Data Report No. 97-007

W. Lutter and C. Thurber
(Dept. of Geol. and Geophys., Univ. of Wisconsin, Madison, WI)

S. Roecker, and A. Chen
(Dept. of Geology, Rennselaer Polytechnic Institute, Troy, NY)

W. Ellsworth
(U.S. Geologic Survey, Menlo Park, CA)

1995 Bear Valley Active Experiment Data Report

A dense, passive array of 48 IRIS PASSCAL seismic instruments (RefTeks) was deployed in an area south of Hollister, California (Figure 1), from mid-November 1994 to late May 1995. The array had an aperture of about 15 km and was intended primarily for local earthquake recording to obtain data for high-resolution, three-dimensional P- and S-wave tomographic imaging of the San Andreas fault zone, SAFZ. In addition, an active seismic experiment was carried out in mid-May, consisting of 13 shots and about 200 stations distributed along 3 main profiles (Figure 1) plus the passive array sites. The active experiment data set combined with the local earthquake data allows high-resolution imaging of velocity heterogeneities associated with the SAFZ and surrounding region. The controlled source data provides important constraint on ambiguities associated with determining both earthquake location and velocity structure. Two of the profiles paralleled the San Andreas, one, Line 2, in the foothills of the Diablo Range, and the other, Line 3, in the valley between the Diablo Range and the San Andreas fault. The third profile, Line 1, was roughly normal to the San Andreas. The passive array was reprogrammed to record during the shots. Most of the shots were large enough (M 1.0 to 1.9) for the NCSN real-time processing system to identify and catalog automatically. This report documents the shot data recorded on both the 3 active profiles and the passive array.

Active Experiment Design

Seismic waves generated by 13 shots ranging from 200 to 300 kg (see Table 7 for timing and location details) were recorded by the refraction lines and the passive array displayed in Figure 1. Three-component recorders were used for the fault-crossing profile and single component recorders were used for the fault-parallel profiles. Receivers were positioned at 500 m intervals along Lines 1-3 except for a high-resolution segment crossing between the SAFZ and the Calaveras fault on Line 1 where the receiver interval was 225 m. An additional 15 instruments which crossed the SAFZ between shotpoints 4 and 5 and positioned at 100 m intervals comprise Line 4. Receiver location information is provided in tables 2-5 for the four lines.

The University of Wisconsin and RPI were funded by NSF to deploy the active experiment RefTek instrumentation made available by the Stanford PASSCAL Instrument Center. In addition, the USGS provided funding to deploy 100 Seismic Group Recorders (SGR). Consequently, two types of instrumentation were deployed in the active experiment. Single-component SGR instruments were deployed by USGS personnel along Lines 2 and 3. RefTek instrumentation were deployed along Lines 1 and 4 by personnel associated with UW and RPI. One member of the Stanford PASSCAL Instrument Center provided technical support and helped with deployment details. USGS personnel provided the support required to load and shoot the 13 shots. Table 6 provides the RefTek field parameters for both the active experiment instrumentation and the passive array instrumentation which were reprogrammed to record the active experiment shots.

Processing of Data/Data Availability

The two types of instrumentation deployed alongs Lines 1-4 for the active experiment required separate processing. Data recorded along Lines 2-3 by SGR instrumentation were transcribed at the USGS where timing corrections were applied and made available in the form of a SEGY-file tape. This tape was later split into single-trace PASSCAL SEGY files with the help of Jim Fowler. Data from RefTek instrumentation, deployed along Lines 1 and 4, were initially processed at the Stanford PASSCAL Instrument Center where timing corrections were applied and the data made available in the form of Sierraseis tapes for Lines 1 and 4 individually.

The raw data were later merged via usage of PROMAX reflection processing package at the USGS in Menlo Park, CA. Profile geometry derived from the standard PROMAX geometry modules was calculated and applied to each line. Traces sorted by shot and channel number were written onto a SEGY tape for each line. Standard SEGY IBM-REAL headers were used except for user defined headers for drift and stake no. (see Table 7). These tapes are readable via Seismic Unix. The sampling rate was kept at the original values since instrumentation is not mixed per line. The SGR recorded data is available at a 2 msec sampling rate, whereas the RefTek recorded data is available at a sampling rate of 8 msec.

