



Energy, Mines and
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Énergie, Mines et
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Science and Technology

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May 13, 1981

Your file Votre référence

Our file Notre référence

6235-GAC
6250-4

Mr. John Hoffman,
U.S. Geological Survey,
Albuquerque Seismological Center,
Building 10002,
Kirtland AFB-East,
Albuquerque, New Mexico
U.S.A. 87115

Dear John:

Please find enclosed the calibration data for the Glen Almond (GAC) long-period station. The two curves (Fig.8 and 9) also give the phase angle and displacement sensitivity for the short-period GAC response which you should just ignore. Table 1 gives the poles and zeros and the computer print-out gives the computed displacement values (without the scale factor) and phase angles (in degrees).

If you require more information please let me know.

Yours truly,

Bill Shannon
Division of Seismology
and Geothermal Studies

Attach

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TABLE 1

TRANSFER FUNCTION POLES AND ZEROS FOR THE GLEN ALMOND (GAC) SEISMOGRAPH.

March, 1981.

GAC LONG PERIOD

	POLES	ZEROS
KS 36000 SEISMO	$S + 4.648 \pm 3.463 j$	S^2
(ALBUQ. "NOMINAL")	$S + .1179$	$S + .1243$
	$S + 40.73$	$S + 47.62$
	$S + 100.0$	
	$S + .1500$	
	$S + 264$	
GEOTECH LP FILTER:	$S + 2.105 \pm 1.823$	$S \pm 1.0525 j$ (NOTCH)
	$S + .2010 \pm .2410j$	
	$S + .1337 \pm .1001j$	
	$S + .0251$	S
	$S + .00924$	S
EPB ANTI ALIAS FILTER:	$S + .3793 \pm .6386j$	
	$S + .794$	
SCALE FACTOR (Bits/Metre)	2.12×10^{12}	

GAC SHORT PERIOD

	POLES	ZEROS
KS 36000 SEISMO	$S + 4.648 \pm 3.463j$	S^2
(ALBUQ. "NOMINAL")	$S + .1179$	$S + .1243$
	$S + 40.73$	$S + 47.62$
	$S + 100.0$	
	$S + .1500$	
	$S + 264$	
EPB SP FILTER	$S + 3.129$	S
	$S + 50.00$	S
EPB ANTIALIAS FILT.	$S + 25.12 \pm 42.28j$	
	$S + 52.58$	
SCALE FACTOR (Bits/Metre)	1.38×10^{11}	

