

Experiment in advance short-term earthquake prediction Issue 4, November 16, 2004

Dear colleague,

As you know, on June 21, 2003 our team started an experiment in advance short-term prediction of strong earthquakes, with characteristic lead time months, using the prediction algorithm *Reverse Tracing of Precursors* (“RTP”). Our goal is to test this algorithm. Currently we consider prediction in the four regions shown in fig. 1.

New alarm. Here we communicate a new alarm. An earthquake with magnitude $M \geq 6.4$ (as reported in the ANSS composite catalog) is predicted to occur in the area shown in fig. 2 within the time interval 9 months, from November 14, 2004, to August 14, 2005 inclusive.

Estimated probability that a target earthquake will occur at random in the time-area of alarm is less than 5%. Estimated probability of a false alarm does not exceed 50%.

On previous alarm in overlapping area. Fig. 3 compares the current alarm with the previous (false) alarm that covered an overlapping area; it was communicated in Issues 1 and 2.

Reminder. As you know, earthquake predictions should be released to the public or media only by a proper disaster management authority. Otherwise, prediction may trigger profiteering and disruptive anxiety of population. Accordingly, we send our predictions only to professionals who agreed to comply with the above limitation.

As always, we will very much appreciate your comments and suggestions and will be glad to help in independent applications of the *RTP* algorithm.

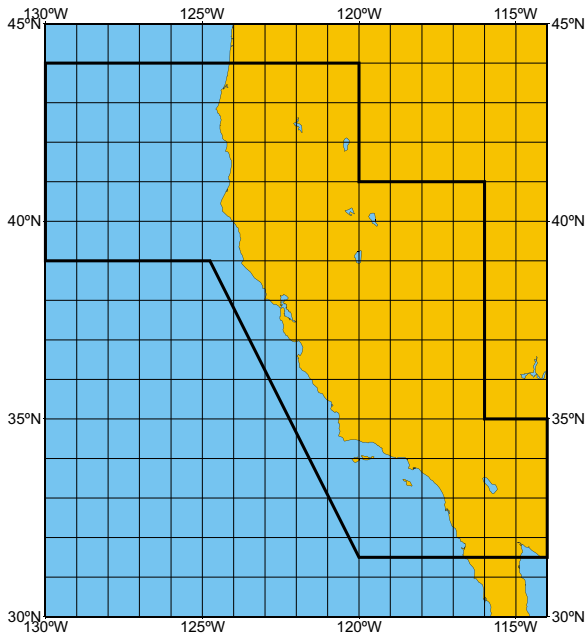
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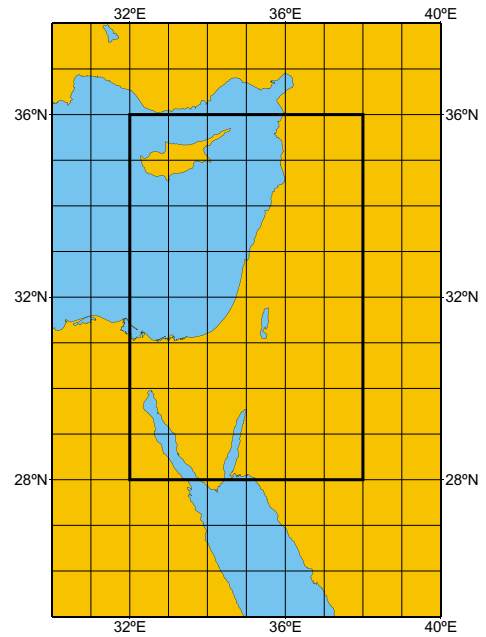
References:

1. **V. Keilis-Borok, P. Shebalin, A. Gabrielov, D. Turcotte**, Reverse Detection of Short-Term Earthquake Precursors, *Physics of The Earth and Planetary Interiors*, 145(1-4), pp.75-85, 2004, doi: [10.1016/j.pepi.2004.02.010](https://doi.org/10.1016/j.pepi.2004.02.010), <http://arxiv.org/abs/physics/0312088>
2. **Shebalin, P., Keilis-Borok, V., Zaliapin, I., Uyeda, S., Nagao, T., and Tsybin, N.**, Advance short-term prediction of the large Tokachi-oki earthquake, September 25, 2003, M=8.1 A case history, *Earth Planets Space*, **56**, 715-724, 2004. <http://www.terrapub.co.jp/journals/EPS/pdf/2004/5608/56080715.pdf>.

