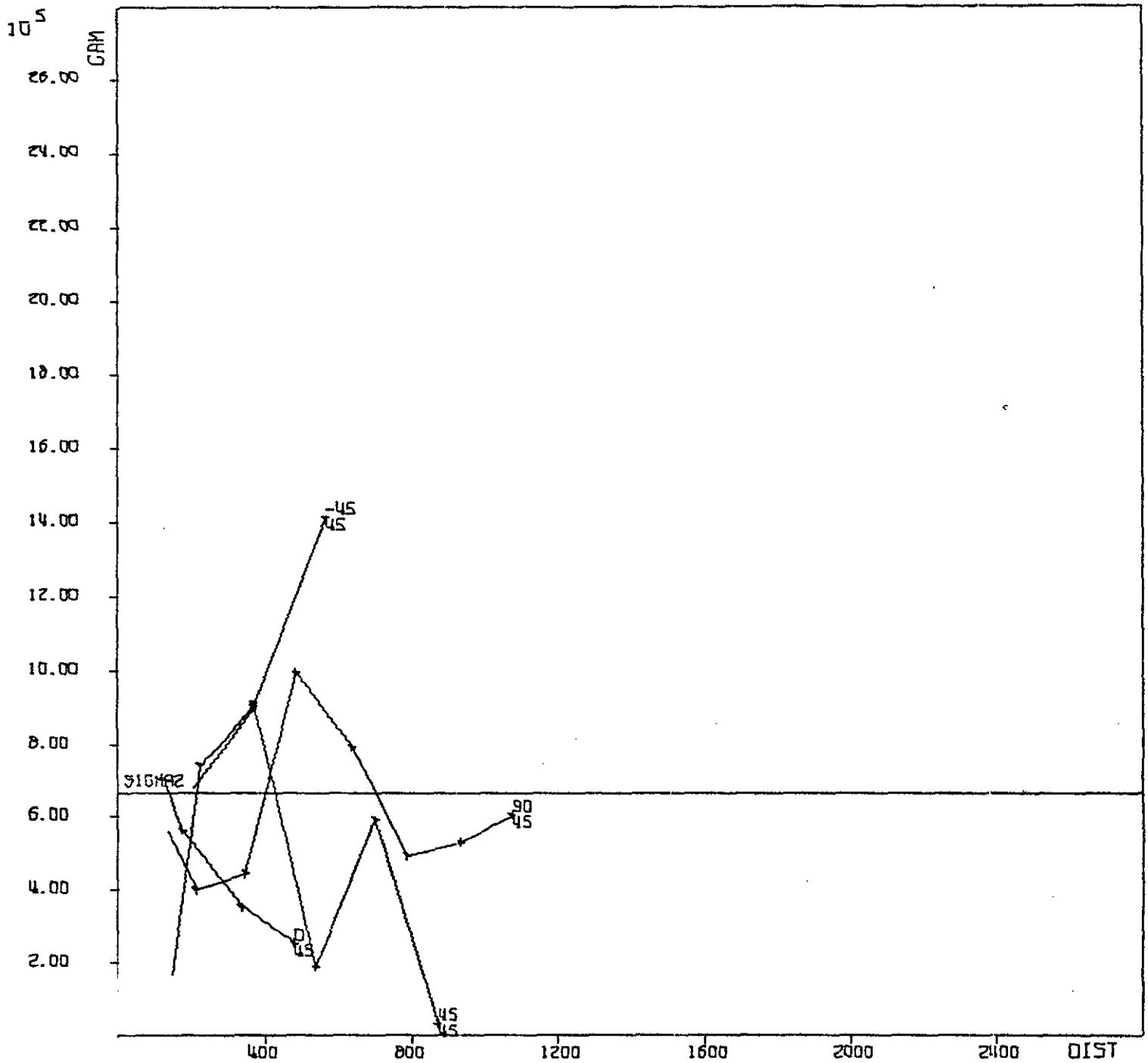
00000120



VARIABLE MEAN ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 3 -----

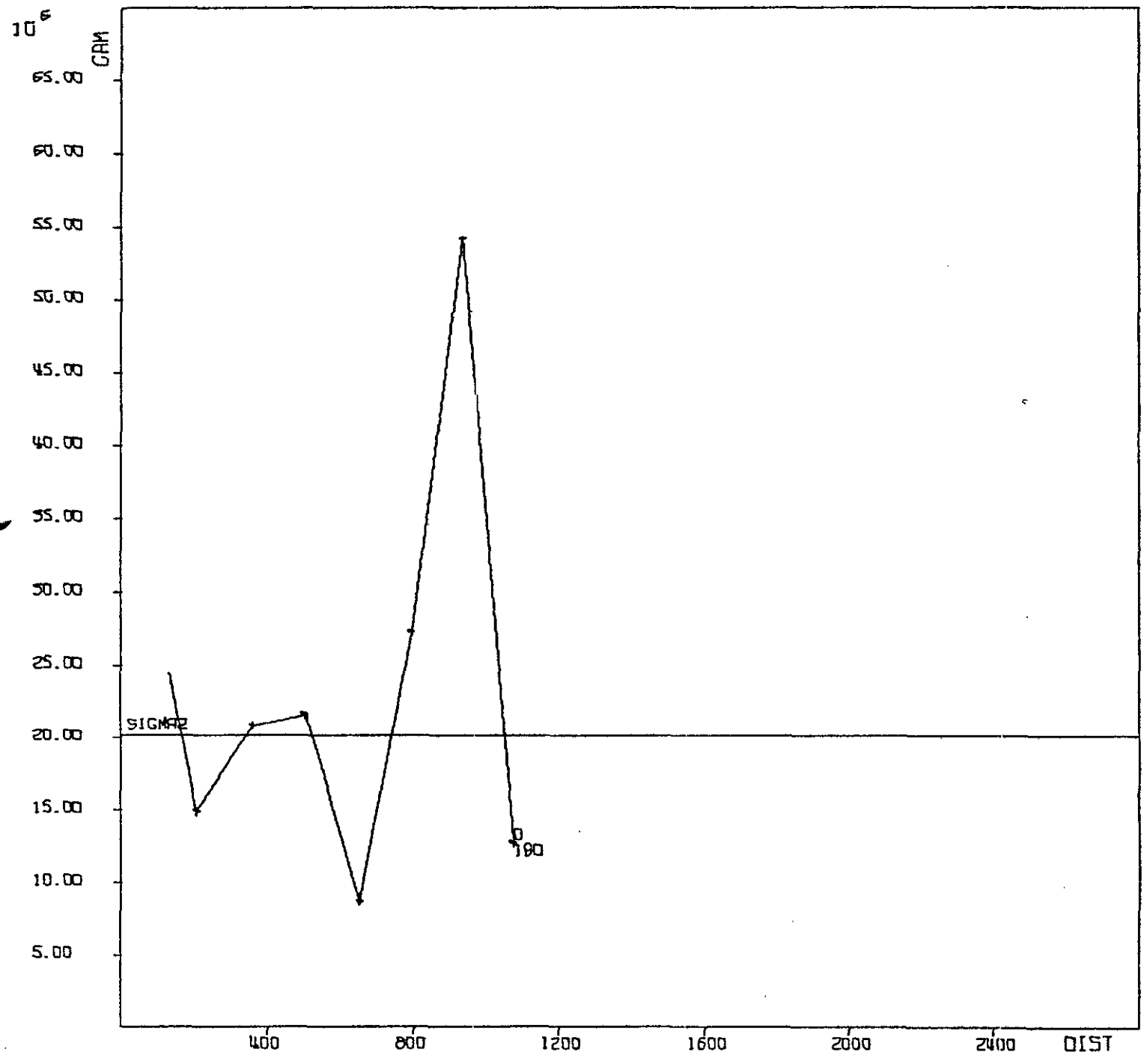
00000120



VARIABLE MEAN ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 3 -----

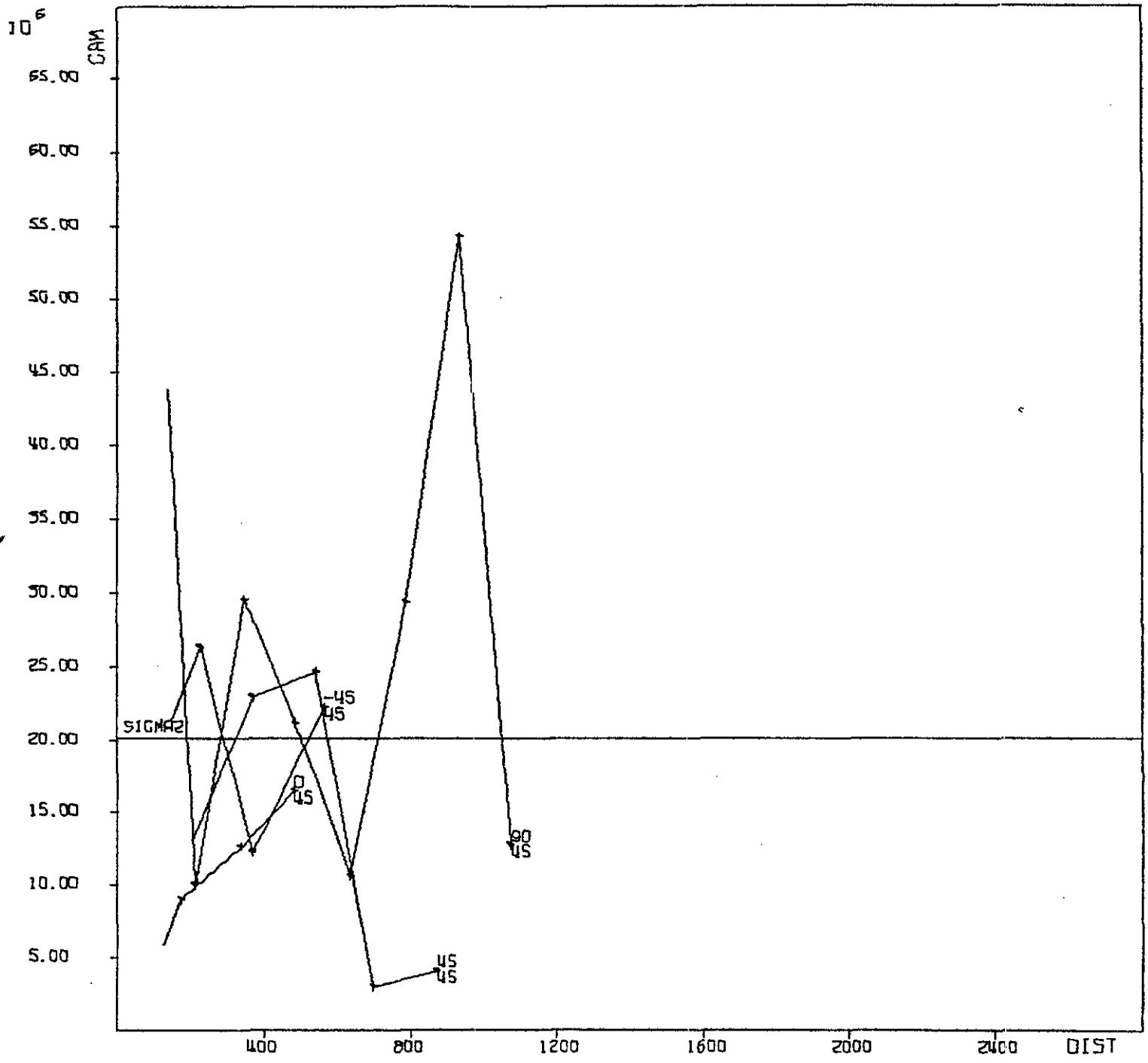
00000120



VARIABLE C0.0 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 3 -----

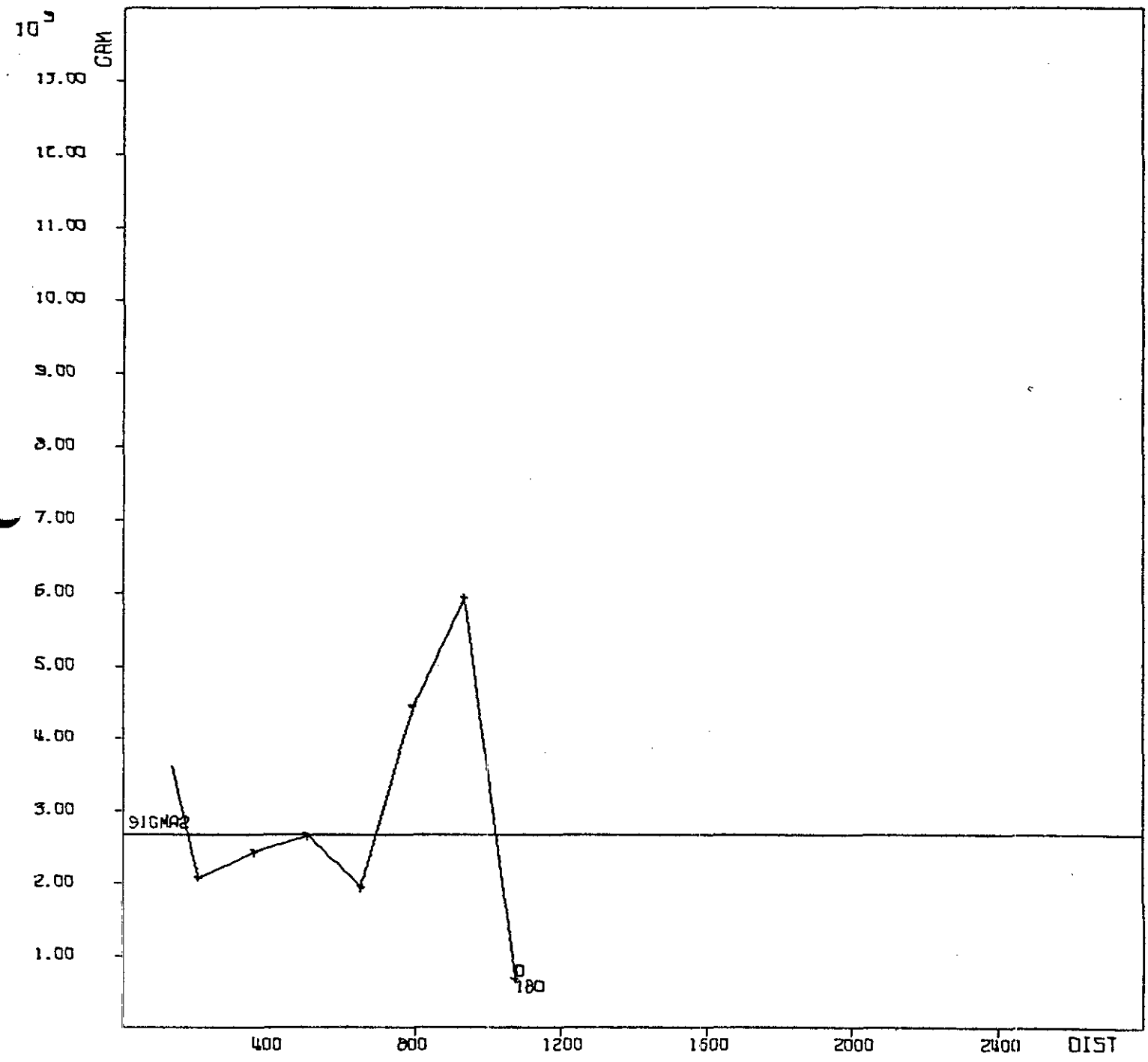
00000120



VARIABLE C0.0 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 3 -----

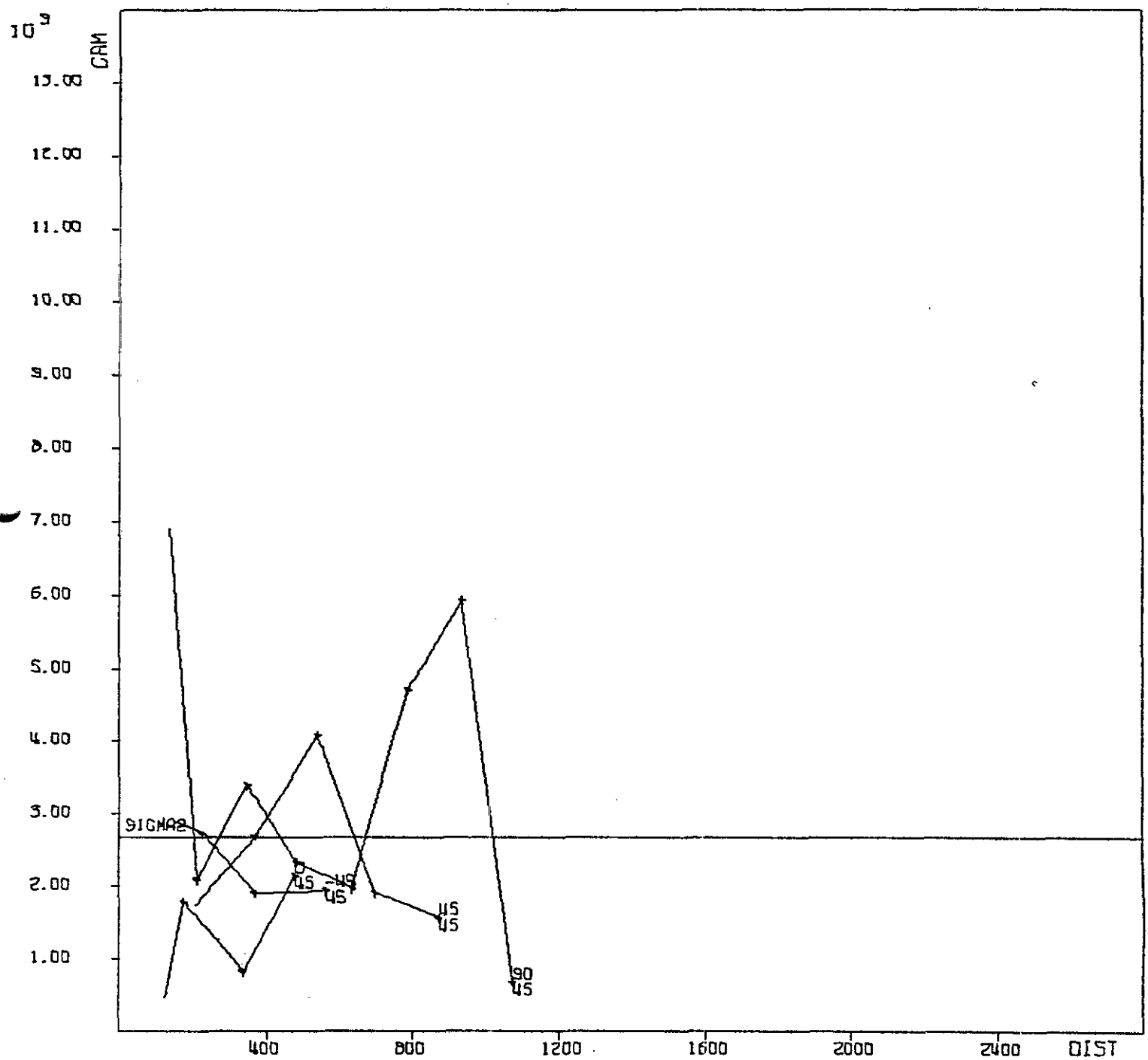
00000120



VARIABLE C0.1 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 3 -----

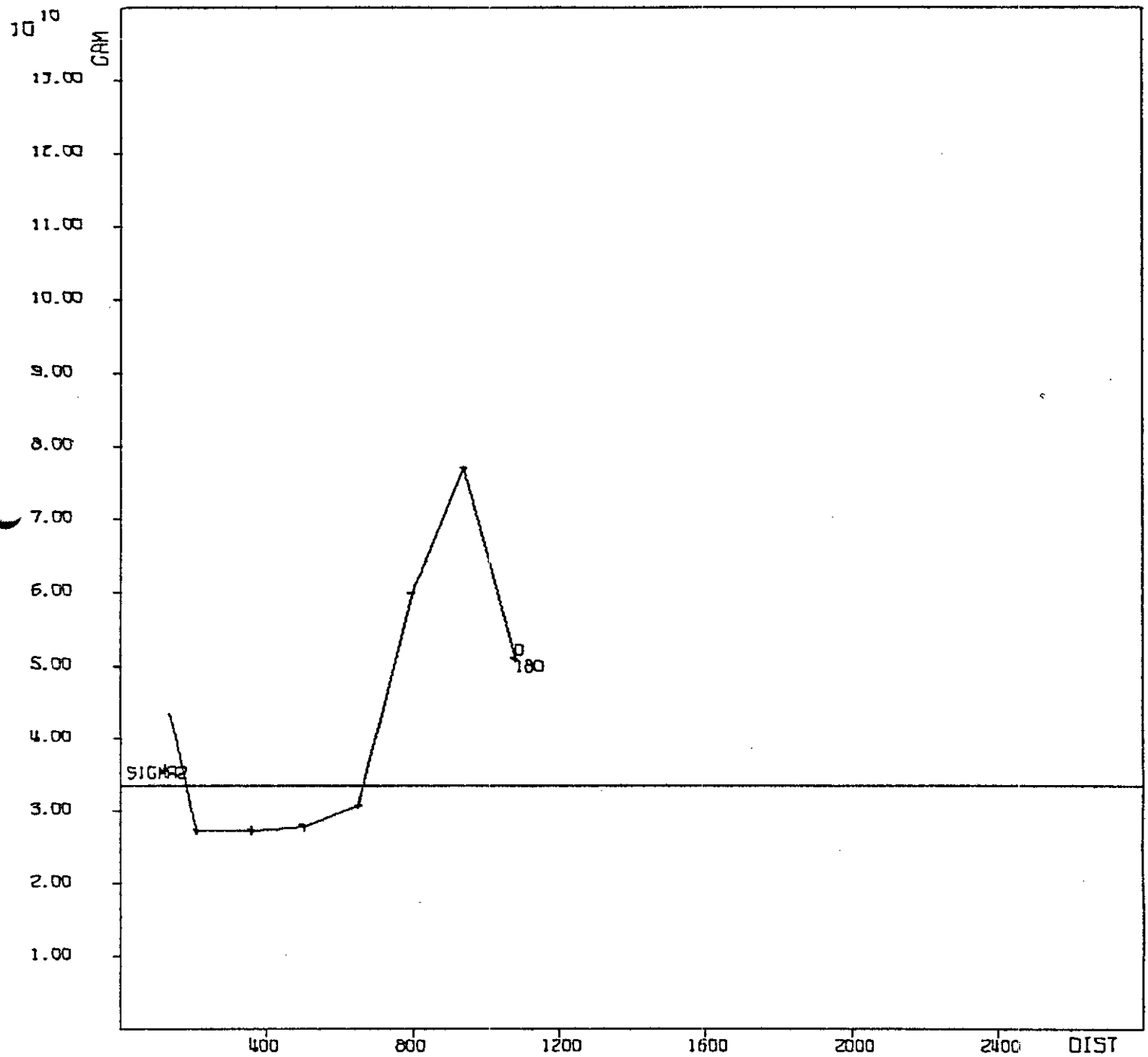
00000120



VARIABLE C0.1 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 3 -----

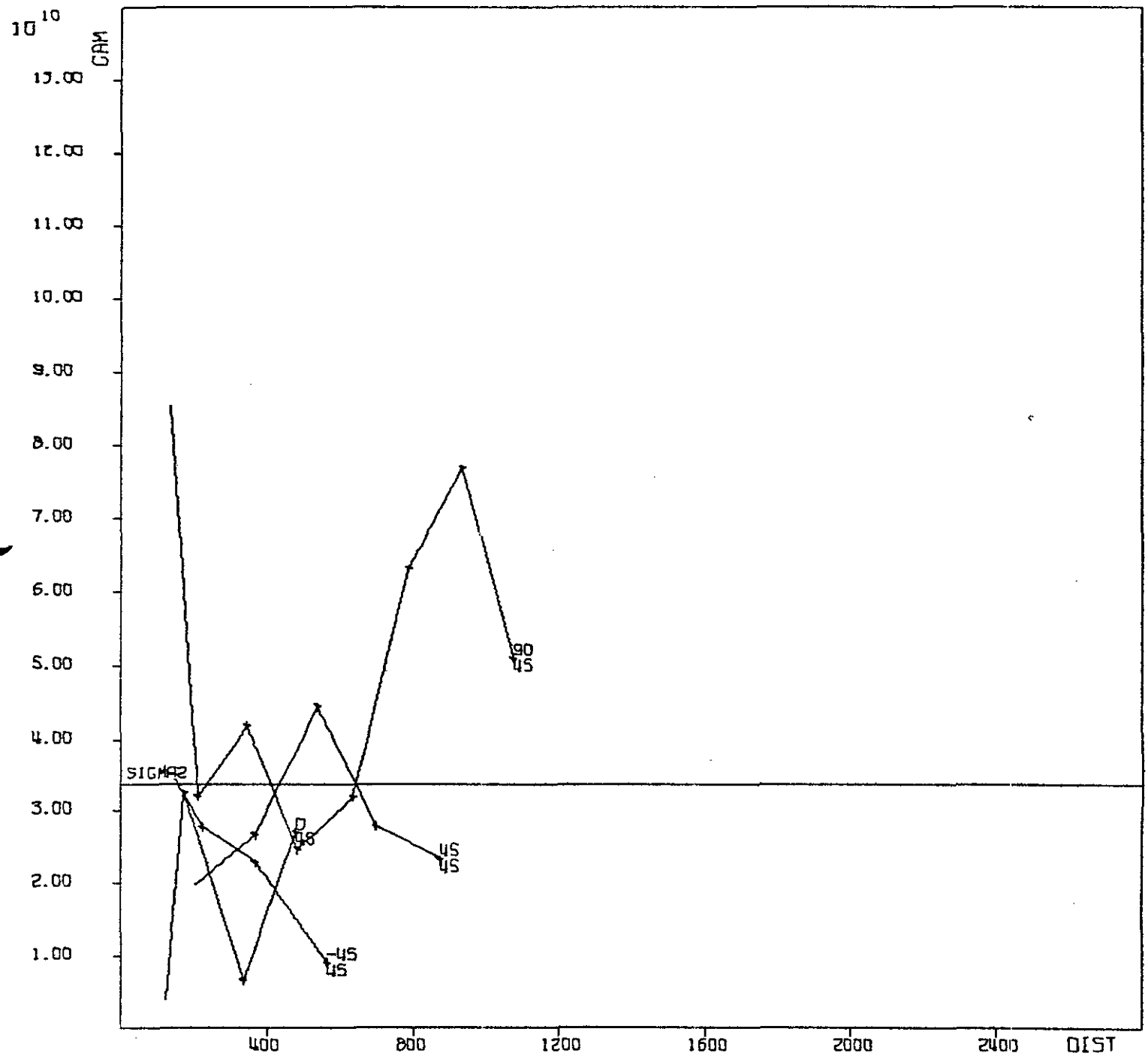
00000120



VARIABLE C0.2 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 3 -----

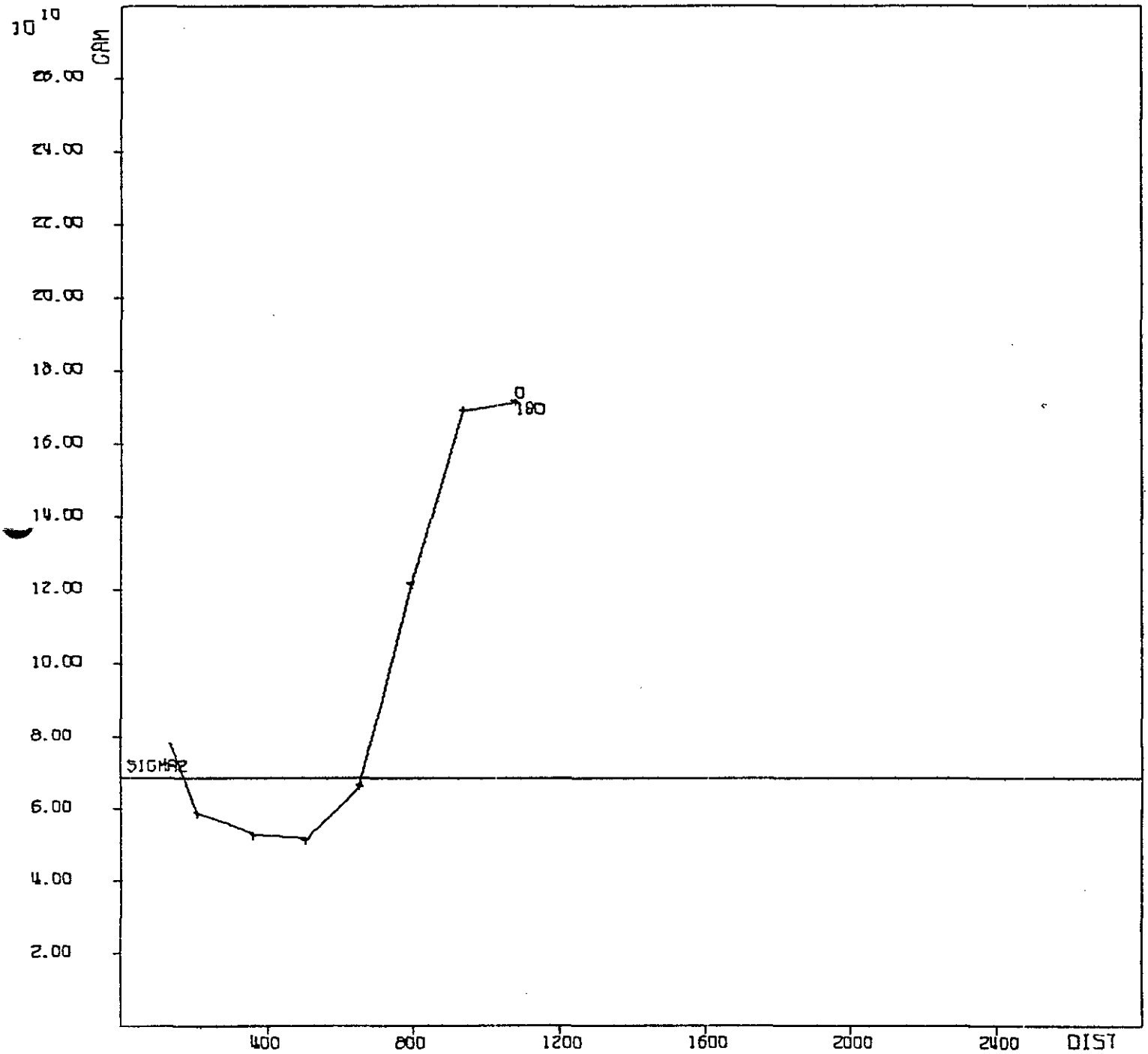
00000120



VARIABLE C0.2 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 3 -----

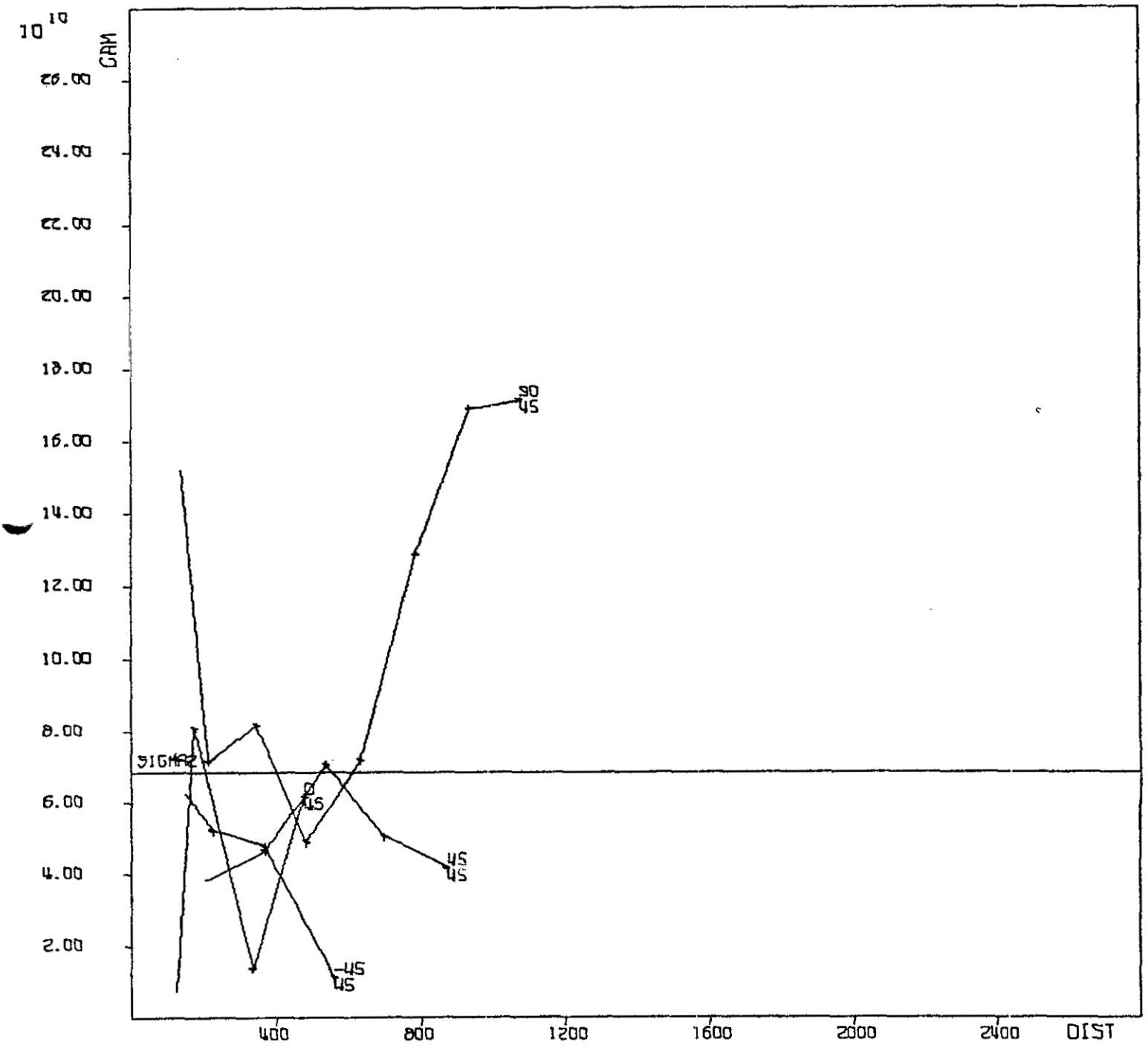
00000120



VARIABLE C0.3 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 3 -----

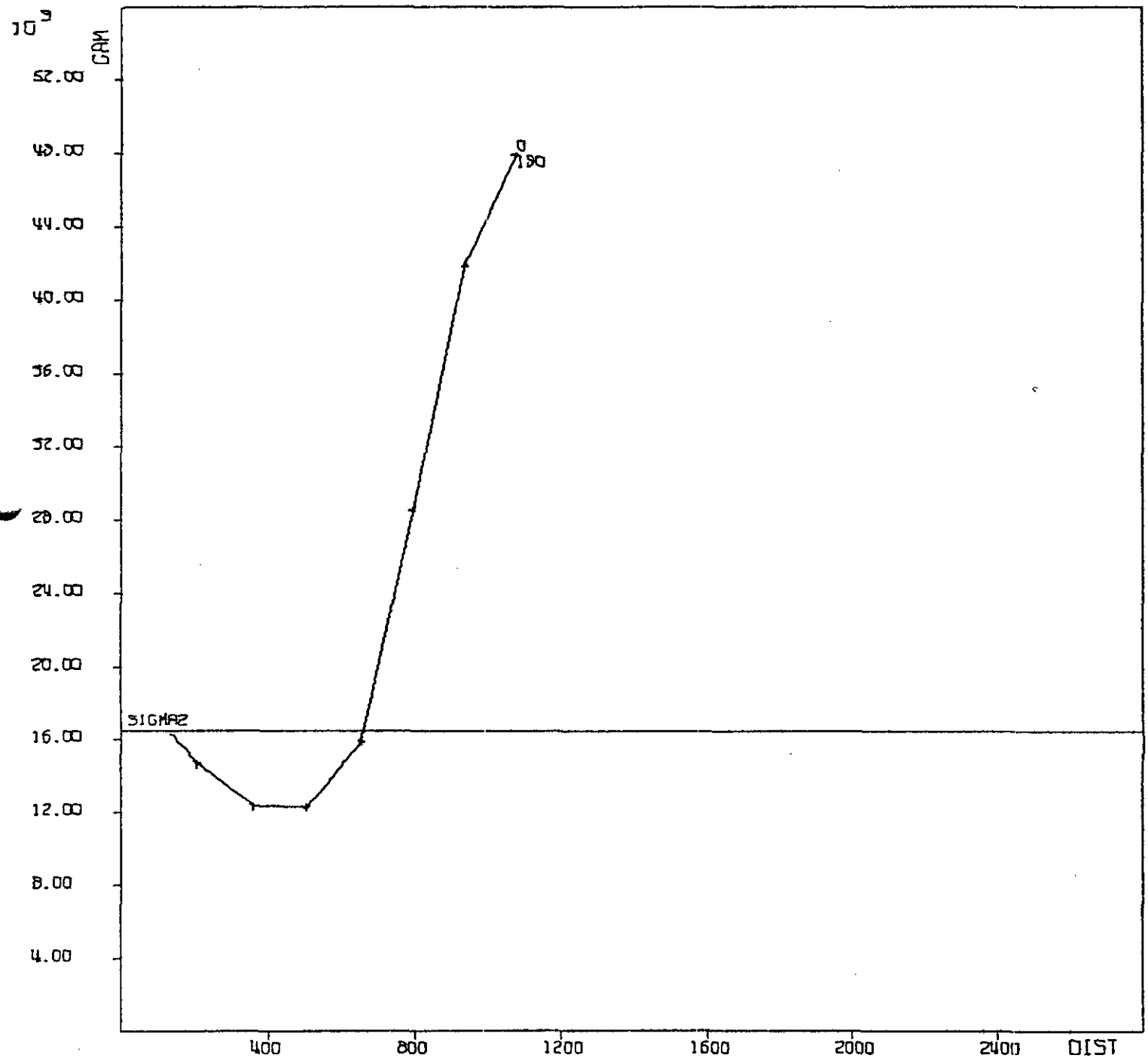
00000120



VARIABLE C0.3 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 3 -----

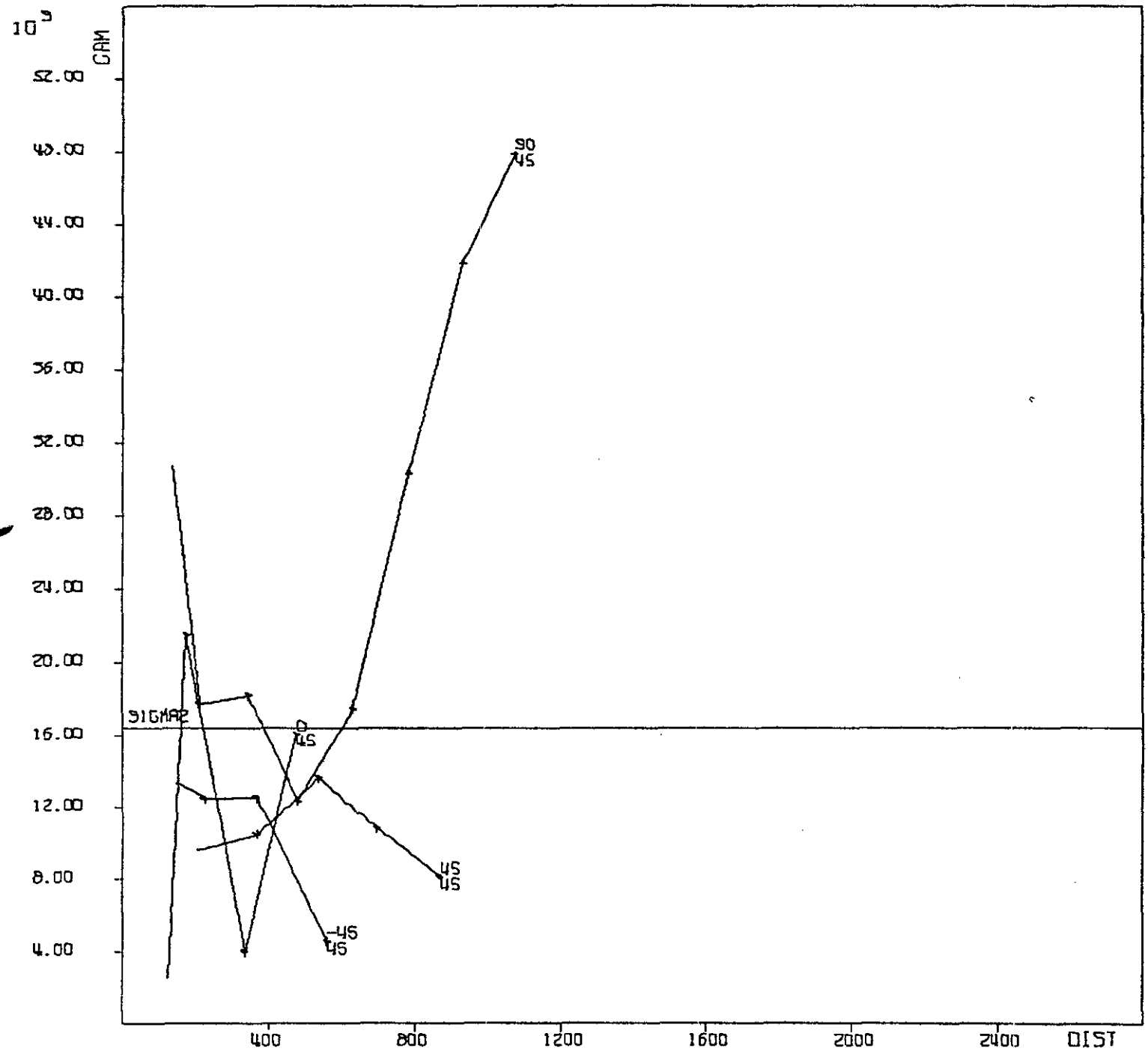
00000120



VARIABLE C0.4 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 3 -----

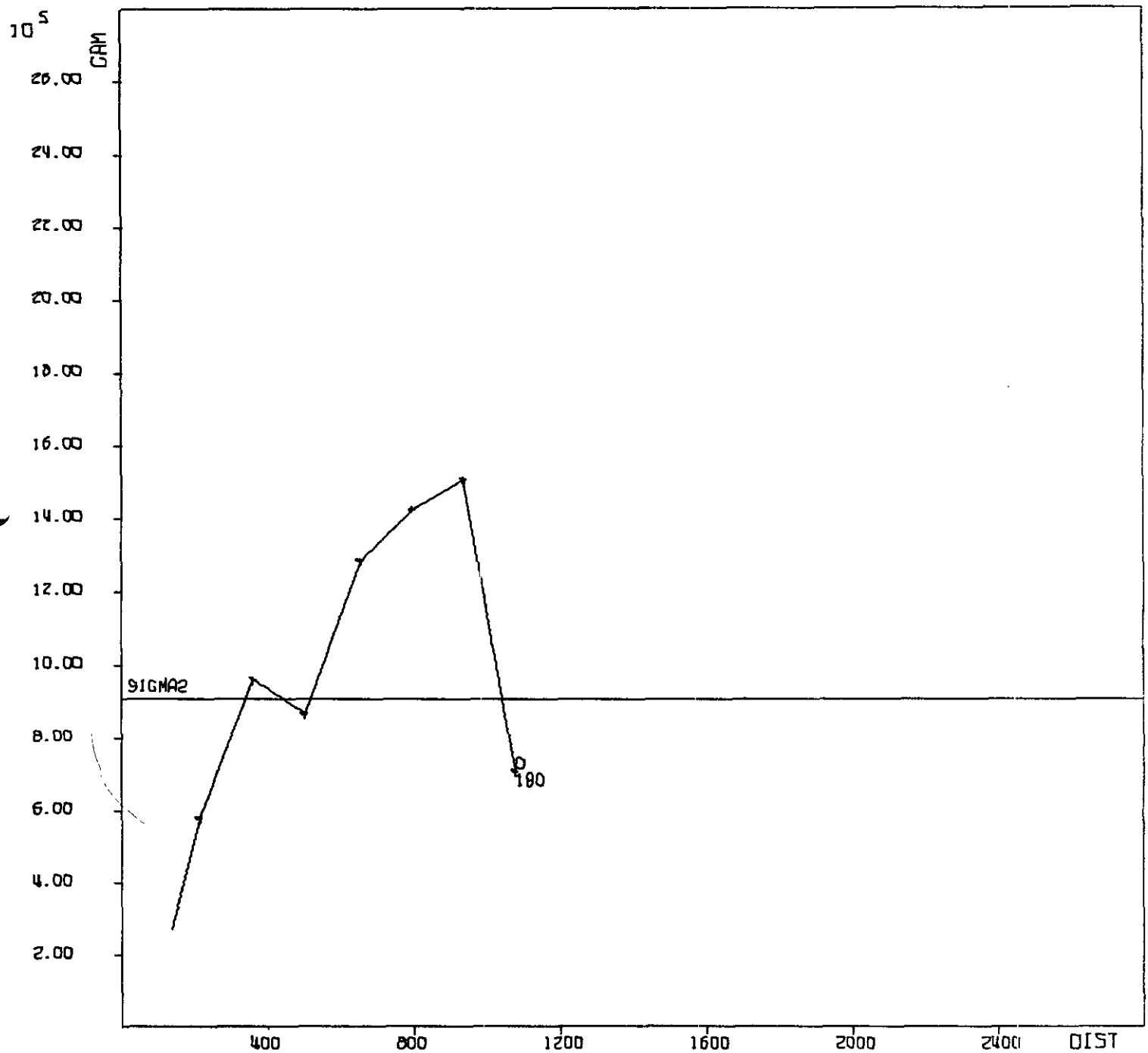
00000120



VARIABLE CO.4 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 3 -----

