A survey on earthquake prediction and public warning in seismological community

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We conducted a questionnaire survey to clarify the comprehensive understanding of earthquake researchers about pre-earthquake prediction information. We divided the process up to the earthquake prediction information in following four stages, (1) the presence or absence of a phenomenon preceding a big earthquake, (2) the observability of the phenomenon, (3) the possibility of judging the observed data as abnormal, (4) possibility of public announcement of predicted earthquake information. We asked each researcher to respond with a numerical value of 10% from 0% to 100%. In addition, we asked for the probability of the success rate that the earthquake will occur in several days to one week.

A total of 129 researchers covered the delegates of the Japan Seismology Society, and 90 % respondents got responses. As delegates from the seismological society are elected by election by members, it can be thought that researchers who have certain insight in the field are selected. Responding to the questionnaire was basically based on requesting face-to-face at the meeting of the Fall Meeting in 2018, and asked for a reply by e-mail to those who could not do so.

In the tentative counting result, there is a wide range of responses from 0% to 100% in any of the four stages until public announcement success of the earthquake prediction information, and among seismologists it is obvious that there are various recognition in earthquake prediction. The average value of each stage is (1) "presence / absence of phenomenon" 47%, (2) "availability of observation" 47%, (3) "judgeability of the observed data as abnormal " 28%, (4) " public announcement possibility of predicted information" 41%. When we multiplied all respondents' answers of all four stages, the average value was only 6%. This is lower than the value expected by citizens and administration. In order to master information with low probability and low announcement frequency, it is necessary to consider reasonable countermeasures on the premise of a longer warning period with extremely low prediction rate and hit rate in comparison with civic perception.

Keywords: earthquake prediction, Nansai trough earthquake, Survey