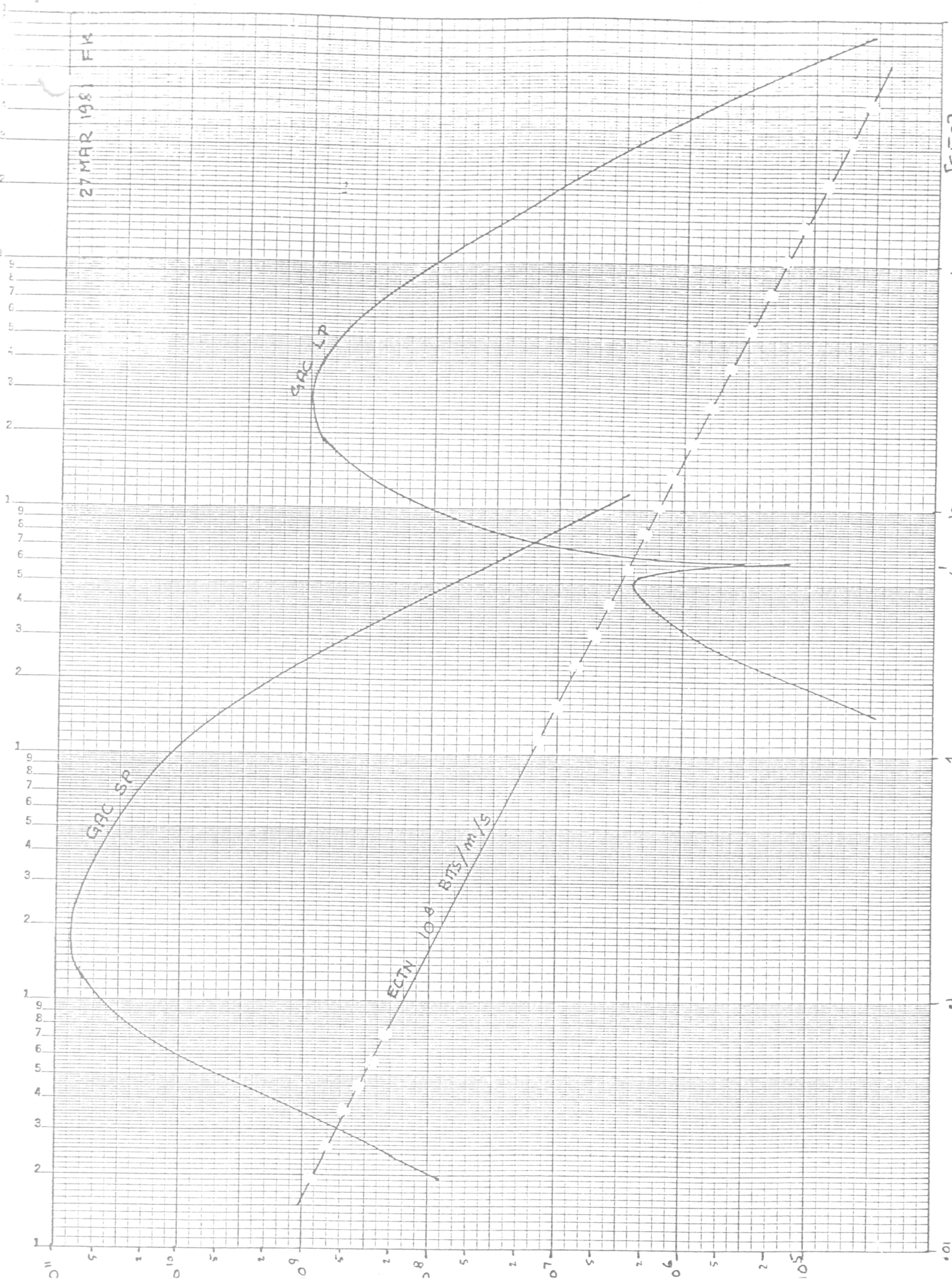
GAC LP

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FREQ	PERIOD	Displacement Sensitivity (without scale factor)		ANGLE	Phase Angle (deg.)	
		GAIN	DBGAIN		SANGLE	D ANGLE
.00100	1000.00000	.85370E-03	-151.37390	31.83	391.83	-328.17
.00106	944.06086	.11129E-07	-159.07111	28.90	388.90	-331.10
.00112	891.25094	.14479E-07	-156.73500	25.86	385.86	-334.14
.00119	841.39514	.18301E-07	-154.51641	22.72	382.72	-337.28
.00126	794.32823	.24361E-07	-152.26614	19.48	379.48	-340.52
.00133	749.89421	.31496E-07	-150.03494	16.14	376.14	-343.86
.00141	707.94578	.40628E-07	-147.82352	12.70	372.70	-347.30
.00150	668.34392	.52235E-07	-145.53252	9.16	369.16	-350.84
.00158	630.95734	.67123E-07	-143.46253	5.53	365.53	-354.47
.00168	595.66214	.85960E-07	-141.31408	1.80	361.80	-358.20
.00178	562.34133	.10990E-06	-139.18764	-2.01	357.99	-362.01
.00188	530.83444	.13990E-06	-137.08362	-5.91	354.09	-365.91
.00200	501.13723	.17776E-06	-135.00237	-9.90	350.10	-369.90
.00211	473.15126	.22531E-06	-132.94420	-13.97	346.03	-373.97
.00224	446.63359	.28430E-06	-130.90935	-18.13	341.87	-378.13
.00237	421.69650	.35900E-06	-128.89803	-22.36	337.64	-382.36
.00251	398.10717	.45132E-06	-126.91039	-26.68	333.32	-386.68
.00266	375.83740	.56581E-06	-124.94656	-31.07	328.93	-391.07
.00282	354.81339	.70740E-06	-123.00665	-35.54	324.46	-395.54
.00299	334.96544	.88200E-06	-121.09067	-40.09	319.91	-400.09
.00316	316.22777	.10967E-05	-119.19363	-44.72	315.28	-404.72
.00335	298.53326	.13593E-05	-117.33051	-49.42	310.58	-409.42
.00355	281.83329	.16815E-05	-115.48623	-54.20	305.80	-414.20
.00376	266.07251	.20736E-05	-113.66569	-59.06	300.94	-419.06
.00398	251.18564	.25501E-05	-111.86875	-64.00	296.00	-424.00
.00422	237.13737	.31273E-05	-110.09523	-69.02	290.98	-429.02
.00447	223.87211	.38261E-05	-108.34494	-74.13	285.87	-434.13