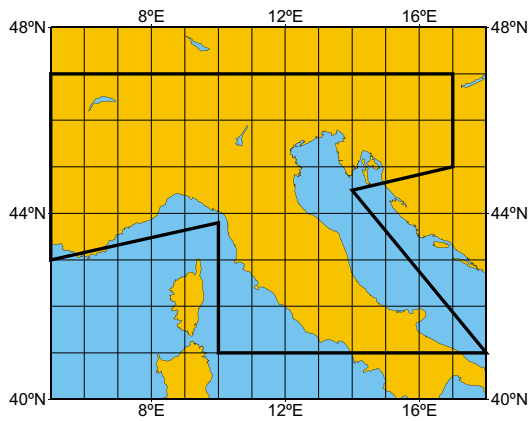
California and Western Nevada



Eastern Mediterranean



*Central Apennines, Alps,
Northern Dinarides and Po Valley*



*Honsu, Hokkaido,
Southern Kurils*

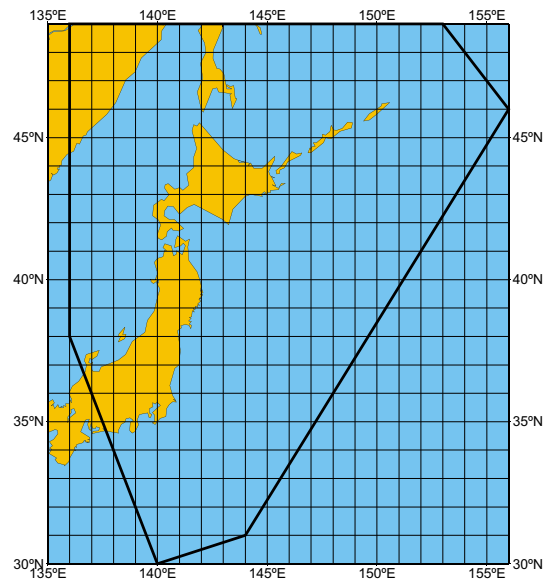
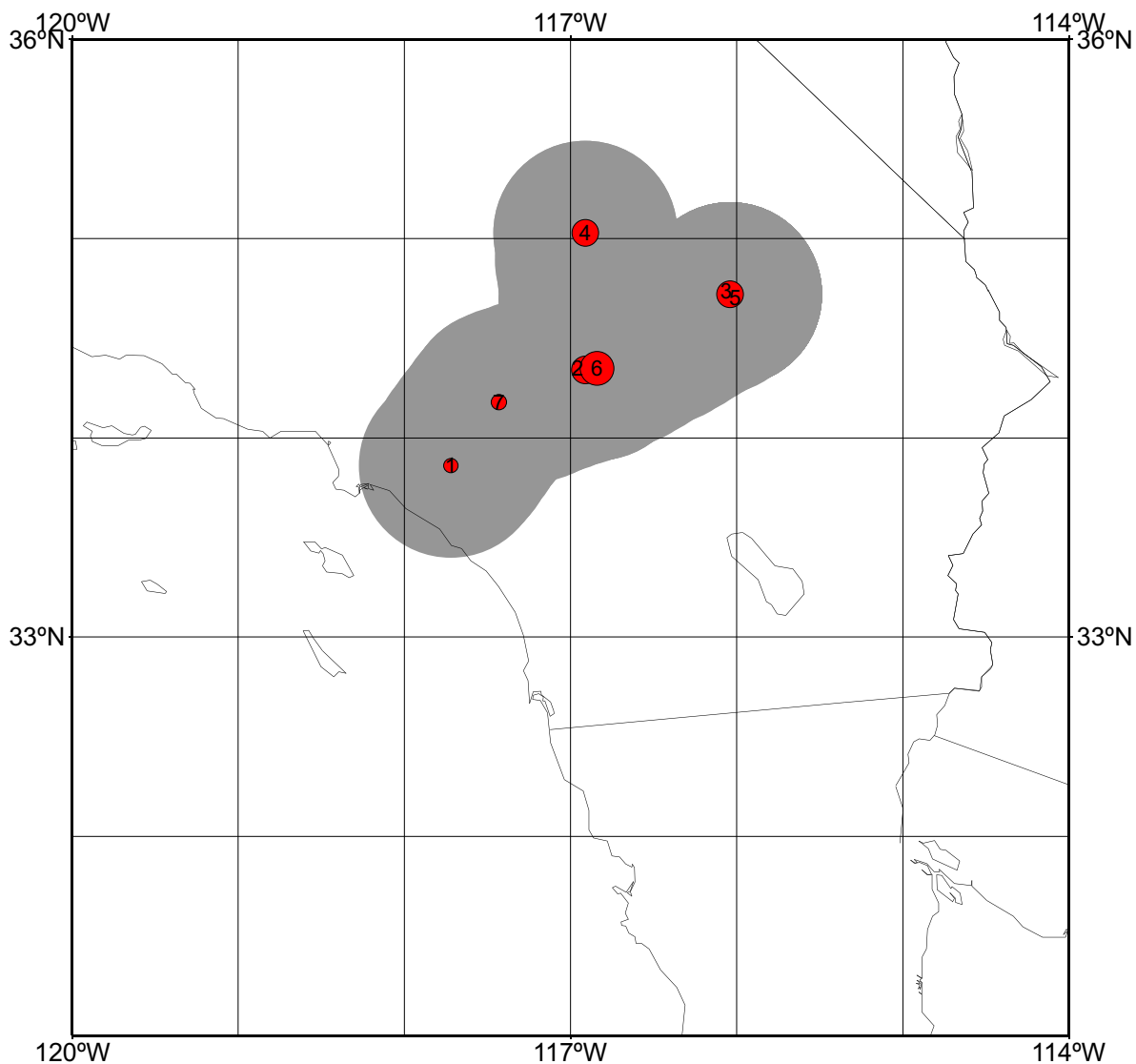


