

The seismic activities at Northern Hyogo Prefecture in 2001

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The earthquake at Northern Hyogo Prefecture ($M_j=5.4$) occurred on JAN12 in 2001. Seismic activities following the mainshock extended 6kmx7km area. We installed a temporal telemeter station at Kiritaki (KRTT) near the epicenter of the mainshock, and observed precise seismicity using KRTT and Makita station (MKAT) which is temporal station installed by JMA, and our permanent seismic networks. Time-space distribution of hypocenters and focal mechanisms are analyzed.

Foreshock activities started DEC12 in 2000 at adjacent area of the mainshock. Largest event was M3.2, and about 90 foreshocks were observed. The activities after the mainshock can be divided 5 clusters. The activity near the mainshock extended toward east, and made 3 clusters with WNW-ESE lineation. A week after the mainshock, new activities occurred at northern part, and NW-SE lineations were made. Until the end of 2001, total 6639 events were observed within these areas. Focal mechanisms of major events are determined. Almost events are strike-slip, and P-axes orientations coincide in each cluster, but are different for each cluster. At southern part, P-axes orientation is NW-SE, but is E-W or ESE-WNW in eastern and northern part. About each clusters, one of tow nodal lines coincide the strike of the lineations of the clusters. These seismic activities are not a simple foreshock-mainshock-aftershock series. Rupture area of M5.4 is estimated to be 3-4km long. However, wider area is activated after the mainshock. We supposed that several fault systems within this small area were activated by the mainshock. Before these seismic activities, seismicity in this area was not so high. However, seismic activities migrated toward NNE form 1997 to 1990. After that, activities returned to SE direction from MAR in 1994 in short time.