The passive array was reprogrammed in early May to record the active experiment shots using the same stream triggering parameters as used with the RefTek instrumentation deployed along Lines 1 and 4. These PASSCAL SEGY files along with their associated log and rate files are available on a separate tape. They can be converted to "standard" SEGY using the PASSCAL utility segy2sierra.

Seven tapes have been provided as part of the active experiment data report: 2 sierraseis derived SEGY tapes (RefTek data, lines 1,4), 4 PROMAX derived SEGY tapes (SGR, RefTek data, lines 1-4), and an additional tape (transcribed SGR data, passive array PASSCAL SEGY-file data - streams 2-6), and Seismic Unix SEGY files by shot and component for active experiment data). See the readme file for directory coordination.

Table 1. Table of Shotpoint Times and Locations

ID	Y:D:H:M:S	LAT	LONG	ELEV	UTM_x[a]	UTM_y
1	95:139:08:00:00	36.8224	-121.4350	161.1500	2194.069	19849.851
2	95:139:08:01:00	36.7965	-121.3029	241.3280	14025.229	17171.354
3	95:139:06:07:00	36.7399	-121.3150	162.4930	13058.820	10871.661
4	95:139:07:04:00	36.7002	-121.3383	279.7250	11053.799	6431.652
5	95:139:08:05:00	36.7137	-121.3163	320.5210	12987.153	7969.143
6	95:139:08:02:00	36.7570	-121.2656	440.9170	17433.518	12856.053
7	95:139:08:03:00	36.6437	-121.2238	296.3260	21398.543	345.496
8	95:139:06:02:00	36.6543	-121.1654	350.5720	26596.538	1624.978
9	95:139:06:03:00	36.6016	-121.1918	294.9330	24343.114	-4264.488
10	95:139:07:06:00	36.6439	-121.4631	235.6910	0.000	0.000
11	95:139:06:04:00	36.6852	-121.3677	361.7390	8452.671	4729.172
12	95:139:07:01:00	36.7831	-121.2109	406.7940	22259.639	15832.405
13	95:139:06:05:00	36.6813	-121.2918	226.1230	15246.893	4407.975
14	95:139:06:00:00	36.8448	-121.3227	146.9100	12160.698	22504.171

Promax geometry determined from rotation of the shifted UTM coordinates for each line.
[a]UTM coordinates shifted so that origin is positioned at shotpoint 10.

