PROCEDURES FOR EVALUATION OF EARTHQUAKE PREDICTIONS: EXPERIENCE IN USA

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1. INTRODUCTION

The potential impact on the public of the prediction of a significant earthquake is so extraordinary that a prediction obviously must be issued with great caution and forethought with regard to its scientific validity. The purpose of this paper is to examine ways in which the public can be assured that predictions are subject to thorough scientific scrutiny and are truly representative of a reasonable scientific consensus.

If earthquake predictions were to come to the attention of the public only through specific authorized channels, such as a national earthquake-prediction agency, the problem would be relatively simple. Before any prediction were publicity issued, it would have opportunity to undergo confidential analysis by authorized evaluation groups, and indeed the prediction would not come to public attention without this formal approval. But in few parts of the world today is such a highly regimented public-information system operative; even in those countries with highly centralized earthquake-prediction efforts, rumours of alleged earthquake predictions often manage to capture public attention. Furthermore, amateur predictions inevitably seem to arise from completely outside the formal system. In fact, in most parts of the world today, the greatest numbers of earthquake predictions that have caused public concern have probably come from amateurs, psychics, soothsayers, and self-proclaimed scientists, rather than through "legitimate" scientific channels. This will undoubtedly continue to be the case until routine earthquake prediction is placed on a solid scientific foundation, and the prediction procedure becomes somewhat analogous to that of systematic weather forecasting. But this ideal situation is far from being realized, and scientists in every part of the world acknowledge that earthquake prediction is still in a research phase. It is significant that no country claims as yet to have a successful and routinely operative earthquake-prediction program.