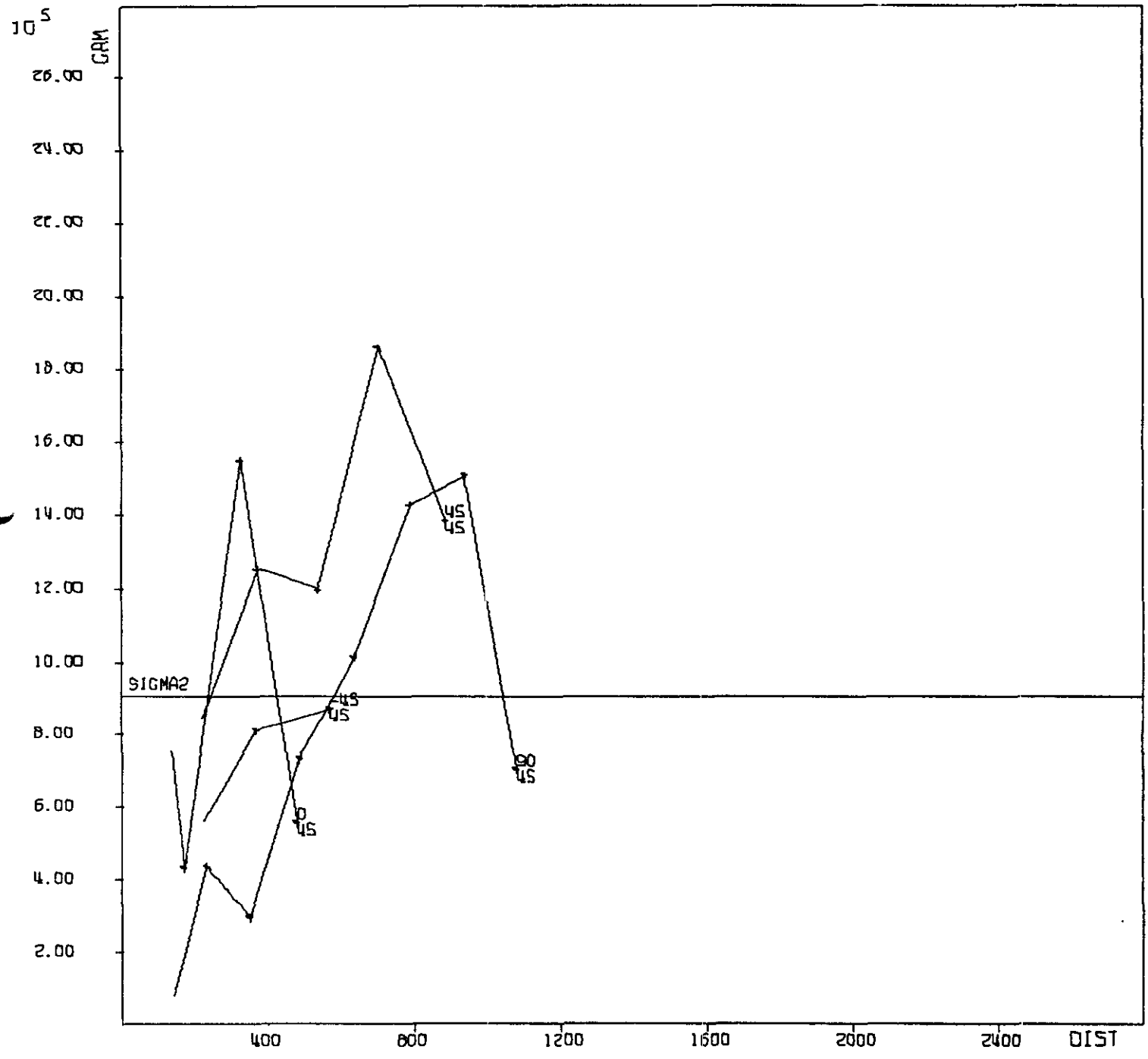
00000120



VARIABLE MEAN ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 4 -----

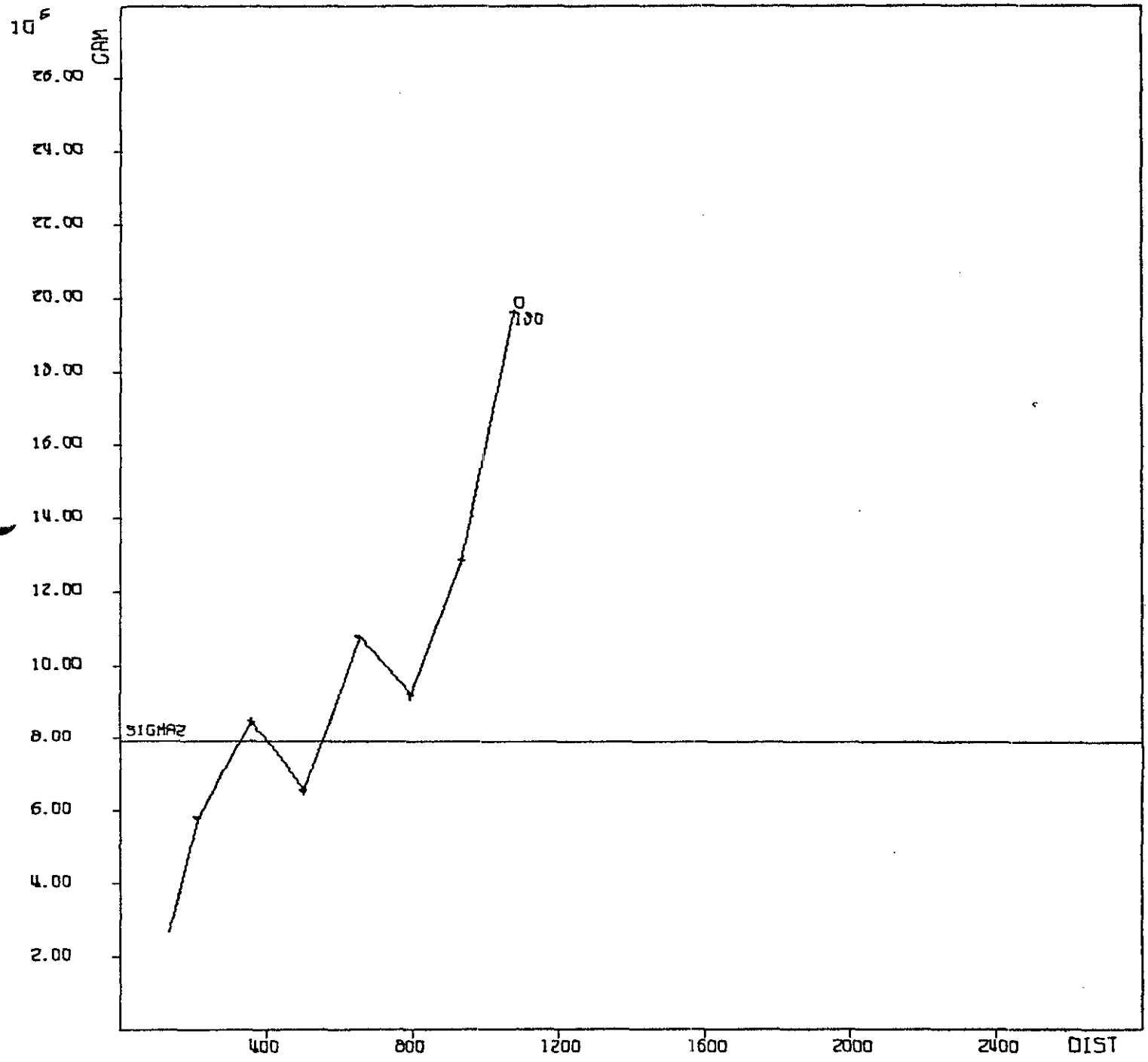
00000120



VARIABLE MEAN ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 4 -----

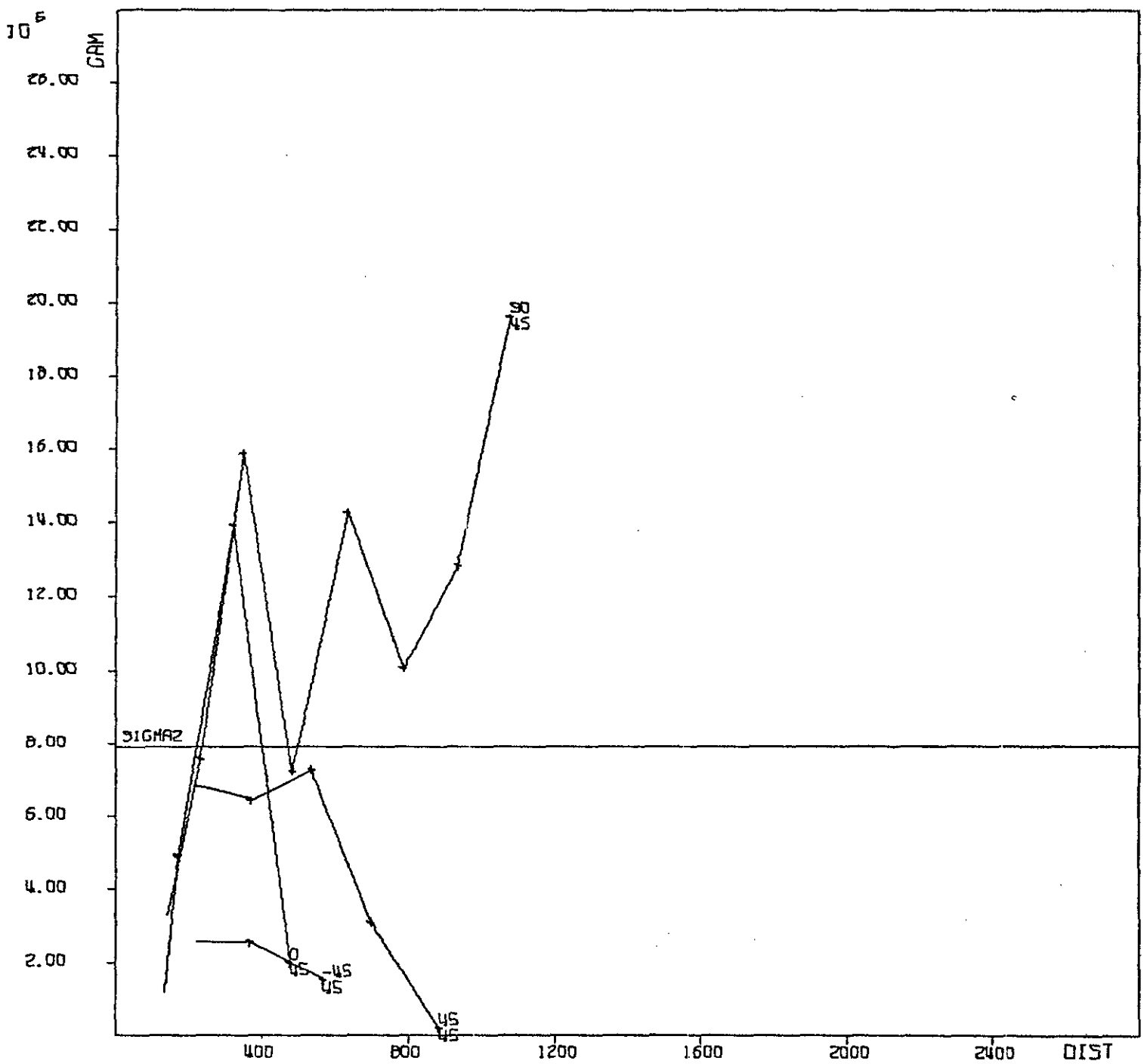
00000120



VARIABLE CO.O ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 4 -----

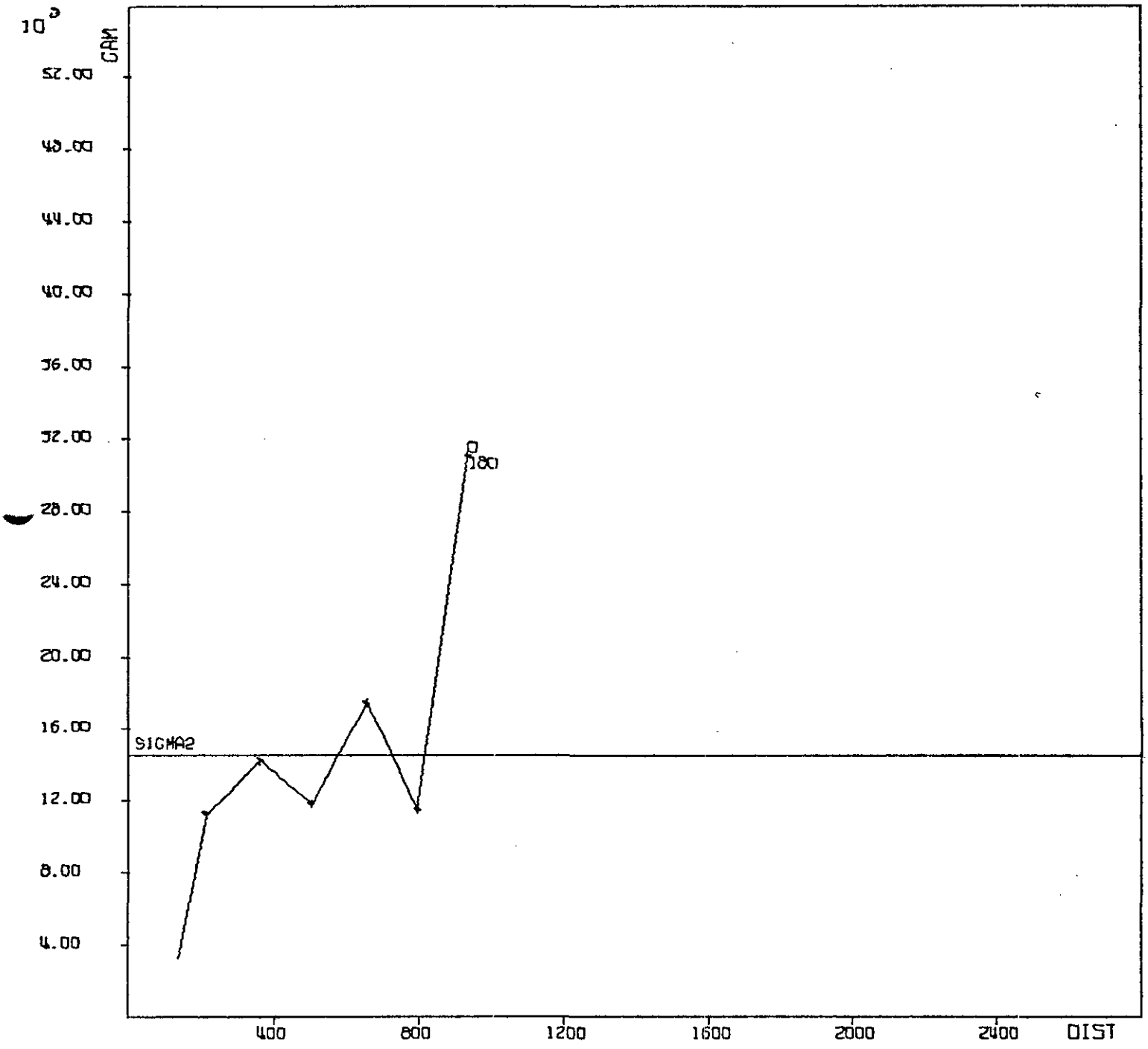
00000120



VARIABLE CO.O ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 4 -----

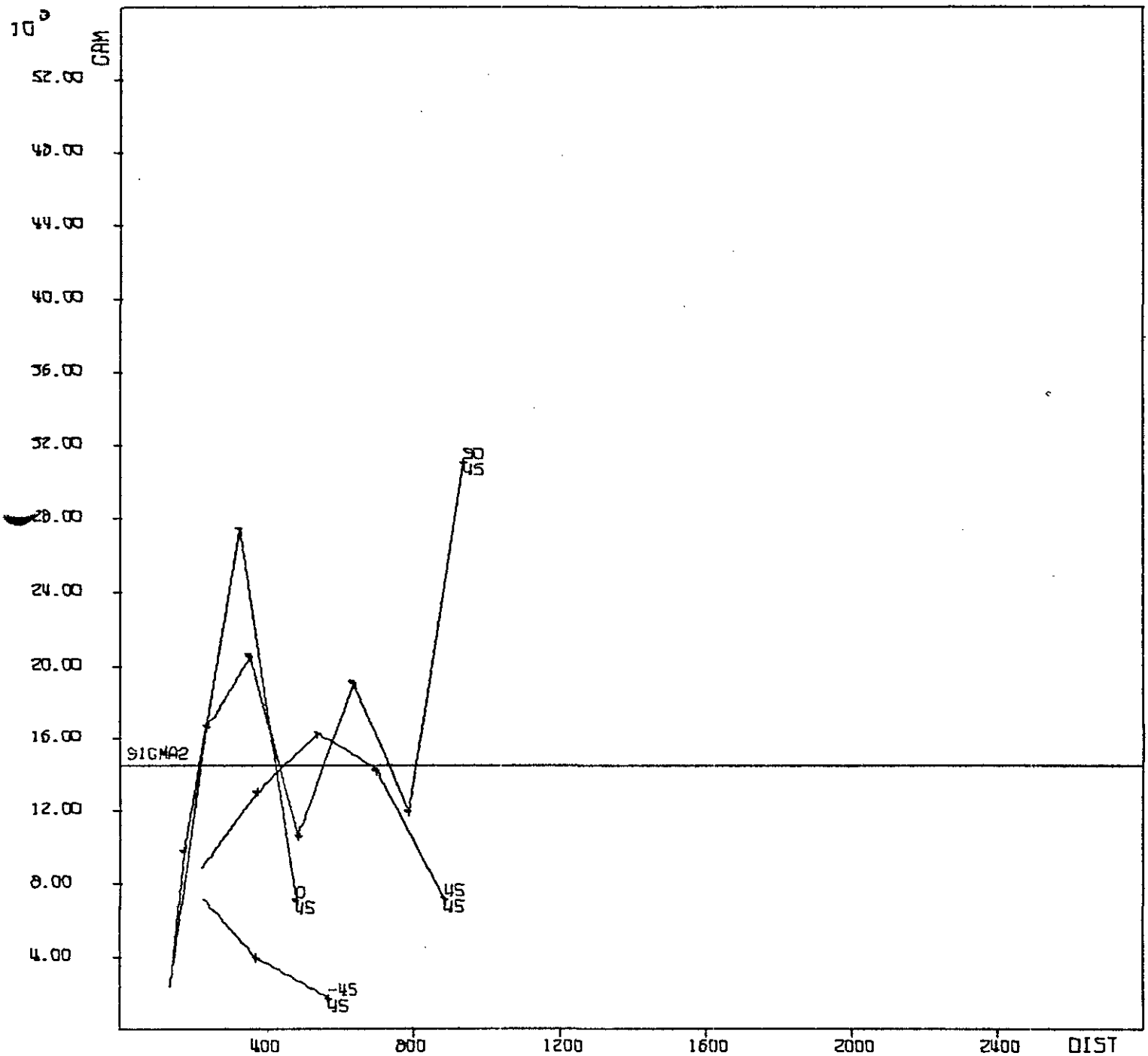
00000120



VARIABLE CO.1 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 4 -----

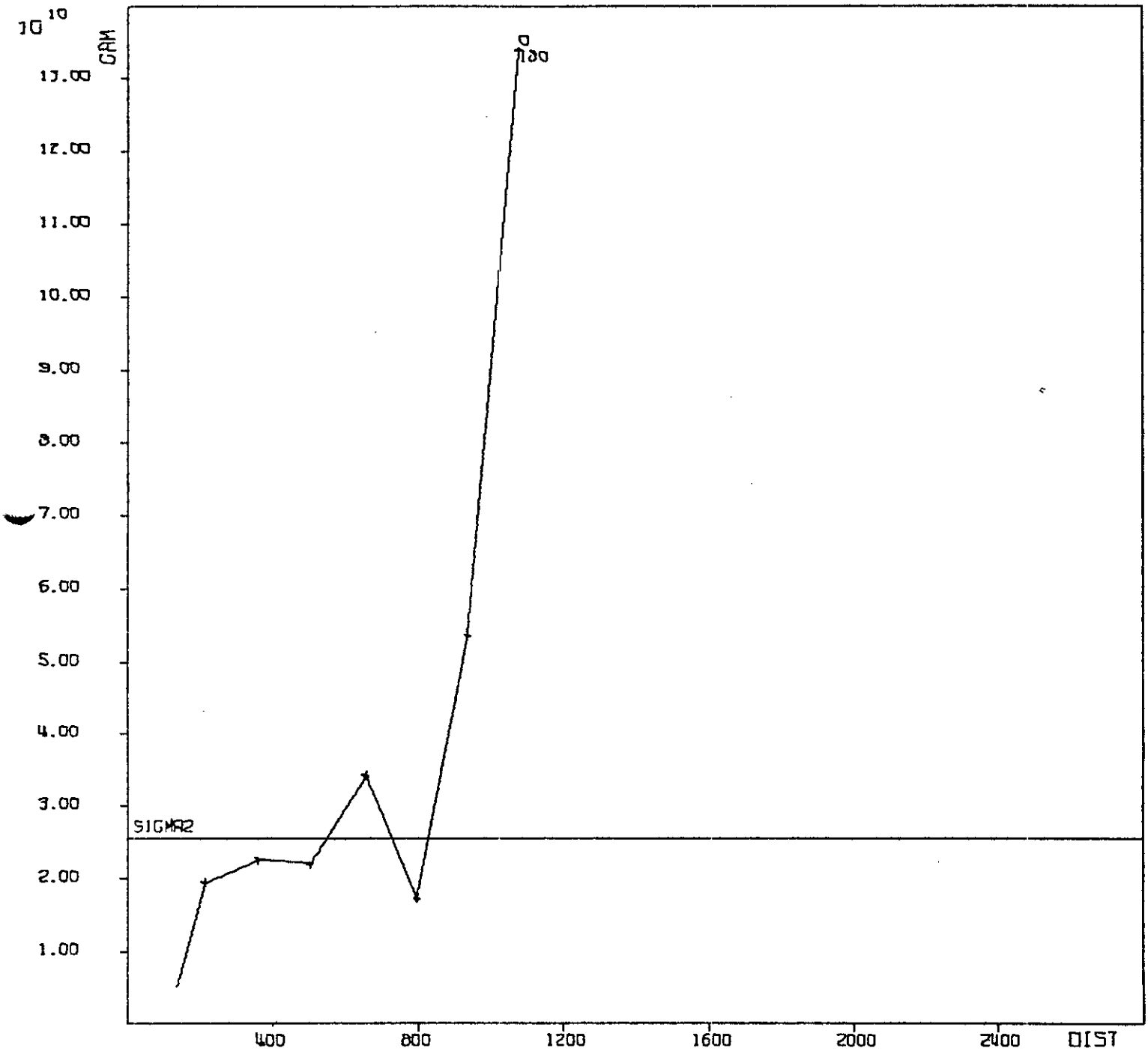
00000120



VARIABLE C0.1 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 4 -----

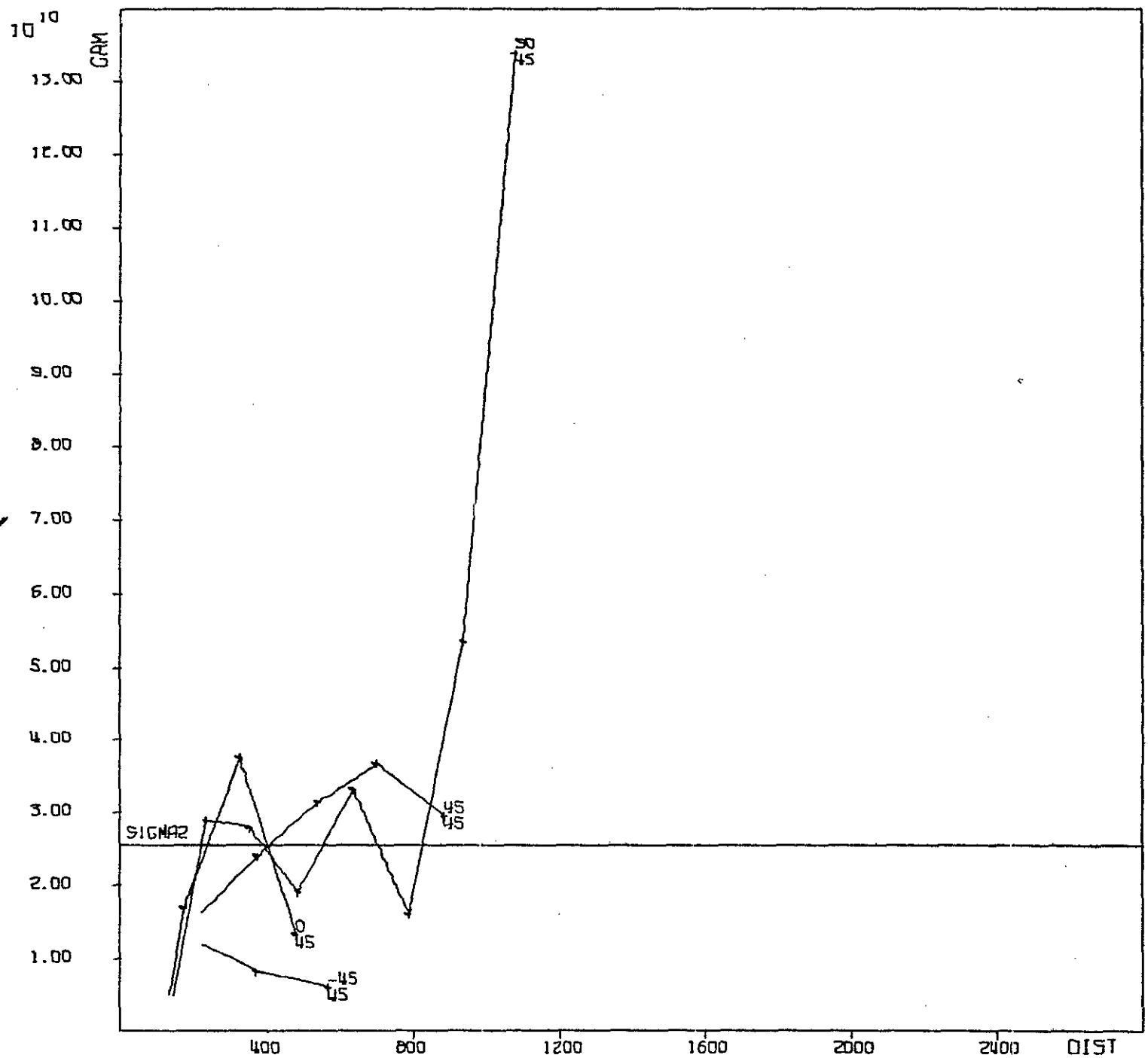
00000120



VARIABLE C0.2 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 4 -----

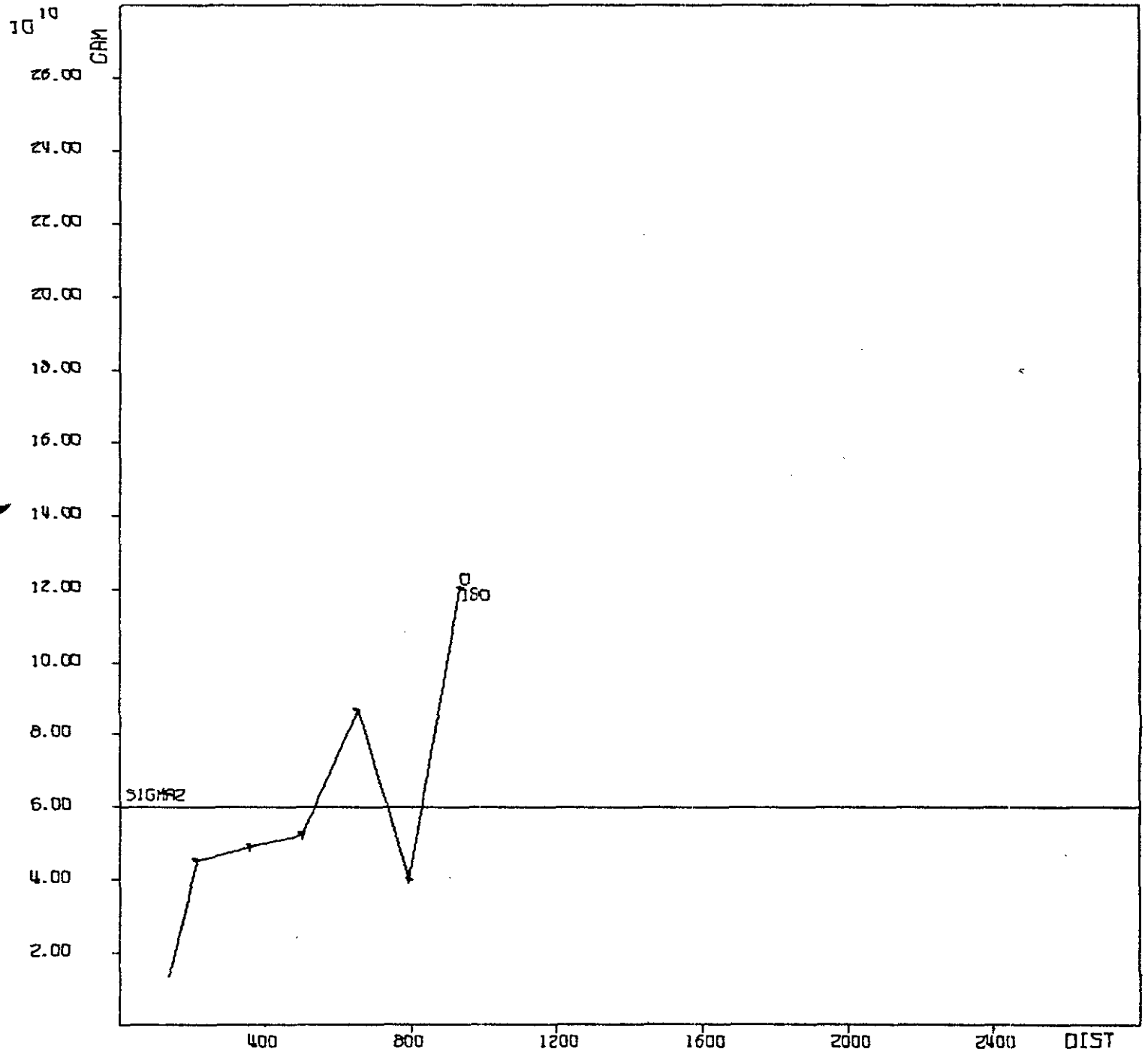
00000120



VARIABLE CO.2 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 4 -----

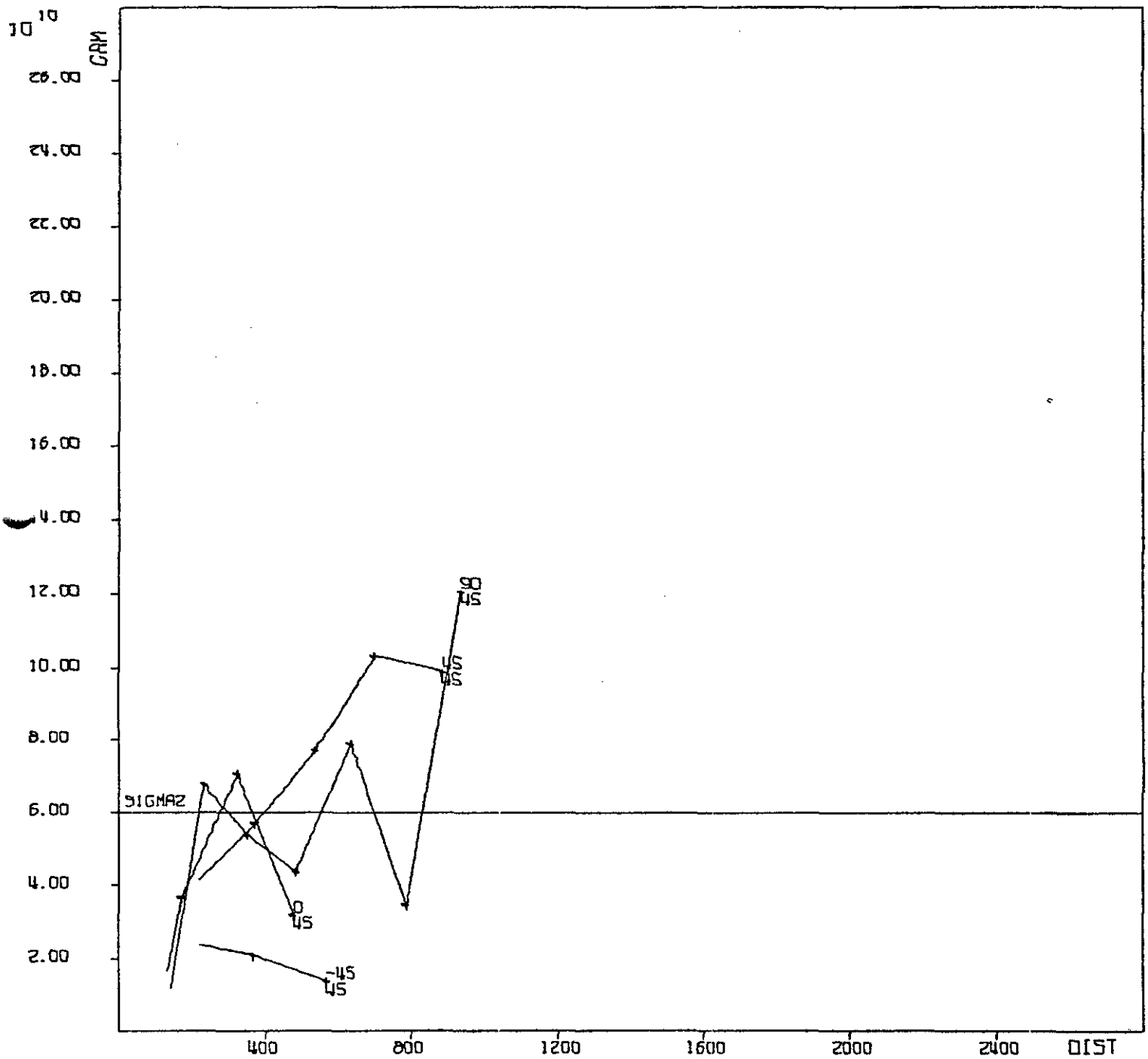
00000120



VARIABLE CO.3 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 4 -----

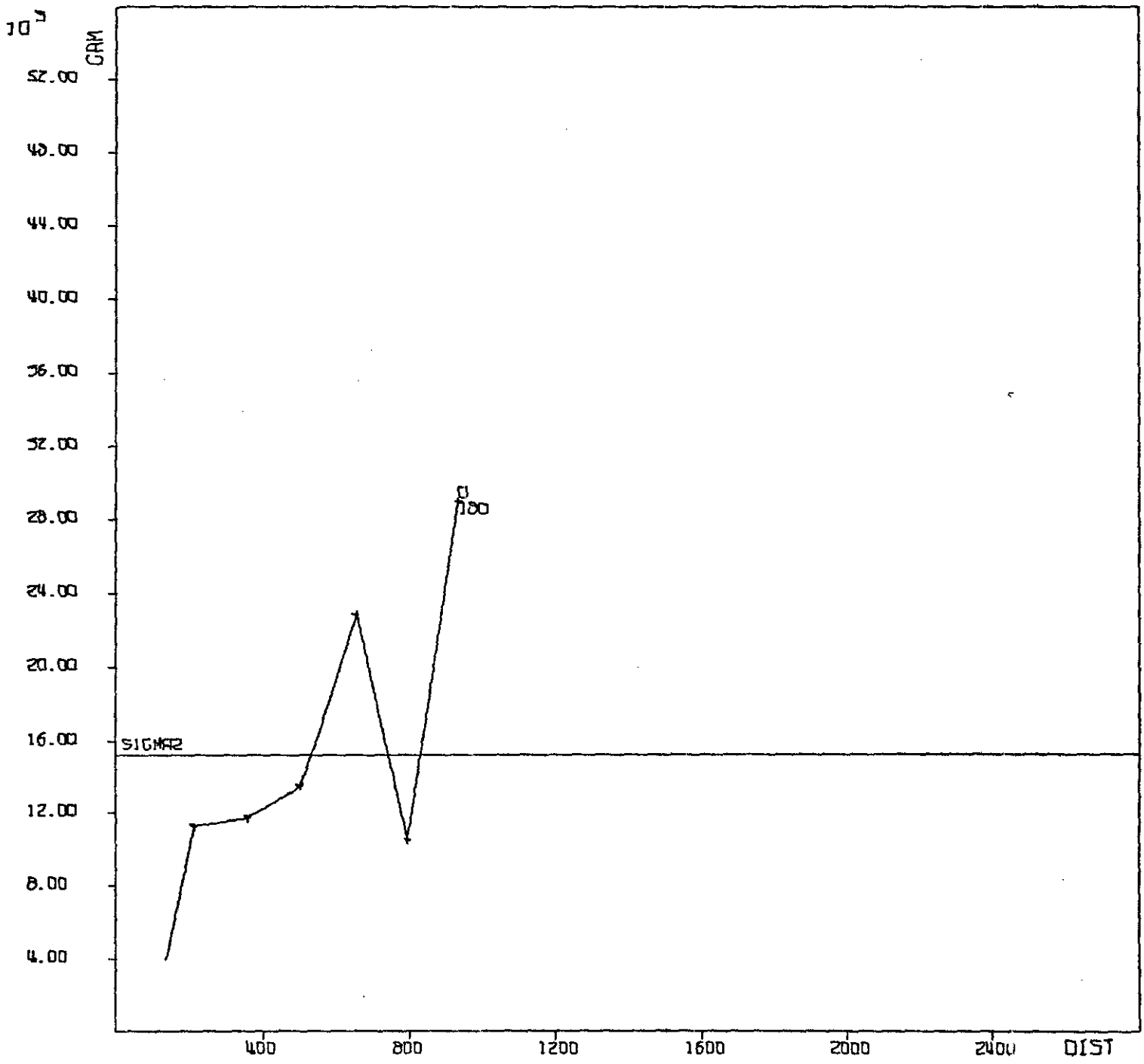
00000120



VARIABLE CO.3 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 4 -----

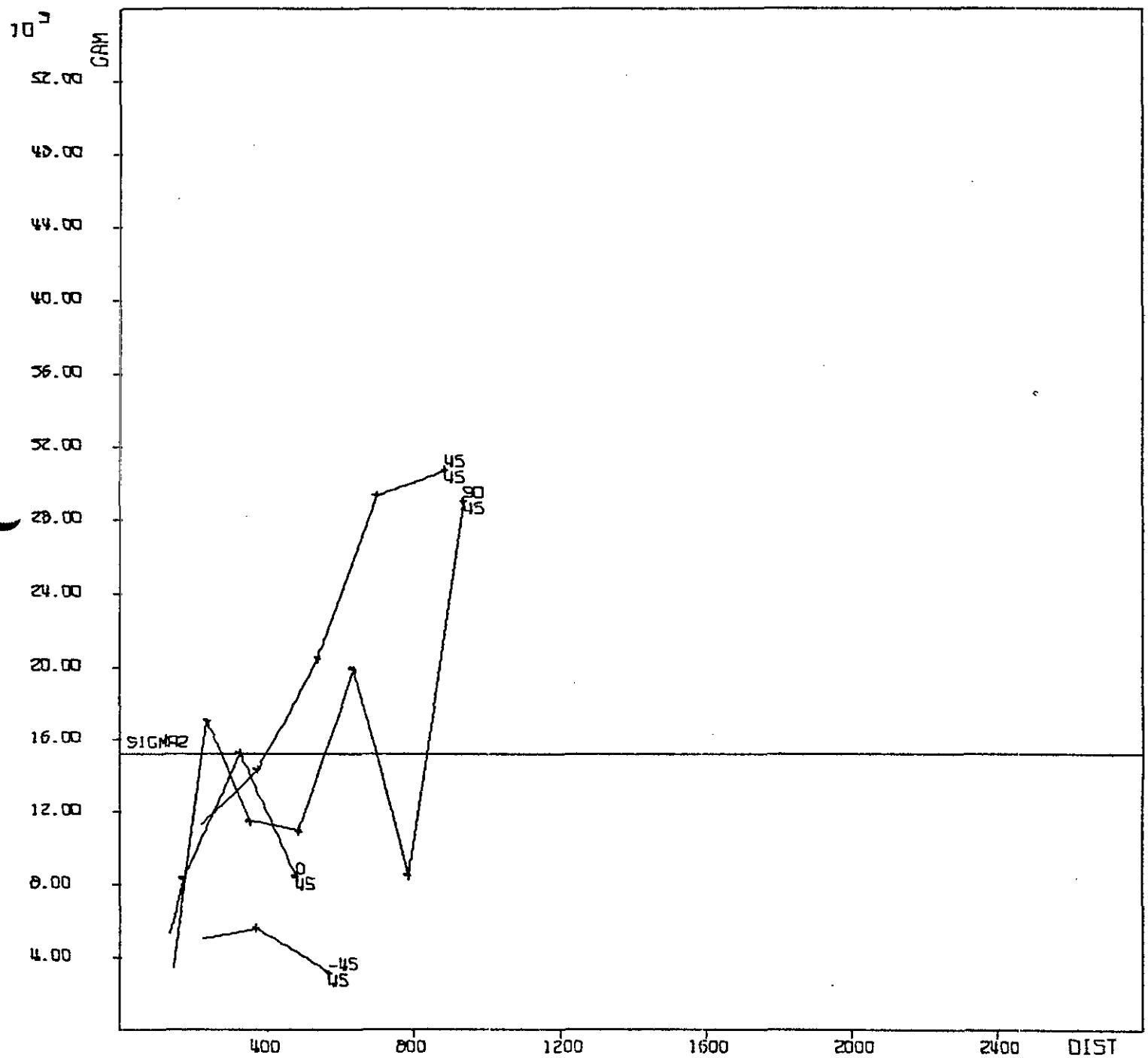
00000120



VARIABLE CO.4 ABSOLUTE VARIOGRAM

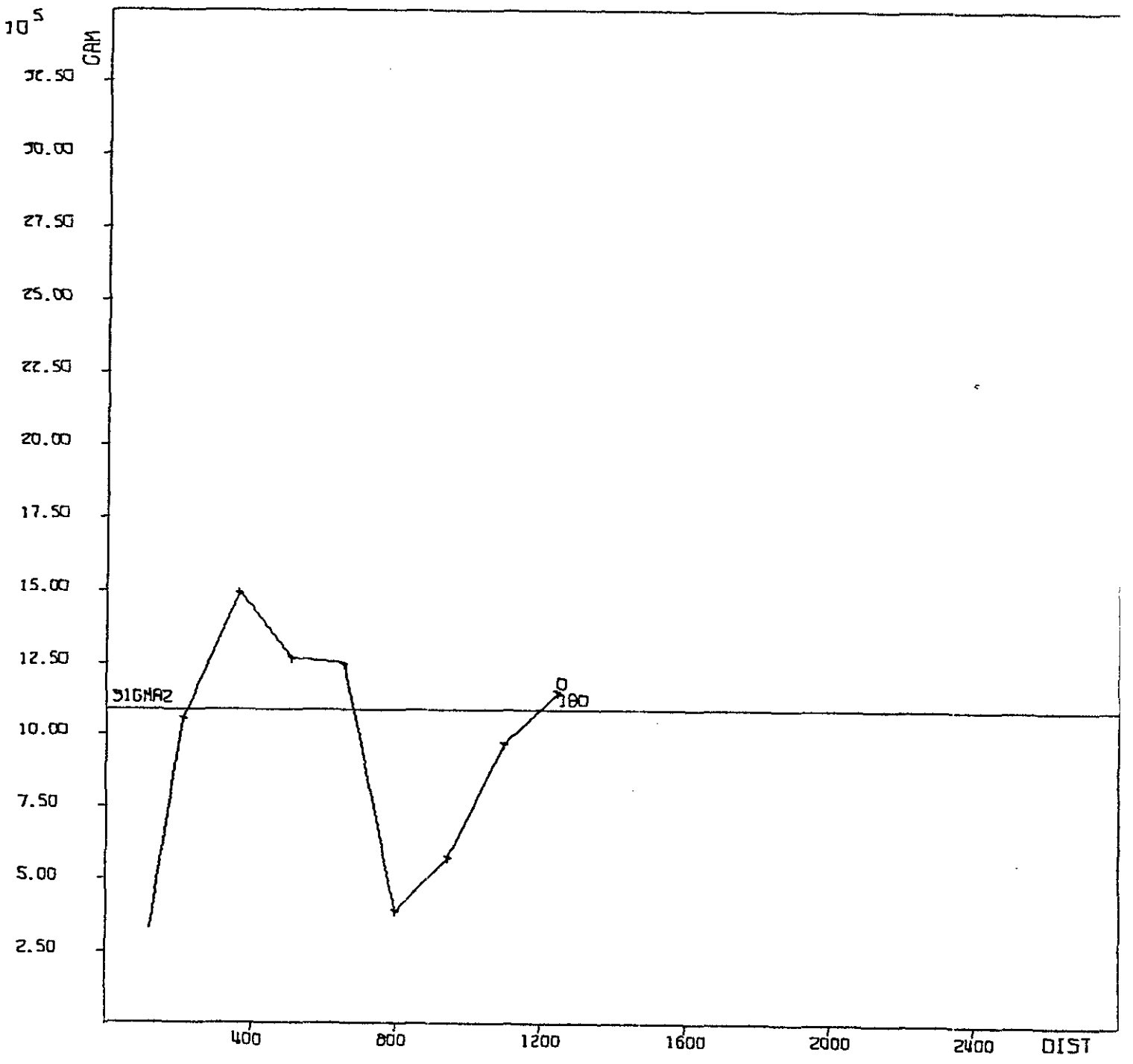
HAT CREEK ----- ZONE A 4 -----

00000120



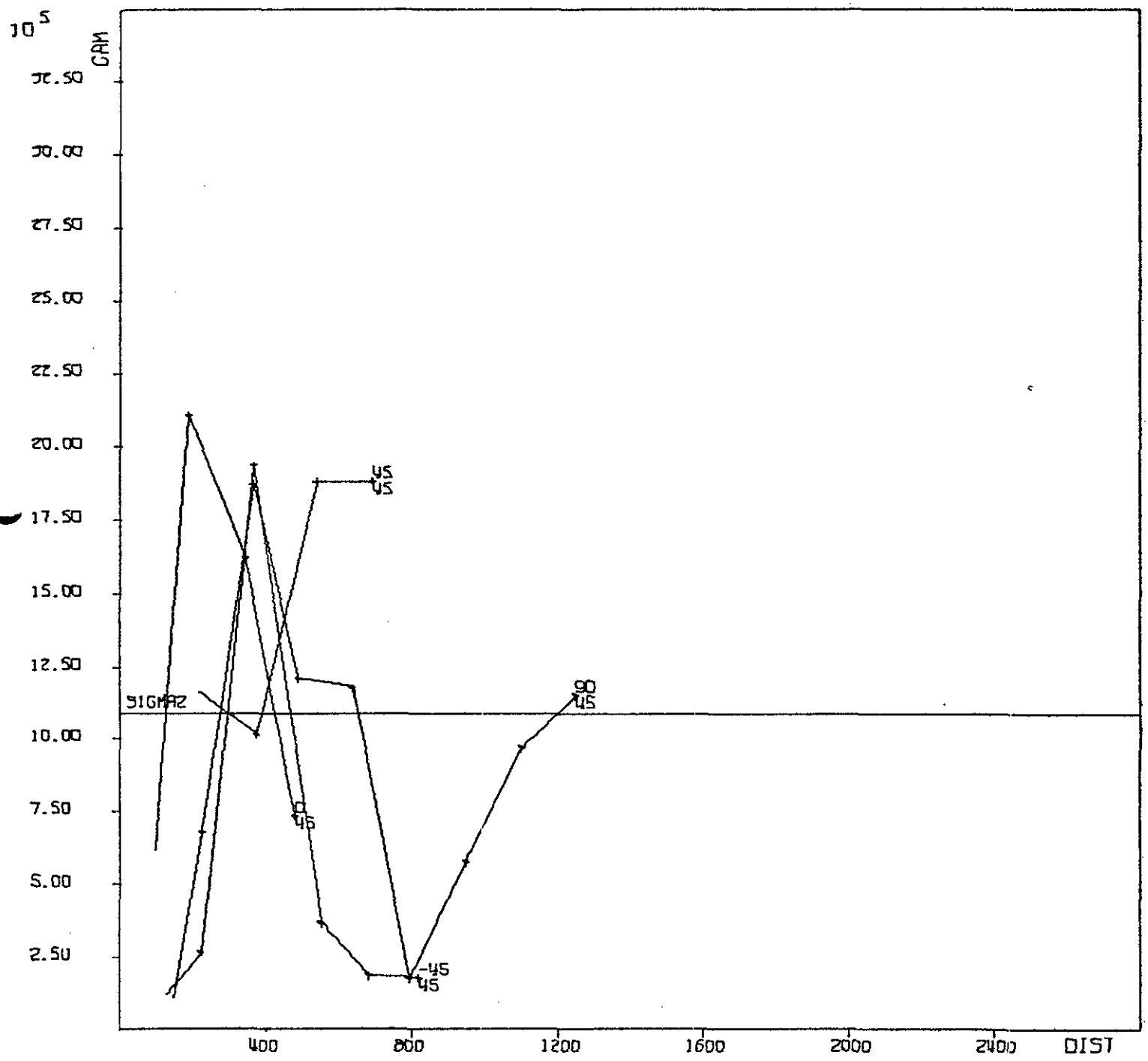
VARIABLE CO.4 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 4 -----



