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76-B

QUARTERLY TECHNICAL REPORT NO. 4
for
HANFORD AND CENTRAL SEISMIC NETWORKS
April 1, 1976 through June 30, 1976

by

Geophysics Program
University of Washington
Seattle, Washington 98195

July 1, 1976

Progress of Research Tasks

We are presently building and assembling equipment to be used on our seismic attenuation studies. We plan to make a preliminary trip with the equipment in August to read three or four seismic stations and compute the magnification and response curves of these stations.

There was a large quarry blast (19,000 lbs) on 20:01:23.75, July 2, 1976. We are using this data in refining our velocity model.

Operational Status

During the second quarter of 1976 there were no major problems encountered.

Data

Figure 1 shows the present location of all stations in the Hanford and Central Net. Figure 2 reflects the regional seismicity during the second quarter of 1976. A listing of all eastern network stations is given. During the second three months of 1976 there were 34 events located by the network. These events are listed with the station arrivals and also with a single line for each event.

There were two areas of earthquake swarm activity during this quarter. One is an east-west trend just north of Davenport. The other is in the area between Wenatchee and Chelan. This second area is not really a swarm, but represents a more-than-usual concentration of earthquake activity.

Publications

There were no Geophysics Program publications during the second quarter of 1976.

EASTERN WASH

----- PROGRAM HYP071-1 U OF W -----

STANDARD TEST(1) TEST(2) TEST(3) TEST(4) TEST(5) TEST(6) TEST(7) TEST(8) TEST(9) TEST(10) TEST(11) TEST(12) TEST(13)

L	STN	LAT	LONG	ELV	DELAY	FMGC	XMGC	KL	PRR	CALR	IC	DATE	HR:MM
1	MDW	4035.80N	11945.65W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
2	SYR	4651.78N	11937.07W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
3	OTW	4644.34N	11912.59W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
4	WAW	4645.12N	11934.68W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
5	CRF	4647.51N	11923.07W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
6	GRL	4635.45N	11927.59W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
7	ETP	4627.40N	11935.54W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
8	ROG	4614.08N	11919.05W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
9	EUK	4623.75N	11933.72W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
10	PRC	4612.76N	11941.15W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
11	PEN	4536.72N	11945.77W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
12	RSW	4623.47N	11935.32W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
13	WGR	4626.68N	11955.95W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
14	WJH	4625.33N	11917.24W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
15	MEW	4550.14N	11922.55W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
16	WFW	4554.18N	11924.35W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
17	DMK	4624.82N	11943.85W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
18	NYH	4757.63N	11946.15W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
19	YHW	4618.37N	11948.23W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
20	SAW	4742.10N	11924.05W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
21	CPJ	4757.42N	12011.75W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
22	FPW	4754.90N	12012.77W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
23	WFW	4731.77N	12011.55W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
24	VIG	4657.40N	11954.24W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
25	COL	4835.00N	11952.92W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
26	EPW	4721.13N	11935.77W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
27	OGS	4713.40N	11954.70W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
28	DAY	4734.30N	11913.56W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0
29	WFO	4657.14N	11946.60W	0	-.00	-.00	-.00	-.00	-.00	-.00	-.00	-0	-0