Table 2. Table of Location Information for Line 1

ID	STAKE	LAT	LONG	ELEV	UTM_x[a]	UTM_y
mh1	101	36.6443	-121.4685	150.3960	-480.717	40.678
mh2	102	36.6461	-121.4643	171.6030	-107.850	242.061
mh3	103	36.6488	-121.4589	187.9880	370.355	555.286
mh4	104	36.6522	-121.4548	210.9790	728.887	936.429
mh5	105	36.6547	-121.4498	240.5060	1175.530	1223.610
mh6	106	36.6567	-121.4447	275.9140	1622.620	1450.960
mh7	107	36.6575	-121.4388	308.1640	2153.900	1550.280
mh8	108	36.6712	-121.4423	695.4830	1814.460	3065.150
mh9	109	36.6751	-121.4402	706.6070	1996.860	3494.630
mh10	110	36.6764	-121.4354	709.9190	2417.240	3646.290
mh11	111	36.6760	-121.4275	804.5740	3125.570	3609.970
mh12	112	36.6764	-121.4207	836.1550	3737.500	3665.030
mh13	113	36.6743	-121.4122	838.9020	4500.840	3447.440
mh14	114	36.6704	-121.4026	830.4340	5360.810	3026.810
mh15	115	36.6727	-121.3980	790.7990	5771.790	3297.620
mh16	116	36.6827	-121.3995	674.0440	5618.170	4398.040
mh17	117	36.6856	-121.3952	608.0710	5992.150	4723.120
mh18	118	36.6861	-121.3893	597.2360	6524.410	4792.490
mh19	119	36.6857	-121.3814	500.2000	7226.170	4755.600
mh20	120	36.6853	-121.3709	389.8990	8169.210	4731.260
p1	121	36.6854	-121.3680	367.4490	8429.260	4743.600
p2	122	36.6847	-121.3650	360.4510	8697.260	4674.220
p3	123	36.6853	-121.3630	358.4970	8873.340	4738.010
p4	124	36.6861	-121.3608	343.0860	9069.740	4830.050
p5	125	36.6853	-121.3573	332.0130	9383.570	4753.640
p6	126	36.6869	-121.3558	312.2360	9516.120	4936.180
p7	127	36.6879	-121.3532	305.1720	9741.080	5045.710
p8	128	36.6875	-121.3494	289.8240	10081.500	5011.090
p9	129	36.6875	-121.3465	285.0880	10341.600	5017.670
p11a	130	36.6900	-121.3417	262.5710	10764.400	5300.620
p13a	131	36.6933	-121.3376	254.0440	11131.400	5664.560
p15a	132	36.6961	-121.3326	250.6930	11571.200	5990.080
p10	133	36.6975	-121.3515	359.0950	9879.440	6111.340
p11	134	36.6978	-121.3493	348.7210	10070.400	6154.210
p12	135	36.6987	-121.3461	321.1320	10354.000	6259.750

Table 2. (continued)

ID	STAKE	LAT	LONG	ELEV	UTM_x[a]	UTM_y
p13	136	36.7002	-121.3414	284.9230	10776.500	6428.450
p14	137	36.8448	-121.3227	146.9100	12160.700	22504.200
p15	138	36.6995	-121.3361	245.2380	11250.500	6363.330
p16	139	36.6999	-121.3326	251.2300	11558.300	6405.770
p17	140	36.6997	-121.3291	239.7970	11873.000	6396.880
p18	141	36.7027	-121.3283	241.4880	11941.000	6728.280
p19	142	36.7057	-121.3276	233.7150	11995.600	7057.900
P20	143	36.7065	-121.3257	237.4030	12164.100	7149.590
p21	144	36.7073	-121.3225	273.3660	12450.500	7247.330
p22	145	36.7093	-121.3204	298.4880	12633.700	7474.430
p23	146	36.7103	-121.3181	283.6760	12834.000	7591.450
P24	147	36.7066	-121.3131	261.7040	13293.200	7182.090
P25	148	36.7085	-121.3107	280.8810	13502.700	7402.100
p26	149	36.7058	-121.3043	231.3500	14077.100	7113.010
P27	150	36.7063	-121.3025	184.5600	14239.800	7163.240
p28	151	36.7087	-121.3004	176.5780	14418.300	7441.710
p29	152	36.7110	-121.2982	173.3310	14608.000	7691.270
p30	153	36.7121	-121.2962	192.4770	14793.200	7819.000
p31	154	36.7137	-121.2940	170.7870	14979.400	8004.200
p32	155	36.7166	-121.2929	198.8680	15074.300	8320.050
p33	156	36.7223	-121.2944	194.2040	14930.700	8959.620
p34	157	36.7315	-121.2992	168.5750	14485.000	9973.420
P34A	158	36.7238	-121.3038	169.8760	14084.000	9109.550
p35	159	36.7324	-121.2957	220.1990	14797.400	10070.600
p36	160	36.7316	-121.2918	203.7390	15142.400	9992.740
p37	161	36.7319	-121.2886	208.2620	15431.000	10025.800
p38	162	36.7305	-121.2831	215.8350	15918.200	9887.950
p39	163	36.7311	-121.2814	223.3400	16076.300	9954.110
p40	164	36.7342	-121.2820	259.3600	16013.900	10296.600
p41	165	36.7373	-121.2800	188.3760	16186.700	10638.900
p42	166	36.7384	-121.2770	187.0340	16450.400	10769.200
p43	167	36.7383	-121.2737	191.7420	16746.500	10768.100
p44	168	36.7412	-121.2728	197.2630	16822.900	11091.700
p45	169	36.7426	-121.2710	204.4710	16978.400	11248.100
p46	170	36.7448	-121.2694	207.9720	17119.900	11488.900