VARIABLE MEAN ABSOLUTE VARIOGRAM

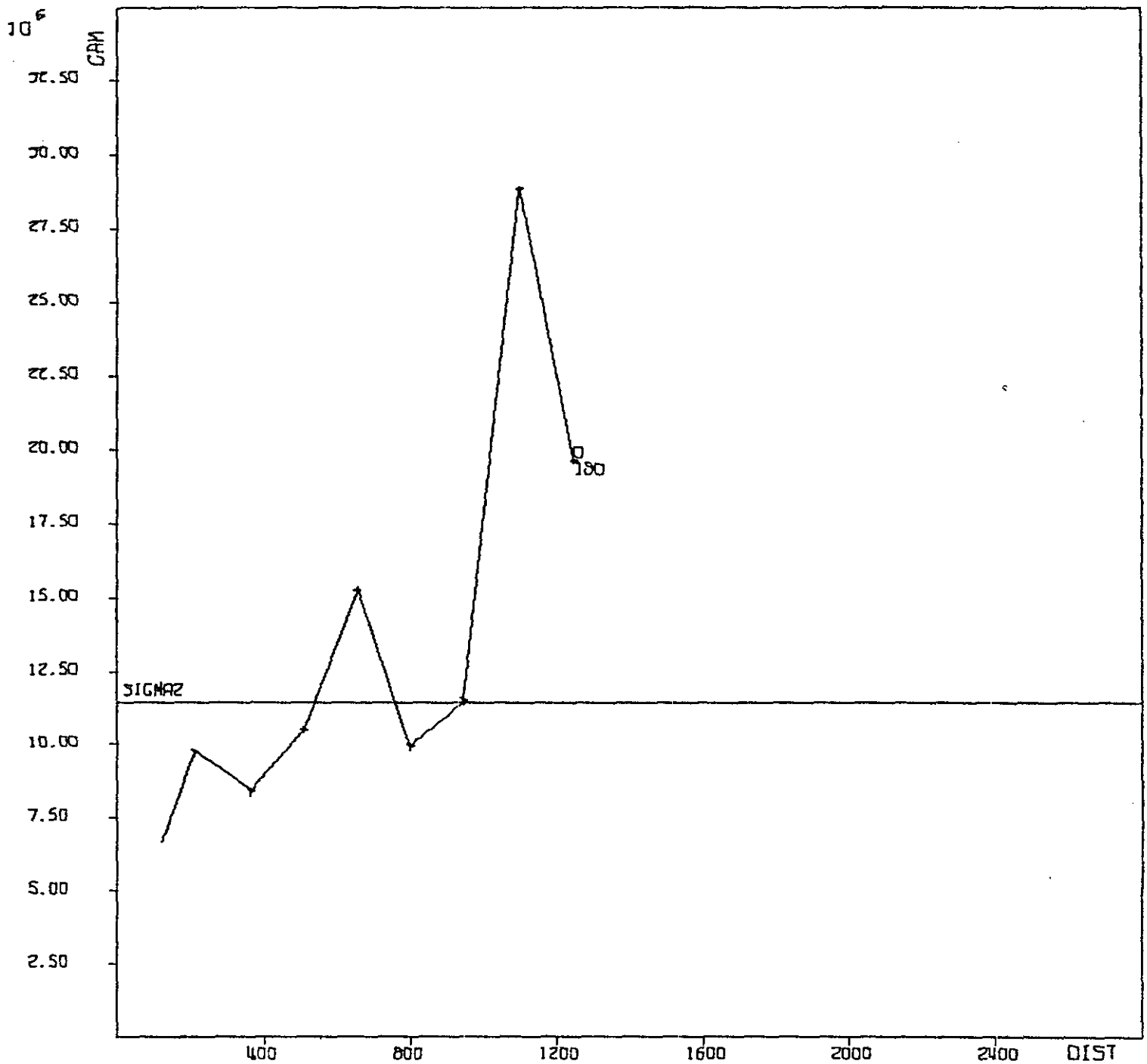
HAT CREEK ----- ZONE A 5 -----



VARIABLE MEAN ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A S -----

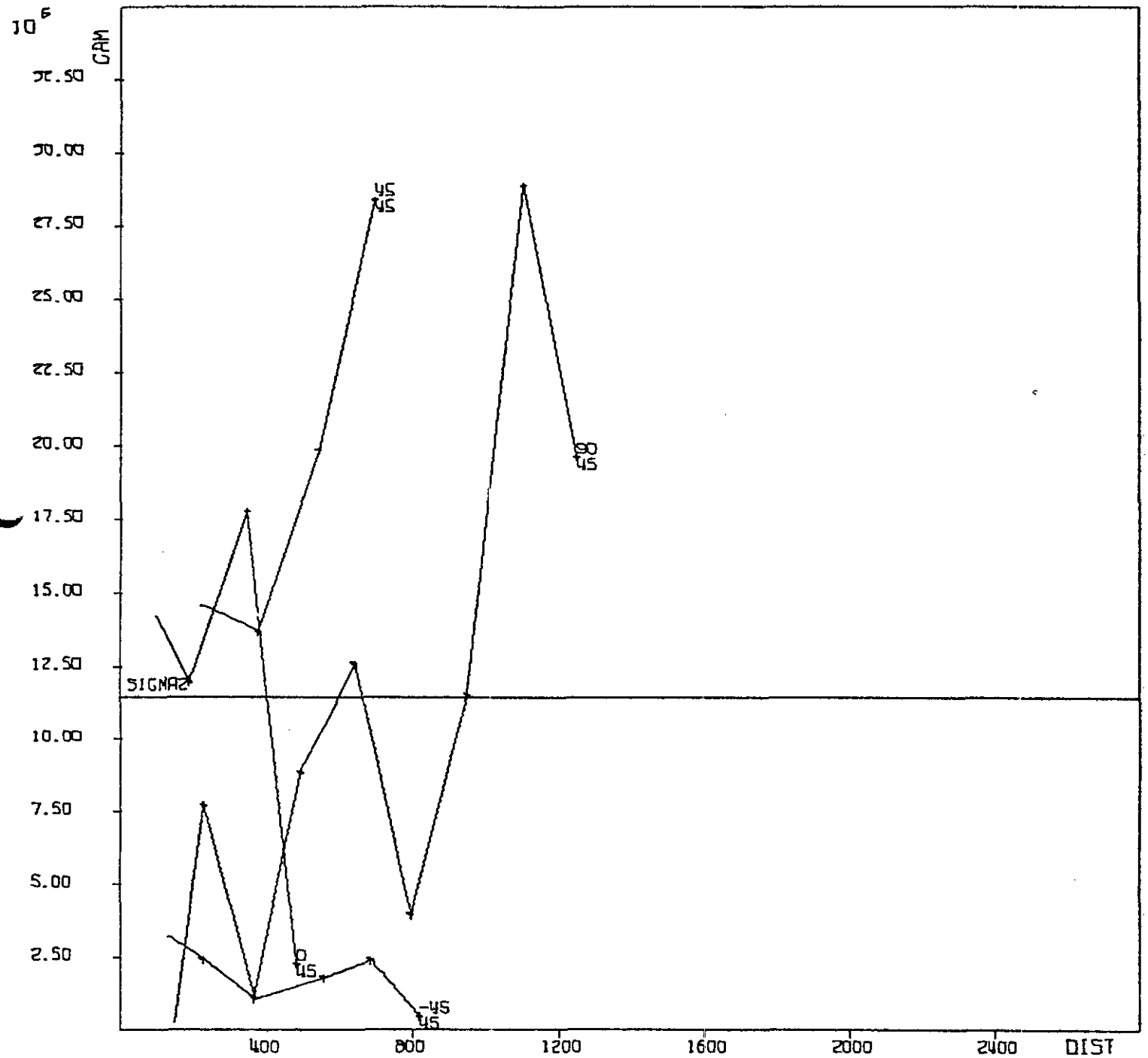
00000120



VARIABLE C0.0 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A S -----

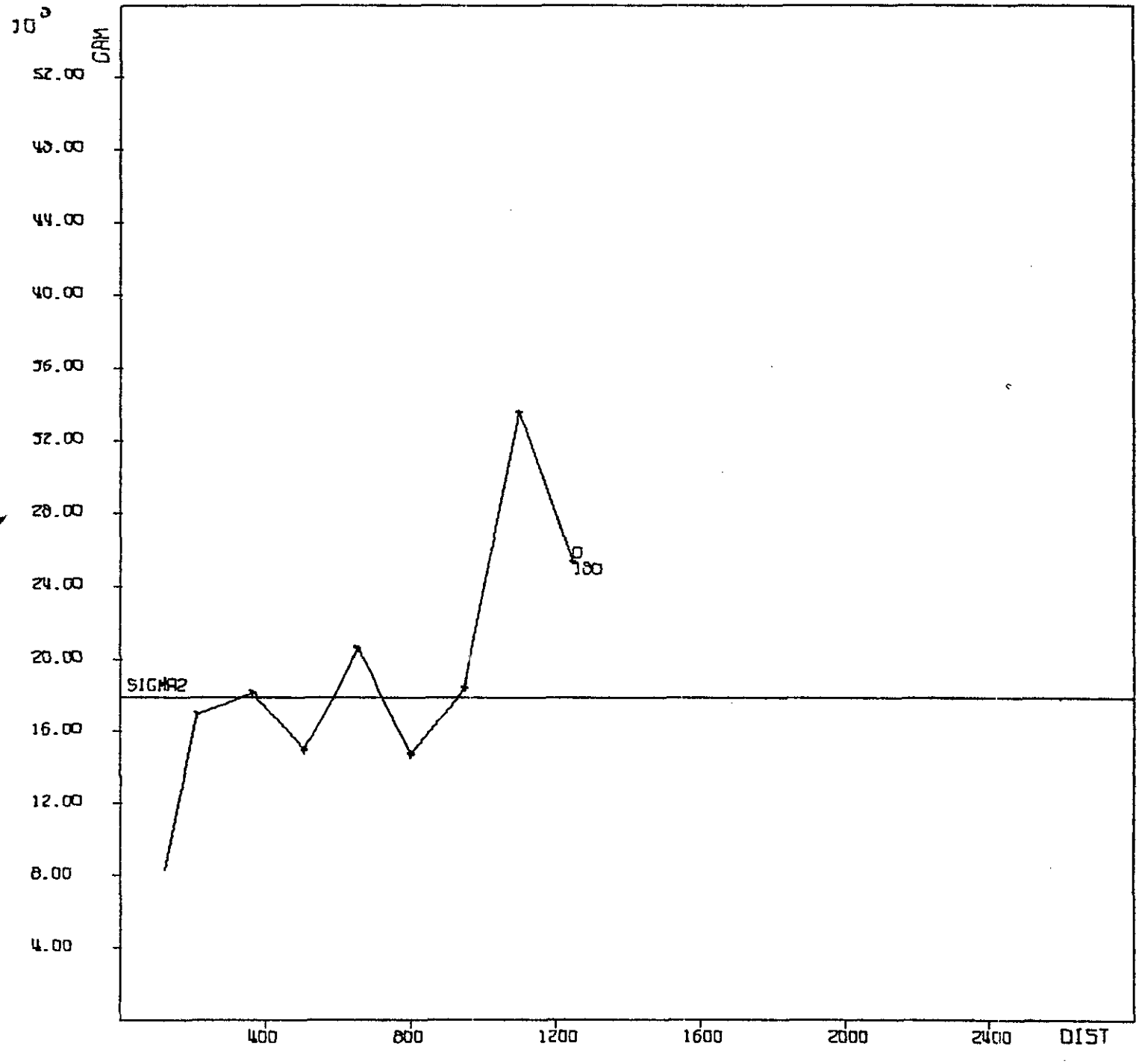
00000120



VARIABLE C0.0 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A 5 -----

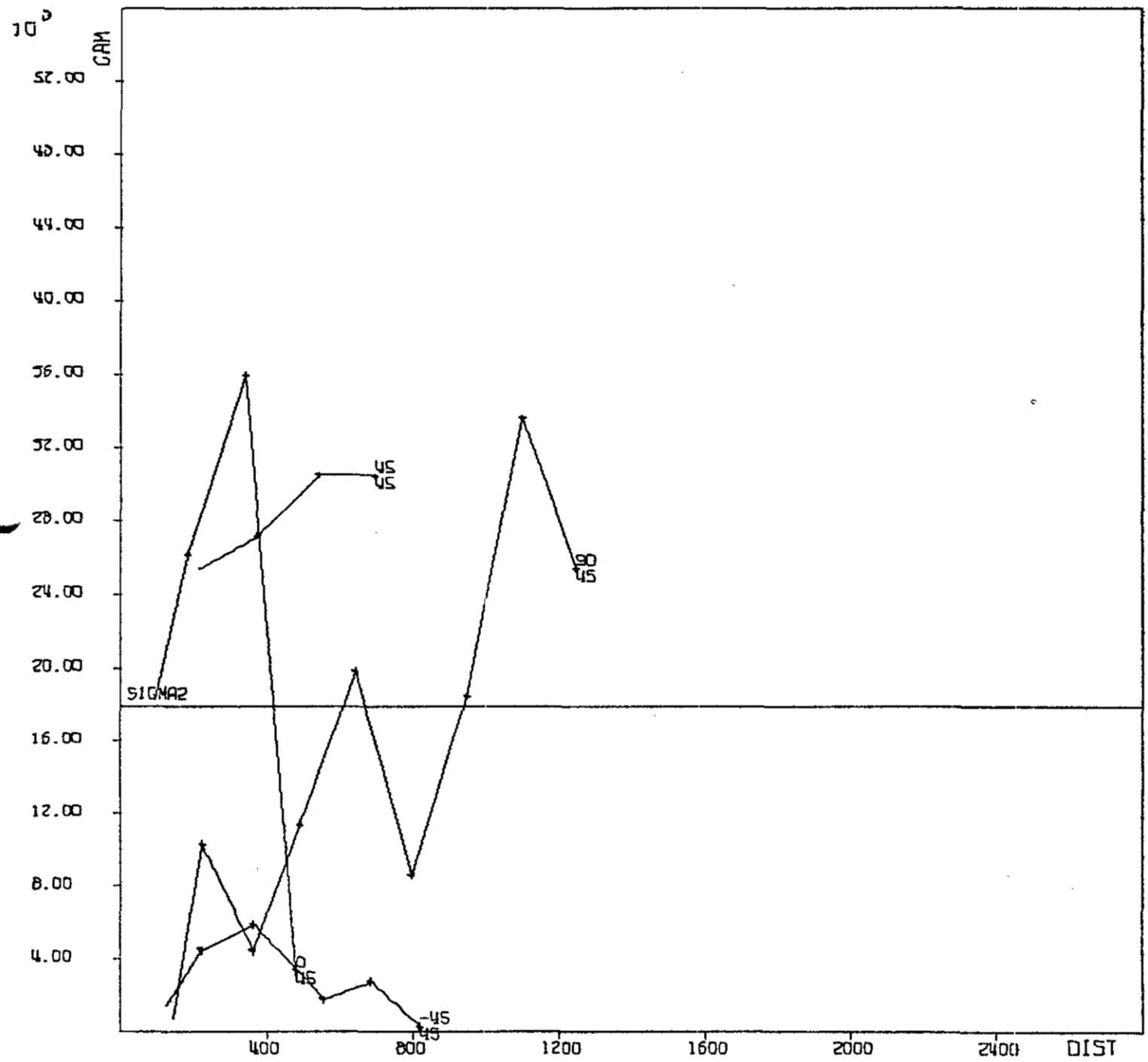
00000120



VARIABLE C0.1 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A S -----

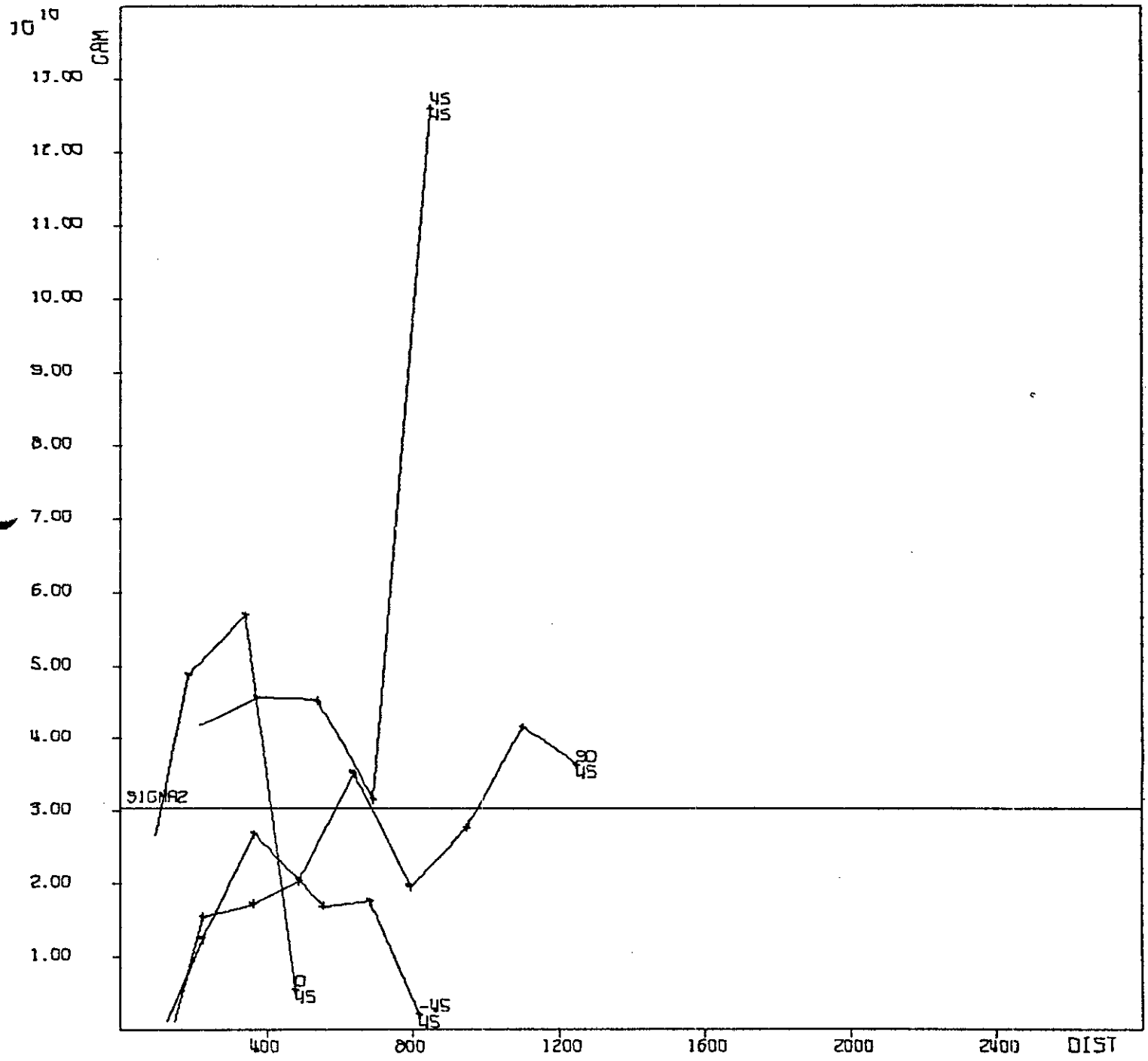
00000120



VARIABLE C0.1 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A S -----

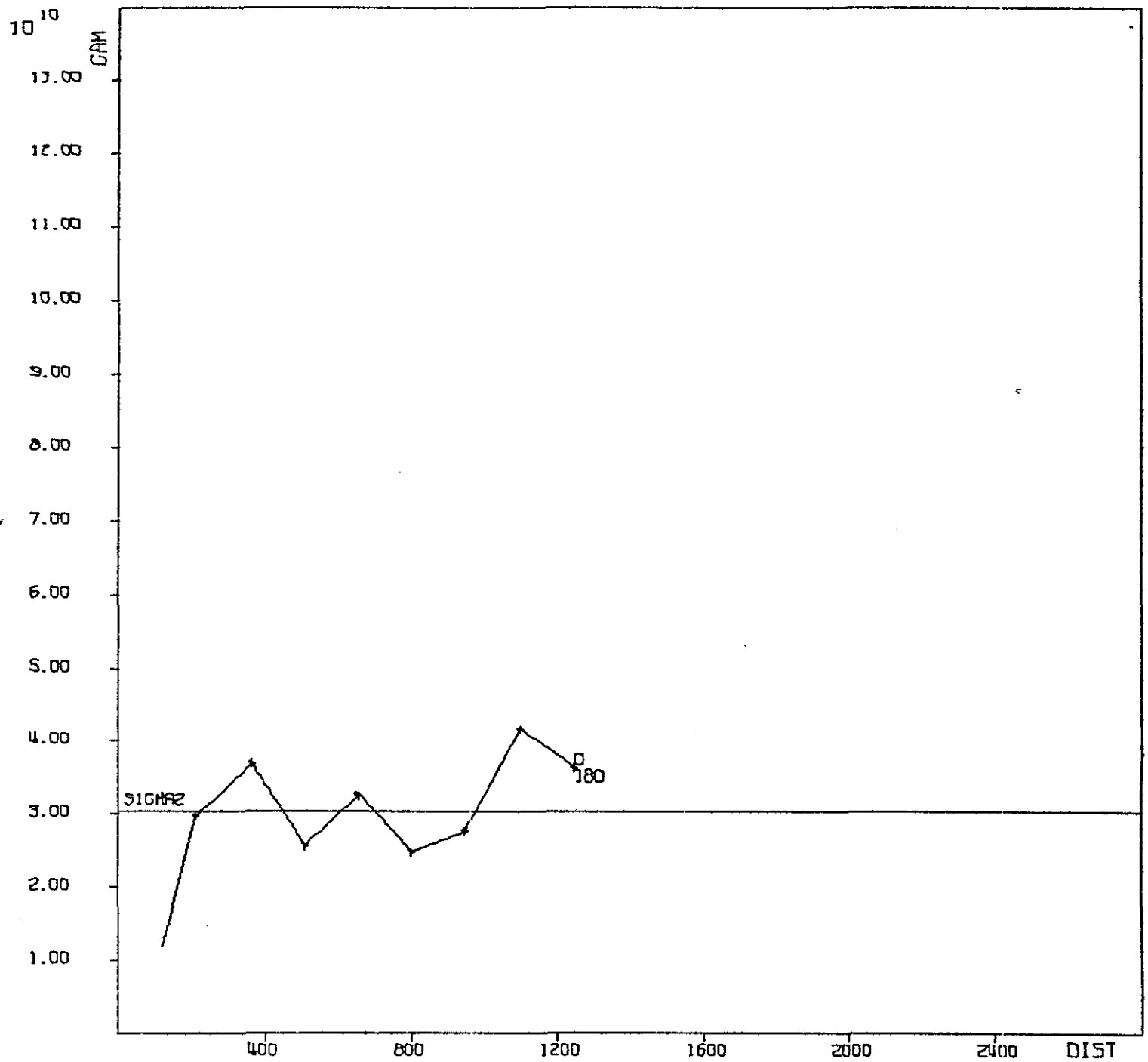
00000120



VARIABLE C0.2 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A S -----

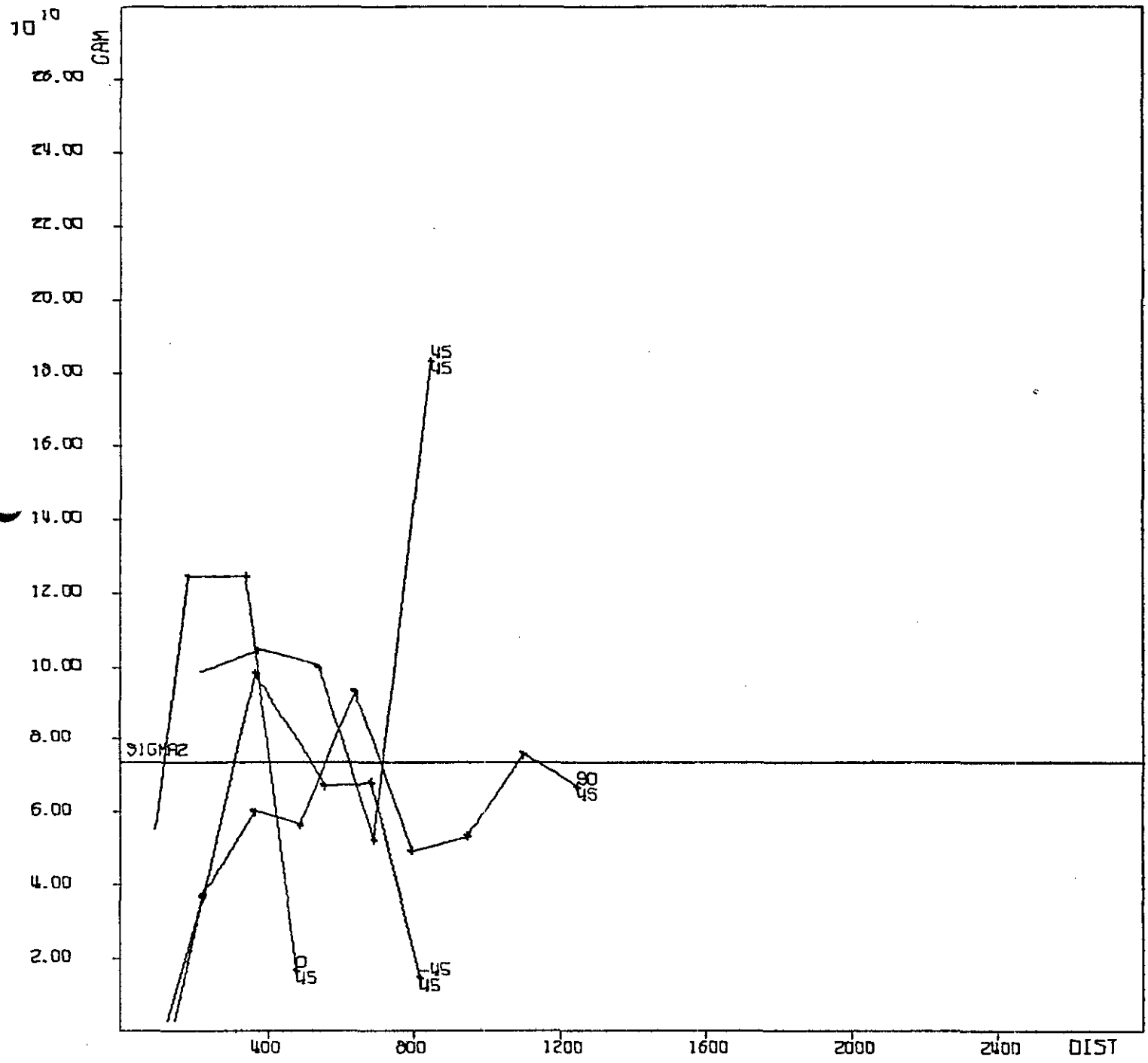
00000120



VARIABLE CO.2 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A S -----

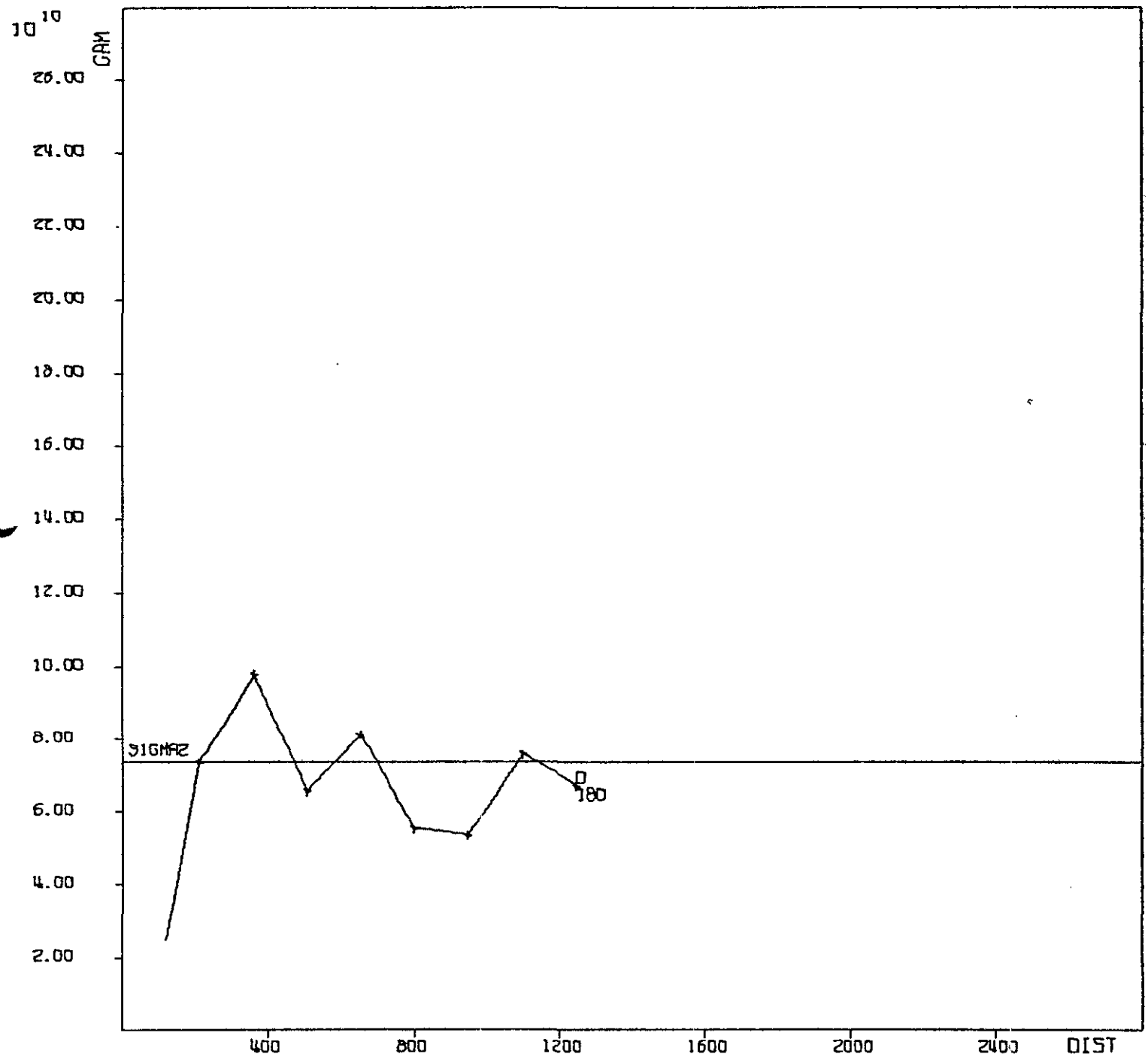
00000120



VARIABLE C0.3 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A S -----

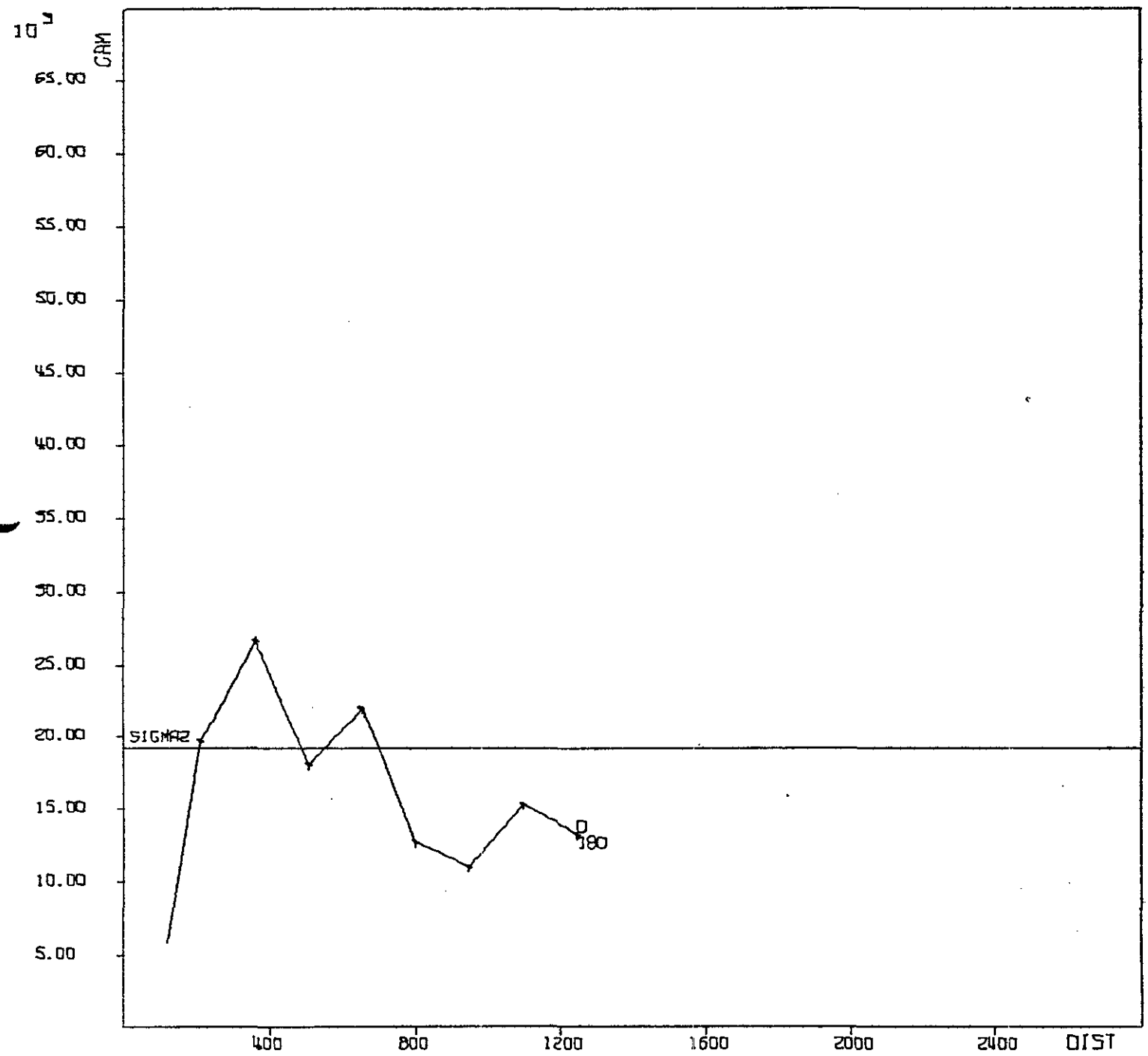
00000120



VARIABLE C0.3 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A S -----

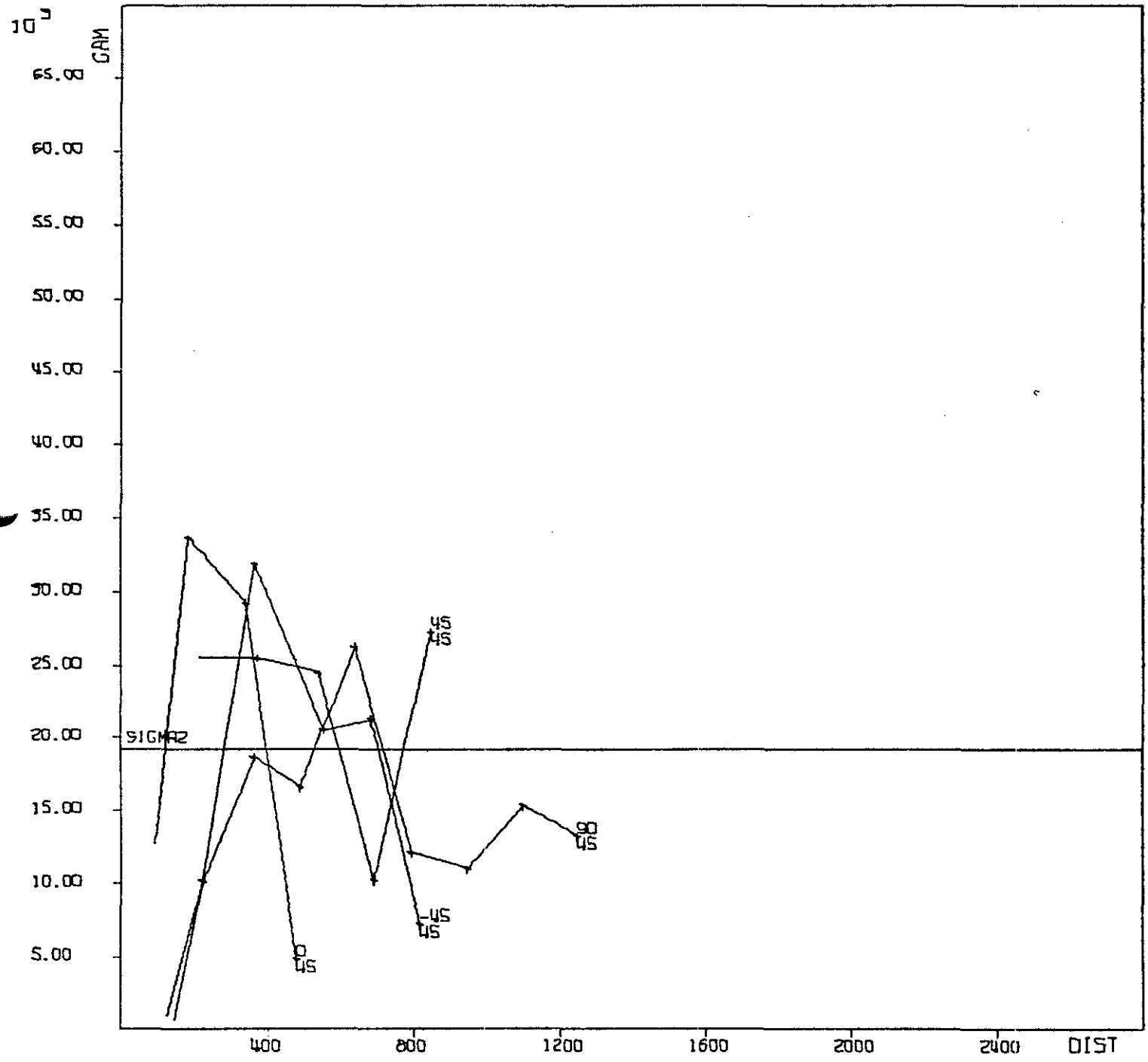
00000120



VARIABLE CO.4 ABSOLUTE VARIOGRAM

