ALGORITHMS FOR EARTHQUAKE PREDICTION

DR. M. AHSAN MUBARAK (S.I), ZEESHAN JILANI, MUHAMMAD AWAIS, MUHAMMAD SHAHID RIAZ, NABEEL AHMAD, FARHAN JAVED, HAFIZ IRFAN, MEHMOOD SULTAN, AFTAB ALAM

Centre for Earthquake Studies
National Centre for Physics, Shahdra Road,
Qauid-i-Azam University Campus, Islamabad.

ABSTRACT: The region with longitude 60^o to 90^o E and latitude 20^o to 45^o N is selected for study. It constitutes Pakistan, India, Iran, Afghanistan, Tajikistan and China. Data from National Earthquake Information Centre (NEIC) of the United States of America Geological Survey (USGS) is found reliable. The data used from January 01, 1964 to July 01, 2008 with magnitude completeness of $M \geq 4.0$. Current study is carried out in two stages: first catalogue analysis and second application of algorithm for prediction. Catalogue analysis is made on two time intervals; from January 01, 1964 to January 01, 2008 and January 01, 1964 to July 01, 2008. M8S (Romashkova et al, 2002) algorithm which is modified version of M8 (Kossobokov & Kellis Borok, 1990) algorithm is used for prediction with target magnitude M = 7.0; subject to updated every six months. Secondly M8S is run on January 01, 2008 and July 01, 2008. Results find in the first run raise the alarm for the area roughly lying between the latitude (40.20^o -- 44.50^o)E and longitude (79.65^o -- 85.69^o)E for next five year. An earthquake occurred on July 20, 2007 lies in the alarm area with magnitude 5.6 could be foreshock which shows the validation of results. But alarm is declared False Alarm, because no earthquake with magnitude 7.0 occurred. For second run of M8S the Xinjiang_Xizang earthquake occurred on March 20, 2008 with magnitude M = 7.2. This event does not lie in the alarm area so consider as Failure to Predict.