Table 2. (continued)

ID	STAKE	LAT	LONG	ELEV	UTM_x[a]	UTM_y
p47	171	36.7476	-121.2678	221.3700	17250.900	11802.500
p48	172	36.7490	-121.2657	230.2030	17435.500	11959.700
tp1	173	36.7507	-121.2637	230.9030	17614.000	12159.700
tp2	174	36.7520	-121.2618	234.0100	17778.100	12300.100
tp3	175	36.7578	-121.2541	432.3640	18460.500	12957.400
qs1	176	36.7578	-121.2473	395.0400	19063.500	12972.900
QS2	177	36.7607	-121.2440	431.8250	19354.900	13300.900
QS3	178	36.7659	-121.2409	419.5510	19619.500	13879.400
qs4	179	36.7715	-121.2385	328.3660	19825.500	14504.200
qs5	180	36.7734	-121.2341	306.6690	20205.800	14721.800
qs6	181	36.7772	-121.2301	321.0320	20559.700	15148.900
qs7	182	36.7786	-121.2246	347.9410	21050.100	15315.500
qs8	183	36.7803	-121.2191	361.7370	21537.200	15508.500
qs9	184	36.7821	-121.2134	396.4780	22041.600	15723.300

Promax geometry determined from rotation of the shifted UTM coordinates for each line.
[a]UTM coordinates shifted so that origin is positioned at shotpoint 10.

Table 3. Table of Location Information for Line 2

ID	STAKE	LAT	LONG	ELEV	$UTM_x{}^a$	UTM_y
st201	201	36.8306	-121.3435	142.8540	10338.200	20894.400
st202	202	36.8272	-121.3385	155.6170	10792.900	20524.700
st203	203	36.8263	-121.3305	181.7540	11508.100	20432.100
st204	204	36.8234	-121.3262	185.8850	11895.800	20118.000
st205	205	36.8215	-121.3204	201.5130	12414.600	19918.900
st206	206	36.8142	-121.3217	194.0700	12308.400	19108.300
st207	207	36.8132	-121.3148	207.0590	12930.900	19012.700
st208	208	36.8096	-121.3122	219.3520	13164.900	18617.300
st209	209	36.8076	-121.3058	279.4430	13744.700	18398.100
st210	210	36.8041	-121.3019	238.8100	14096.600	18019.300
st211	211	36.7973	-121.3045	229.3130	13878.200	17264.100
st212	212	36.7943	-121.3002	237.7740	14266.000	16930.500
st213	213	36.7926	-121.2936	283.4240	14865.500	16756.300
st214	214	36.7921	-121.2837	267.5840	15745.000	16720.600
st215	215	36.7903	-121.2790	252.6230	16172.800	16524.800
st216	216	36.7812	-121.2845	227.8830	15697.100	15505.600
st217	217	36.7779	-121.2810	248.6320	16016.300	15142.700
st218	218	36.7737	-121.2783	315.8990	16269.000	14681.900
st219	219	36.7731	-121.2698	368.6480	17020.600	14625.800
st220	220	36.7697	-121.2664	389.8590	17338.200	14257.400
st221	221	36.7654	-121.2632	383.6980	17626.300	13783.900
st222	222	36.7626	-121.2595	410.7410	17967.500	13481.100
st223	223	36.7583	-121.2565	423.7330	18240.300	13010.700
st224	224	36.7546	-121.2531	462.4210	18551.400	12601.600
st225	225	36.7445	-121.2614	257.8050	17832.700	11470.600
st226	226	36.7430	-121.2546	287.3800	18443.000	11318.500
st227	227	36.7412	-121.2475	315.9910	19082.500	11128.600
st228	228	36.7382	-121.2435	350.6360	19442.200	10796.800
st229	229	36.7334	-121.2418	331.0280	19605.300	10273.700
st230	230	36.7297	-121.2390	344.9750	19864.700	9860.770
st231	231	36.7273	-121.2341	348.3880	20304.600	9611.400
st232	232	36.7246	-121.2290	373.1630	20761.400	9318.370
st233	233	36.7190	-121.2285	310.3030	20818.000	8698.040
st234	234	36.7149	-121.2263	322.3890	21022.400	8242.020
st235	235	36.7113	-121.2231	319.2800	21318.700	7852.690

