JAMAICA EARTHQUAKES 1973 TO 1994: TRENDS AND FORECASTS

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ABSTRACT

Local earthquake phase arrivals recorded by the Jamaica Telemetered Network of Seismograph Stations are considered in this work. Spanning a twenty two year period, 1973 to 1994, these represent the available instrumental seismological data-base for the island. No comprehensive report on these data has been previously published.

The Network used vertical component, one-hertz, Mark Products L4C seismometers and electronics which yielded gains of the order of forty to sixty decibels. The data up to 1989 were recorded on analogue pen and paper drum-writers or magnetic tape. In February 1990, the Soufriere System was implemented and used for digital real-time recording and off-line processing of the data to determine hypocentres. Even earlier data were re-processed using the Soufriere System: 1977-1985 by the Seismic Research Unit, pre-1977 and 1985-90 by the Earthquake Unit.

With this uniform database, though rife with gaps caused by networks ups and downs, an analysis of Jamaican seismicity was attempted. B-values were computed and a first try at delineating broad source zones for the island was postulated. With regard to numbers and intensities of felt earthquakes, the data were compared to similar time periods from the non-instrumental/historic database, and an attenuation relationship was produced. Both the instrumental and historic data sets were used to make a forecast of significant damaging earthquakes in Jamaica's future.