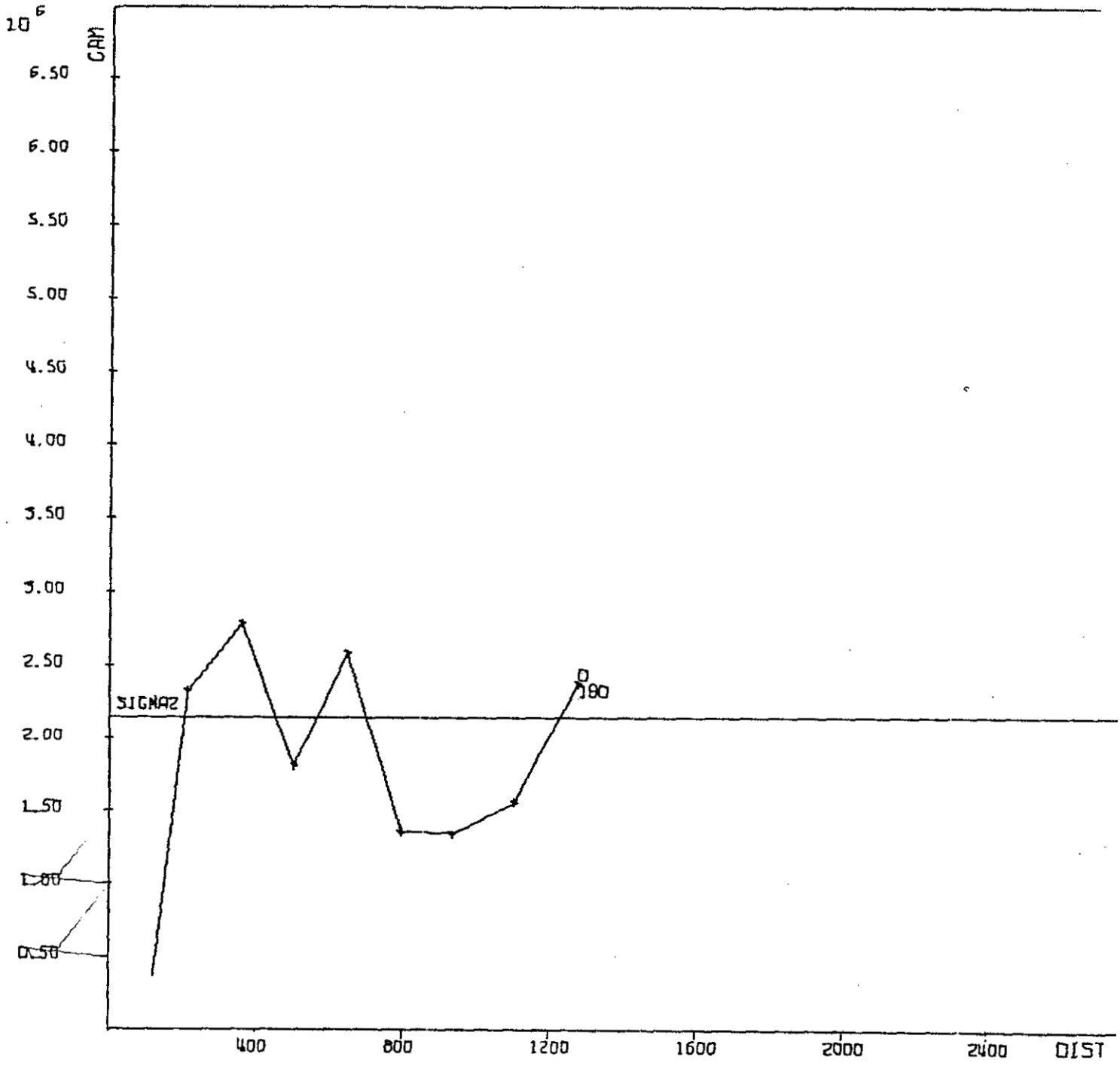
HAT CREEK ----- ZONE A 5 -----

00000120



VARIABLE C0.4 ABSOLUTE VARIOGRAM

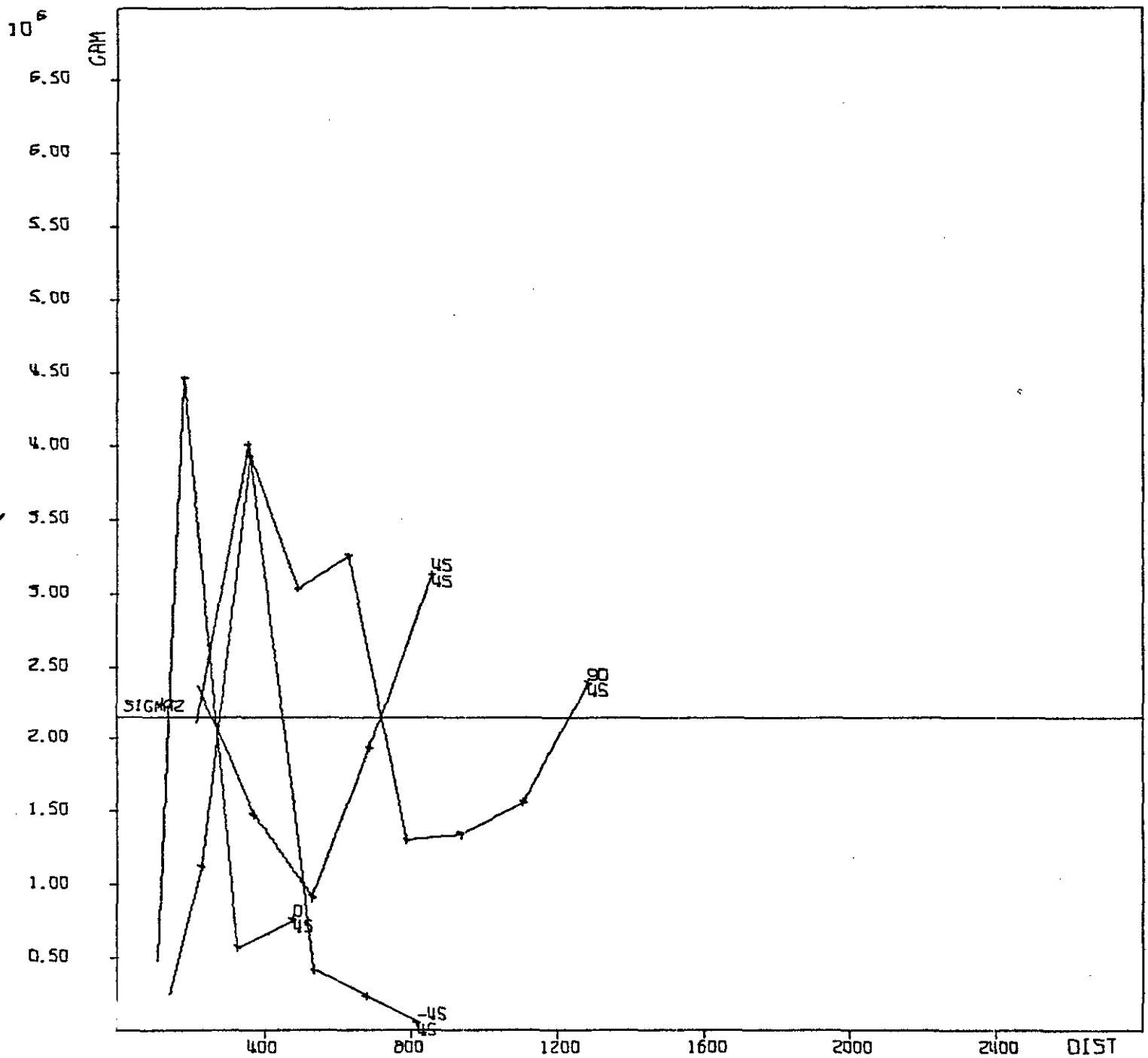
HAT CREEK ----- ZONE A S -----



VARIABLE MEAN ABSOLUTE VARIOGRAM

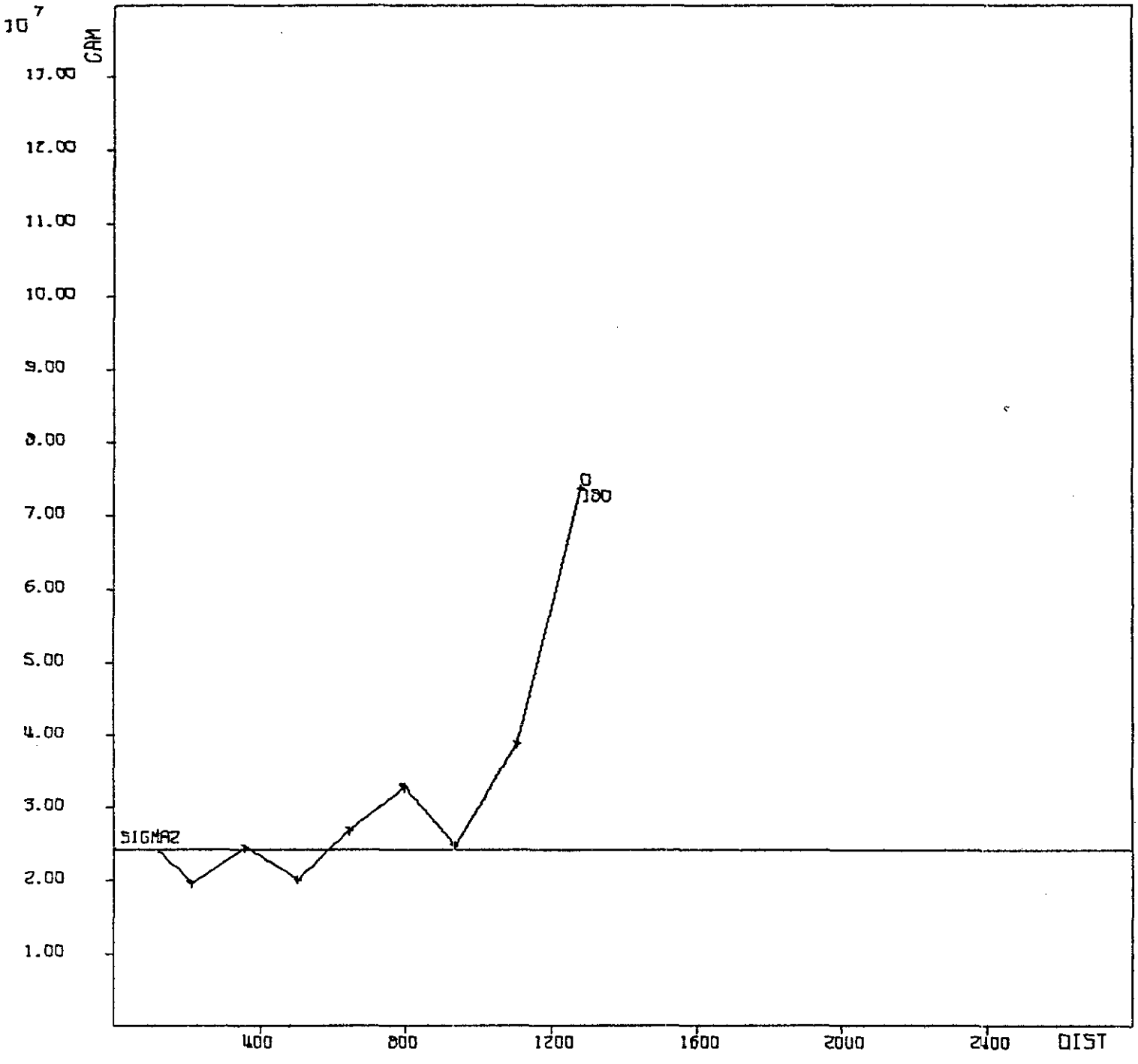
HAT CREEK ----- ZONE A6 -----

00000120



VARIABLE MEAN ABSOLUTE VARIOGRAM

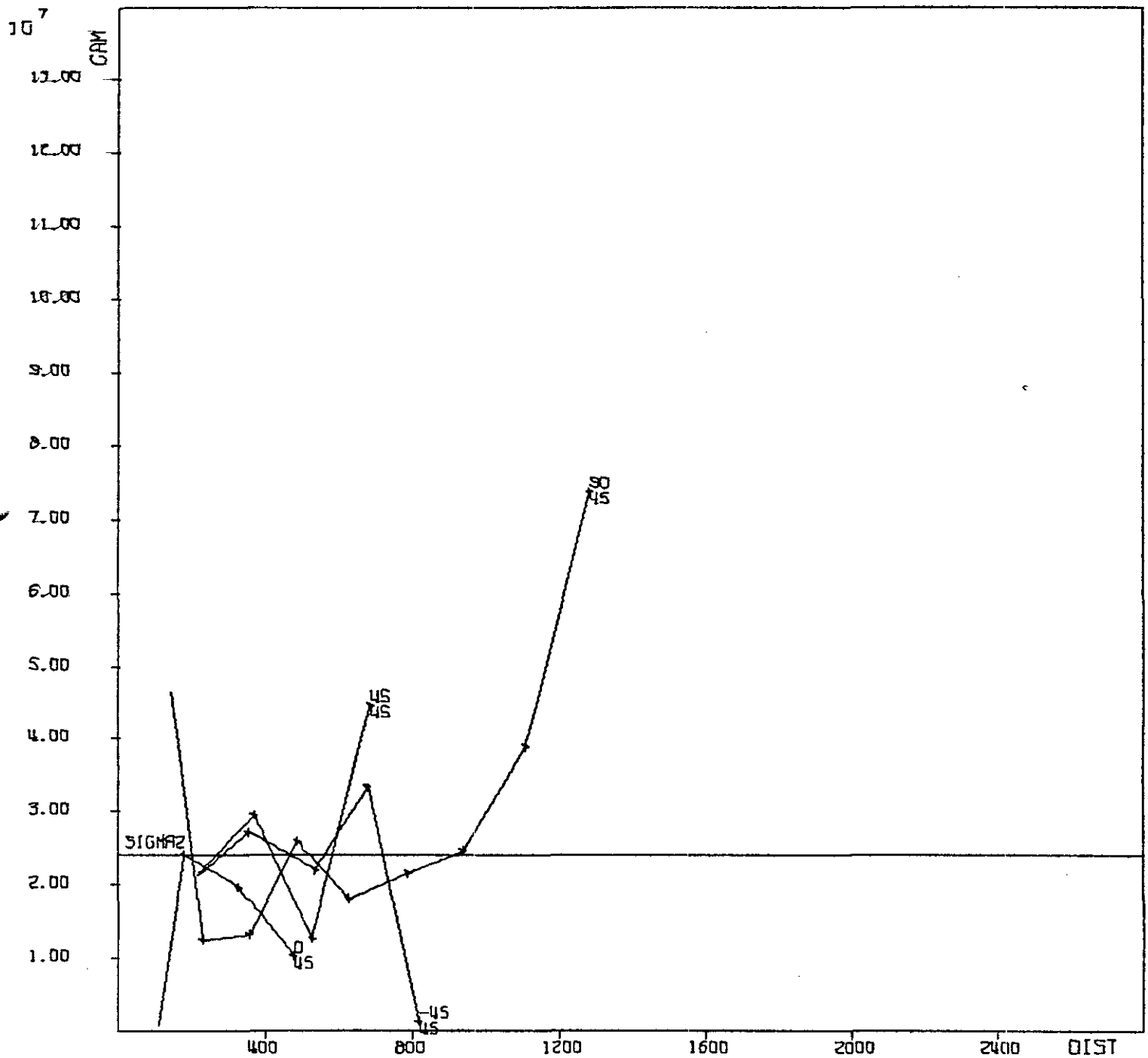
HAT CREEK ----- ZONE AG -----



VARIABLE CO.O ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A6 -----

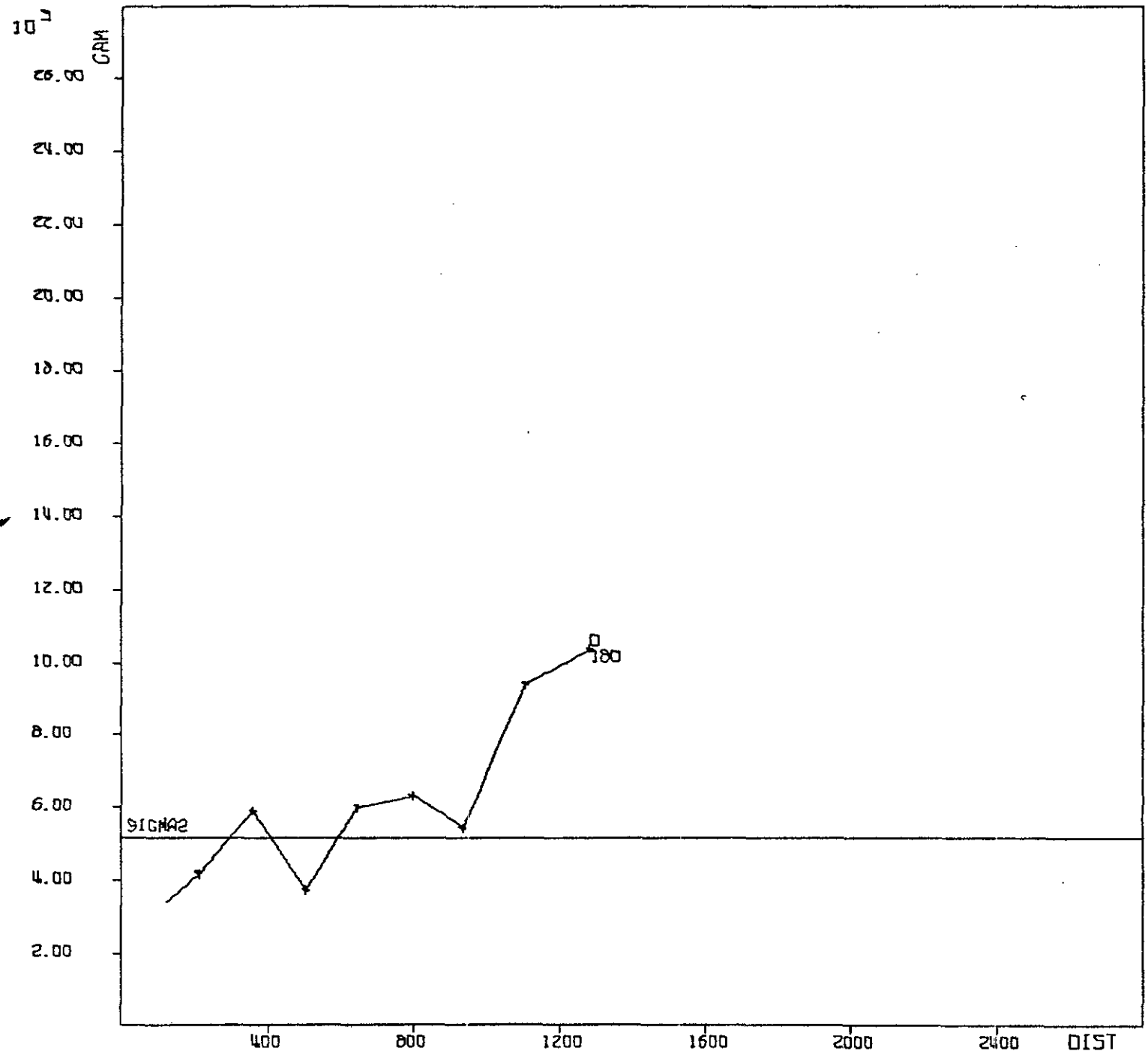
00000120



VARIABLE CO.O ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A -----

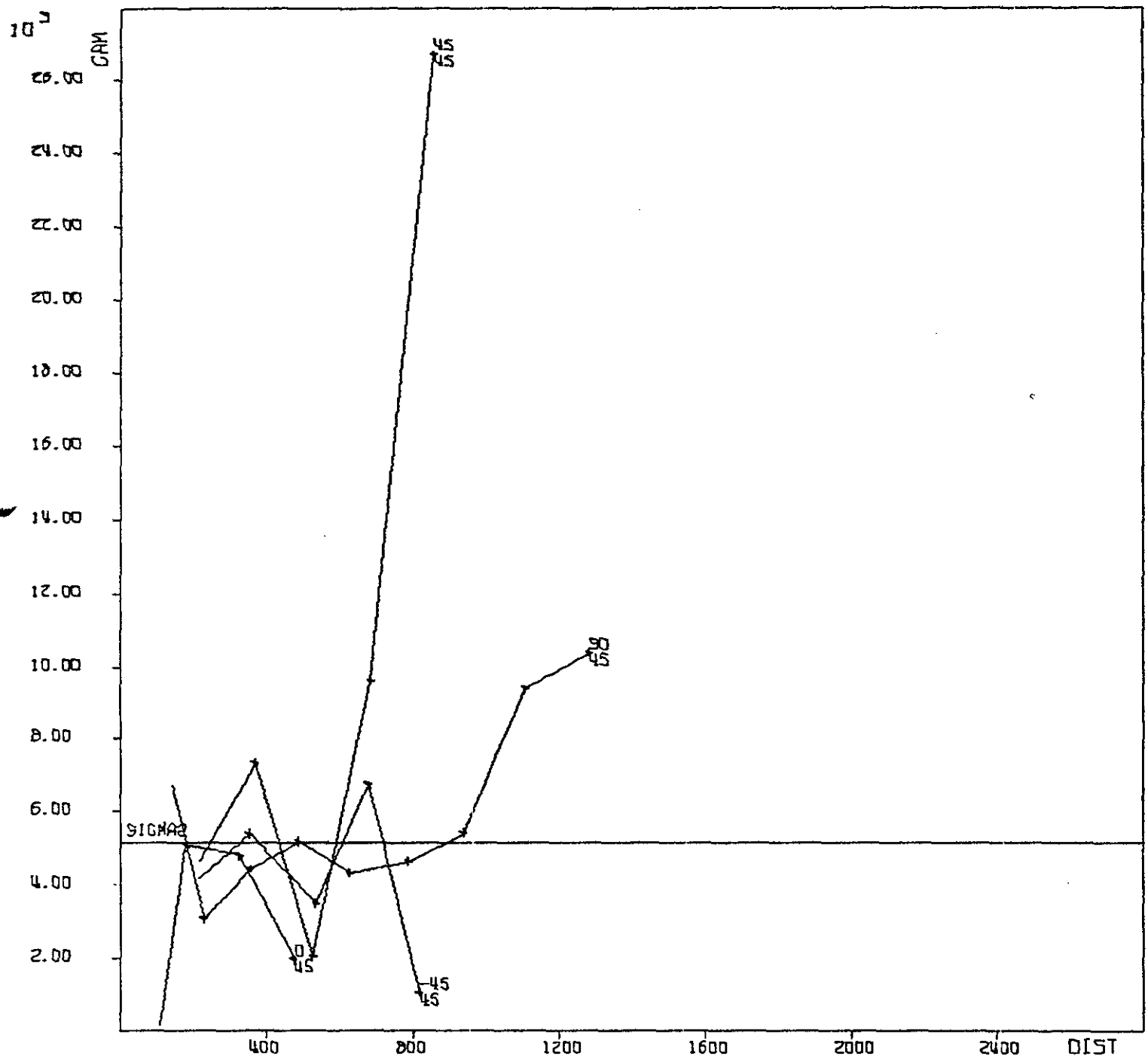
00000120



VARIABLE C0.1 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A -----

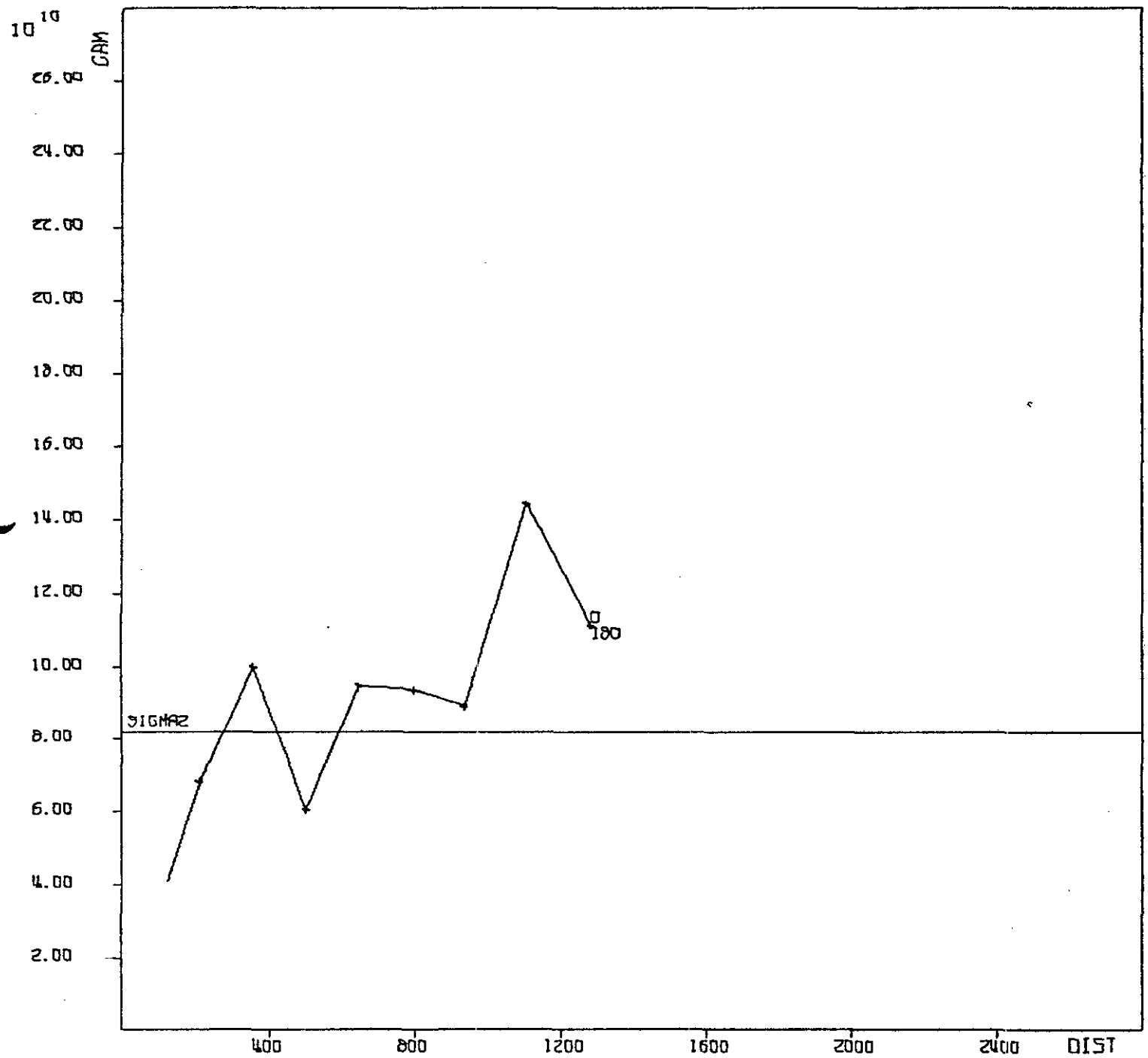
00000120



VARIABLE C0.1 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A6 -----

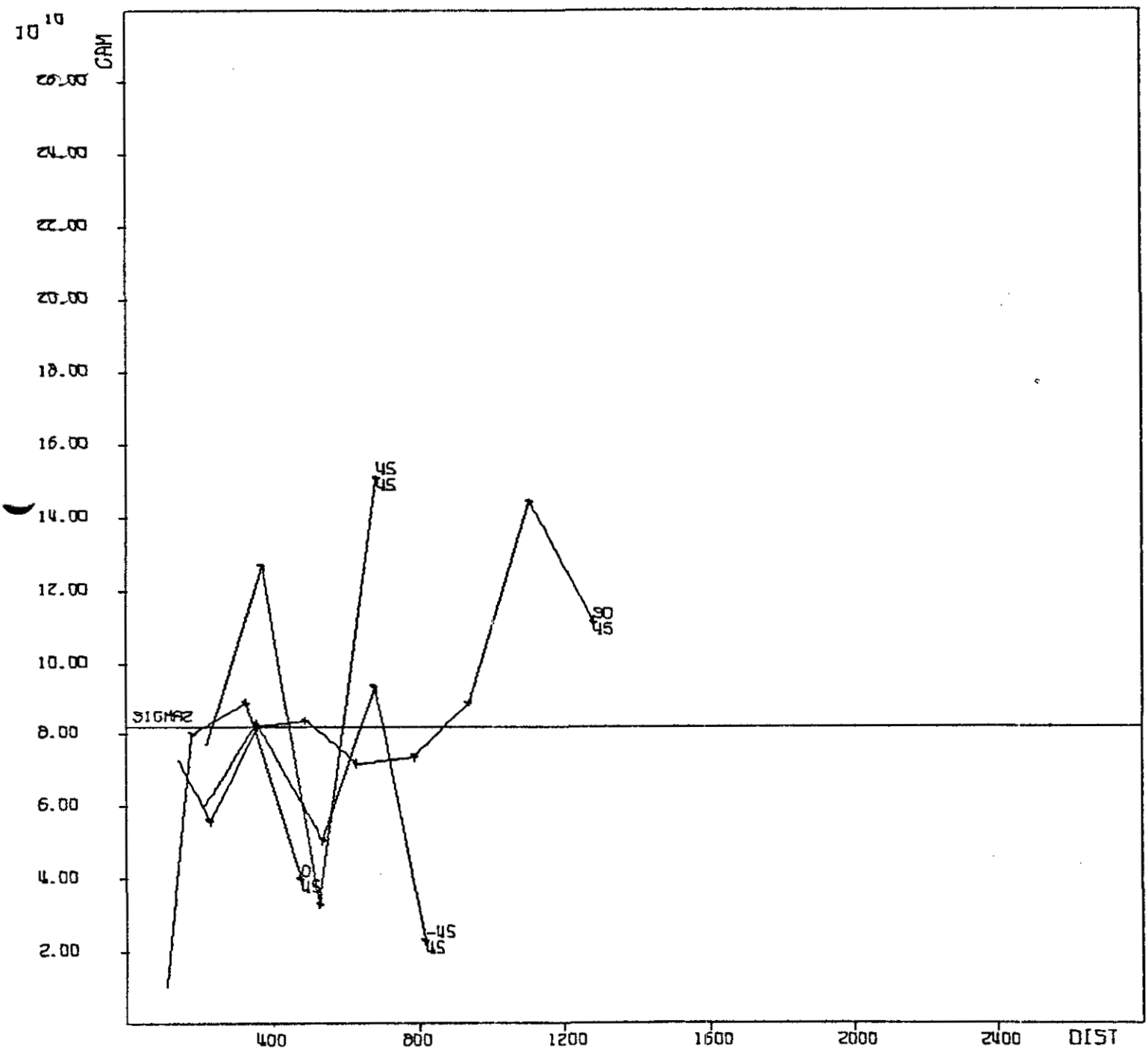
00000120



VARIABLE C0.2 ABSOLUTE VARIOGRAM

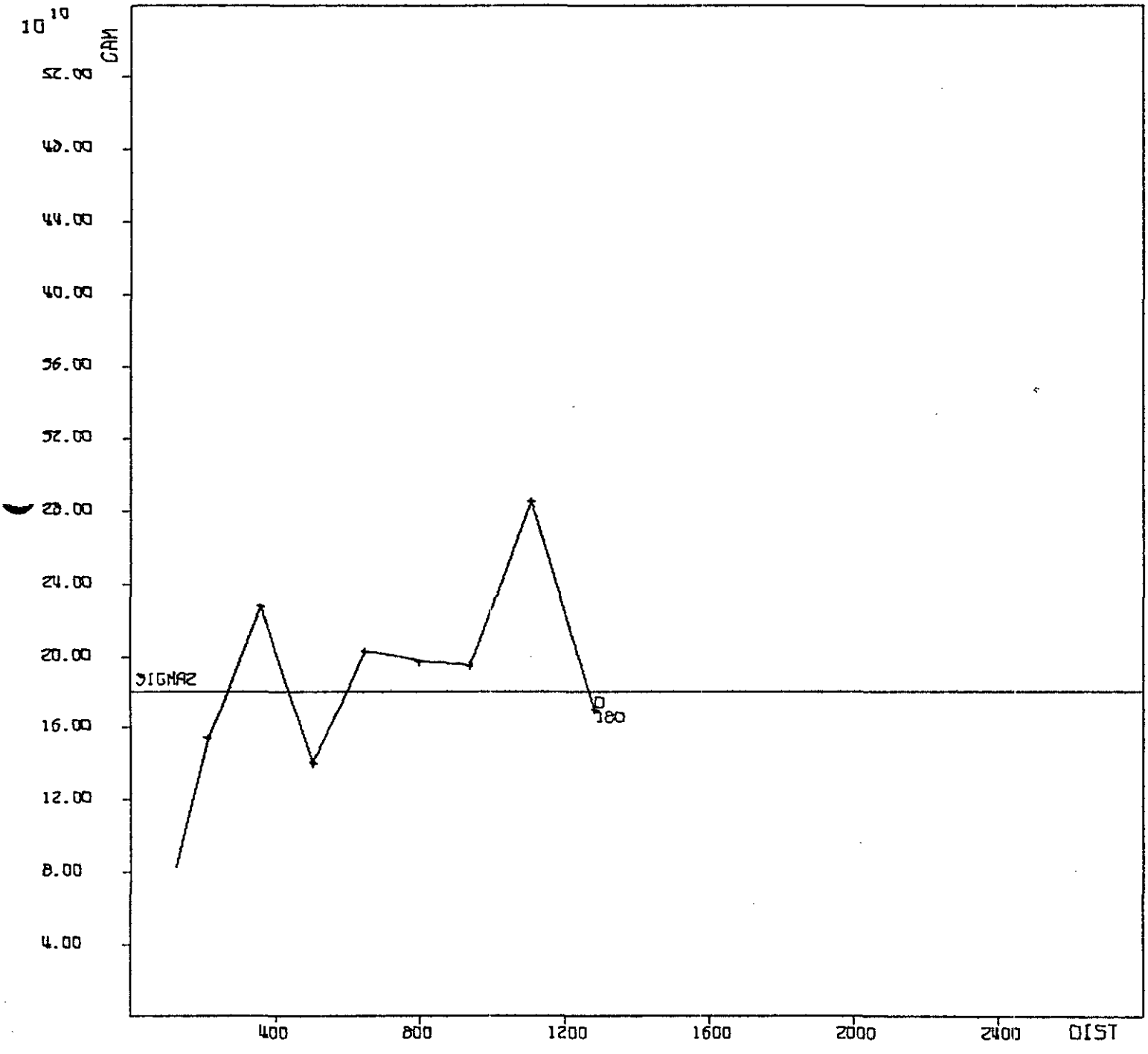
HAT CREEK ----- ZONE A6 -----

00000120



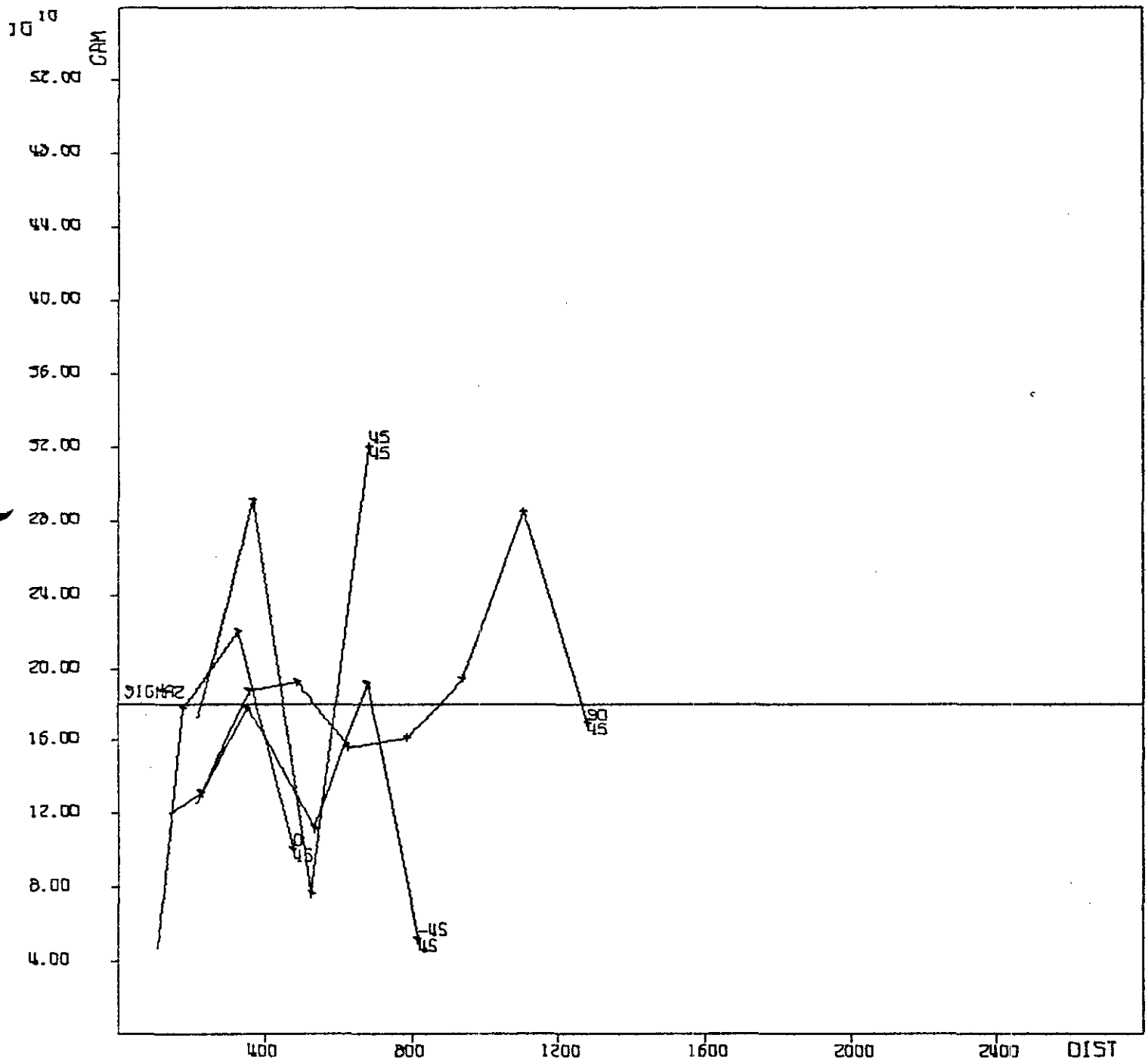
VARIABLE C0.2 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A ----- 00000120



VARIABLE C0.3 ABSOLUTE VARIOGRAM

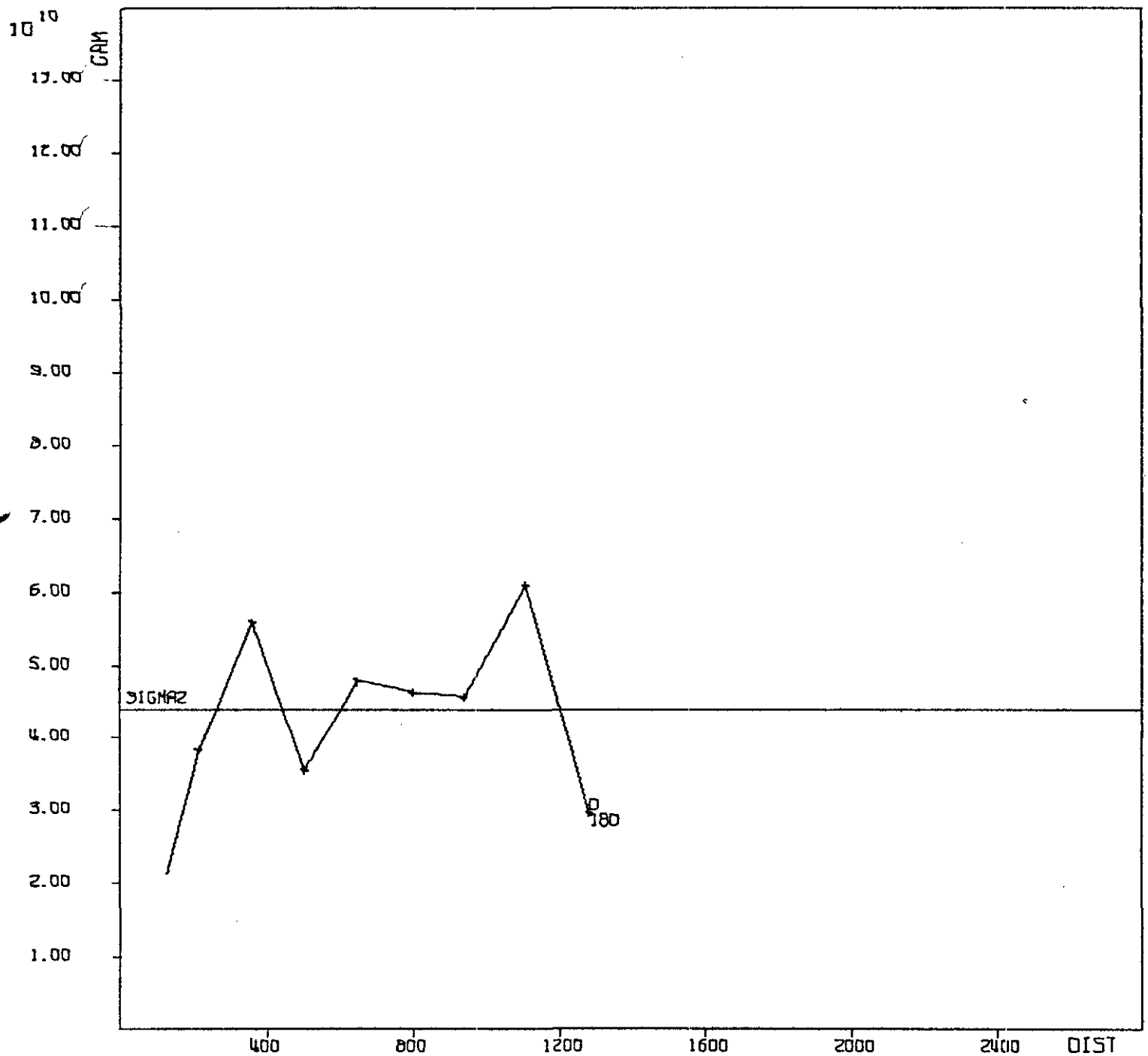
HAT CREEK ------ ZONE A6 ------ 00000120