Table 3. (continued)

ID	STAKE	LAT	LONG	ELEV	$UTM_x{}^a$	UTM_y
st236	236	36.7067	-121.2220	315.8210	21431.400	7340.450
st237	237	36.7023	-121.2199	256.9740	21622.600	6858.880
st238	238	36.6968	-121.2186	241.4640	21754.700	6253.960
st239	239	36.6917	-121.2190	245.5300	21730.900	5678.920
st240	240	36.6888	-121.2143	264.5400	22155.700	5368.090
st241	241	36.6855	-121.2089	265.5530	22641.500	5010.200
st242	242	36.6814	-121.2074	273.2420	22788.300	4558.940
st243	243	36.6773	-121.2052	289.8100	22988.000	4103.020
st244	244	36.6753	-121.1987	276.9010	23577.400	3901.540
st245	245	36.6744	-121.1907	296.2900	24294.800	3814.060
st246	246	36.6714	-121.1850	298.5850	24811.200	3482.850
st247	247	36.6685	-121.1822	295.2190	25059.700	3171.040
st248	248	36.6678	-121.1754	309.4080	25676.600	3102.380
st249	249	36.6644	-121.1696	307.6630	26200.200	2739.050
st250	250	36.6603	-121.1661	330.1760	26521.100	2290.610
st251	251	36.6559	-121.1661	329.3620	26528.600	1804.800

Promax geometry determined from rotation of the shifted UTM coordinates for each line.
[a]UTM coordinates shifted so that origin is positioned at shotpoint 10.

Table 4. Table of Location Information for Line 3

ID	STAKE	LAT	LONG	ELEV	UTM_x[a]	UTM_y
st301	301	36.8265	-121.4407	152.4820	1674.210	20292.300
st302	302	36.8245	-121.4355	136.6170	2143.010	20083.500
st303	303	36.8209	-121.4315	170.7320	2503.660	19689.200
st304	304	36.8169	-121.4300	221.2280	2643.890	19247.900
st305	305	36.8125	-121.4271	186.2150	2914.340	18754.900
st306	306	36.8121	-121.4189	132.1310	3646.980	18726.000
st307	307	36.8096	-121.4140	122.0890	4088.770	18457.000
st308	308	36.8068	-121.4094	118.3660	4499.920	18147.700
st309	309	36.8062	-121.4024	104.4350	5129.290	18100.900
st310	310	36.8055	-121.3954	108.4840	5753.220	18031.900
st311	311	36.8050	-121.3877	100.3540	6438.520	17981.400
st312	312	36.8007	-121.3855	110.1410	6650.350	17506.800
st315	315	36.7959	-121.3659	121.1040	8404.590	17014.500
st316	316	36.7895	-121.3662	126.3450	8393.590	16294.200
st317	317	36.7885	-121.3602	122.4220	8924.800	16195.700
st318	318	36.7855	-121.3562	116.8620	9285.890	15867.400
st319	319	36.7816	-121.3534	128.4860	9548.470	15439.600
st320	320	36.7761	-121.3525	124.2940	9639.130	14837.600
st321	321	36.7741	-121.3459	129.6040	10229.900	14620.600
st322	322	36.7711	-121.3415	133.6860	10626.500	14298.700
st323	323	36.7662	-121.3393	145.9510	10837.900	13757.400
st324	324	36.7619	-121.3373	149.4330	11020.900	13281.800
st325	325	36.7589	-121.3328	130.4120	11427.300	12956.200
st326	326	36.7546	-121.3317	138.3720	11539.800	12478.700
st327	327	36.7497	-121.3298	155.2890	11714.400	11933.900
st328	328	36.7474	-121.3286	171.3060	11822.700	11681.200
st329	329	36.7451	-121.3211	189.0810	12504.000	11446.700
st330	330	36.7421	-121.3170	167.1840	12870.200	11120.900
st331	331	36.7399	-121.3106	154.3530	13452.200	10881.800
st332	332	36.7367	-121.3064	165.8650	13830.100	10529.800
st333	333	36.7340	-121.3005	179.7640	14359.300	10240.100
st334	334	36.7286	-121.3005	171.3580	14376.400	9641.270
st335	335	36.7226	-121.2991	172.4280	14510.500	8980.630
st336	336	36.7217	-121.2933	196.5480	15029.200	8885.100
st337	337	36.7151	-121.2938	188.7540	14998.900	8156.250

