

1991 a

**1. Regional Seismic Monitoring in Western Washington
and
2. Seismic Monitoring of Volcanic and Subduction Processes in Washington and Oregon**

1. 14-08-0001-A0622
2. 14-08-0001-A0623

R.S. Crosson, S.D. Malone, A.I. Qamar and R.S. Ludwin
Geophysics Program
University of Washington
Seattle, WA 98195
(206) 543-8020

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Investigations

Operation of the Washington Regional Seismograph Network (WRSN) and routine preliminary analysis of earthquakes in Washington and Northern Oregon continue under these contracts. Quarterly bulletins which provide operational details and descriptions of seismic activity in Washington and Northern Oregon are available from 1984 through the first quarter of 1991. Final published catalogs are available from 1970, when the network began operation, though 1986.

The University of Washington operates 76 stations west of 120.5°W under these agreements, 28 are supported under A0622, 46 under A0623, and 2 are operated jointly. Station locations are shown as small triangles in Fig. 1. This report includes a brief summary of significant seismic activity. Additional details are included in our Quarterly bulletins.

Network Operations

In August and September 1990, under JOA 14-08-0001-A0623, we installed 4 new stations in Oregon (HBO, DBO, MPO and HSO). Patrick McChesney, a new technician who is stationed in Vancouver WA, was hired to maintain stations at Mt. St. Helens and in Oregon.

To improve our ability to function in emergency situations the University provided us with an uninterruptible power supply (UPS). To improve access to digital trace data, we are copying our "master" 9 track, 1600 bpi tapes of digital trace data to exabyte tape cartridges, and we developed software to facilitate recovery of data files. To improve communication with other agencies, we implemented a public update service. Anyone on internet can access the most current information on seismic activity. The utility "finger quake@geophysics.washington.edu" gives locations of significant Pacific Northwest earthquakes during the past several days, several of the the most recent WRSN locations, and the most recently received NEIS QED locations. The same service is available by dialing our main computer (206) 685-0889 and logging in as "quake" with password "quake".

Seismicity

Figure 1 shows earthquakes ($M_c \geq 0$) located in Washington and Oregon during this reporting period. Excluding blasts, probable blasts, and earthquakes outside the U. W. network, a total of 748 earthquakes west of 120.5°W were located between October 1, 1990 and March 31, 1991. Of these, 354 were located near Mount St. Helens, which has not erupted since October of 1986. East of 120.5°W, 49 earthquakes were located.

There were five earthquakes reported as felt west of Cascades, and three reported as felt to the east of the Cascades. None of these were damaging. The largest earthquakes in this reporting period were two at M_c 3.5. The first was on October 19, felt on Mt.

Hood, and located at a depth of ~ 6 km. It was one of 24 earthquakes (all but two smaller than M_c 1.7) that occurred during a three-hour swarm of activity that day. The other M_c 3.5 earthquake was on December 30, at a depth of ~ 17 km, and was felt at North Bend, east of Seattle.

Network Review

During 1990, the USGS conducted a review of all the networks which it funds. As part of the review process, we wrote a summary report which covers operational aspects of our network data acquisition and processing, and reviews a number of network-related research projects, carried out here at the University of Washington. Copies of this overview are available from the University of Washington.

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- Malone, S.D., 1991, The Hawk seismic data acquisition system, Seismol. Res. Lett., V. 62, p. 23.
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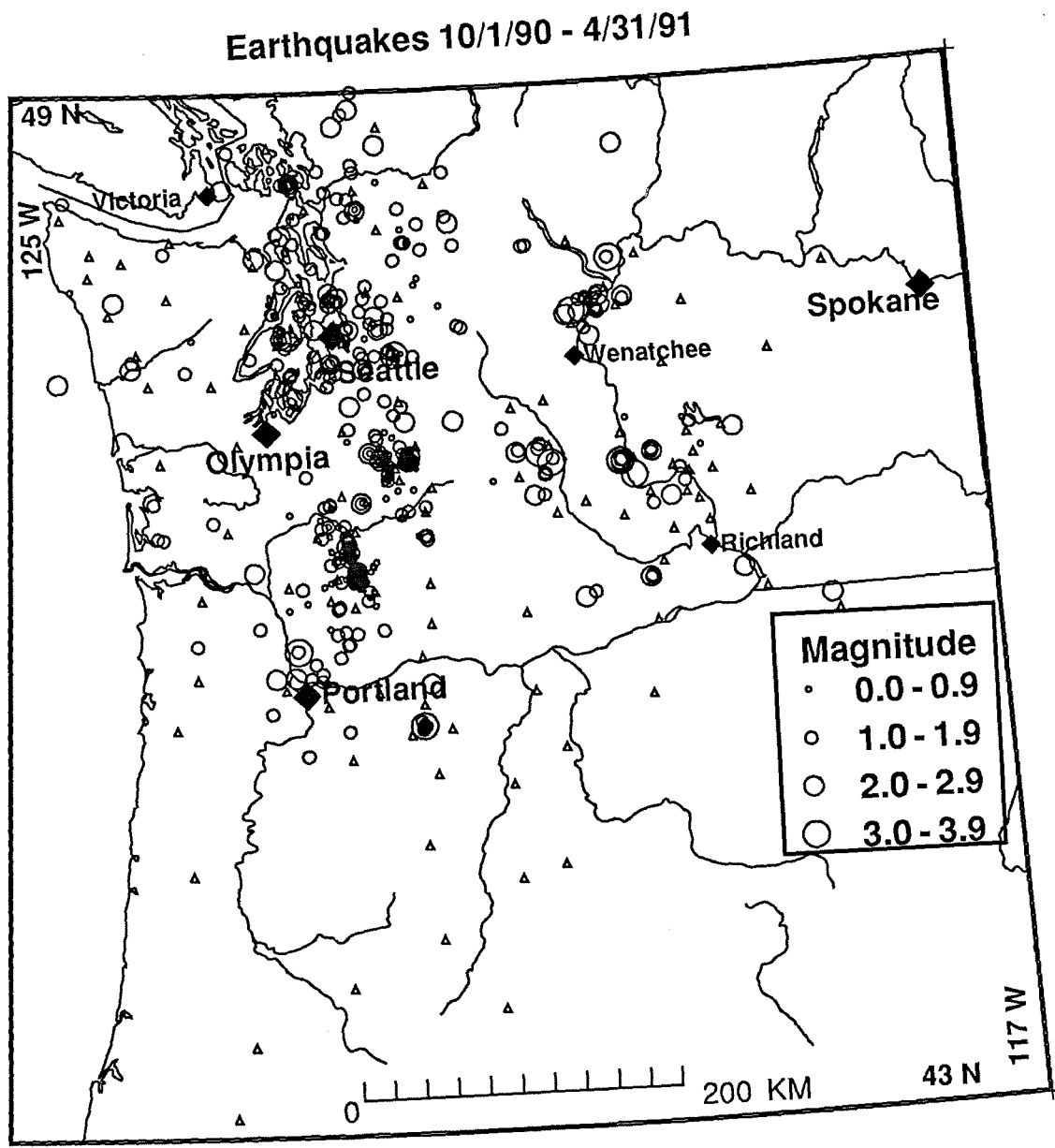


Figure 1. Map view of Washington and Oregon showing locations of earthquakes ($M_c \geq 0$) that occurred between October 1, 1990 and March 31, 1991. Triangles designate seismic stations operated by the WRSN.