VARIABLE C0.3 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A6 -----

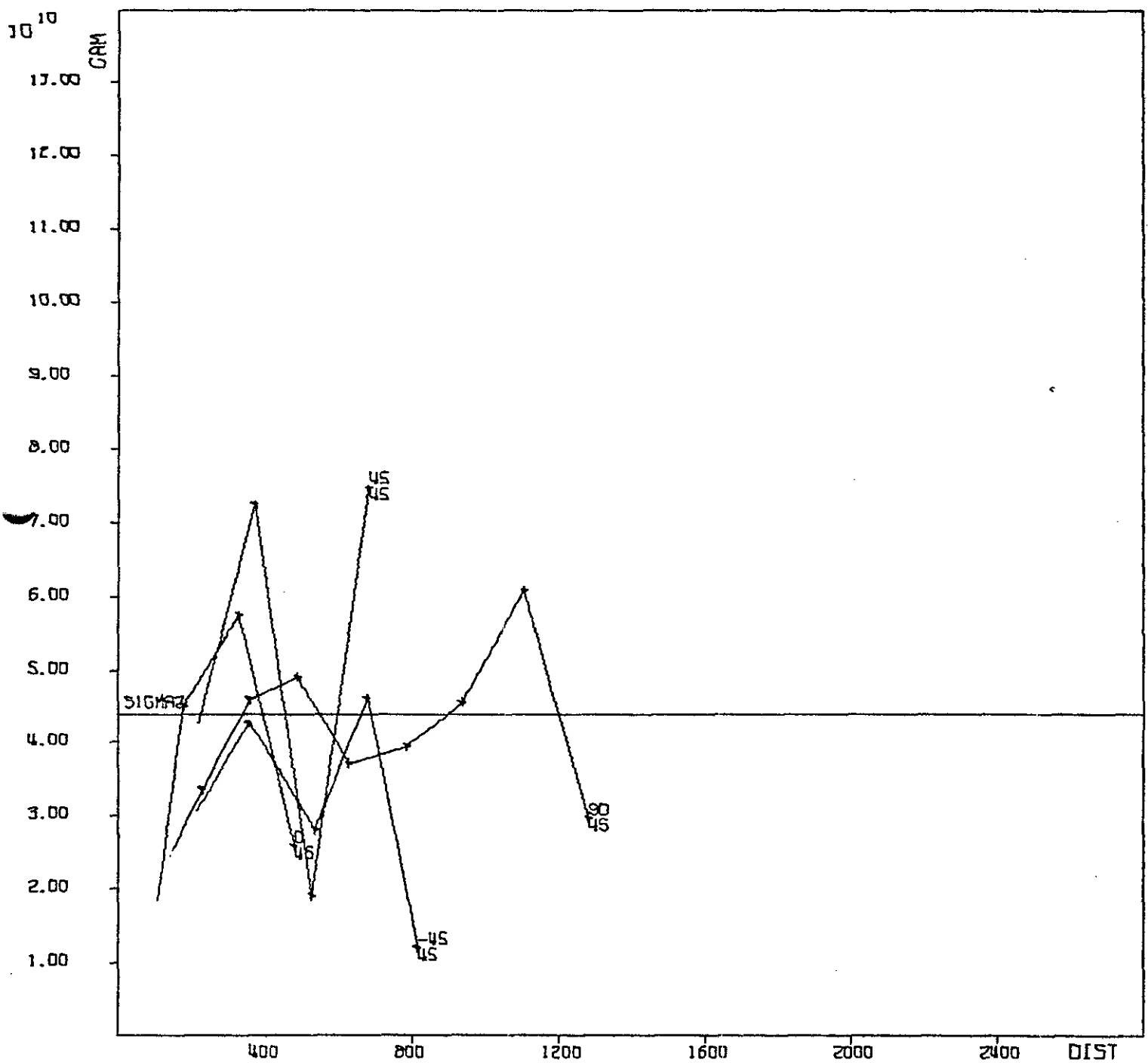
00000120



VARIABLE C0.4 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE A5 -----

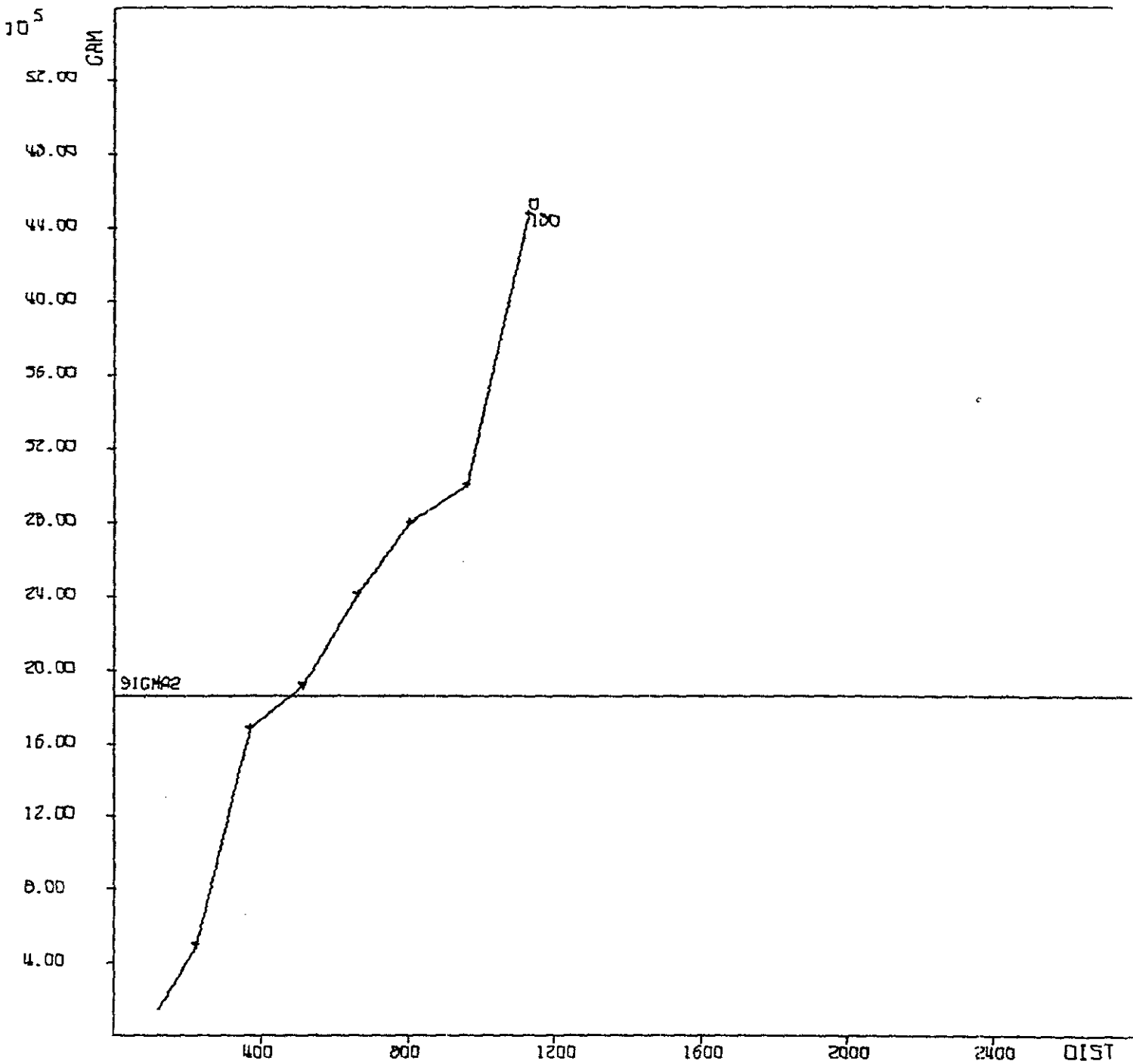
00000120



VARIABLE C0.4 ABSOLUTE VARIOGRAM

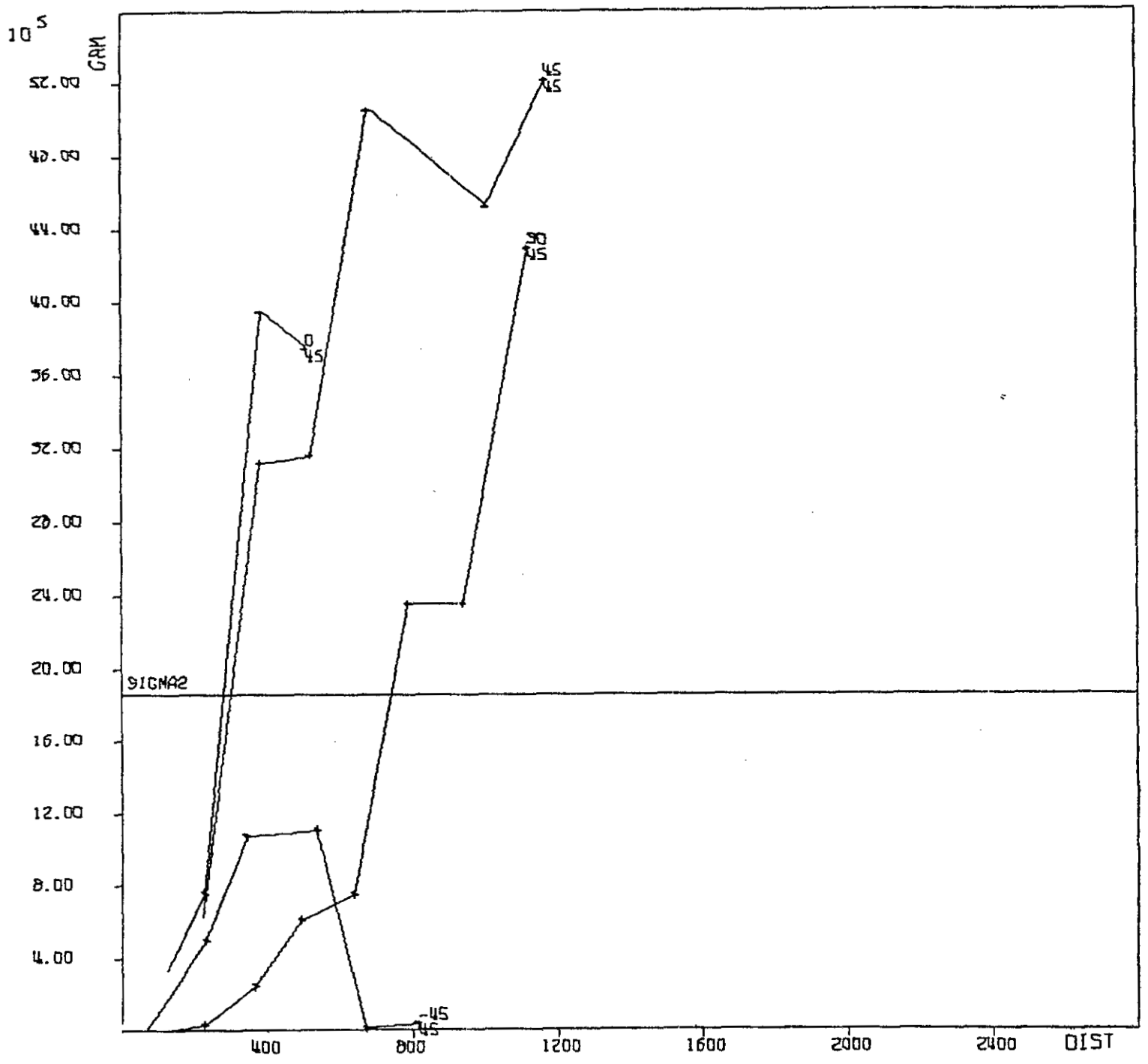
HAT CREEK ----- ZONE A3 -----

00000120



VARIABLE MEAN ABSOLUTE VARIOGRAM

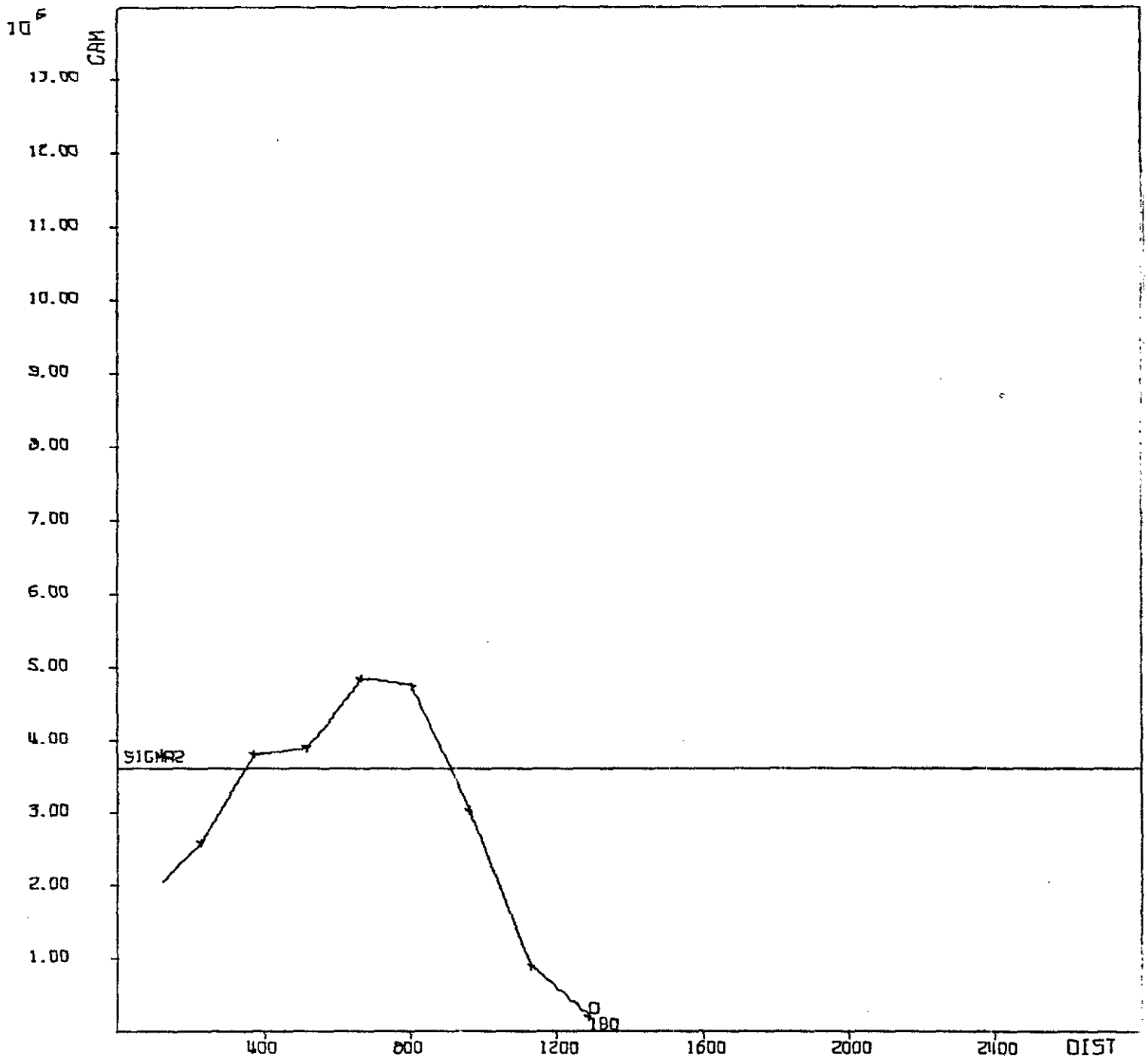
HAT CREEK ----- ZONE B -----



VARIABLE MEAN ABSOLUTE VARIOGRAM

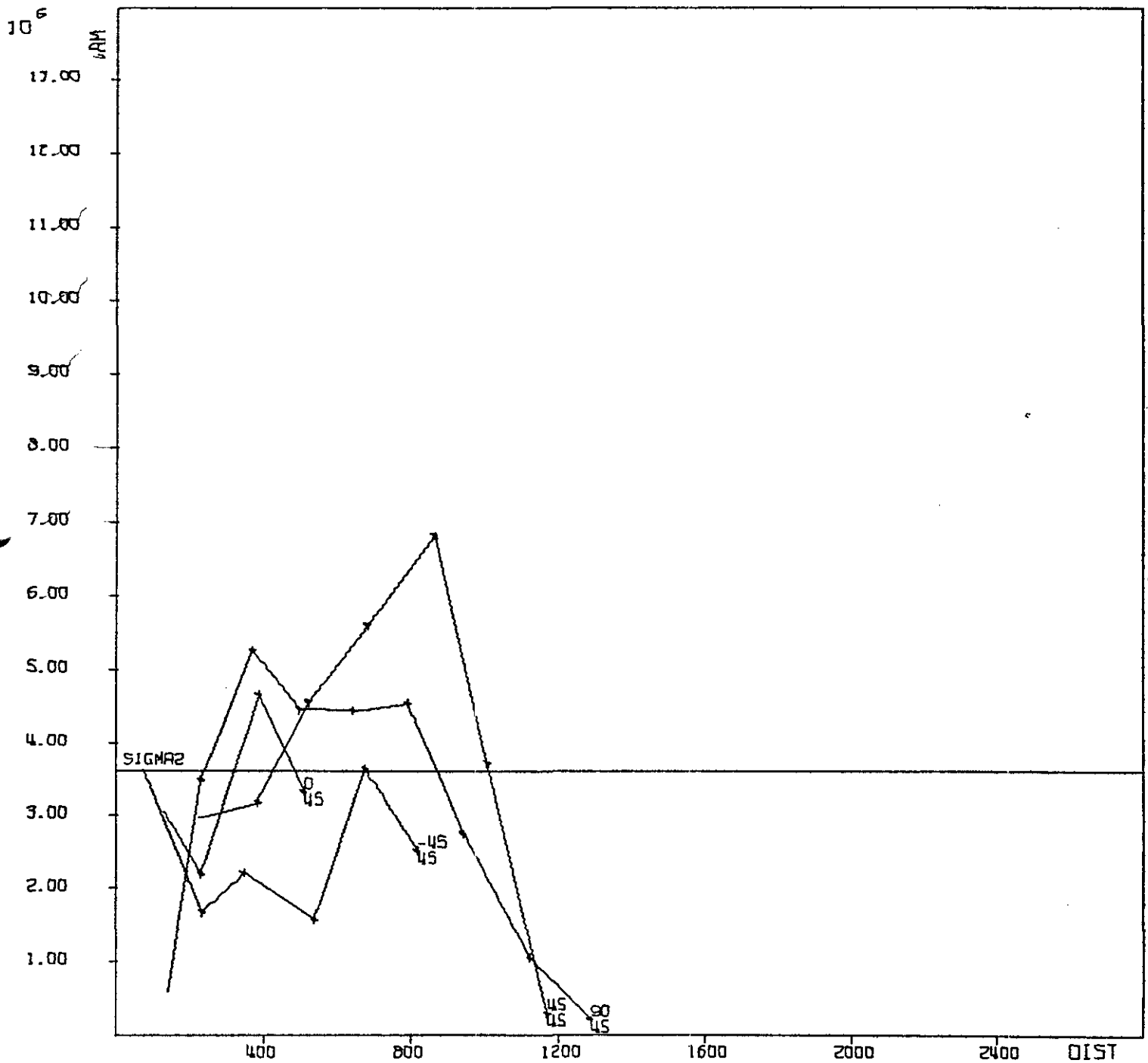
HAT CREEK ----- ZONE B -----

00000120



VARIABLE CO.O ABSOLUTE VARIOGRAM

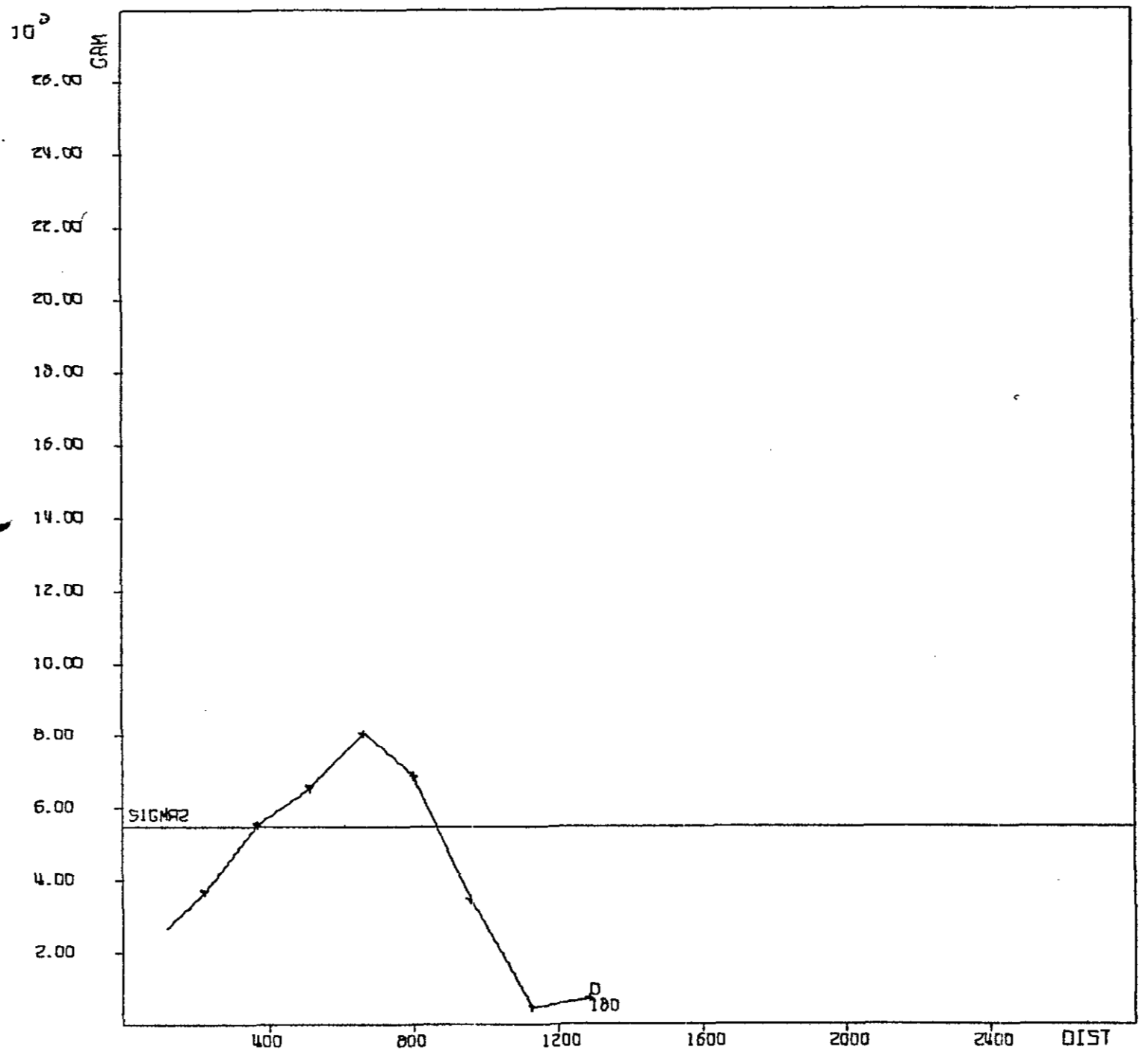
HAT CREEK ----- ZONE B -----



VARIABLE CO.O ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE B -----

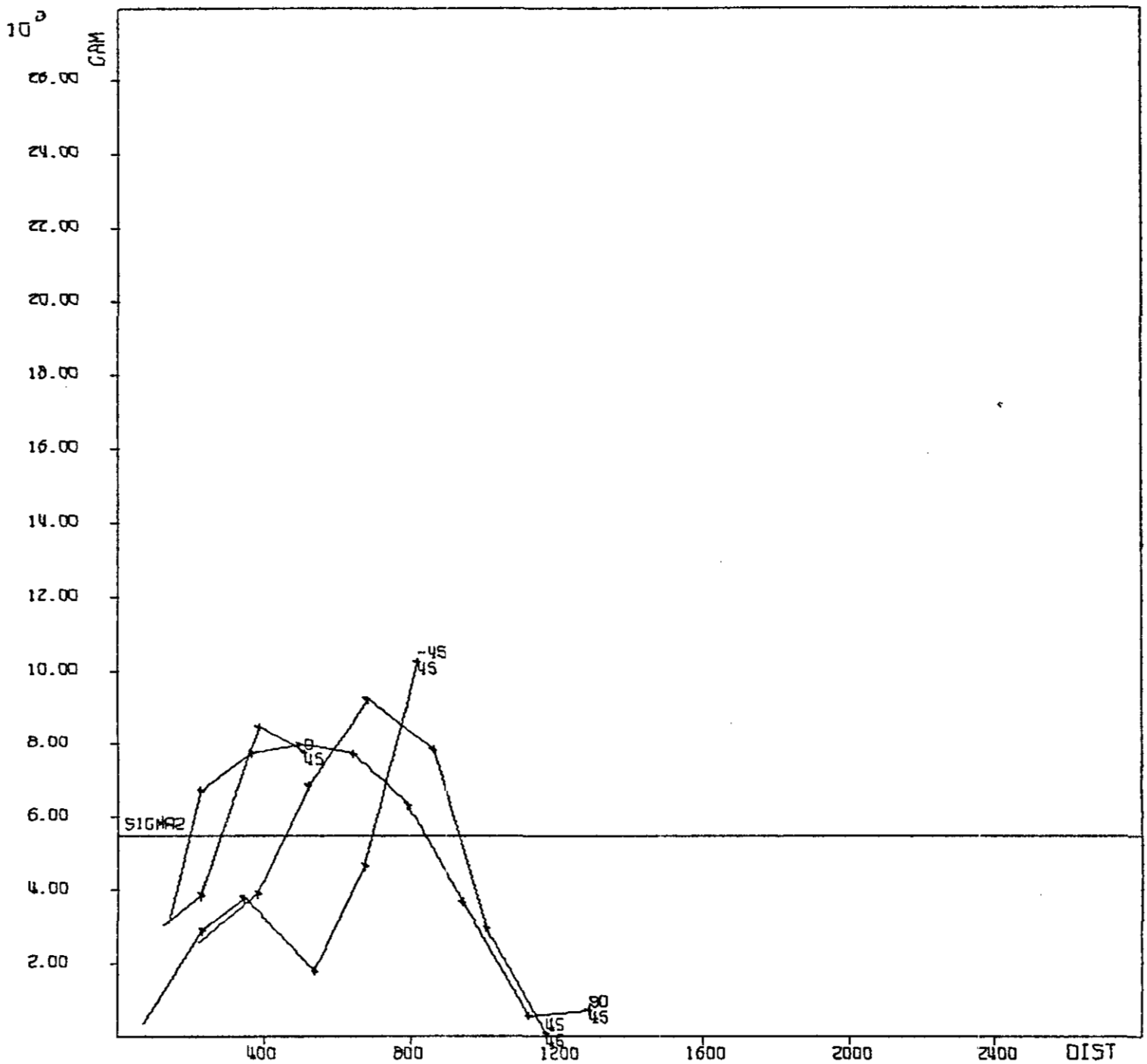
00000120



VARIABLE C0.1 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE B -----

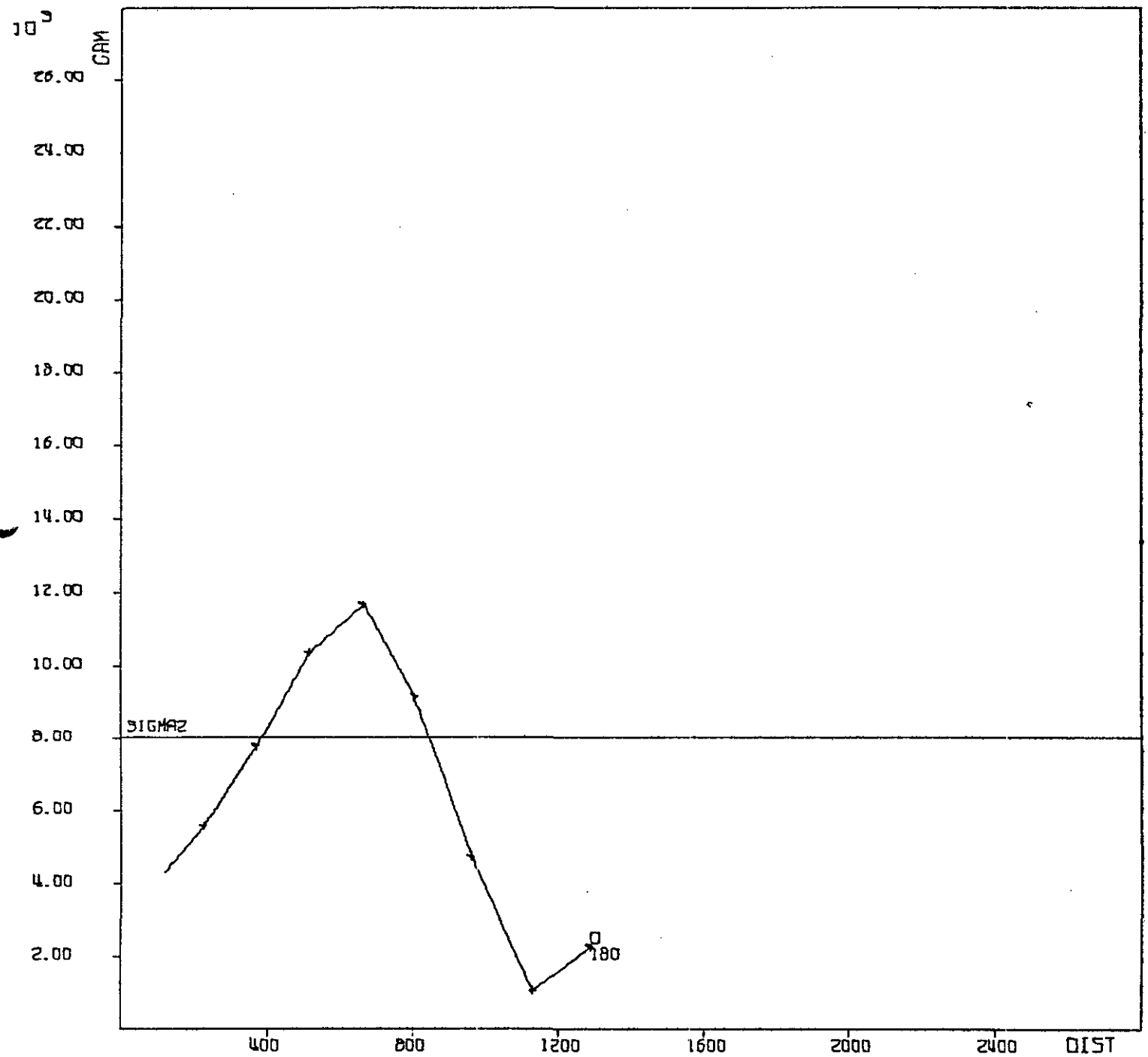
00000120



VARIABLE CO.1 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE B -----

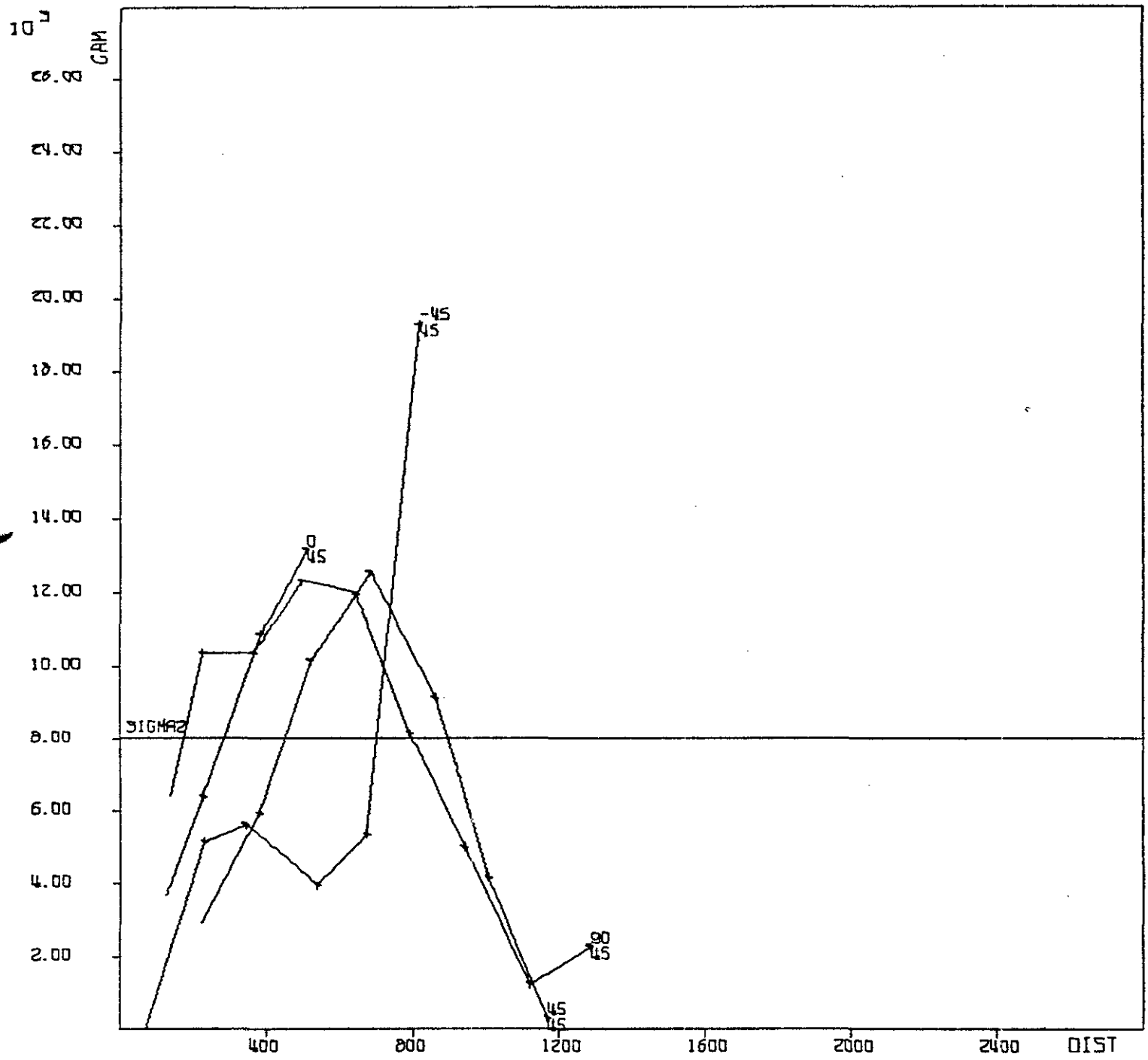
00000120



VARIABLE C0.2 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE B -----