Table 4. (continued)

ID	STAKE	LAT	LONG	ELEV	UTM_x[a]	UTM_y
st338	338	36.7078	-121.2958	195.1460	14833.200	7346.800
st339	339	36.7020	-121.2948	190.5430	14937.700	6706.040
st340	340	36.6998	-121.2893	198.8820	15430.600	6462.510
st341	341	36.6947	-121.2885	199.3040	15511.100	5903.080
st342	342	36.6911	-121.2852	191.9730	15808.900	5503.240
st343	343	36.6878	-121.2811	198.8920	16183.200	5148.190
st344	344	36.6857	-121.2758	194.2030	16663.100	4919.620
st345	345	36.6860	-121.2671	194.0160	17439.400	4966.350
st346	346	36.6818	-121.2639	219.6040	17733.800	4514.020
st347	347	36.6778	-121.2611	222.2930	17989.400	4065.980
st348	348	36.6743	-121.2578	234.9760	18297.900	3684.700
st349	349	36.6711	-121.2541	245.2140	18630.000	3344.110
st350	350	36.6664	-121.2517	242.5200	18853.200	2822.420
st351	351	36.6640	-121.2460	237.0030	19369.900	2565.650
st352	352	36.6598	-121.2434	234.8650	19611.100	2105.560
st353	353	36.6559	-121.2410	230.9310	19833.500	1677.280
st354	354	36.6513	-121.2382	249.5950	20096.600	1168.330
st355	355	36.6474	-121.2356	244.2830	20329.900	738.289
st356	356	36.6434	-121.2332	238.9770	20556.800	304.958
st357	357	36.6393	-121.2307	240.5800	20789.800	-149.280
st358	358	36.6352	-121.2281	248.9450	21032.600	-604.750
st359	359	36.6308	-121.2253	264.9070	21292.000	-1088.240
st360	360	36.6266	-121.2227	274.1930	21531.500	-1551.150
st361	361	36.6225	-121.2201	282.6170	21770.400	-1999.190
st362	362	36.6181	-121.2169	283.3290	22068.600	-2484.560
st363	363	36.6148	-121.2137	292.3430	22360.300	-2842.970
st364	364	36.6134	-121.2075	265.0870	22918.700	-2980.690
st365	365	36.6102	-121.2037	301.7040	23259.100	-3331.930
st366	366	36.6070	-121.1999	277.1530	23611.600	-3687.350
st367	367	36.6040	-121.1957	294.0330	23989.300	-4010.240
st368	368	36.6013	-121.1937	301.6230	24173.200	-4304.150

Promax geometry determined from rotation of the shifted UTM coordinates for each line.
[a]UTM coordinates shifted so that origin is positioned at shotpoint 10.