.00473	211.34590	.46679E-05	-106.61763	-79.33	280.67	-439.33
.00501	199.52523	.56800E-05	-104.91310	-84.61	275.39	-444.61
.00531	188.36491	.68936E-05	-103.23110	-90.00	270.00	-450.00
.00562	177.62794	.83451E-05	-101.57141	-95.49	264.51	-455.49
.00596	167.83040	.10076E-04	-99.93385	-101.08	258.92	-461.08
.00631	158.43932	.12136E-04	-98.31327	-106.80	253.20	-466.80
.00668	149.62357	.14580E-04	-96.72460	-112.64	247.36	-472.64
.00708	141.25375	.17473E-04	-95.15236	-118.61	241.39	-478.61
.00750	133.35214	.20885E-04	-93.60315	-124.73	235.27	-484.73
.00794	125.89254	.24901E-04	-92.07571	-131.01	228.99	-491.01
.00841	118.85022	.29611E-04	-90.57095	-137.45	222.55	-497.45
.00891	112.20185	.35113E-04	-89.08942	-144.08	215.92	-504.08
.00944	105.92537	.41534E-04	-87.63187	-150.91	209.09	-510.91
.01000	100.00000	.48932E-04	-86.19930	-157.94	202.06	-517.94
.01059	94.40609	.57591E-04	-84.79290	-165.21	194.79	-525.21
.01122	89.12509	.67498E-04	-83.41418	-172.71	187.29	-532.71
.01189	84.13951	.78842E-04	-82.06489	179.53	539.53	-180.47-1
.01259	79.43282	.91758E-04	-80.74713	171.49	531.49	-188.51
.01334	74.93942	.10637E-03	-79.46333	163.17	523.17	-196.83
.01413	70.79458	.12280E-03	-78.21624	154.54	514.54	-205.46
.01496	66.83439	.14111E-03	-77.00901	145.59	505.59	-214.41
.01585	63.09573	.16134E-03	-75.84512	136.31	496.31	-223.69
.01679	59.56621	.18343E-03	-74.72341	126.69	486.69	-233.31
.01778	56.23413	.20742E-03	-73.65301	116.72	476.72	-243.28
.01884	53.08344	.23299E-03	-72.65332	106.38	466.38	-253.62
.01995	50.11872	.25990E-03	-71.70395	95.69	455.69	-264.31
.02113	47.31513	.28775E-03	-70.81925	84.64	444.64	-275.36
.02239	44.66836	.31605E-03	-70.00490	73.23	433.23	-286.77
.02371	42.16965	.34417E-03	-69.26454	61.46	421.46	-298.54
.02512	39.81072	.37141E-03	-68.60295	49.35	409.35	-310.65
.02661	37.62272	.39875E-03	-68.01460	36.91	396.91	-322.69