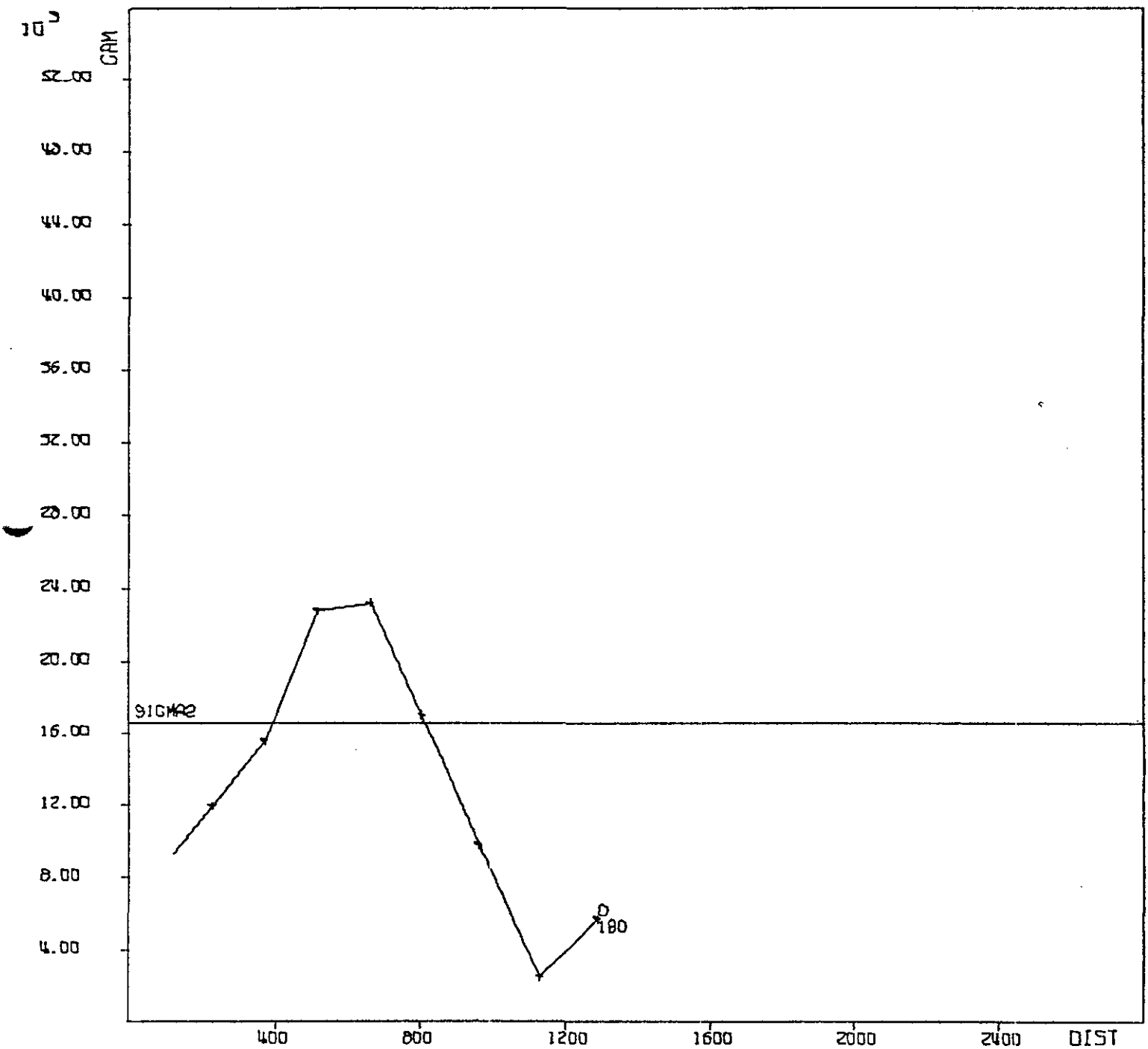
00000120



VARIABLE C0.2 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE B -----

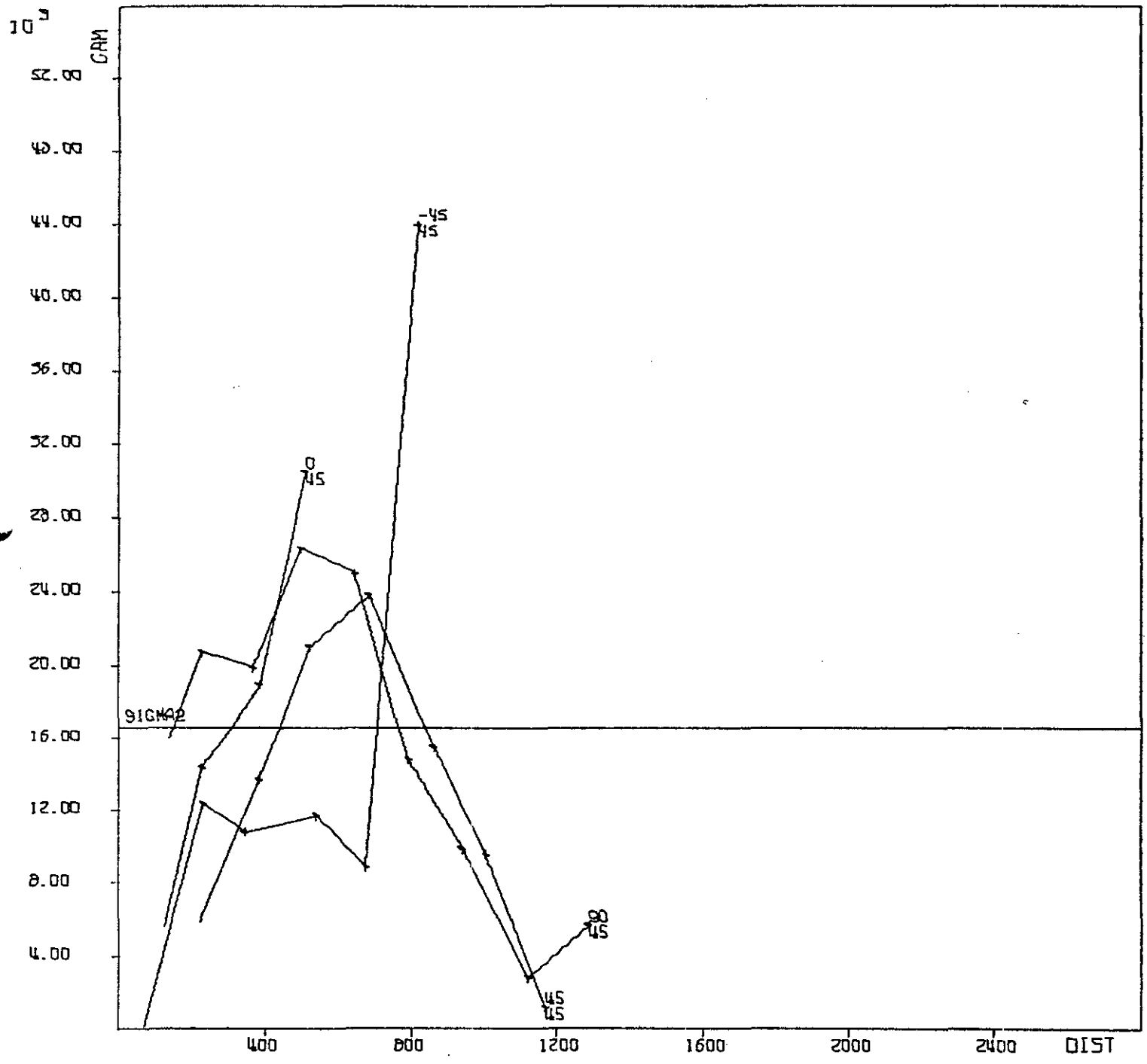
00000120



VARIABLE CO.3 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE B -----

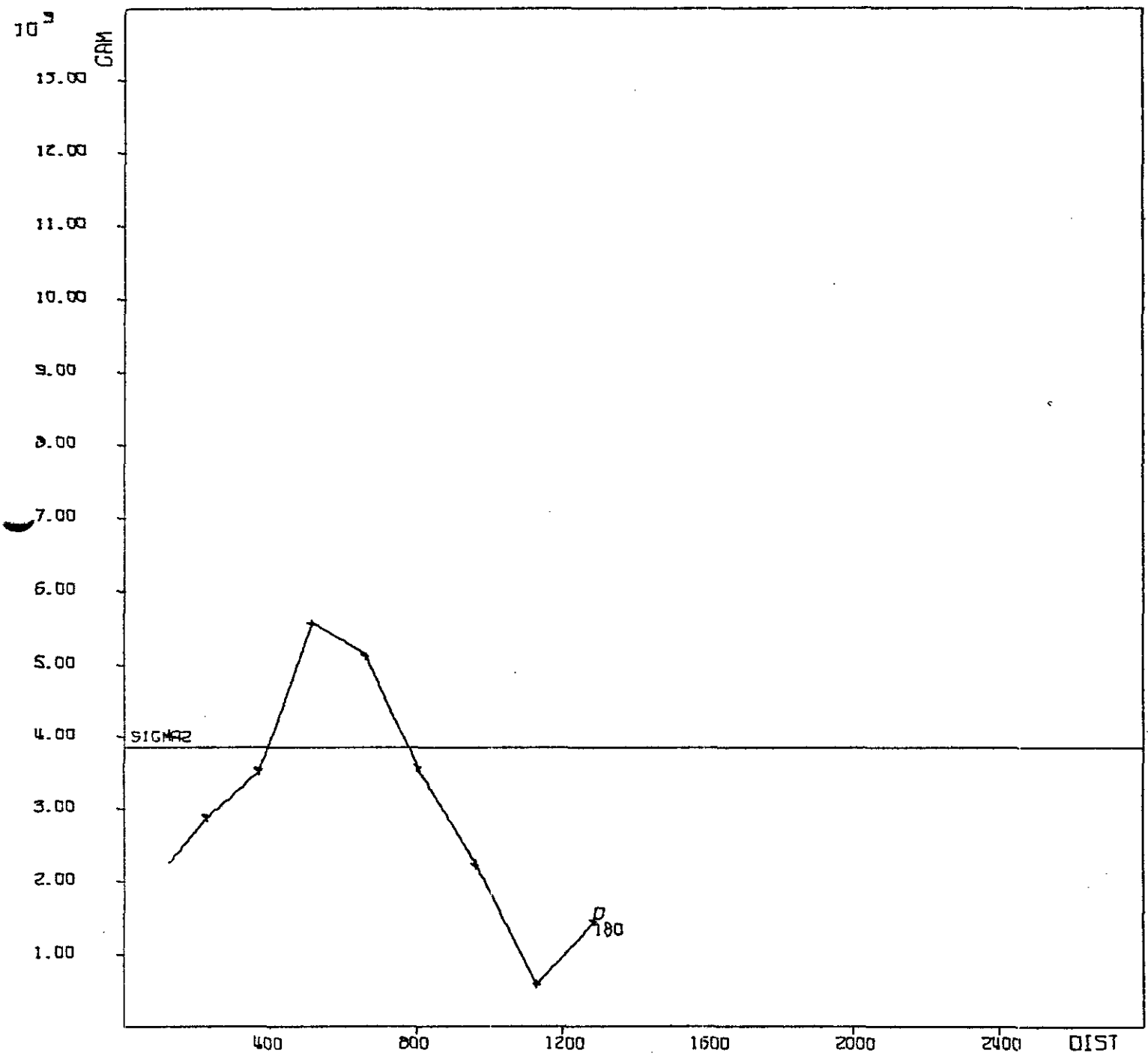
00000120



VARIABLE CO.3 ABSOLUTE VARIOGRAM

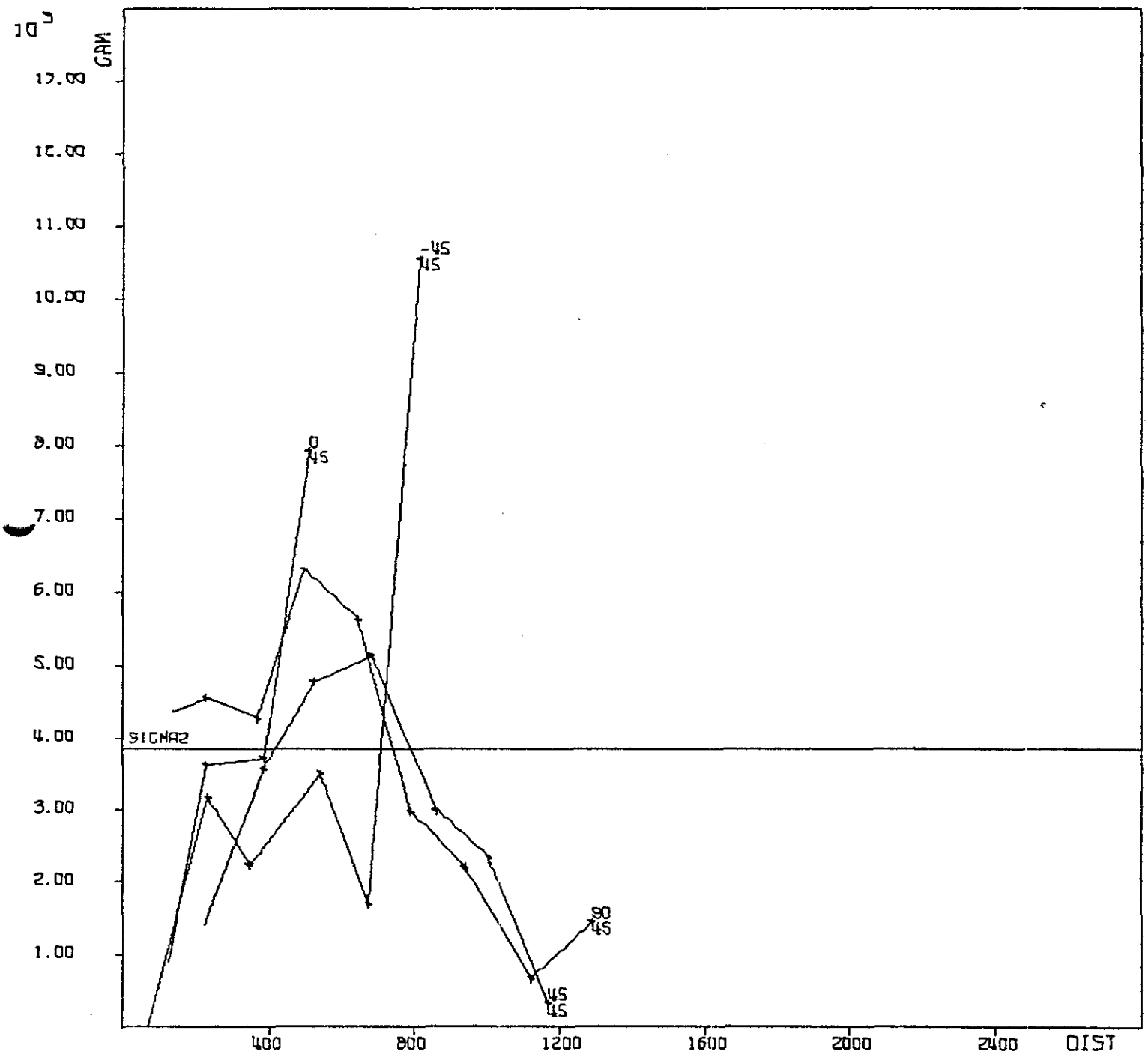
HAT CREEK ----- ZONE B -----

00000120



VARIABLE CO.4 ABSOLUTE VARIOGRAM

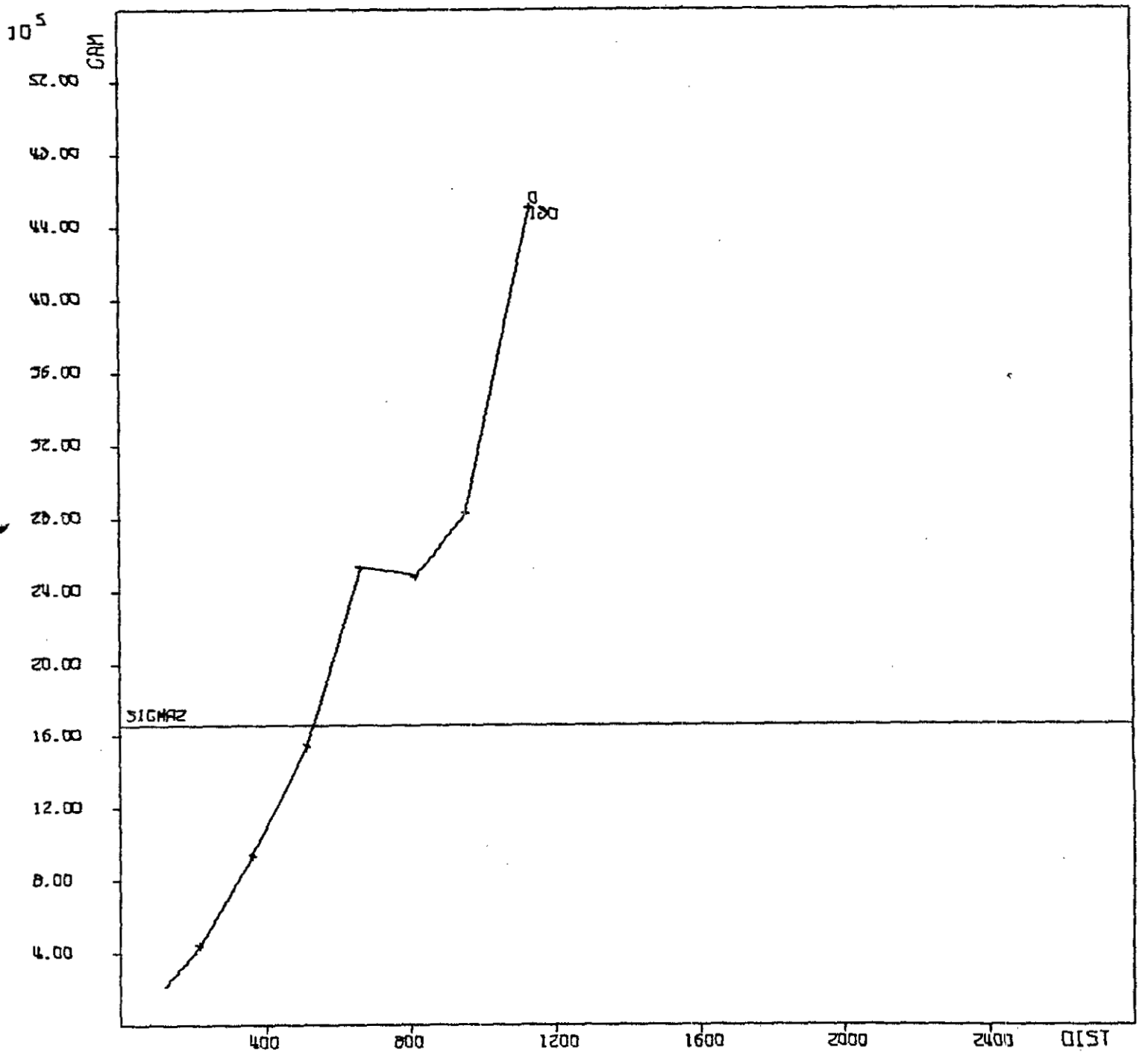
HAT CREEK ----- ZONE B -----



VARIABLE C0.4 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE B -----

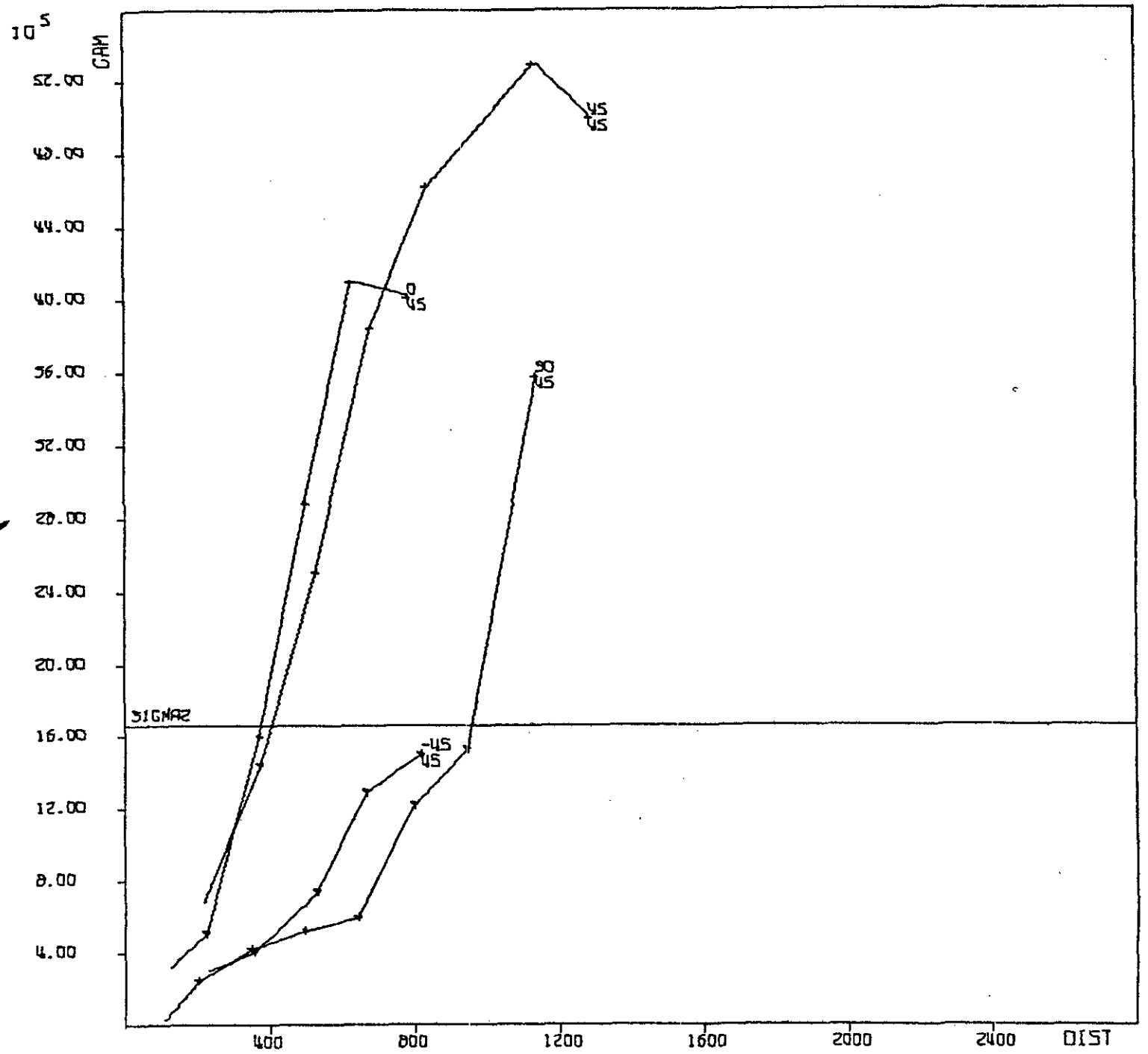
00000120



VARIABLE MEAN ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE C -----

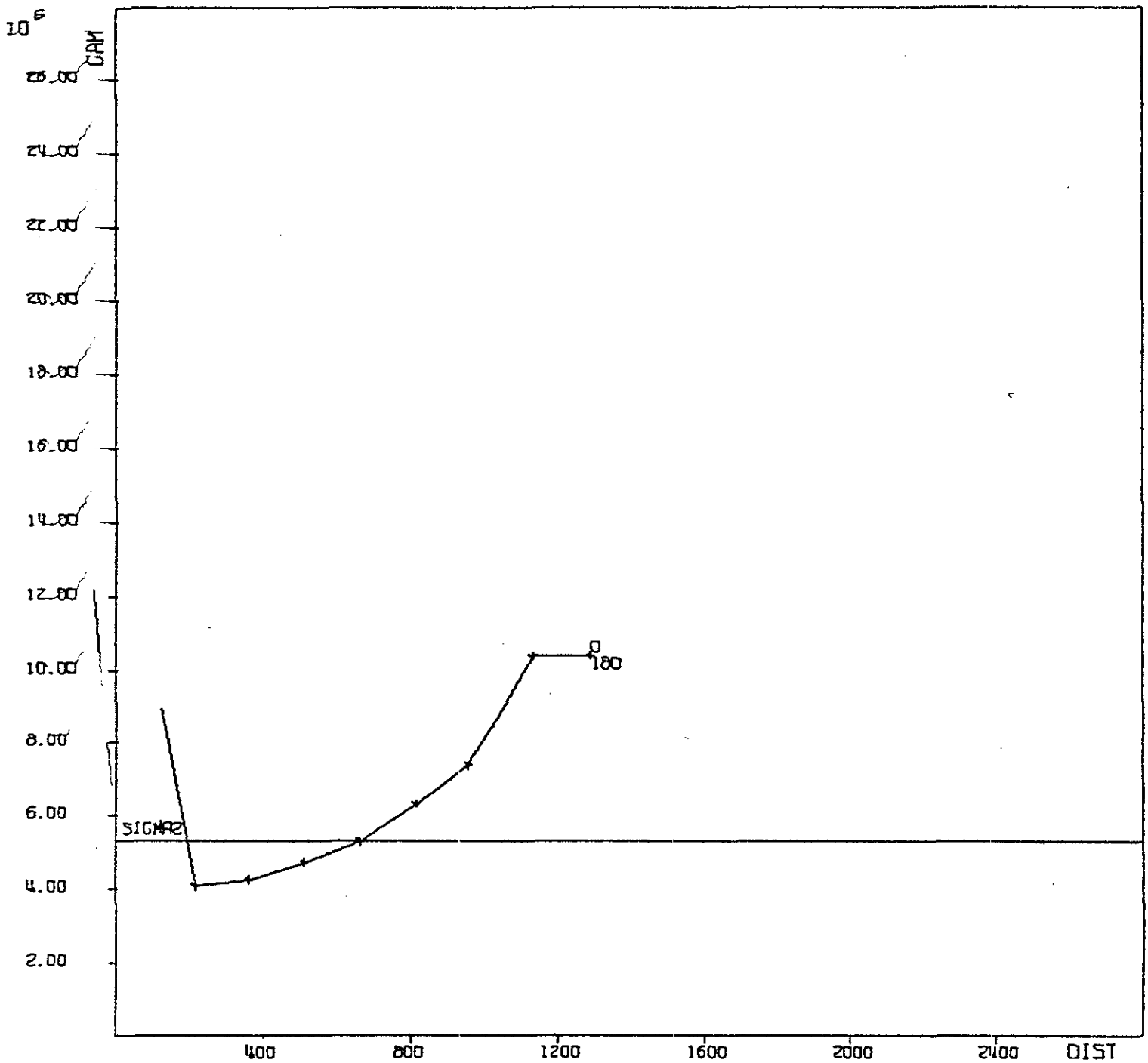
00000120



VARIABLE MEAN ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE C -----

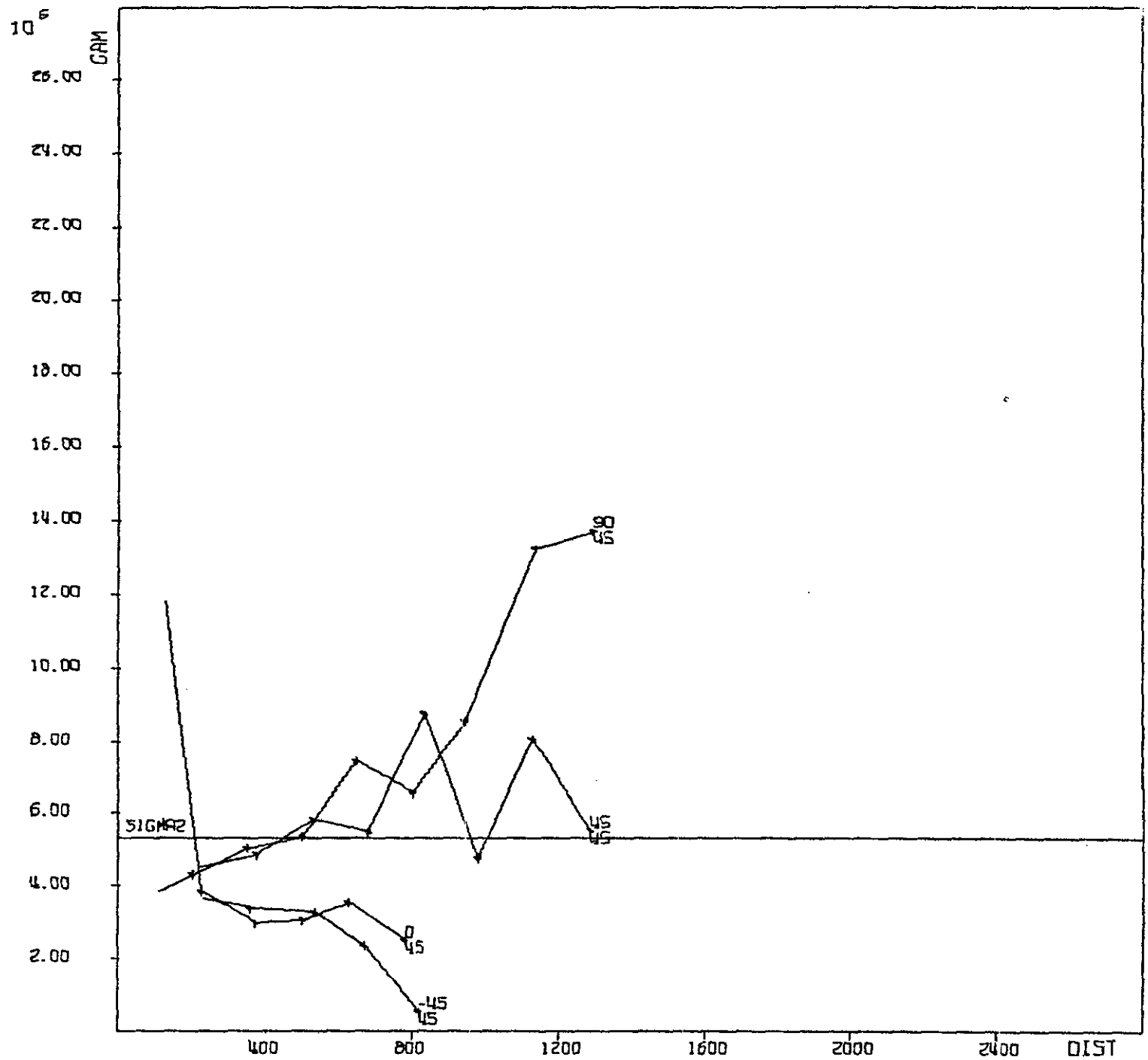
00000120



VARIABLE C0.0 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE C -----

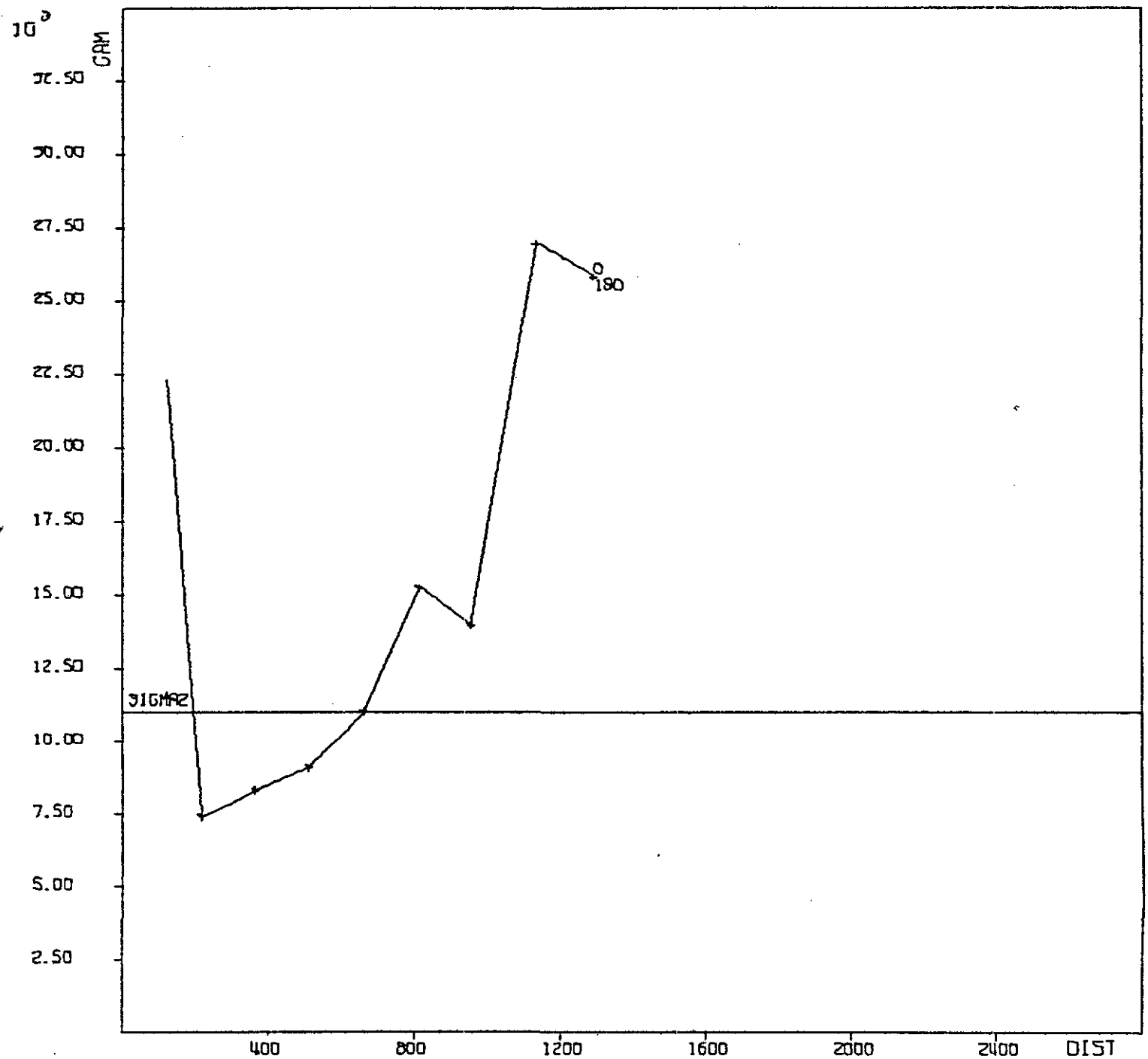
00000120



VARIABLE C0.0 ABSOLUTE VARIOGRAM

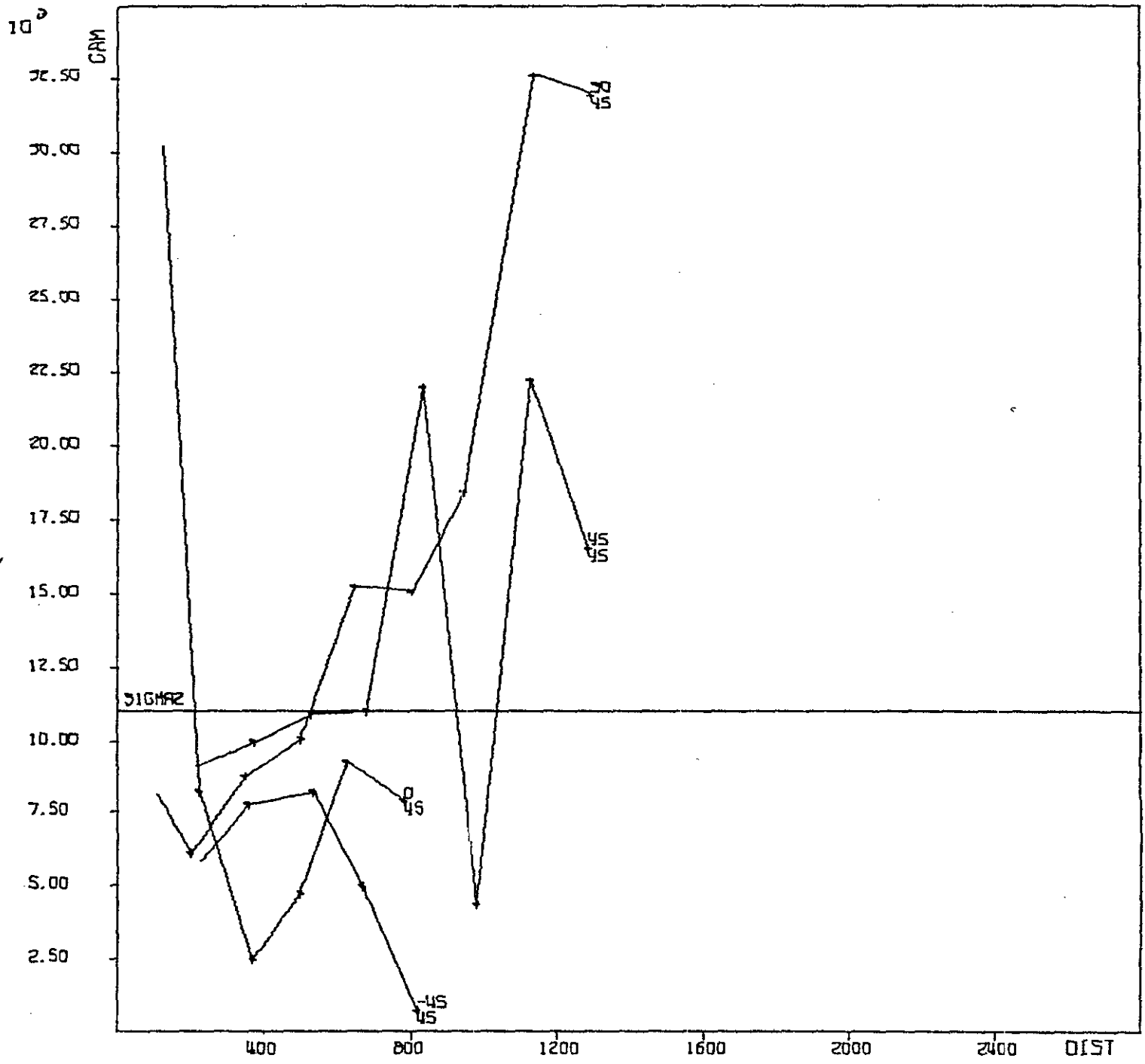
HAT CREEK ----- ZONE C -----

00000120



VARIABLE C0.1 ABSOLUTE VARIOGRAM

