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# A Note On Micro-Tremor Activity in Jubilee Hills Area of Hyderabad During 1994 and 1995

**The micro-seismic activity experienced in the Jubilee Hills area of the Hyderabad city, A.P. in recent years is attributable to the residual stresses that are generated due to the northward movement of the Indian Plate coupled possibly with skin effects.**

The posh locality of Jubilee Hills in twin cities of Hyderabad and Secunderabad experienced micro-tremor activity in the month of October, 1994, which had created a near panicky situation in the locality. The largest magnitude tremor recorded from this region, was (MS) 2.0 on 10th October, 1994, felt in an area of about 30 sq. kilometers and accompanied by a loud sound. Fig. 1 shows the felt area for this tremor. Following this tremor a number of micro-tremors were felt and the activity continued up to 31st October, 1994. This aftershock activity was monitored with the help of a temporary network of three stations. A total of 400 micro-tremors were recorded by the temporary network during 17 - 31 Oct. 94, of which only 35 tremors were recorded by all the three stations and were located using the HYPO-71 program. Fig. 2 shows the location of the stations and the epicenters. The epicenters are

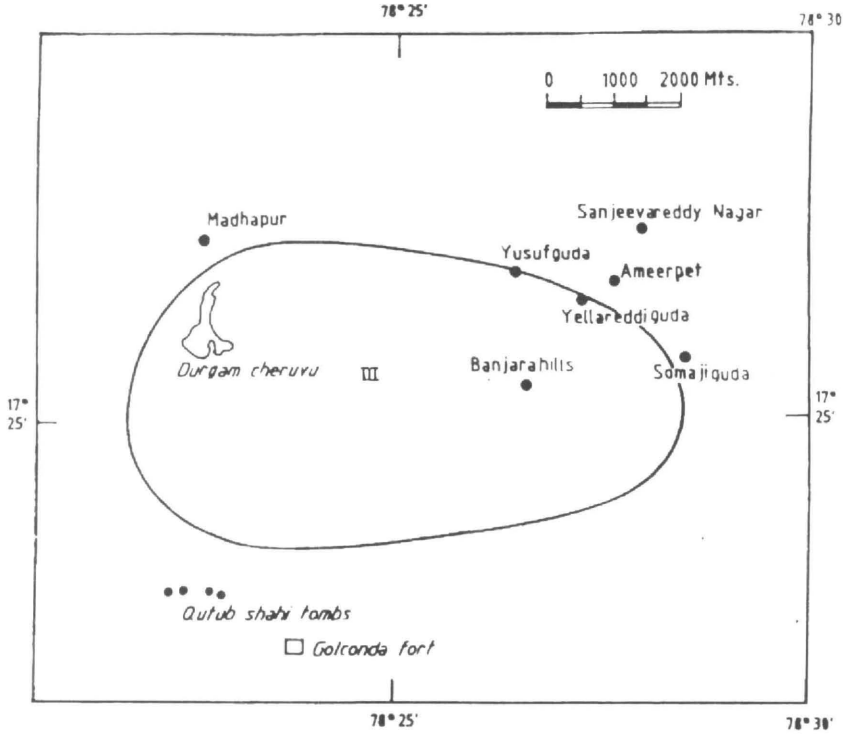


**Fig.1.** Isoseismal map for October 10, 1994 tremor in Jubilee Hills area, Hyderabad.

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aligned in NW-SE direction and the depths of the tremors were of order of 500 metres. Curiously, this area had experienced similar activity during October, 1995. The revival of activity after a gap of one year created panic among the local population in light of experience in Latur area. All the tremors were accompanied by sound while few tremors were felt in a very localised area of radius of about half a kilometer. The largest magnitude recorded, during the October 1995 sequence, was 1.2 on 19.10.95 and the activity continued for about two weeks.

Micro-tremor activity is recorded in many parts of Indian Peninsula. The twin cities of Hyderabad and Secunderabad had experienced seismic activity in the past also (Ramakrishna Rao, 1989). Only one earthquake, during October 1876, with some description

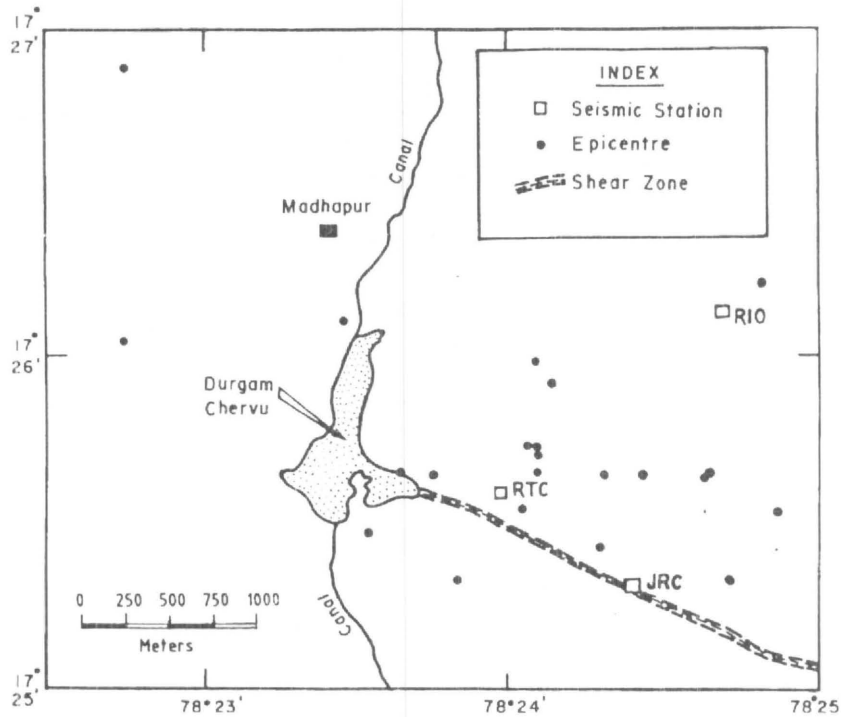


**Fig.2.** Location of epicentres from 17-10-94 to 31-10-94 in Jubilee Hills area of Hyderabad, A.P.

of left reports was listed in catalogues for pre-instrumental period. In recent years i.e. on 14.1.1982 a tremor of magnitude (Ms) 3.5 was recorded from Osman Sagar (Gundipet) region, the suburban region of the twin cities. This tremor was followed by a number of tremors and the activity continued for about 2 months. This activity is also associated with sounds and shaking in localised area (Rastogi *et al.* 1986). The HYB Seismological Observatory, located in the campus of National Geophysical Research Institute, Hyderabad had recorded largest magnitude (Ms=4.0)earthquake on 30.6.1983 close to twin cities (near Medchal, north of twin cities). This tremor was felt in an area of about 50 km radius, caused cracks in some buildings and boulders were displaced near the epicentral area (Rastogi and Chadha, 1985).

**Conclusions:** The epicenters of the aftershocks in Jubilee Hills area are aligned in NW-SE direction and the activity is confined to an area of half a kilometre radius and the depths are of the order of few hundred meters (approx. 500m). This activity may be explained as due to residual stresses that are generated due to the northward movement of the Indian plate and/or skin effects. We are communicating this note for the purpose of updating the records.

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