

From: "Alan Jones" <AlanJones@stny.rr.com> | This is Spam | Add to Address Book
To: zhonghao_shou@yahoo.com
CC: "Darrell Harrington" <dharrington009@earthlink.net>
Subject: Re: Your paper on earthquake predictions
Date: Sat, 1 Feb 2003 09:00:09 -0500

Zhonghao,

Thank you for your note and the one from Darrell Harrington,

----- Original Message -----

Thank you very much for your admiring our paper, & willingness to offer us your assistance, which is very important for us. I have a few questions. First, do you mean that you need us to mail you all copies of the predictions in the two tables? If so, please tell me your address. Second, I agree with you that 'If you want your predictions to extend slightly outside of the window, then you must make the window(s) larger.' A question is how much error your earthquake database has. Third, you mentioned, "the 1st prediction of Table I was clearly an aftershock of the January 1994 Northridge earthquake." Could you please tell me your definition of aftershock? Anyway, if not bother you much, I would like to ask you introduce your probability calculation.

I have talked to Sue Hough about the recording of your predictions with the USGS office in Pasadena. Therefore, it is not necessary to send them. I accept the fact that the predictions were recorded by the USGS before the time window began.

You asked about the error in my database. The database I use starts with the USGS CD-ROM published in 1992. Since then it is updated from data sources on the Internet. In location and time it is very accurate. In magnitude, of course there is some error. [I notice that you take a the average magnitude](#) when more than one magnitude is presented. I take a different approach: [I take the largest magnitude](#). This will help your predictions which are on the boundary. Of course, any error goes both ways. On events that are close to the edge of your prediction, sometimes a prediction will be verified that another database will conclude is not a hit. And sometimes you will lose a hit. On the whole this should average out over a large number of predictions.

[My definition of a an aftershock is an event within the region of aftershocks of a main event](#). This is a good question since I might compute a larger probability for your prediction based on the likelihood of an aftershock and then find there are no aftershocks but there is another event in your space window. In this case, you are being penalized by having a larger probability used. One way to solve this is to throw out all of your events which are clearly aftershocks and not use the aftershock probability. Your very first prediction 940213 is clearly an aftershock of the Northridge earthquake. However, your other Southern California events do not seem to be.

I am attaching a paper that I wrote with my brother, but never submitted for publication, in 1996. It explains our method of evaluating earthquake predictions.

Alan Jones

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To: "Darrell Harrington" <dharrington009@earthlink.net>
CC: "Zhonghao Shou" <zhonghao_shou@yahoo.com>
Subject: Re: Your paper on earthquake predictions
Date: Sat, 1 Feb 2003 09:05:40 -0500

Darrell,

Thank you for your note. I am copying Zhonghao on this response and also copied you on my response to him.

----- Original Message -----

Thank you very much for your interest in Mr. Shou's predictions and your offer to help with the analysis. We welcome the opportunity to obtain a sophisticated independent analysis of the prediction record. For each of the predictions in our paper, and future predictions if you are interested, we can provide you with a clear statement containing the location range, the magnitude range, and the time range. Each statement has been signed and dated by the USGS office in Pasadena prior to the opening of the prediction window. I believe the office has also kept copies on file. Would you like us to mail or fax the statements to you?

As I said to Mr. Shou, that will not be necessary. However, I would like e-mail about any future predictions.

I have a quick question about your probability calculations. Since you use two separate methods to calculate the probability: one for events classified as "independent", and one for events classified as "aftershock", I presume you have some strict rules that specify the size of the time, location, and magnitude windows in which earthquakes are considered aftershocks. When evaluating the probability of an independent event, consider the case when there is a main shock in the historical database whose aftershock location and magnitude windows lie within the prediction location and magnitude windows. Am I correct in thinking that it is appropriate to remove the corresponding aftershock time window and all the earthquakes in it from the historical record? It seems to me that if one does not remove these, the probability for independent events is overestimated, just as the probability for aftershocks was underestimated in our use of the historical database. A follow-up question is: what should one do when there is partial overlap between a historical set of aftershocks and the prediction windows?

Because I compute the number of periods with at least one earthquake with the number of periods, the clustering caused by aftershocks is not much of a problem. After a main shock, there may be many aftershocks but they will only account for a "hit" in the next few periods.

Alan Jones

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