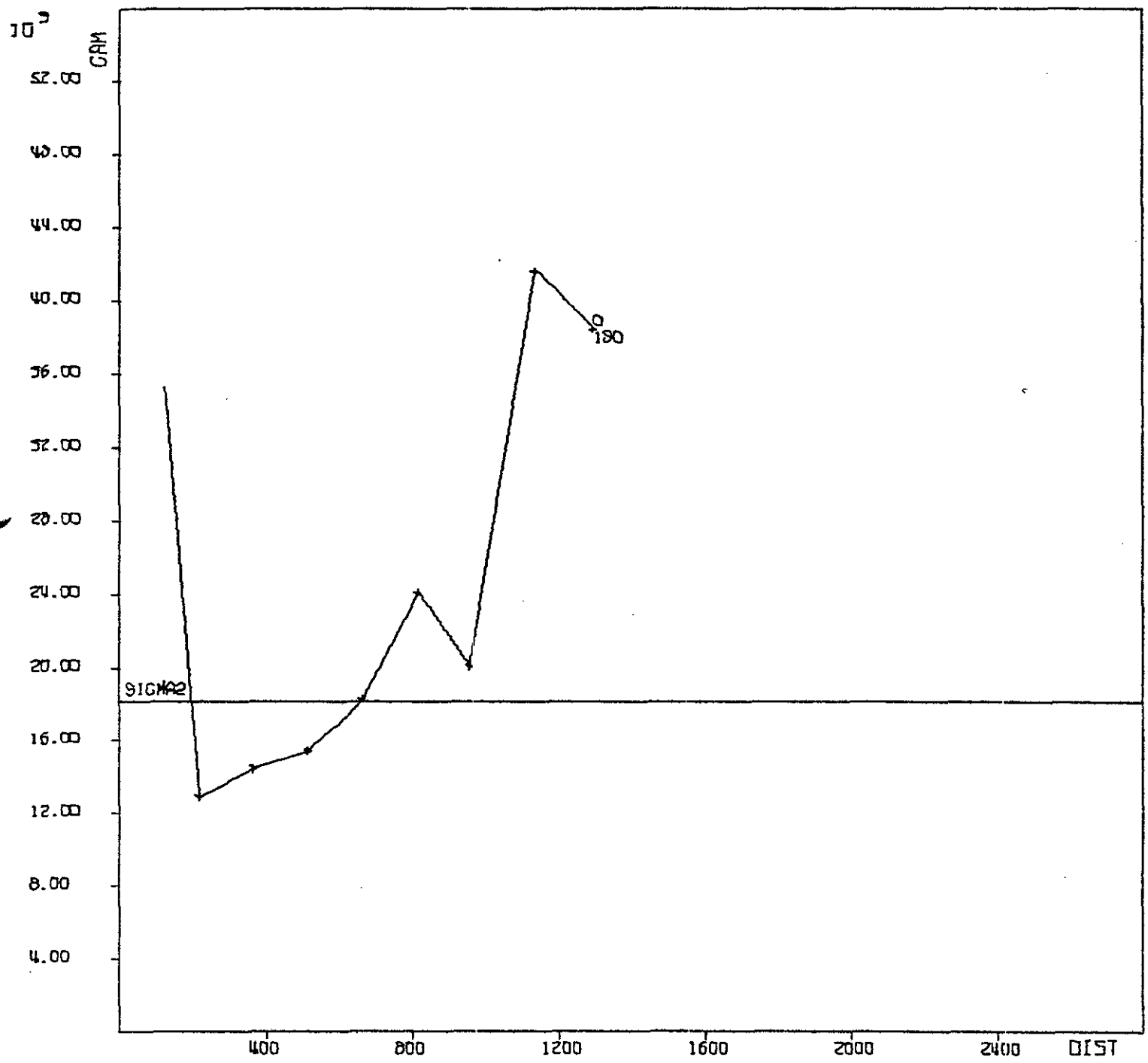
HAT CREEK ----- ZONE C ----- 00000120



VARIABLE C0.1 ABSOLUTE VARIOGRAM

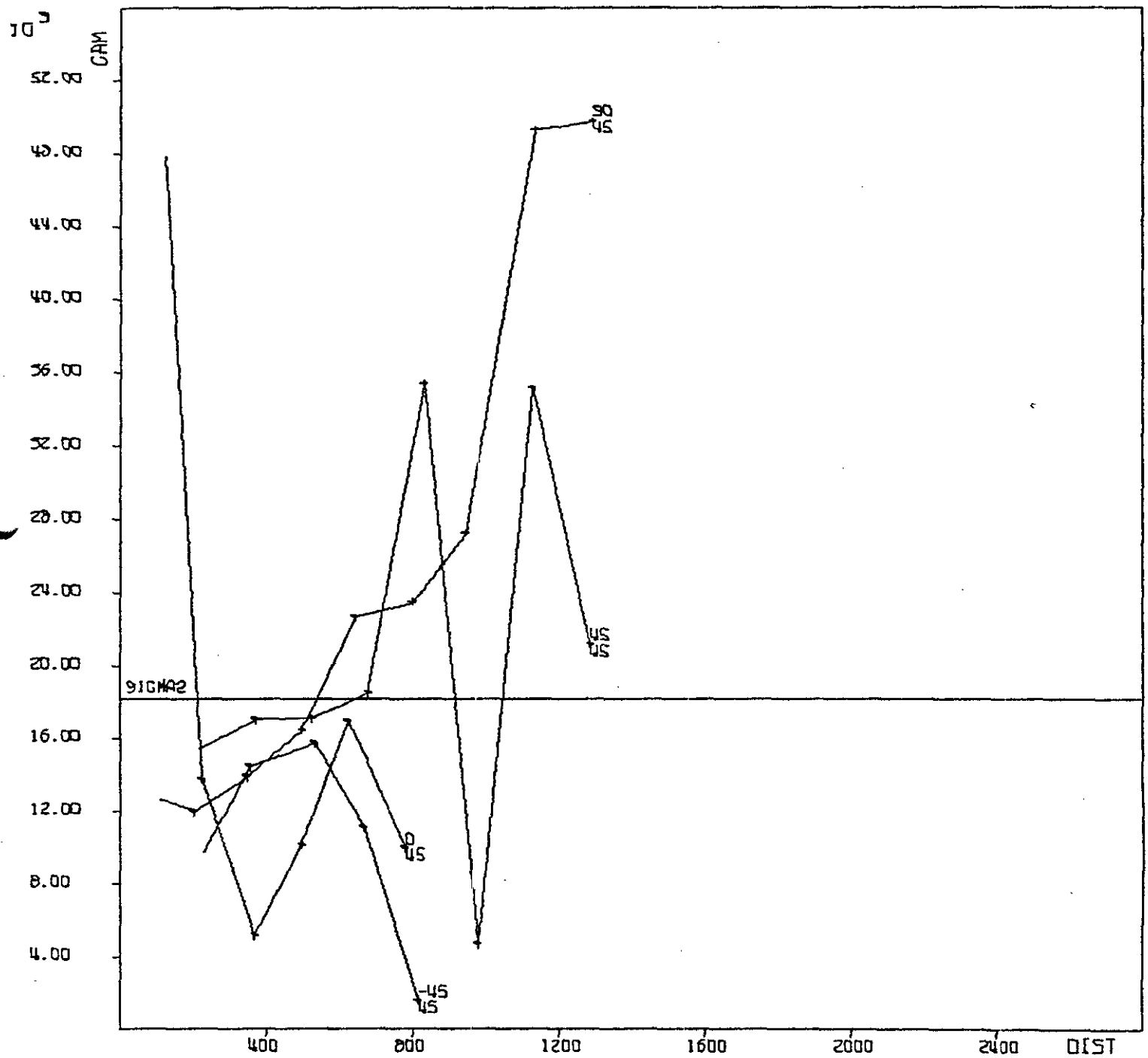
HAT CREEK ----- ZONE C -----

00000120



VARIABLE C0.2 ABSOLUTE VARIOGRAM

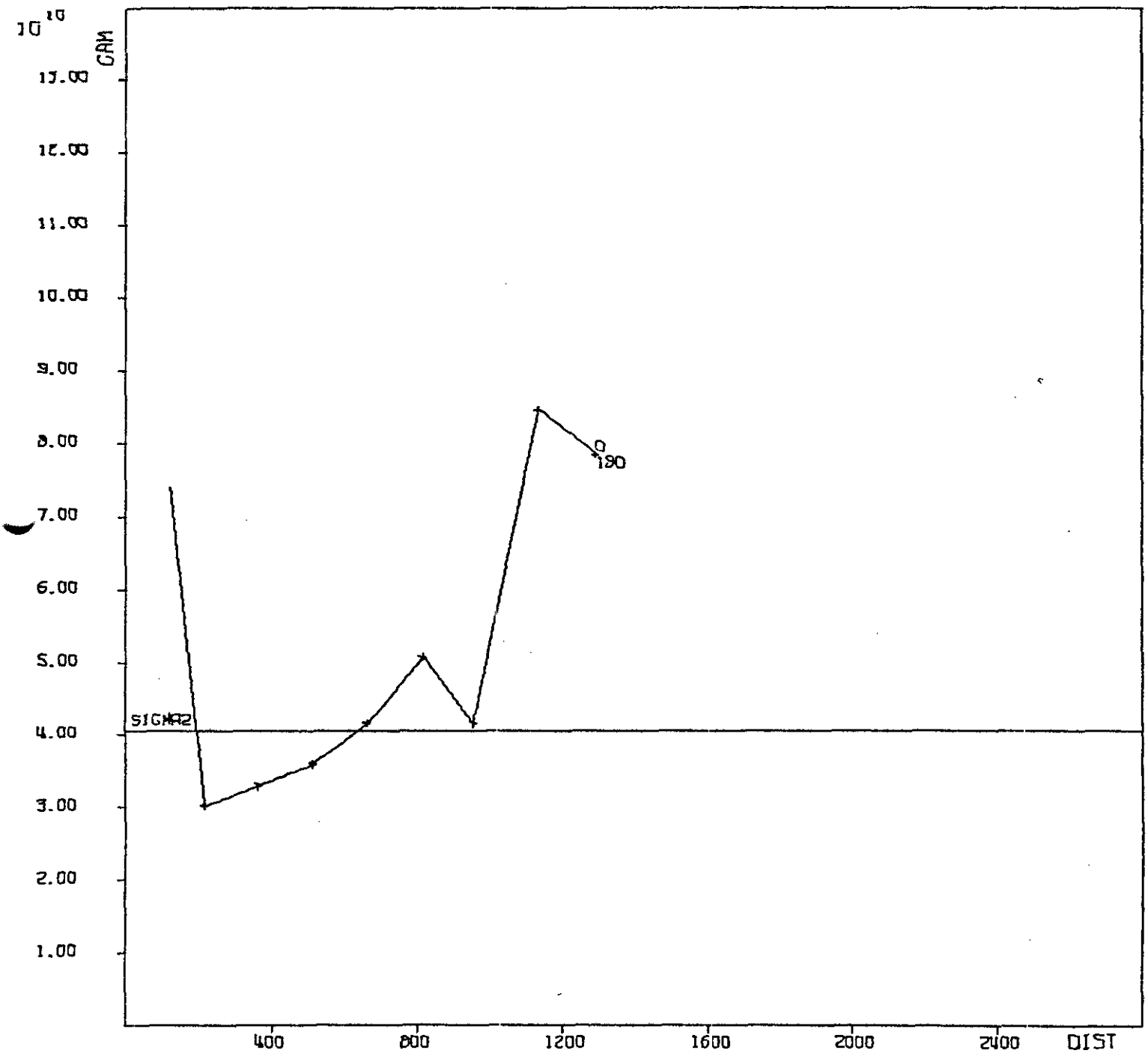
HAT CREEK ----- ZONE C -----



VARIABLE CO.2 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE C -----

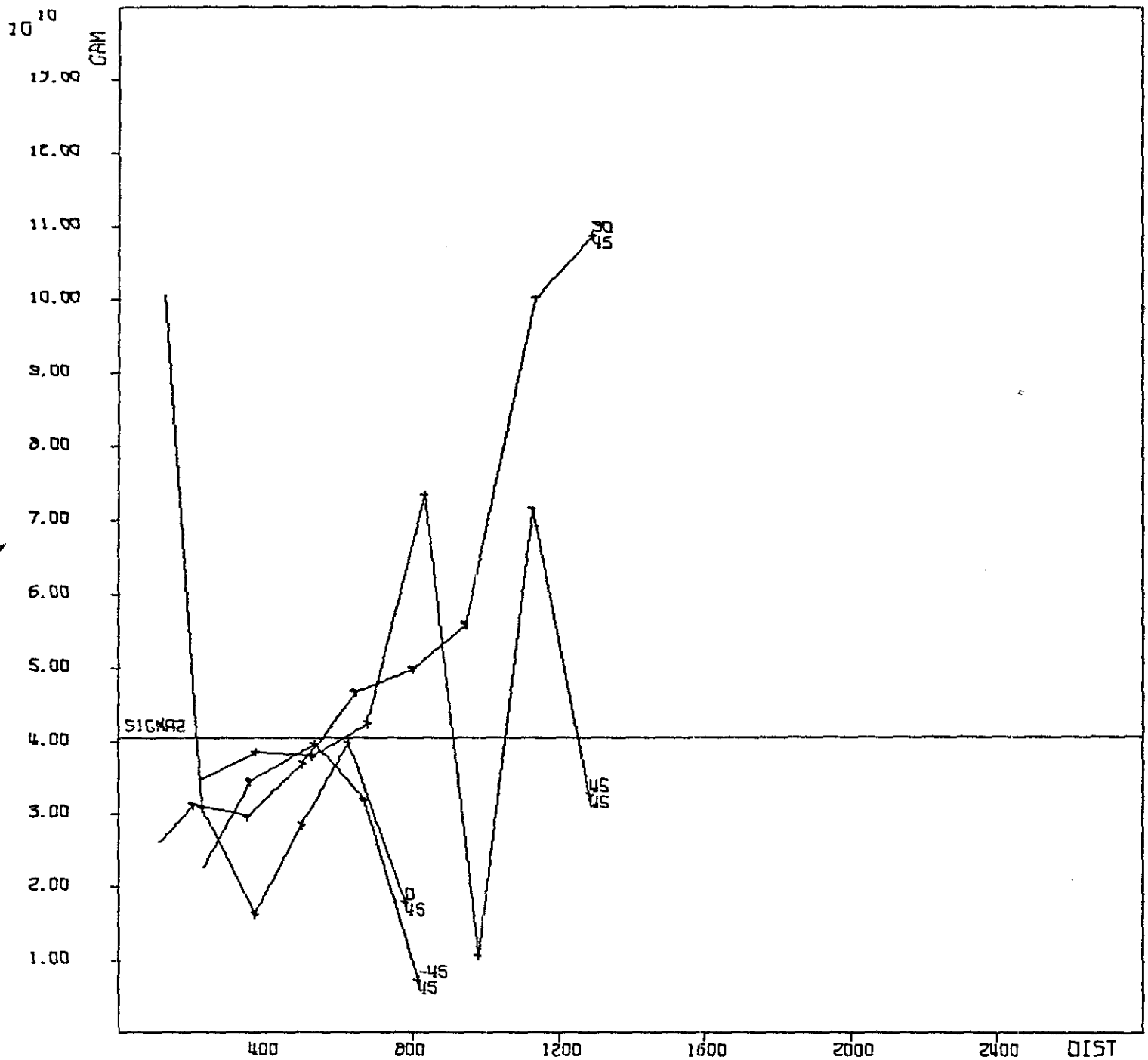
00000120



VARIABLE C0.3 ABSOLUTE VARIOGRAM

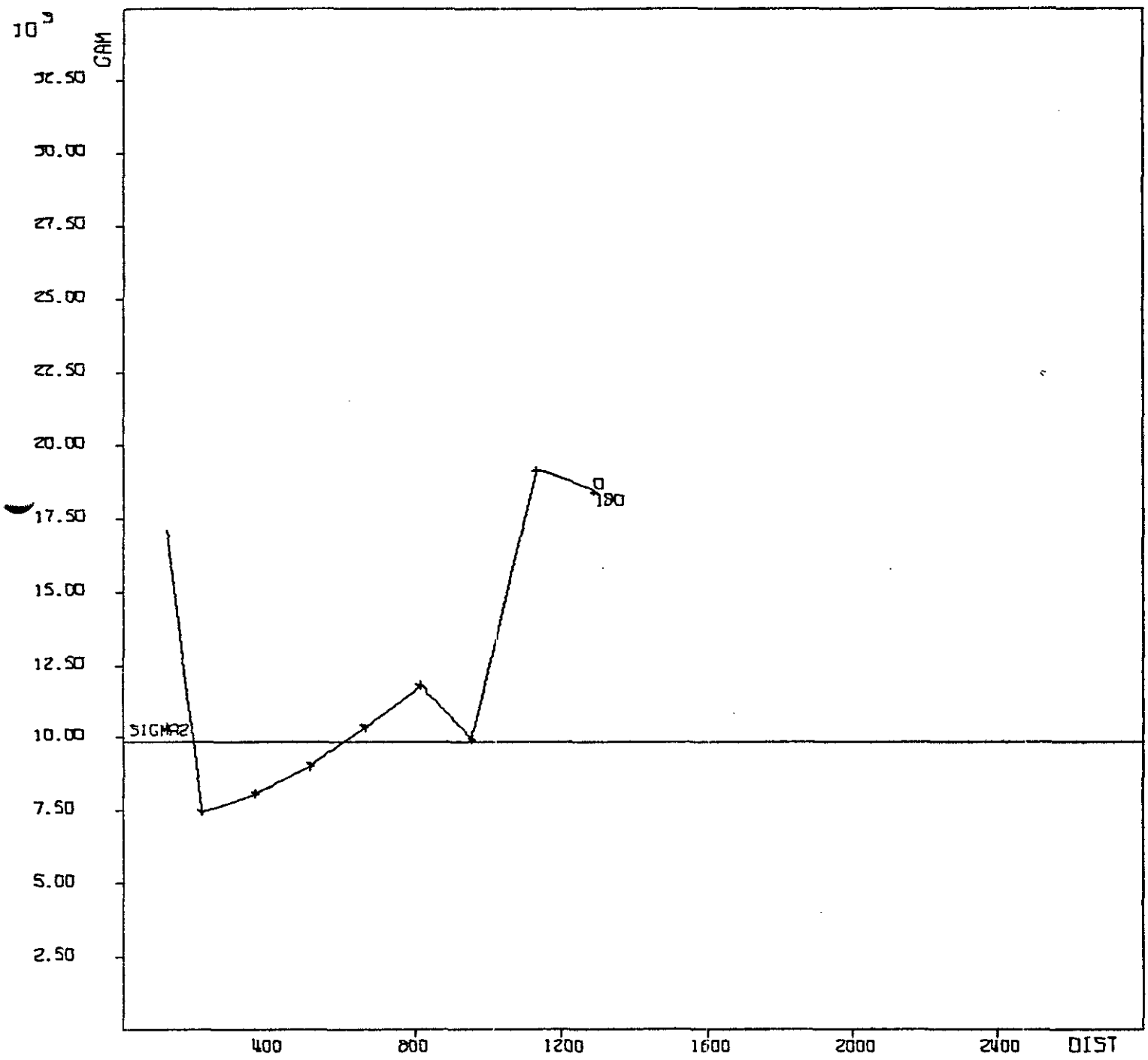
HAT CREEK ----- ZONE C -----

00000120



VARIABLE C0.3 ABSOLUTE VARIOGRAM

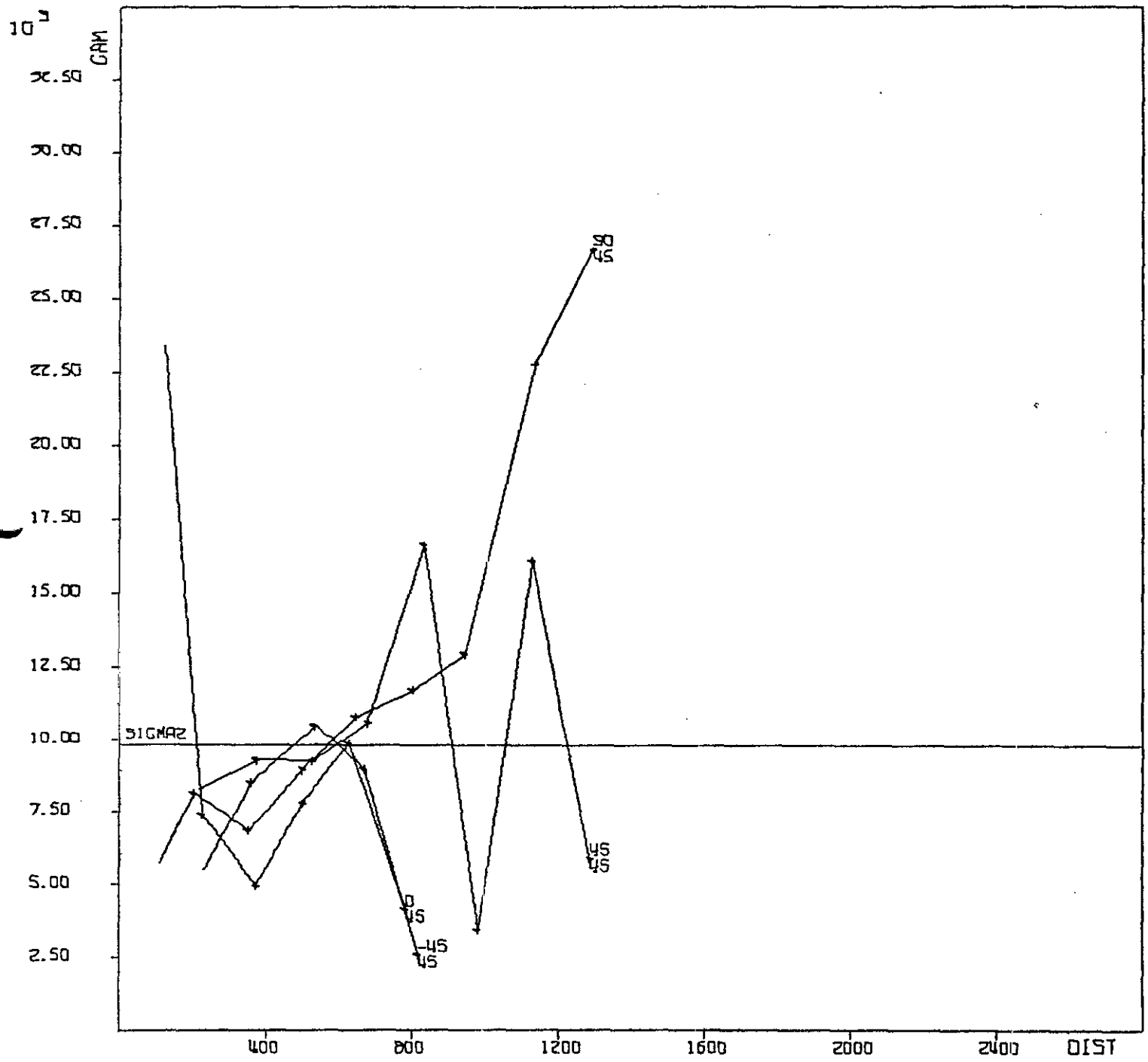
HAT CREEK ----- ZONE C -----



VARIABLE CO.4 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE C -----

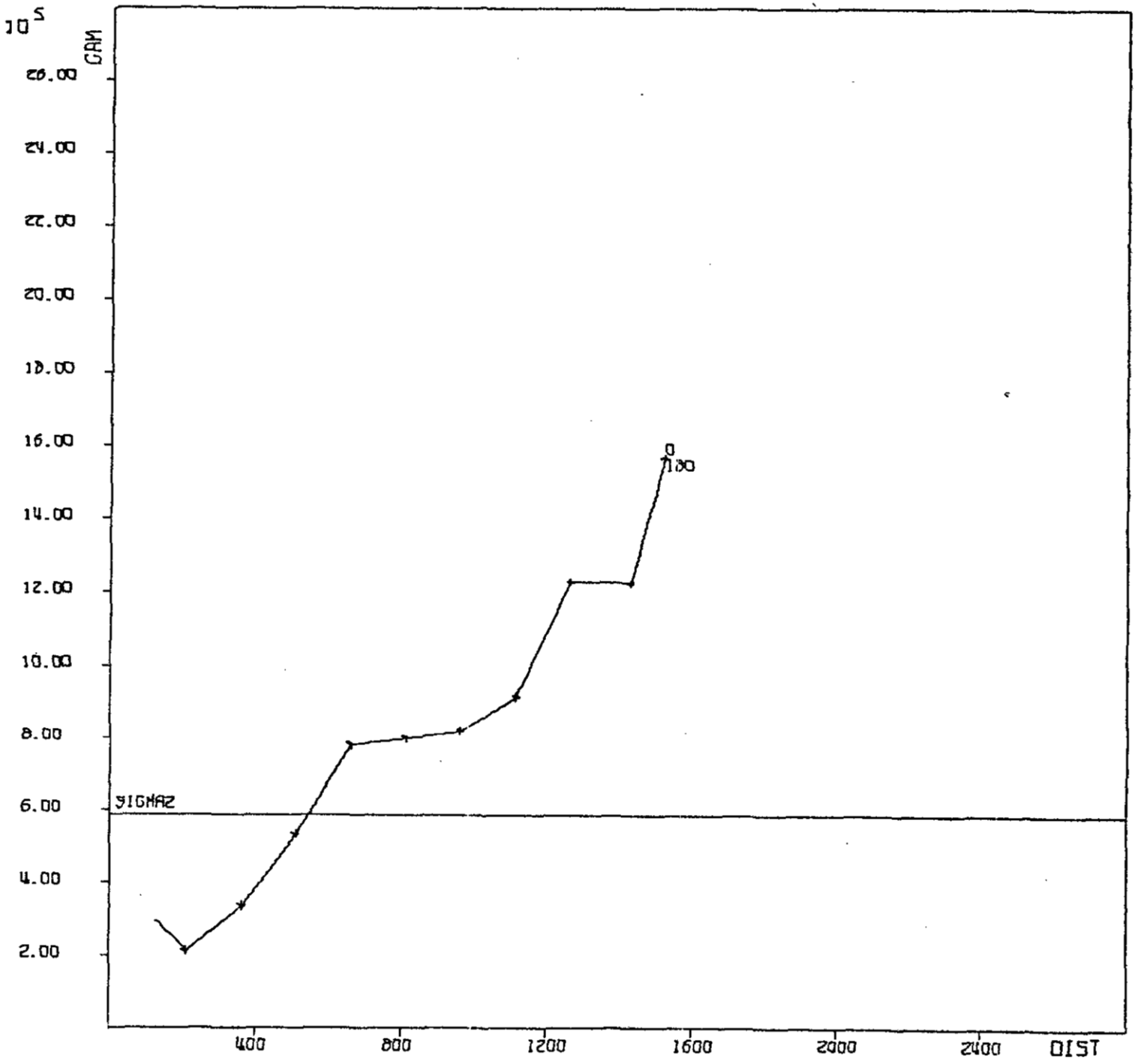
00000120



VARIABLE CO.4 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE C -----

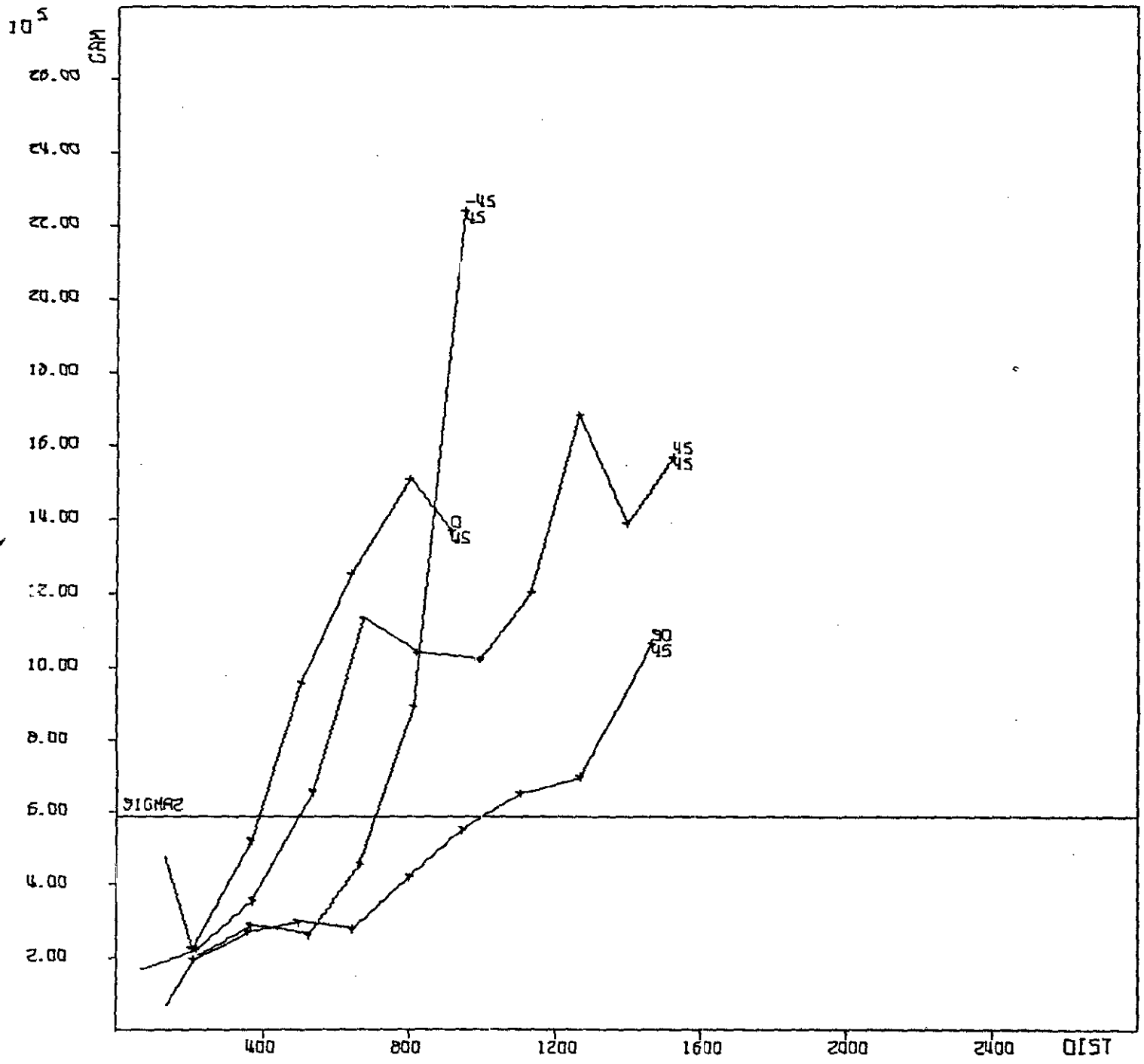
00000120



VARIABLE MEAN ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE 0 -----

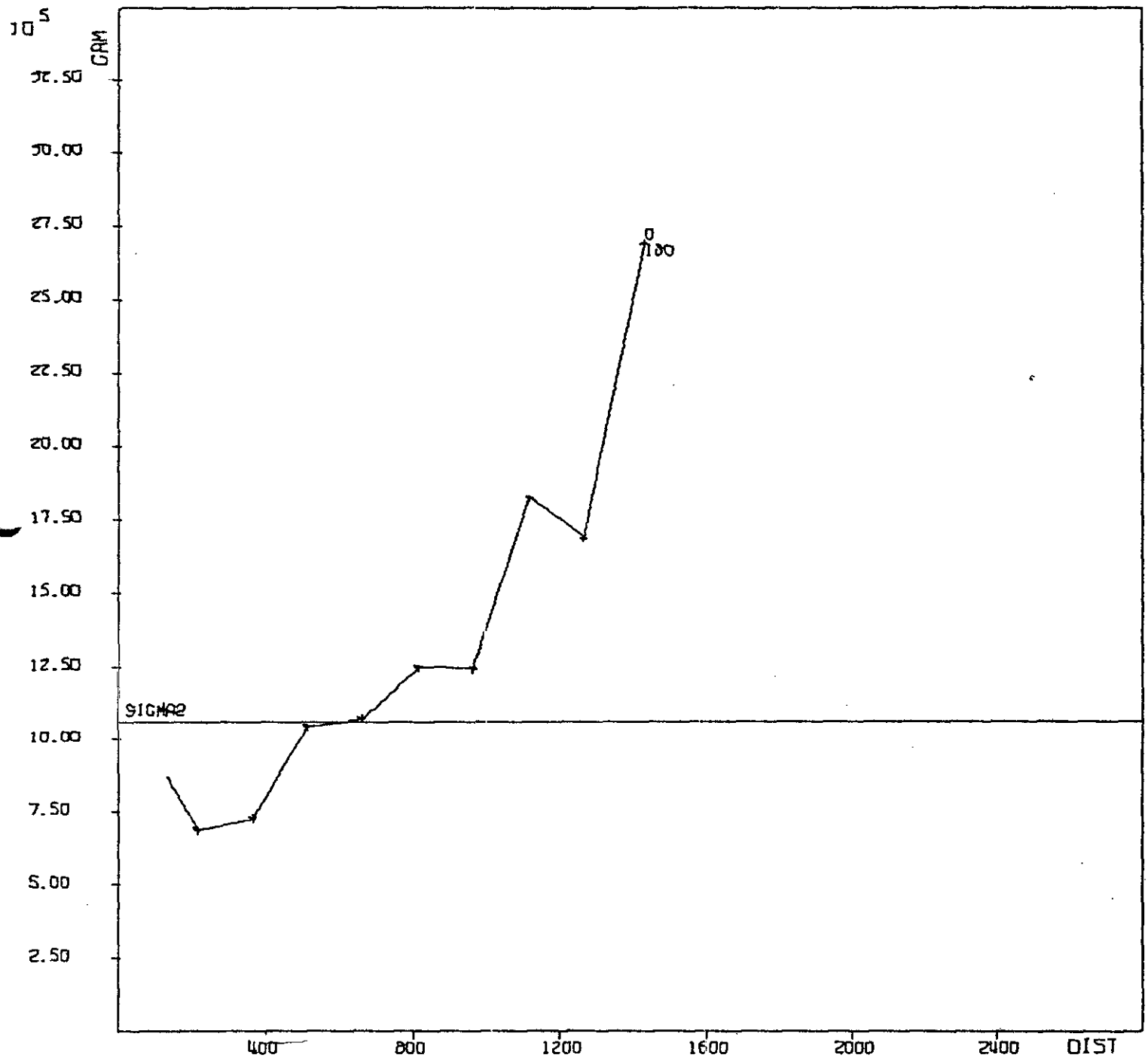
00000120



VARIABLE MEAN ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE 0 -----

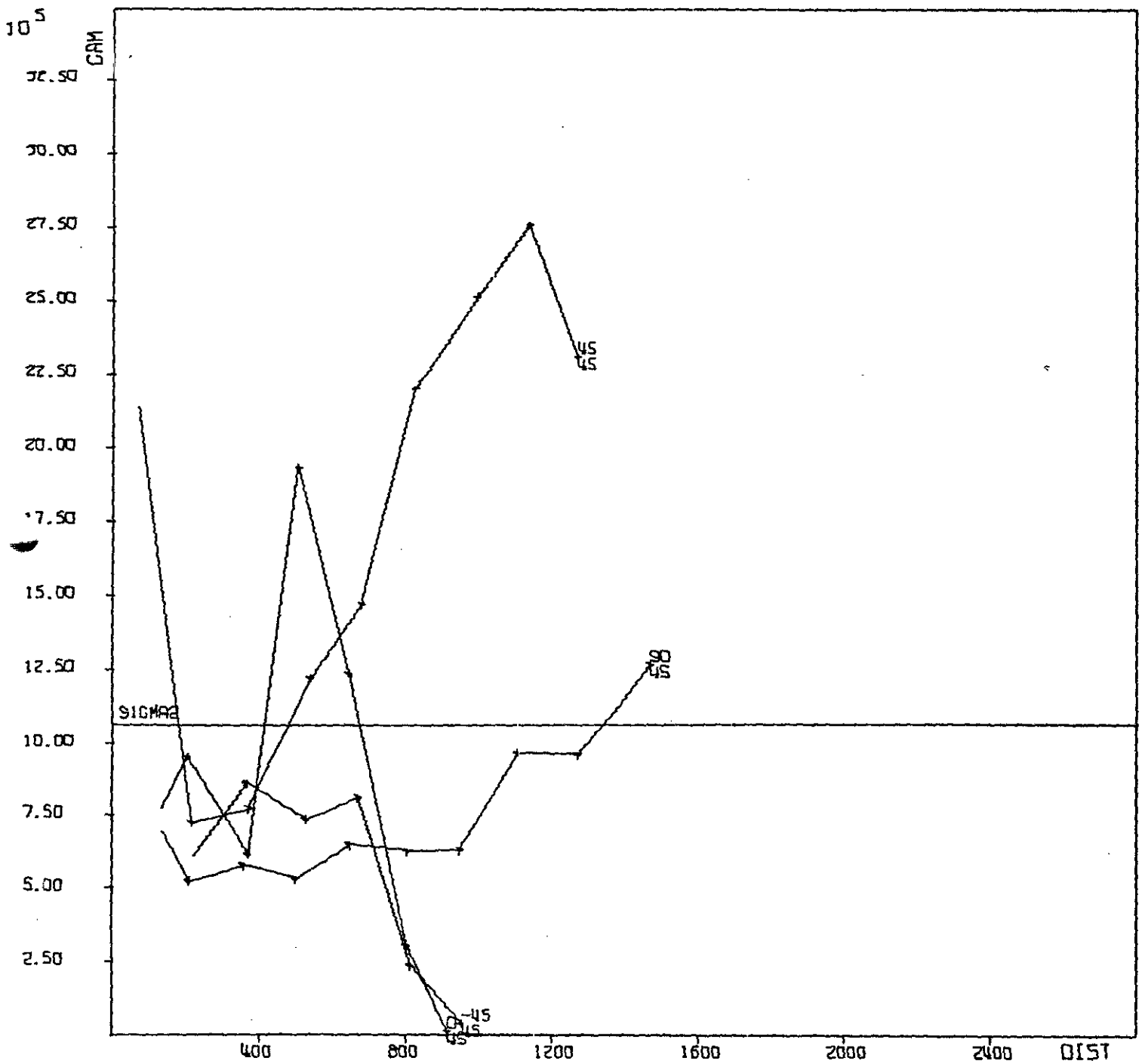
00000120