Table 5. Table of Location Information for Line 4

ID	STAKE	LAT	LONG	ELEV	UTM_x[a]	UTM_y
CN4	401	36.7131	-121.3361	267.4340	11219.000	7869.310
CN3	402	36.7127	-121.3370	260.5650	11144.800	7826.110
CN2	403	36.7123	-121.3378	255.6880	11070.800	7772.330
CN1	404	36.7118	-121.3386	251.8060	10998.700	7720.700
S3	405	36.7148	-121.3319	356.2570	11595.900	8069.320
S2	406	36.7152	-121.3319	368.3720	11593.200	8108.220
S1	407	36.7155	-121.3319	380.9450	11593.900	8145.910
R1	408	36.7189	-121.3359	391.7670	11231.700	8513.000
R2	409	36.7202	-121.3351	415.1220	11300.100	8659.390
R3	410	36.7211	-121.3360	423.1110	11213.800	8758.220
R4	411	36.7229	-121.3351	423.0520	11294.200	8954.780
R5	412	36.7233	-121.3326	422.3180	11512.200	9005.130
R6	413	36.7231	-121.3306	408.2740	11692.400	8989.650
R7	414	36.7237	-121.3301	402.0130	11740.900	9059.490
R8	415	36.7246	-121.3297	405.2860	11770.700	9150.180

Promax geometry determined from rotation of the shifted UTM coordinates for each line.
[a]UTM coordinates shifted so that origin is positioned at shotpoint 10.

Table 6. Table of RefTek Parameters for Active Experiment- Lines 1, 4, and Passive Array

Menu	Sub Menu	Stream 1[a]	Stream 2[b]	Stream 3	Stream 4	Stream 5	Stream 6
Station	OP Mode	CP/SC	same=(s)	(s)	(s)	(s)	(s)
Channel	select ch	1-3	(s)	(s)	(s)	(s)	(s)
Channel	preamp	32	(s)	(s)	(s)	(s)	(s)
Stream	name	E125SP	BVTIM06	BVTIM07	BVTIM08	BVTIM09	BVTIM10
Stream	Channel No.	1-3	(s)	(s)	(s)	(s)	(s)
Stream	Sample rate	125	(s)	(s)	(s)	(s)	(s)
Stream	Data Form	32	(s)	(s)	(s)	(s)	(s)
Stream	Trig type	EVT	TIM	TIM	TIM	TIM	TIM
EVT(only)	TRIG CHLS	1	...	...	...	...	...
EVT(only)	Pretr Len	15	...	...	...	...	...
EVT(only)	Record Len	60	...	...	...	...	...
EVT(only)	STA Len	0.2	...	...	...	...	...
EVT(only)	LTA Len	20	...	...	...	...	...
EVT(only)	Trig Ratio	5	...	...	...	...	...
TIM(only)	Day	...	139	139	139	139	139
TIM(only)	Hour	...	06	07	08	09	10
TIM(only)	Min	...	00	00	00	00	00
TIM(only)	Sec	...	00	00	00	00	00
TIM(only)	Rec len	...	55	55	55	55	55
TIM(only)	Repeat	...	1 minute	(s)	(s)	(s)	(s)
TIM(only)	No. trig	...	8	8	8	8	8

Passive array parameters used with A-07G RefTek instrumentation after early May (in order to both trigger on earthquakes and also record active experiment shots).

[a]Stream 1 was programmed into the passive array instrumentation to record earthquake data via external triggering.

[b]Streams 2-6 were programmed into both the passive array instrumentation and instrumentation deployed alongs lines 1 and 4 to record the active experiment shots

Table 7. Table of key PROMAX/SU trace headers

Keyword[a]	Tables 1-5[b]	Bytes	Header Description	Comments
tracl		1-4	Trace ID	
tracr		5-8	Trace Sequence No. within line	
fldr		9-12	Trace Sequence No. within reel	
tracf		13-16	Field Record No.	
ep	Shot ID	17-20	Source Point No.	
cdp		21-24	CDP Ensemble No.	
cdpt		25-28	Trace No. within CDP Ensemble	
trid		29-32	Trace ID Code	
offset		37-40	Source to Receiver Distance	
gelev	Sta. Elev	41-44	Receiver Elevation	
selev	Shot Elev	45-48	Source Elevation	
scalel		69-70	Scale Factor for gelev,selev	If neg., Divide
scalco		71-72	Scale Factor for sx,sy,gx,gy	If neg., Divide
sx	Shot UTM-x	73-76	X source coordinate	Shot UTM-x
sy	Shot UTM-y	77-80	Y source coordinate	Shot UTM-y
gx	Sta. UTM-x	81-84	X group coordinate	Sta. UTM-x
gy	Sta. UTM-y	85-88	Y group coordinate	Sta. UTM-y
tstat		103-104	Total static applied	See notes[c]
ns		115-116	Number of Trace Samples	
dt		117-118	Sample Interval in micro-seconds	
gain		119-120	Gain Type	
igc		121-122	Instrument Gain Constant	
igi		123-124	Initial Gain	
trwf	Sta. STAKE	169-170	Trace Weighting Factor	Non-standard Usage
drift		237-238	2-byte User defined header	Not a SU header.