.02818	35.43134	.42010E-03	-57.53297	24.15	384.15	-335.85
.02985	33.49554	.43991E-03	-67.13265	11.07	371.07	-348.93
.03162	31.62278	.45565E-03	-66.82744	-2.30	357.70	-362.30
.03350	29.85383	.46658E-03	-66.62145	-15.95	344.05	-375.95
.03538	28.13383	.47212E-03	-66.51904	-29.87	330.13	-389.87
.03753	26.60725	.47130E-03	-66.52483	-44.04	315.96	-404.04
.03931	25.11386	.46539E-03	-66.64358	-58.43	301.57	-418.43
.04217	23.71374	.45290E-03	-66.87997	-73.02	286.98	-433.02
.04467	22.33721	.43460E-03	-67.23321	-87.76	272.24	-447.76
.04732	21.13489	.41108E-03	-67.72152	-102.62	257.38	-462.62
.05012	19.95262	.38319E-03	-68.33177	-117.54	242.46	-477.54
.05309	18.83649	.35200E-03	-69.06920	-132.48	227.52	-492.48
.05623	17.78279	.31870E-03	-69.93244	-147.40	212.60	-507.40
.05957	16.78304	.28446E-03	-70.91694	-162.27	197.73	-522.27
.06310	15.84393	.25045E-03	-72.02563	-177.07	182.93	-537.07
.06683	14.96236	.21752E-03	-73.24936	168.21	523.21	-191.79
.07079	14.12538	.18641E-03	-74.59047	153.55	513.55	-206.45
.07499	13.33521	.15760E-03	-76.04880	138.93	498.93	-221.07
.07943	12.58925	.13138E-03	-77.62972	124.31	484.31	-235.69
.08414	11.88502	.10786E-03	-79.34255	109.65	469.65	-250.35
.08913	11.22018	.87078E-04	-81.20130	94.93	454.93	-265.07
.09441	10.59254	.68962E-04	-83.22778	80.12	440.12	-279.83
.10000	10.00000	.53414E-04	-85.44691	65.23	425.23	-294.77
.10593	9.44061	.40309E-04	-87.89203	50.30	410.30	-309.70
.11220	8.91251	.29501E-04	-90.60341	35.41	395.41	-324.59
.11885	8.41395	.20816E-04	-93.63137	20.65	380.65	-339.35
.12589	7.94328	.14045E-04	-97.04781	5.14	365.14	-353.86
.13335	7.49394	.99495E-05	-100.96400	-7.99	352.01	-367.99
.14125	7.07746	.62507E-05	-105.59560	-21.65	338.35	-381.65
.14962	6.68344	.36751E-05	-111.45312	-34.77	325.23	-394.77
.15849	6.30957	.206270E-06	-120.33015	-47.30	312.70	-407.30
.16788	5.95662	.11357E-06	-138.89462	120.75	480.75	-239.25
.17783	5.62341	.73956E-06	-122.62048	109.36	469.36	-250.64
.18836	5.30884	.40594E-05	-119.49901	98.51	458.51	-261.49
.19953	5.01187	.21798E-05	-113.56418	88.15	448.15	-271.85
.21135	4.73151	.11758E-05	-113.58618	78.24	438.24	-281.76
.22387	4.46584	.61023E-05	-119.15037	68.72	428.72	-291.28
.23714	4.21597	.39254E-05	-120.06508	59.54	419.54	-300.46
.25119	3.98107	.20633E-05	-121.22577	50.67	410.67	-309.33
.26607	3.75337	.117494E-06	-122.55928	42.06	402.06	-317.94
.28184	3.54813	.62599E-05	-124.05473	33.68	393.63	-326.32
.29854	3.34965	.32153E-05	-125.65442	25.49	385.49	-334.51
.31623	3.16223	.142909E-06	-127.34393	17.46	377.46	-342.54
.33497	2.98538	.74977E-05	-129.12436	9.56	369.56	-350.44
.35481	2.81338	.38279E-05	-130.97062	1.76	361.76	-358.24
.37584	2.66073	.22593E-05	-132.88041	-5.96	354.04	-365.96
.39811	2.51189	.13096E-05	-134.84349	-13.62	346.33	-373.62
.42170	2.37137	.74336E-06	-136.87120	-21.24	338.76	-381.24
.44668	2.23372	.41290E-06	-138.94616	-28.84	331.16	-388.84
.47315	2.11349	.23389E-07	-141.07200	-36.43	323.57	-396.43
.50119	1.99526	.10800E-07	-143.24820	-44.03	315.97	-404.03
.53088	1.88365	.53242E-07	-145.47495	-51.64	308.36	-411.64
.56234	1.77828	.240959E-07	-147.75299	-59.28	300.72	-419.28
.59566	1.67880	.11320E-07	-150.08356	-66.94	293.06	-426.94
.63096	1.58489	.52801E-07	-152.46326	-74.62	285.38	-434.62
.66834	1.49624	.17770E-07	-154.90334	-82.33	277.67	-442.33
.70795	1.41254	.73479E-07	-157.40715	-90.05	269.95	-450.05
.74989	1.33352	.30040E-07	-159.96496	-97.76	262.24	-457.76
.79433	1.25893	.14270E-08	-162.58376	-105.46	254.54	-465.46
.84140	1.18850	.54547E-08	-165.26462	-113.12	246.88	-473.12
.89125	1.12202	.29774E-08	-168.00303	-120.72	239.28	-480.72
.94406	1.05925	.13794E-08	-170.81331	-128.23	231.77	-488.23

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