VARIABLE C0.0 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE 0 -----

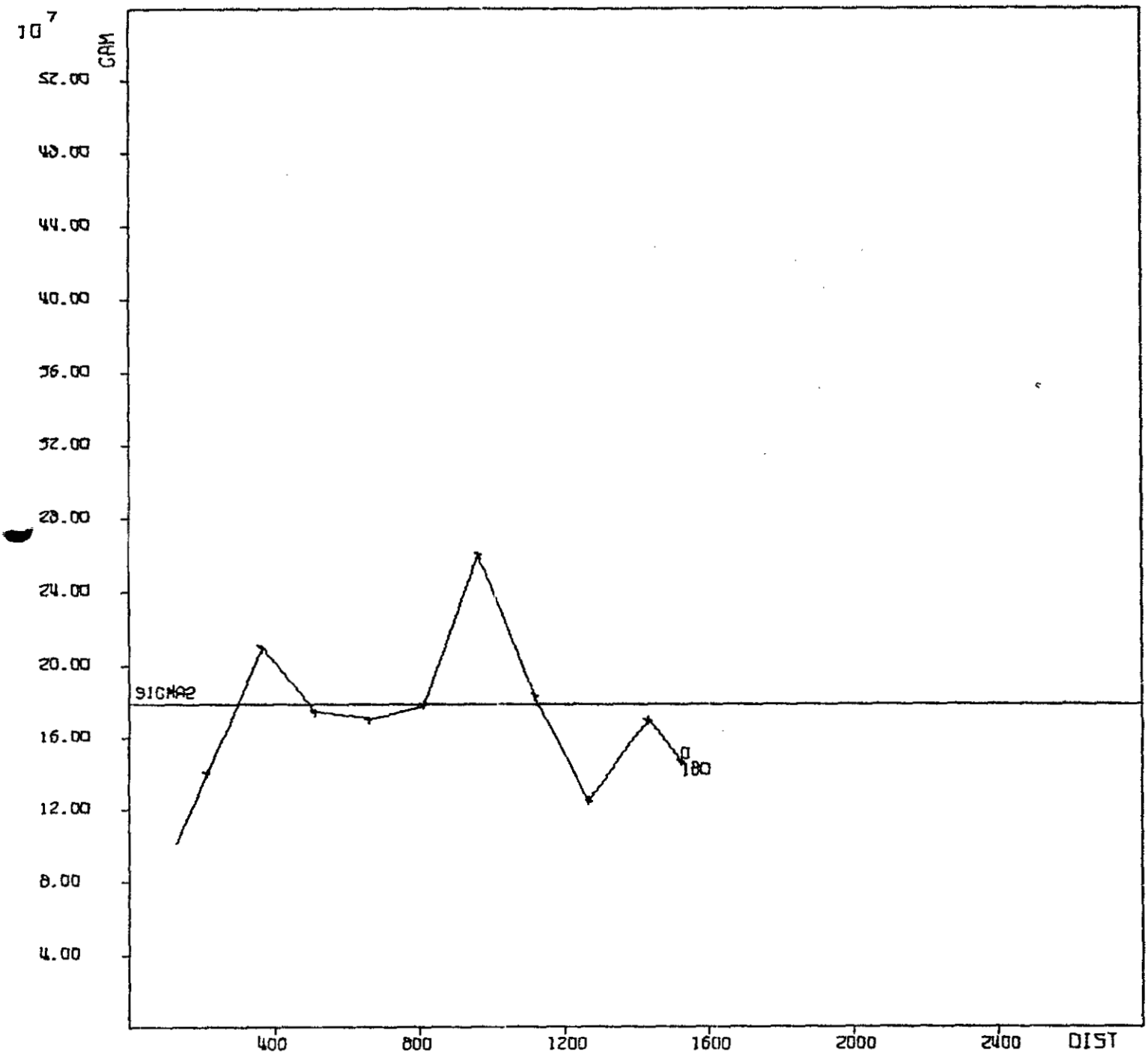
00000120



VARIABLE CO.O ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE O -----

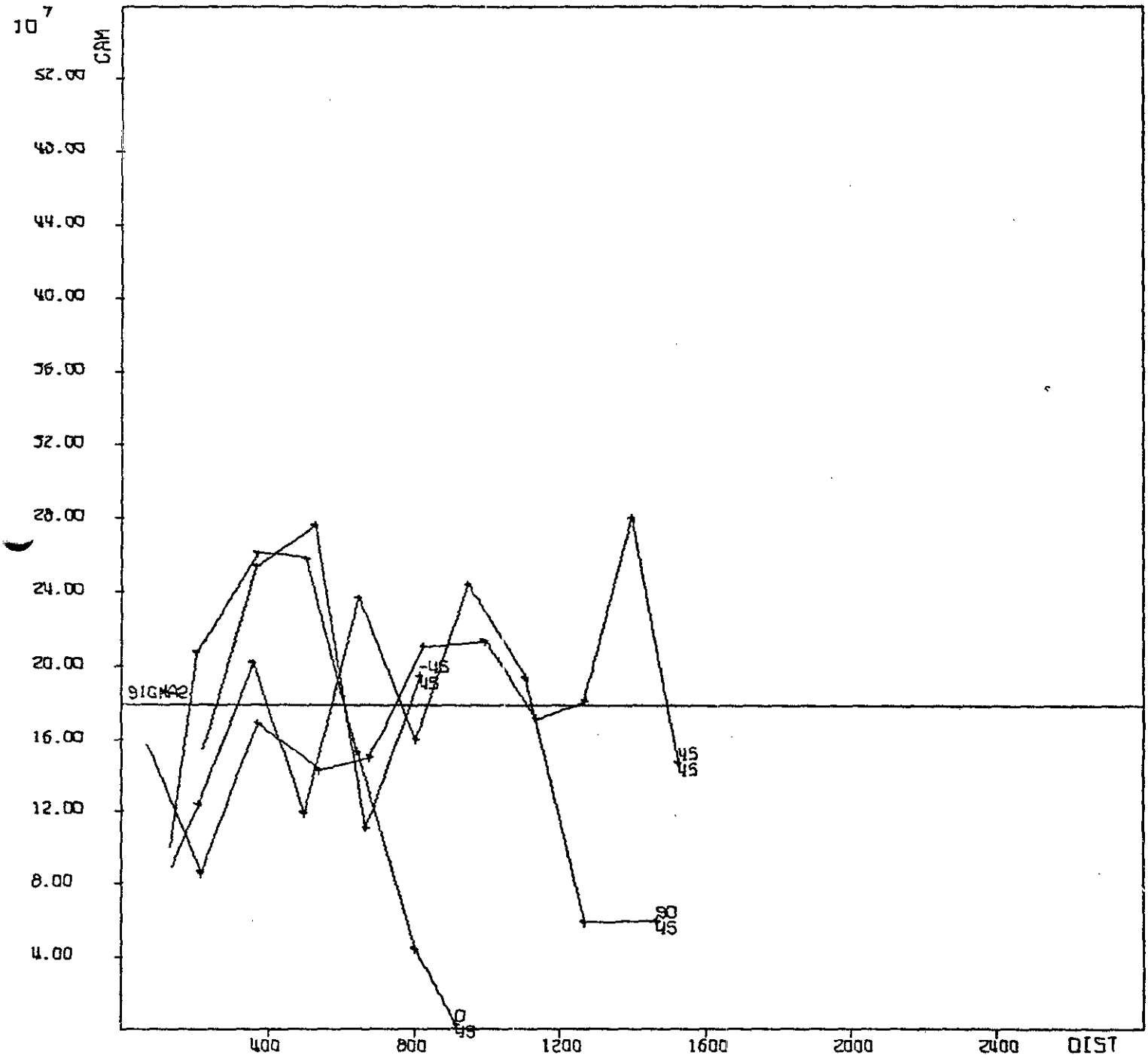
00000120



VARIABLE C0.1 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE 0 -----

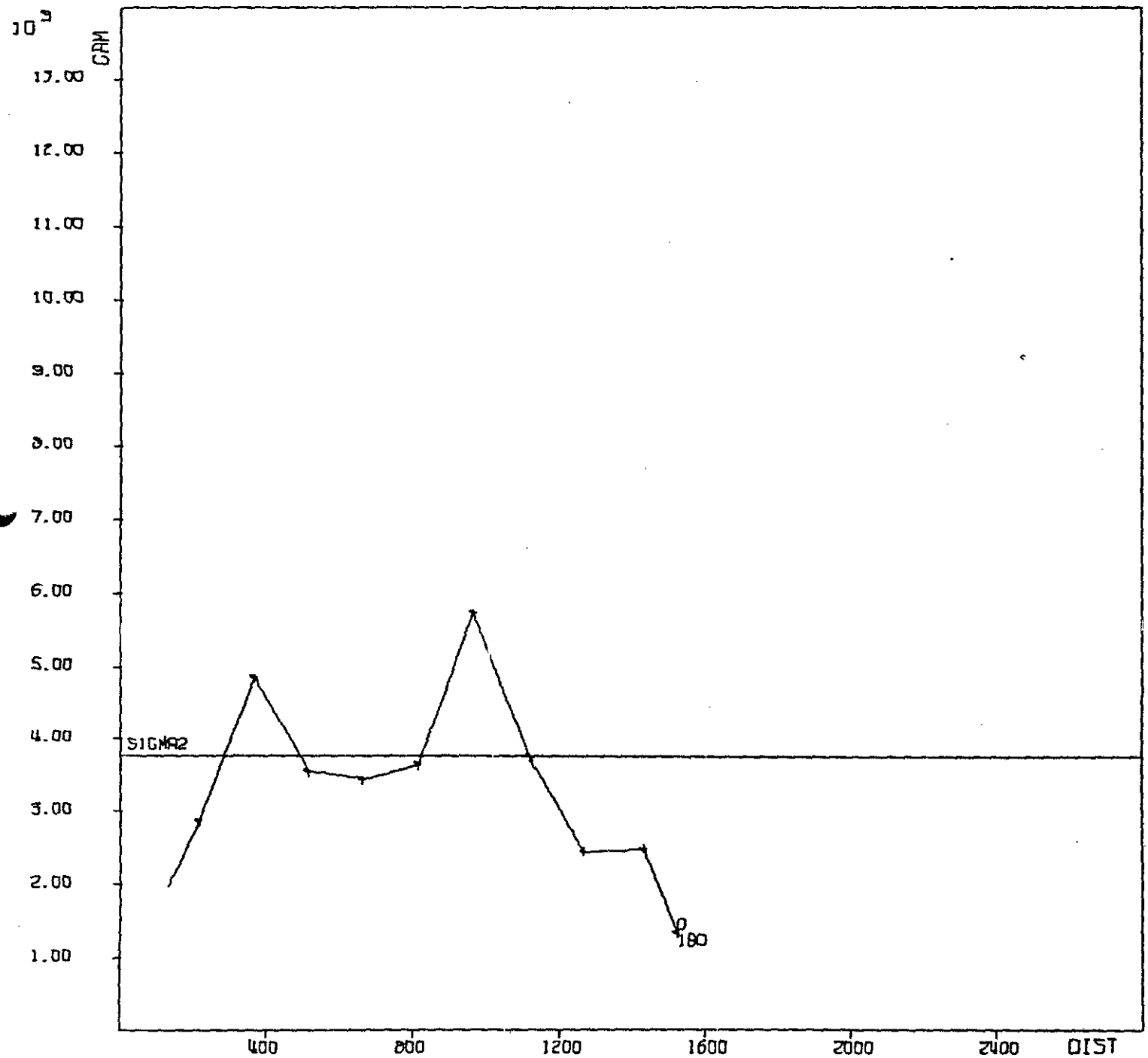
00000120



VARIABLE C0.1 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE D -----

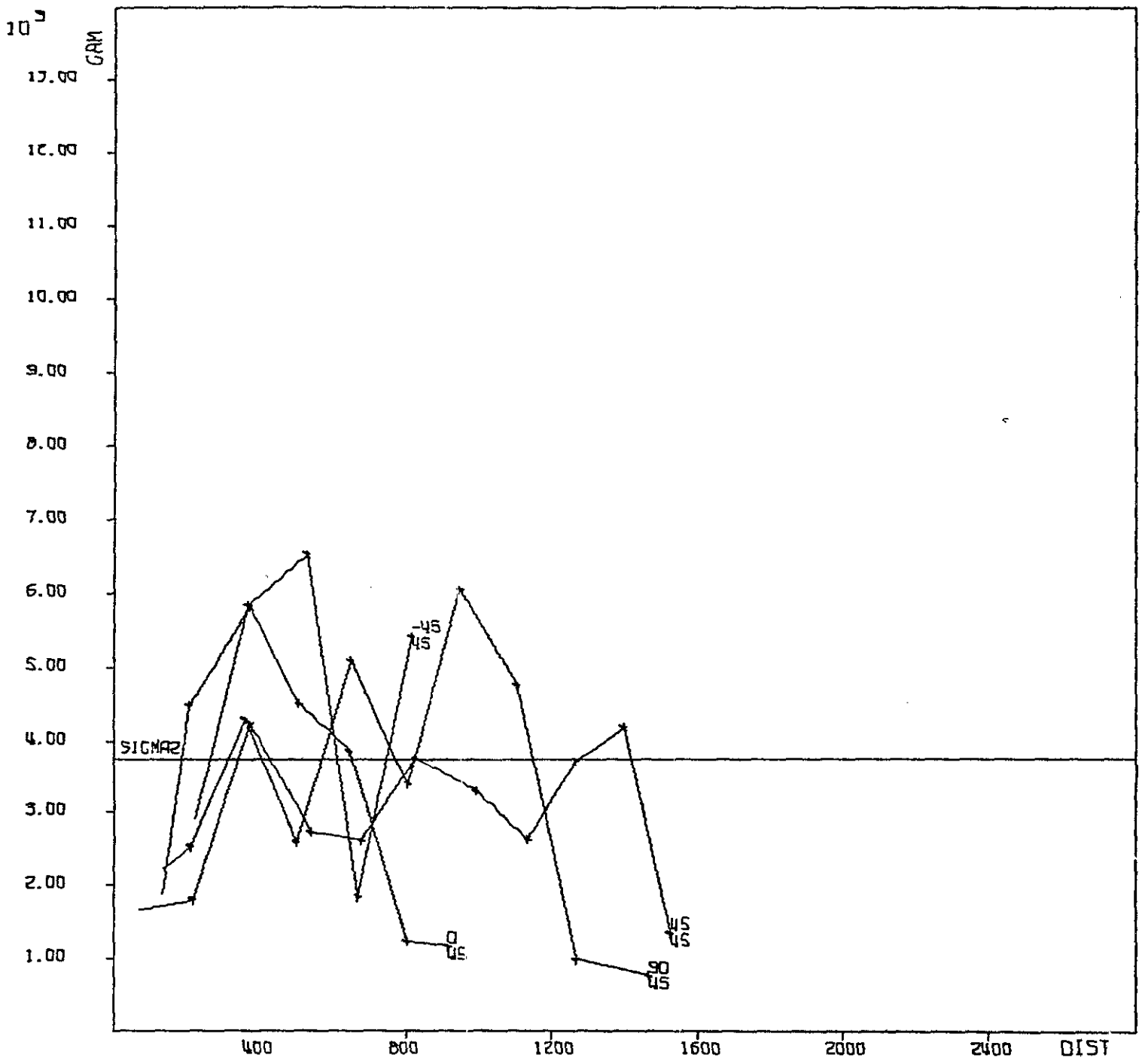
00000120



VARIABLE CO.2 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE 0 -----

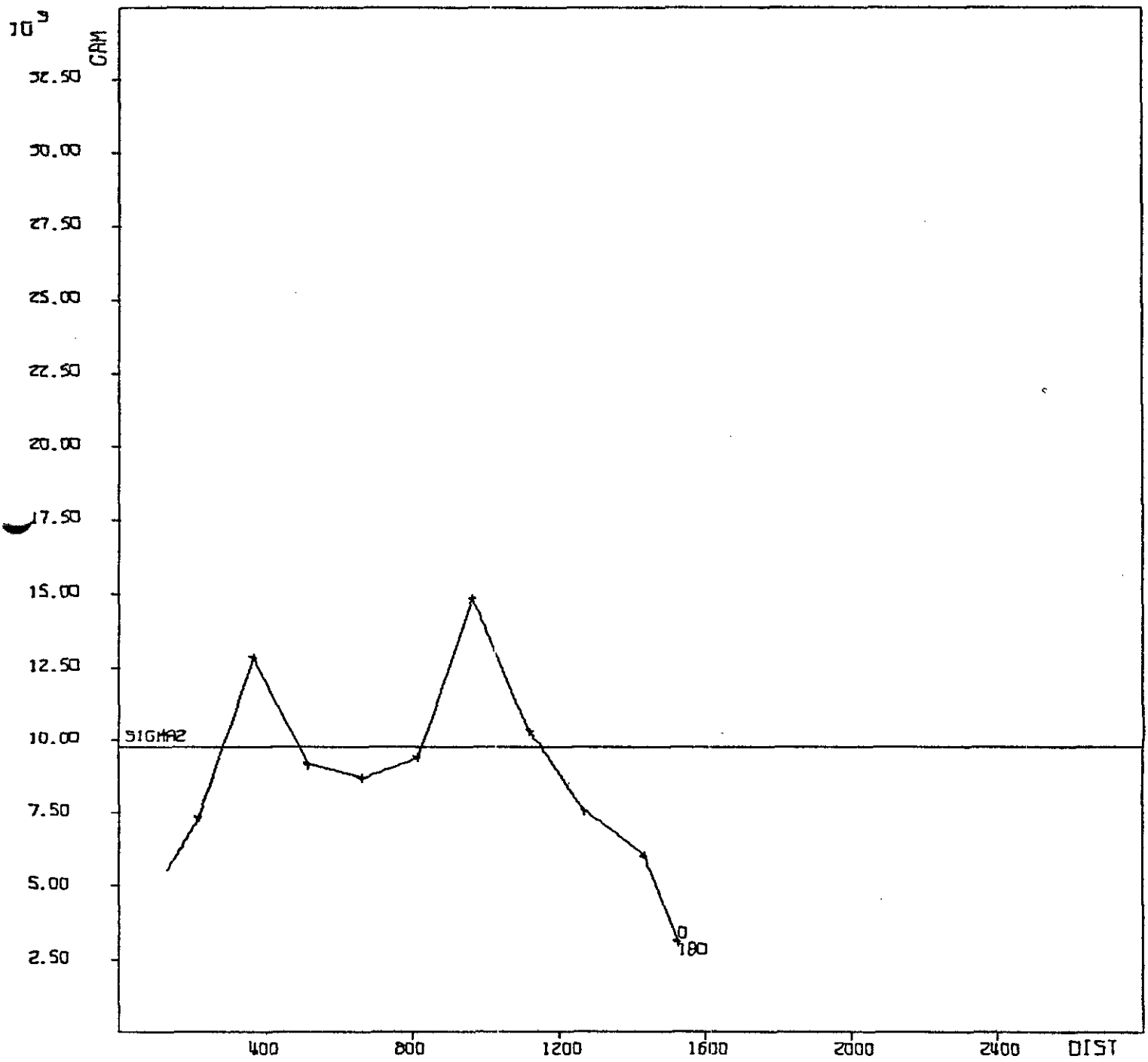
00000120



VARIABLE C0.2 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE 0 -----

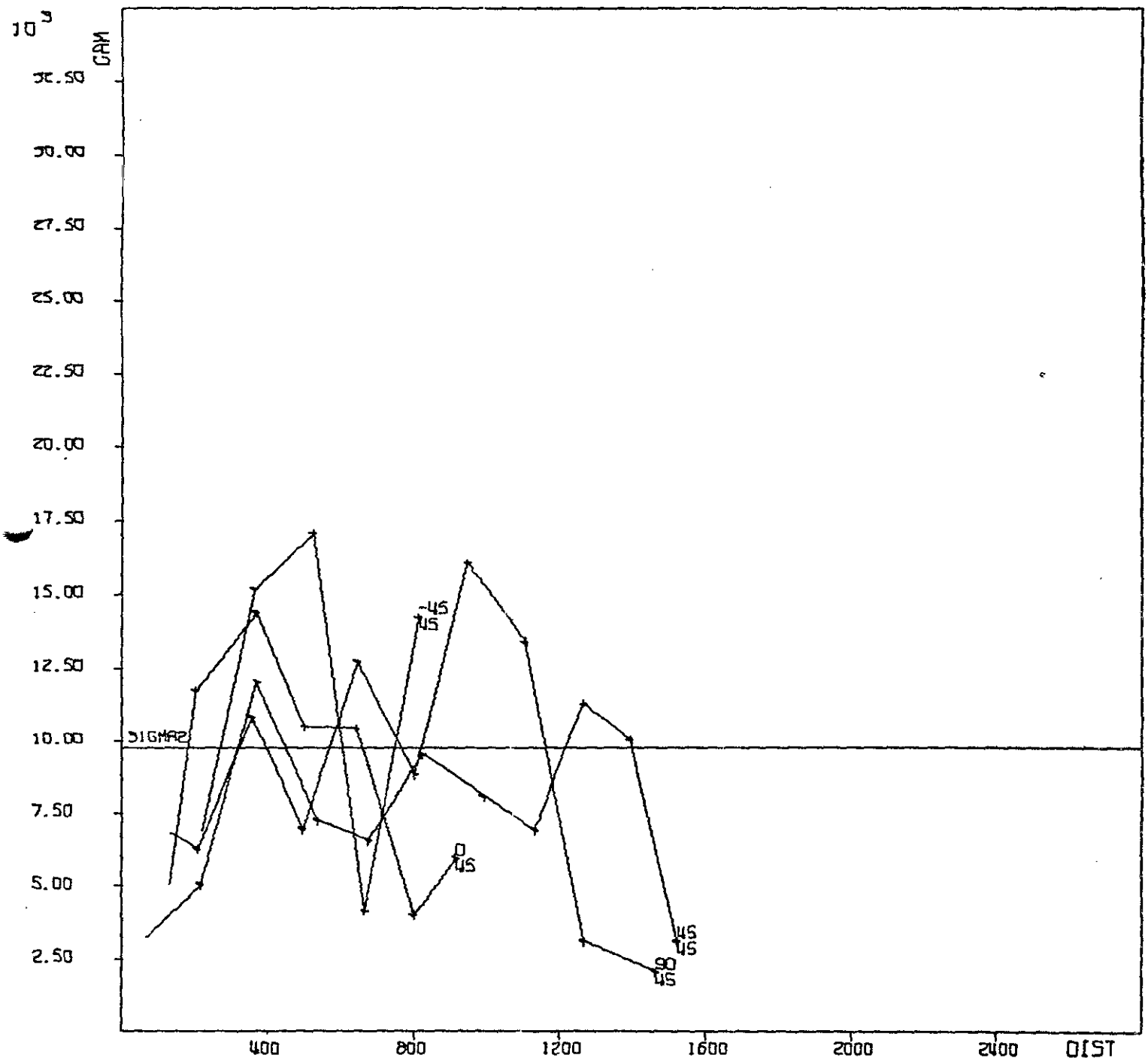
00000120



VARIABLE C0.3 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE 0 -----

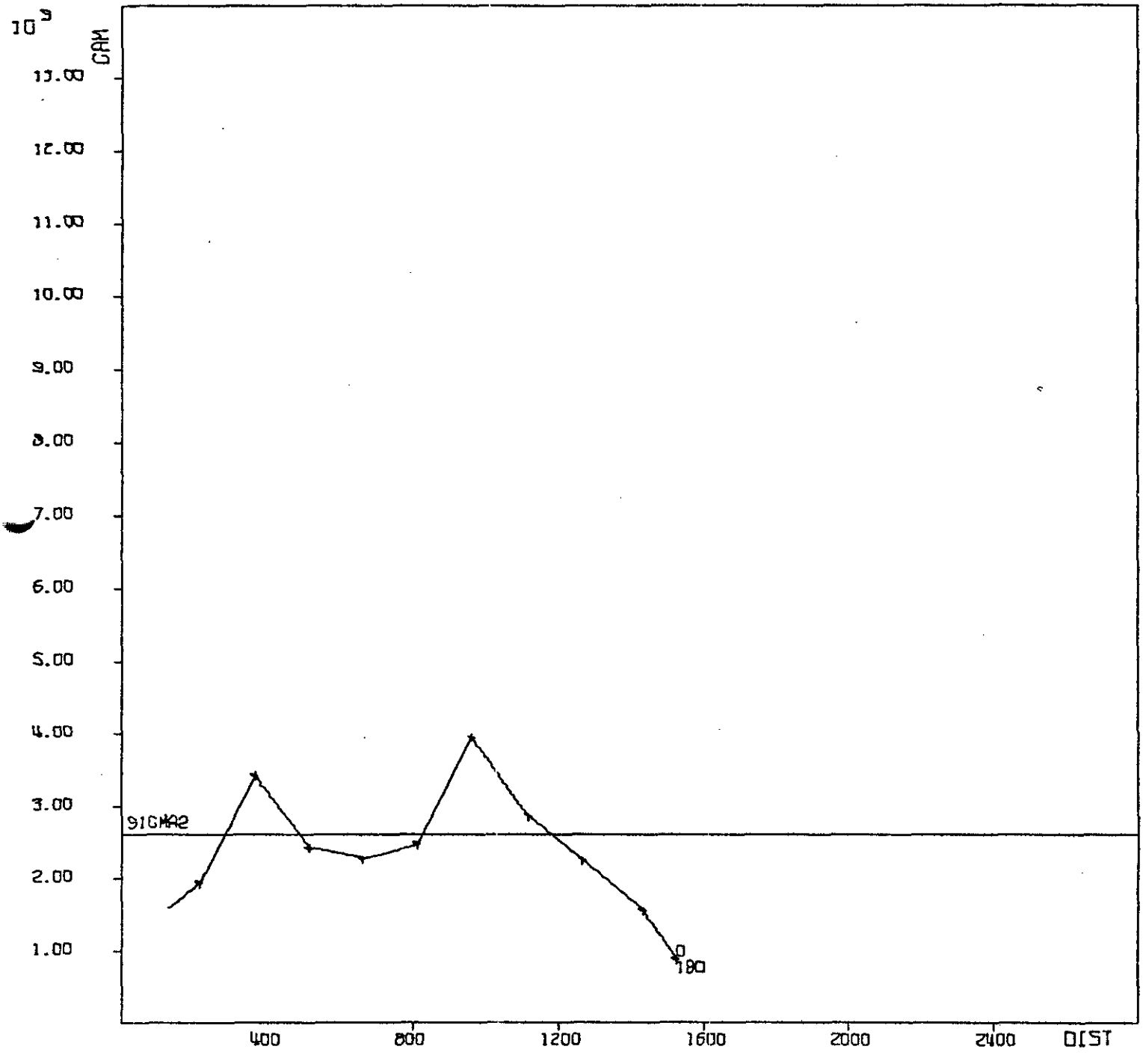
00000120



VARIABLE C0.3 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE 0 -----

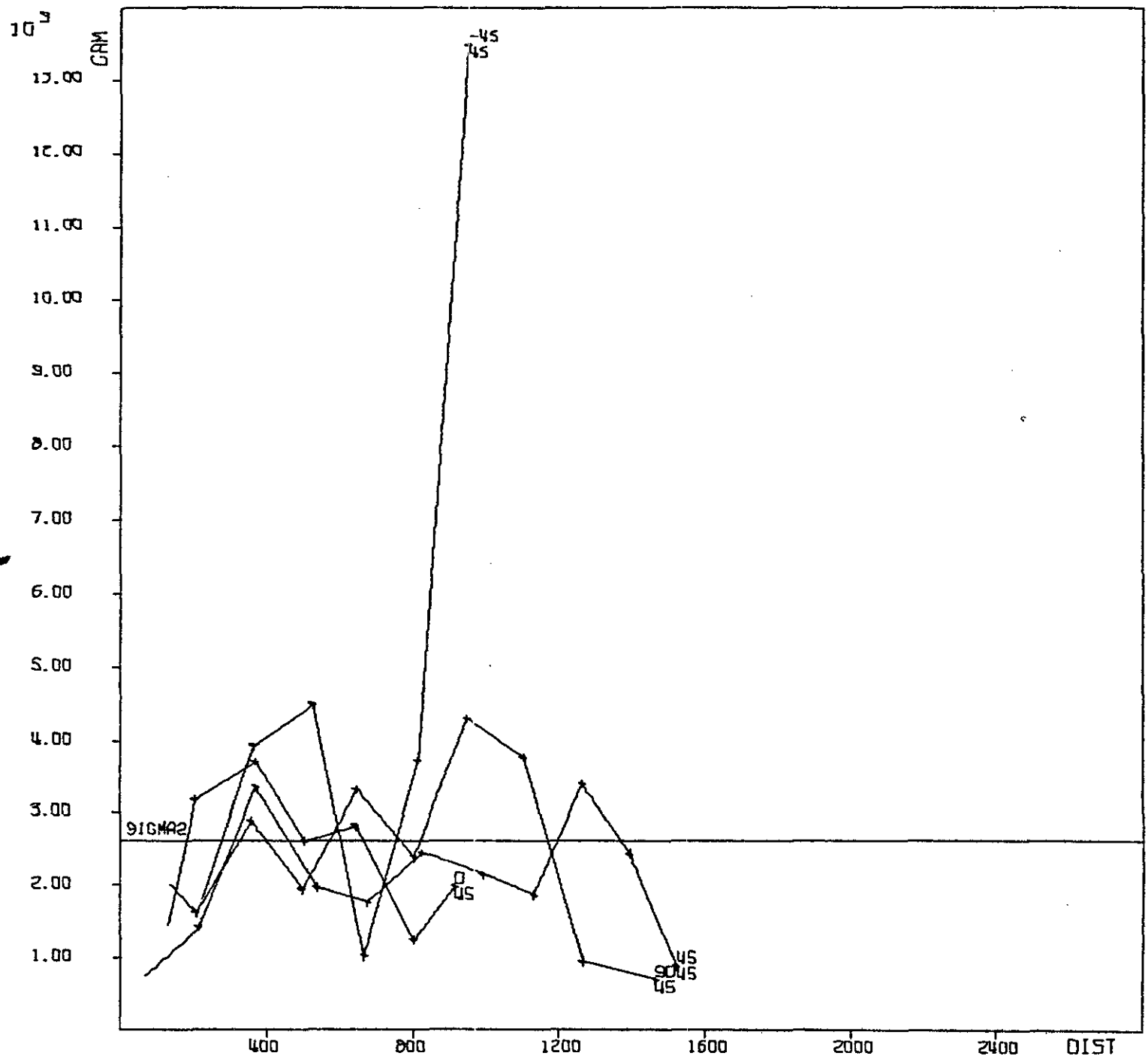
00000120



VARIABLE CO.4 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE D -----

00000120



VARIABLE C0.4 ABSOLUTE VARIOGRAM

HAT CREEK ----- ZONE 0 -----

00000120