CRYSTAL MODEL 1

VELOCITY	DEPTH
3.700	2.000
4.700	4.000
5.100	1.500
6.100	7.500
6.800	15.000
8.000	24.000

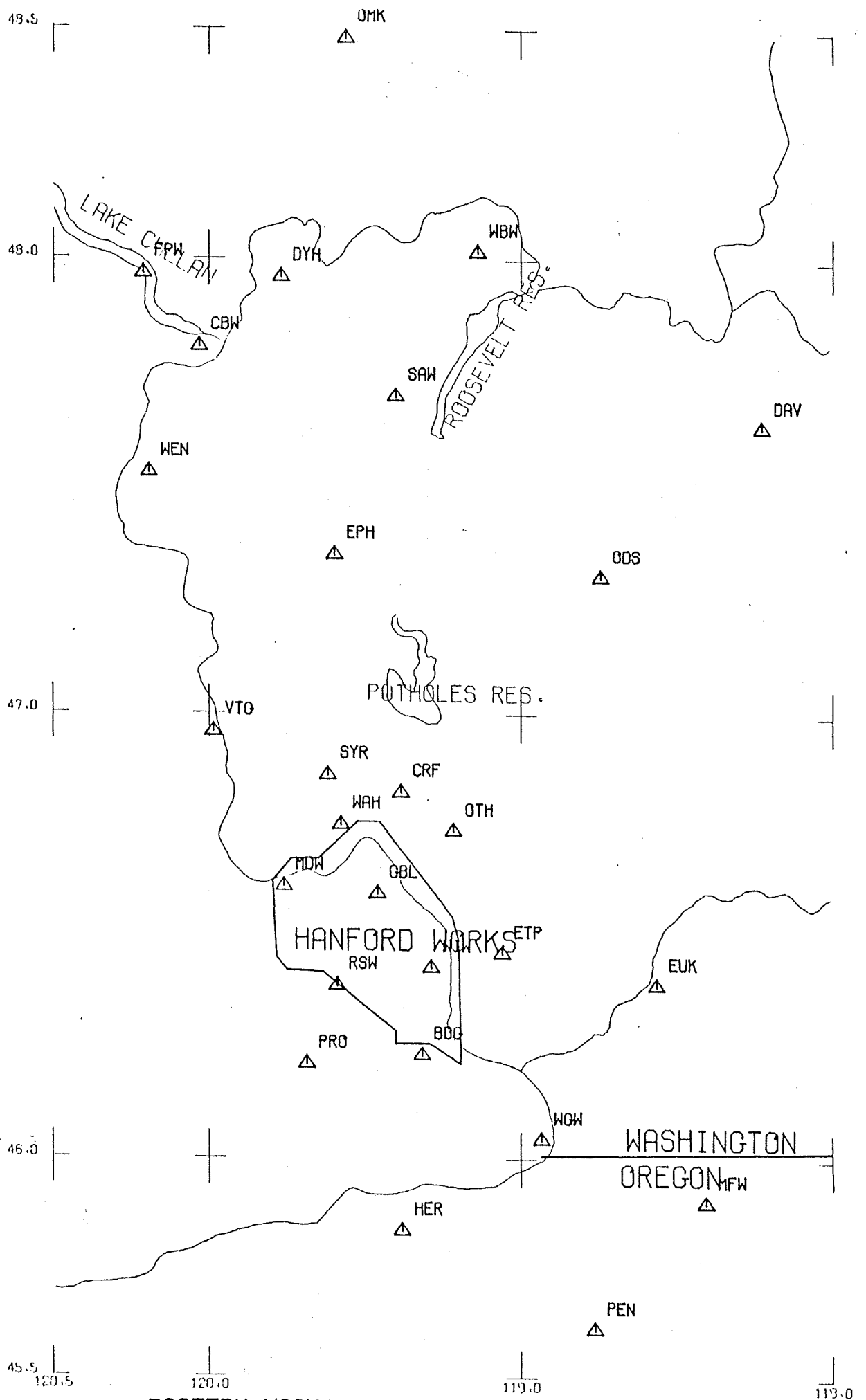


Fig. 1

EASTERN WASHINGTON SEISMIC STATIONS

#4

UNIVERSITY OF WASHINGTON
SEATTLE, WASHINGTON 98195

Graduate Program in Geophysics

August 24, 1976

Memo To: Energy Research and Development
Administration
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

From: Geophysics Program
University of Washington
Seattle, Washington 98195

Subject: Supplement to Quarterly Technical Report No. 4, April through
June, 1976. Please make this part of our report dated July 1,
1976.

Because of computer center difficulties we did not have a summary and punched cards when the last report was sent. Included with this memo are such a summary and two copies of punched cards.

The up-to-date evaluation of the network data indicates an unusual pattern for the last four months (April through July). There have been far fewer than the normal number of earthquakes in the area immediately around the Hanford reservation, while a larger than normal number of earthquakes have occurred to the north. The scattering of events south of Lake Chelan is of particular interest. We are presently planning a detailed investigation of this area in September.

A revised map is included with this report supplement which has the events located north of Davenport removed. These events have been determined to be mine explosions in a recently opened uranium mine. Because of poor azimuthal coverage, unknown velocity model, and problems with DAV and COL being down from time to time, the locations in this area are very poorly controlled.

The timed quarry shot on July 2, 1976 has been analyzed by our routine procedure to check the reliability of such locations. The located hypocenter was 1.5 km north and .1 seconds earlier than the actual location and origin time as reported by J. Fernandez on 7/12/76. The depth was less than 5 km but poorly controlled. These data show that the model we are using for locations in eastern Washington is fairly accurate, at least for the central basin area. We are aware of gross departures from this model to the north. More details of this work will be covered in the next quarterly report.

Explanation of Summary Headings

There is one line per earthquake in the listing.