Promax tapes were read into Seismic Unix. Header descriptions are relative to SU keywords. Within the standard segy the stake number was stored in "trwf", the trace weighting factor - a non-standard usage. Clock correction "drift" values were stored on the PROMAX tapes in the user-defined header "drift." However, SU does not define keywords to retrieve user defined header values.

[a]Seismic Unix, SU, trace header keywords which follow standard segy trace header definitions.

[b]Equivalent to data under these column headings in tables 1-5.

[c]For RefTek data, lines 1 and 4, $tstat = drift$. For SGR data, lines 2-3, $tstat = drift - 2000ms$.

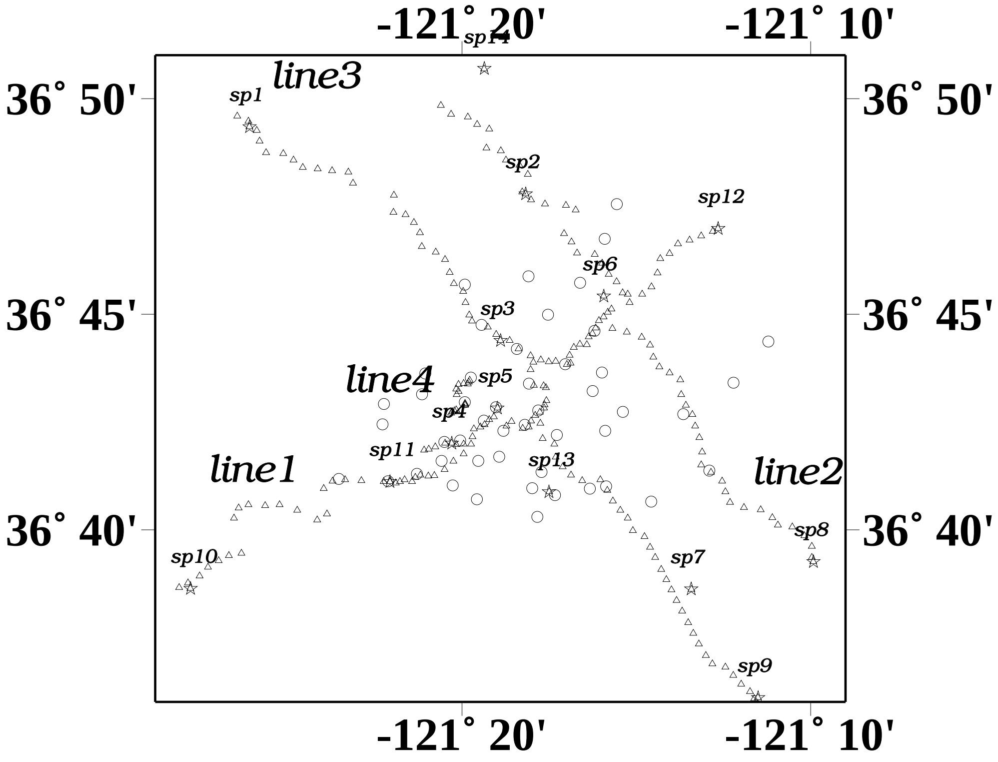

Figure 1. The Bear Valley active experiment location map showing shots (stars) and stations (small triangles) on the four active experiment receiver lines. The 1994-1995 Bear Valley passive array sites are denoted by circles.