Fig. 1. Regions covered by prediction.
Experiment in advance short-term prediction, Issue 4
Page 2 of 4

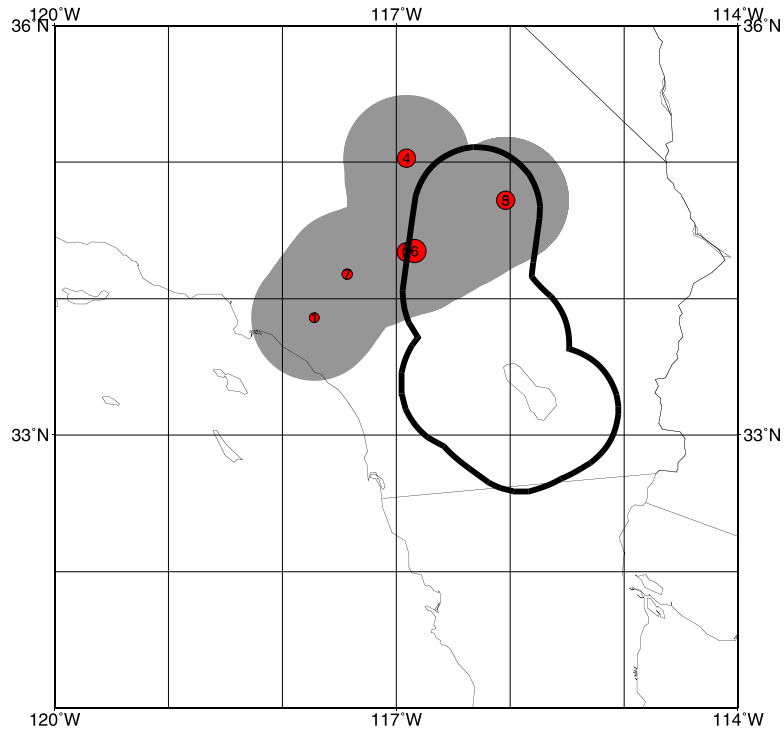


Earthquakes forming the precursory chain (#, date, M, epicenter)

01	2004.10.25	2.9	33.86	-117.72	05	2004.11.11	3.7	34.72	-116.04
02	2004.10.27	3.8	34.34	-116.91	06	2004.11.13	4.2	34.35	-116.84
03	2004.11.01	3.2	34.72	-116.04	07	2004.11.14	3.0	34.18	-117.43
04	2004.11.09	3.6	35.03	-116.91					

November 14, 2004: *Precursory chain* of earthquakes was formed (red circles). It predicts that an earthquake with magnitude 6.4 or more will occur in gray area by August 14, 2005.

Fig. 2. Current alarm.



grey - current alarm (see fig. 2)

black contour - previous alarm lasting from December 5, 2003 to September 5, 2004; that alarm happened to be false.

Fig. 3. Areas of two alarms.
Experiment in advance short-term prediction, Issue 4
Page 4 of 4