- YR - year
- DAY - day of year
- TIME - Universal standard time to hundredths of seconds
- LAT - North latitude in degrees and minutes
- LONG - West longitude in degrees and minutes
- Z - depth in kilometers
- MAG - local magnitude based on coda length
- N STA - number of stations recording event
- PHAS - number of phases used in location
- DEL - distance in kilometers to nearest station
- RMS - standard deviation of the phase residuals in seconds
- Q - Quality of location
 - A - Excellent, focal depth well controlled
 - B - Good, focal depth not well controlled
 - C - Fair, poor or no control on depth
 - D - Poor, no focal coordinate well controlled
- DATE - year/month/day

Summary: April through June 1976

YR DAY	TIME	LAT	LONG	Z	MAG	N STA, PHAS	DEL	RMS	Q	DATE
76 101	2251	19.47	48 9.36	119 49.19	13.5	1.1 5 6	22.0	.17	C	76/ 4/10
76 104	047	26.83	46 4.08	119 26.77	0.0	4.6 16 16	24.5	1.39	D	76/ 4/13
76 106	938	19.15	48 25.50	119 28.81	8.3	1.8 4 6	8.5	.25	D	76/ 4/15
76 108	1216	5.93	47 55.99	120 1.92	5.9	1.5 5 7	14.0	.17	C	76/ 4/17
76 111	754	38.09	46 39.23	119 37.70	0.0	1.3 6 8	11.1	.12	B	76/ 4/20
76 111	754	68.15	46 38.87	119 37.80	0.0	2.3 9 11	10.7	.29	C	76/ 4/20
76 112	410	56.84	46 38.75	118 54.09	5.8	1.6 5 7	23.4	.12	C	76/ 4/21
76 112	1029	18.24	45 49.43	119 22.10	3.7	1.9 8 11	1.6	.09	A	76/ 4/21
76 112	2233	46.01	47 50.06	120 12.49	5.8	2.1 8 10	13.4	.09	A	76/ 4/21
76 127	18 8	57.18	47 53.48	118 54.51	0.0	1.8 5 6	58.2	.13	C	76/ 5/ 6
76 128	1718	39.80	47 13.95	120 6.65	0.0	1.9 8 10	30.6	.15	B	76/ 5/ 7
76 134	433	.19	47 38.95	120 11.12	10.7	2.4 6 7	13.3	.17	B	76/ 5/13
76 134	849	59.19	47 7.69	119 38.03	11.1	1.6 5 6	25.0	.11	C	76/ 5/13
76 134	1034	27.56	47 8.23	119 38.04	12.9	1.8 5 8	24.1	.16	C	76/ 5/13
76 134	1041	32.08	47 9.16	119 36.71	6.2	1.8 12 16	22.2	.39	D	76/ 5/13
76 136	13 4	52.88	47 43.43	120 7.46	9.8	3.1 9 11	11.5	.21	C	76/ 5/15
76 137	1744	9.58	47 38.30	120 6.19	0.0	1.7 5 5	13.9	.15	C	76/ 5/16
76 138	119	4.52	47 43.27	120 19.05	5.9	2.1 4 6	23.2	.11	D	76/ 5/17
76 141	034	28.27	47 5.82	118 8.53	0.0	2.1 12 13	51.1	.25	C	76/ 5/20
76 146	2244	33.63	47 59.23	118 59.40	3.1	1.6 6 7	68.9	.24	C	76/ 5/25
76 155	2252	12.33	46 17.61	119 22.39	0.0	1.4 5 6	7.8	.23	C	76/ 6/ 3
76 159	2231	35.52	46 18.23	119 21.72	0.0	1.3 4 6	8.4	.26	D	76/ 6/ 7
76 162	2020	12.68	47 2.84	118 47.27	5.1	1.9 5 7	28.3	.14	C	76/ 6/10
76 167	1 1	47.86	46 26.67	117 53.75	1.0	3.0 14 14	82.7	.33	C	76/ 6/15
76 167	9 8	3.93	47 37.88	120 18.51	5.2	3.0 6 8	14.2	.13	B	76/ 6/15
76 168	2348	8.54	47 54.85	121 33.01	2.9	2.0 5 7	110.0	.12	C	76/ 6/16
76 176	1945	5.95	46 30.29	117 51.35	8.6	2.3 5 7	111.8	.24	C	76/ 6/24
76 182	2220	24.50	47 45.96	119 48.06	3.9	2.0 5 7	17.9	.34	C	76/ 6/30

