

Noise level and detection capability of microearthquake for the Integrated seismic network of JAPAN

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On the basis of Earthquake Disaster Management Special Measures Act, seismic wave data belong to universities and relevant organizations have been collected and analyzed by J.M.A. in cooperation with Ministry of Education, Culture, Sports, Science and Technology, since October, 1997. Now, we use 1406 seismic stations for routinely hypocenter determination in JAPAN. (February 1, 2005)

After the introduction of all Hi-net stations of NIED to the Integrated seismic network of Japan (Oct, 2003), the capability of hypocenter determination has been into stable state. So, we estimated the noise level of each seismic station to evaluate the capability of the Integrated seismic network of JAPAN quantitatively. We sampled the fixed length signal of UD component of velocity seismograph at each station periodically, and from these data we calculate the noise level of all stations.

From the preliminary dataset obtained between January and February, 2005, the situation of the noise level of winter became clear. The noise level is high at the station near the sea. The average value of noise level decreases quickly as it separates from the coast. The noise level becomes below a half compared with near the coast at the point 10km from the coast.

Locally, Hokkaido and Tohoku district have a high noise level, and average value is over 50 microkine in the coast area. Especially, the noise level along the coast of the Sea of Japan is high compared with the Pacific coast, At some stations at the Sea of Japan coast it surpasses 100 microkine. It is thought that it is caused by the influence of the large sea wave of the Sea of Japan in winter. On the other hand, generally, the noise level of western part of Japan is low, and average value is a little more than 20 microkine even in the coast area.

In this presentation, we will introduce the time-space characteristics of the noise level and the present condition of microearthquake detection capability in and around Japan arc from the longer-term dataset.